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*Mirroring in sports: to what extent does the
activation of mirror neurons elicit the dynamics
of emotional identification, and how can this
engagement be strategically employed in
neuromarketing?*

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*The best and most beautiful things in the world cannot be seen or even
touched — they must be felt with the heart*

Helen Keller

Abstract

This thesis explores the mirroring effect in sports, focusing on the psychological processes that drive spectator engagement. Specifically, the research addresses the question: “Mirroring in sports: to what extent does the activation of mirror neurons elicit the dynamics of emotional identification, and how can this engagement be strategically employed in neuromarketing?”. The core focus is to investigate how multi-sensory sports content triggers mirroring mechanisms in both fans and non-fans, translating neural activation into measurable emotional identification.

Understanding the role of the mirror neuron system is crucial because it provides the biological explanation for empathy and resonance, allowing viewers to subconsciously internalize and replicate the emotions displayed on screen.

The study was conducted using an explanatory sequential mixed-methods design, comprising an initial quantitative phase based on a sample of 120 participants, followed by a qualitative phase characterized by two focus groups. Data were collected through a structured questionnaire where respondents were exposed to a curated selection of six videos relating to the Italian women’s and men’s national football teams, followed by statistical analyses. These analytical tools were implemented to measure how individual variables, such as baseline trait empathy, gender, and general sports interest, modulated the participants' emotional responses. The empirical findings reveal that sports stimuli successfully trigger high levels of emotional identification through the activation of mirroring mechanisms. However, this resonance is heavily dependent on individual baseline traits: highly empathetic individuals and committed sports fans demonstrated significantly stronger emotional engagement.

The findings are highly significant as they provide actionable operative frameworks for strategic branding in the sports industry. Instead of relying on generic, costly mass-marketing, sports marketers can leverage these insights to design highly tailored, persuasive neuromarketing campaigns that align with the viewer's neural mechanisms.

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INTRODUCTION

The discovery of mirror neurons represents an enormous breakthrough in cognitive neuroscience, fundamentally changing our understanding of how humans connect and interact. These specialized brain cells activate both when an individual performs a specific physical action and when they simply observe someone else doing the same thing. This major scientific discovery led to the identification of the “mirroring effect”, the brain's automatic ability to internally simulate and replicate the movements, intentions, and behaviours of others.

While the mirroring effect is typically studied within everyday social psychology to explain empathy and how people fit into groups, it can also be directly associated with the world of sports. In a fast-paced, competitive athletic environment, this neural mechanism takes on a completely new role, shifting from a basic social tool into a vital instrument for tactical anticipation and quick execution. How this mirroring process is activated and utilized within the sports arena is the core focus that will be thoroughly analysed in this thesis.

This research offers an innovative and original approach, introducing new insights into human behaviour when exposed to sports stimuli, while also exploring whether altering certain variables might lead to different results. Because a study structured in this specific configuration has not been conducted before, it naturally presents its own strengths and limitations. These boundaries are openly acknowledged, with the hope that future research on the topic will build upon these findings and overcome current limitations to further refine the field.

To investigate this intersection, this study utilizes a mixed-methods research design. By combining a quantitative method involving a questionnaire with a qualitative method structured through two different focus groups, this thesis delves deeper into the research topic to achieve a more thorough and comprehensive understanding of the respondents' perceptions.

The progression of the chapters is structured as follows:

The first chapter analyses the neuroscientific foundations and the mirroring effect. This chapter establishes the theoretical groundwork of the thesis. It explores the discovery of

mirror neurons, mapping the underlying neural mechanisms that allow the brain to process external actions. Furthermore, it provides a comprehensive definition of the mirroring effect and reviews the foundational scientific studies that validated this phenomenon.

Subsequently, chapter 2 focuses on the application to sports and the football model. This section introduces the mirroring effect to the athletic arena. It shifts the focus from social psychology to sports mechanisms, explaining why football is selected as the primary empirical model for this thesis. It details how the massive cultural, economic, and visual dominance of football in Italy makes it the ideal environment to study population-wide neural responses.

Chapter 3 introduces the framework of the empirical study, setting out the research questions, the research objectives, and the adopted methodology. By outlining the operational design of the mixed-methods approach, this chapter provides the essential foundation necessary for conducting and analysing the subsequent quantitative and qualitative stages. Specifically, it details the procedures, sampling, and distribution of the quantitative questionnaire, as well as the structural design of the focus groups, justifying why this integrated research framework is ideal for capturing both statistical data and behavioural insights.

The following chapter provides a detailed quantitative data analysis. Through various forms of statistical representation—including circular distribution charts, bar charts, pivot tables, and box plots—this fourth chapter visualises the empirical results obtained by cross-tabulating variables within the questionnaire.

To transition from statistical metrics to deeper human insights, chapter 5 details the qualitative dimension of this study. By examining the outcomes of two structured focus groups, this section explores the core patterns and the participant perspectives initially obtained through the chapter 4's quantitative analysis.

The final chapter synthesizes the entire study, making the conclusions concrete, actionable, and highly relevant. It outlines the mirroring insights and explains how can be strategically applied within the field of neuromarketing to optimize brand engagement and media impact.

The ultimate purpose of this study is to discover how the human mirroring effect is activated following exposure to short sports visual stimuli. By examining how viewers react to sports media, this research uncovers the sensations, emotions and mirroring responses of the participants. By understanding how specific sports visuals automatically trigger involvement in the viewers, strategic marketing campaigns can be adopted.

CHAPTER 1

Mirror neurons and mirroring

1.1.The mirror neuron system

1.1.1. Introduction to neuronal mechanisms

Structure of neurons

The human brain represents the most sophisticated computational network known, a dynamic system whose operational power stems not from its isolated components, but from its extraordinary capacity for interconnectedness. Inside the human cranium reside approximately 100 billion neurons. A neuron is the fundamental structural and functional unit of the nervous system. Specialized for electrical and chemical excitability, its primary purpose is to receive, process, and transmit information throughout the body. As shown in Figure 1, a standard neuron can be divided into three main structural sections: the cell body (soma), the dendrites and the axon (Anastasi et al., 2010).

The cell body is the metabolic core of the neuron. It houses the nucleus (which contains the cell's DNA) and essential organelles responsible for protein synthesis and cellular maintenance (Anastasi et al., 2010).

The dendrites are branch-like extensions that project outward from the cell body. They act as the “antennae” of the neuron, specifically designed to receive incoming chemical signals (neurotransmitters) from adjacent cells and convert them into electrical impulses. (Anastasi et al., 2010).

The axon is single, long, cable-like extension that propagates the electrical impulse (known as the action potential) away from the cell body toward the next target. Located at the very end of the axon, there are the synaptic terminals; these terminals form the entry point to the synapse. When the electrical signal reaches these terminals, it triggers the release of chemical neurotransmitters, bridging the gap to pass the message along to the next neuron's dendrites. The microscopic gap separating the synaptic terminals from

the dendrites of the next neuron is known as the synaptic cleft (or synaptic gap) (Anastasi et al., 2010).

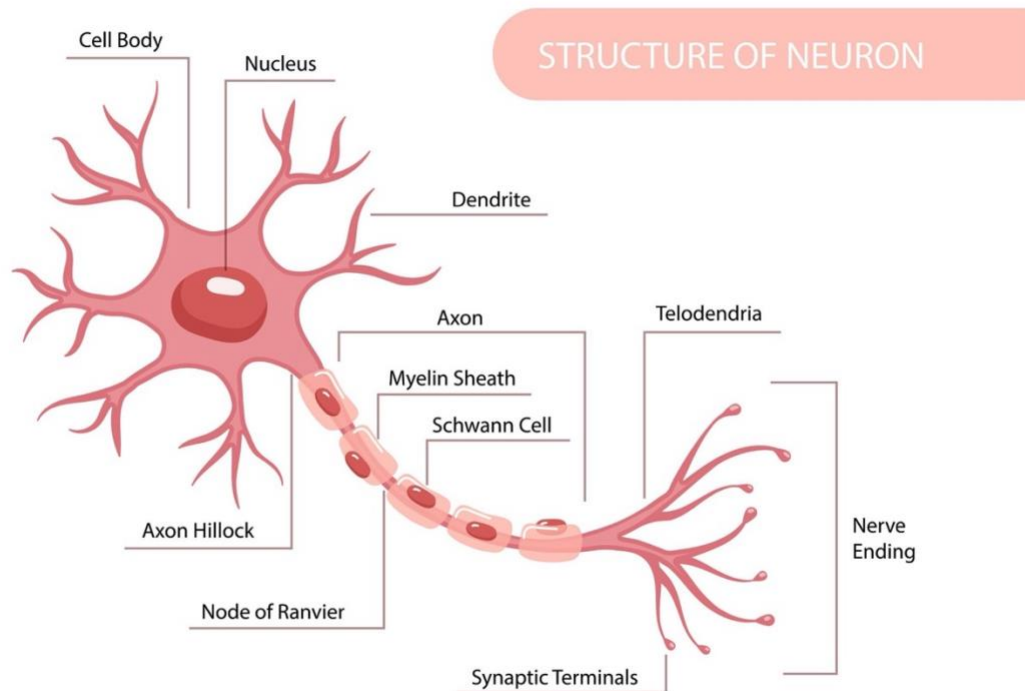


Figure 1. Anatomical structure of a standard neuron, A. Yaremenko. Source: <https://pin.it/6bCr2SBew>

A synapse is the specialized anatomical and functional junction that mediates communication between two neurons, serving as the core site for information transfer and neural integration within the nervous system. Rather than being a simple gap, the synapse is a tripartite cellular structure comprising the presynaptic axon terminal of the sending neuron, a sub-microscopic fluid space known as the synaptic cleft, and the postsynaptic dendritic membrane of the receiving cell. The process of information exchange, known as synaptic transmission, begins when an electrical action potential reaches the presynaptic terminal, triggering the release of chemical messengers (neurotransmitters) into the synaptic cleft. These molecules diffuse across the cleft and selectively bind to specialized receptors on the postsynaptic membrane, a molecular event that opens gated ion channels and converts the chemical signal back into a localized electrical impulse. This elegant transduction mechanism ensures that neural signals flow in a directed, regulated manner while providing the synaptic plasticity

necessary for memory consolidation, learning and cognitive adaptation (Anastasi et al., 2010).

Crucially, no single neuron operates standalone; each cell is anatomically and functionally structured to establish dynamic communication pathways with thousands, and occasionally tens of thousands, of other neurons. Through this immense cellular web, the total number of synaptic connections within a single adult brain reaches a vertiginous scale, estimated in the hundreds of trillions. This dense, intricate architectural matrix ensures that information is never processed linearly, but rather through highly parallel, distributed networks that constantly adapt to both internal and external stimuli (Anastasi et al., 2010).

However, for decades, classical neuroanatomy relied on a much more rigid and divided framework, often called the “silos” model of the brain. Under this traditional view, different brain regions worked in relative isolation from one another (Kandel et al., 2013). Sensory areas were responsible only for receiving data from the outside world, while motor areas simply executed physical commands. In this strict, step-by-step sequence, the neocortex—the brain's most evolved outer layer—acted as a top-down manager. It would first receive raw sensory data, use logical inference to figure out what was happening in the environment, and only then send a final command to the motor system to produce a movement.

Today, modern neuroimaging and electrophysiology have completely shattered this static view. Instead, they reveal a two-way feedback loop where perception and action are deeply connected (Fuster, 2004; Rizzolatti & Craighero, 2004).

To understand how this process unfolds, we must examine the human cerebral cortex and its structures that process these implicit networks.

The cerebral cortex

The human cerebral cortex consists of an outer mantle of grey matter with a remarkably small thickness—ranging from merely 2 to 4 millimetres. Despite its thin profile, this

layer houses millions of highly organized neurons. It is organized into three primary types of areas, each handling a specific stage of information processing (Anastasi et al., 2010):

- **Sensory cortices:** These areas act as the primary gateways for the outside world. They are exclusively tasked with receiving and decoding raw environmental data—such as visual inputs in the occipital lobe, auditory signals in the temporal lobe, or tactile sensations in the parietal lobe.
- **Motor cortices:** Positioned predominantly within the frontal lobe, these regions function as downstream execution platforms. Their unique role is to plan, control, and issue precise behavioural commands for voluntary physical movements.
- **Associative cortices:** Serving as the brain's ultimate integration hubs, these highly developed networks do not handle raw inputs or outputs. Instead, they collect multi-sensory data, memory, and cognitive context, linking different cortical lobes together and bridging the gap between external perception and internal reactions.

Beyond the superficial 2 to 4 millimetres of the cortical grey matter mantle, the human brain expands into the massive macroscopic architecture of five distinct lobes. Four of these regions are positioned on the lateral surface of the brain: the frontal, parietal, occipital, and temporal lobes. The fifth lobe, known as the lobe of the insula, is a flatter structure situated entirely deep within the lateral sulcus. Being substantially smaller than the external lobes and concealed beneath the overlapping folds of the frontal, parietal, and temporal cortices, it remains completely hidden from the outside. These geographic regions differ significantly in their relative volume and surface area, scaling down from the extensive anterior networks to the specialized posterior zones (Anastasi et al., 2010). Anatomically and functionally, the hallmark of the cerebral cortex is its strict subdivision into localized areas, where each region holds one or more specific roles within a given function (Anastasi et al., 2010; Blinkov & Glezer, 1968; Semendeferi et al., 2002):

- The frontal lobe: Constituting the largest territory of the cerebral cortex (occupying roughly 34% to 41% of the total cortical surface), it contains a vast motor sector dedicated to planning and commanding voluntary movement.
- The temporal lobe: Covering approximately 22% of the total cortical mantle along the lateral-inferior aspect of each hemisphere, it features neurons specifically tuned to auditory inputs and sounds.
- The parietal lobe: Representing roughly 19% of the cerebral cortex as its third-largest structural component; it contains neural populations responding directly to tactile and somatosensory stimuli.
- The occipital lobe: Comprising approximately 18% of the total tissue, this lobe houses specialized areas where neurons decode and process visual data.
- The lobe of the insula: Is densely populated with networks driving primal emotions and intrinsic motivations. In particular, the anterior part is closely linked to the limbic system (amygdala) and is responsible for emotional empathy, disgust and the encoding of the body's internal states.

Through rigorous scientific investigation, modern neurobiology has reached the proven conclusion that every mental and cognitive function depends entirely on these specific areas of the brain. However, these localized zones do not operate as isolated, independent entities. Modern empirical research, combining animal models and advanced neuroimaging, has permanently dismantled classical mind-brain dualism and the traditional view of isolated brain compartments (Fogassi & Rollo, 2016). Instead, it reveals that the brain operates entirely through systemic cooperation, proving that mental functions are biological properties sustained by multiple specialized areas working together. By seamlessly blending physical anatomical pathways with the real-time, synchronized activation of distant regions, this interconnected network provides the massive parallel processing required to translate even our most seemingly simple, everyday experiences into a unified reality.

For example, when we walk in a public space like a park, our senses do not deliver isolated pieces of data; instead, they flood the brain with information simultaneously. We see the greenery, feel the path beneath our feet, hear, smell and feel the environment around us. The brain processes these diverse streams in parallel, giving rise to polysensoriality—a global, unified perception of our surroundings. Instantly, this sensory map is tied to emotional states, allowing us to enjoy the beauty of nature or feel physically and mentally refreshed by the walk. Furthermore, whenever we execute a physical action during this walk, our motor commands instantly receive feedback from our sensory systems, creating a continuous loop of mutual influence. This fluid cooperation is made possible because cortical areas are physically interconnected by thousands of nerve fibres. In a modern neuroscientific framework, all cognitive and mental functions are emerging properties of networks where action and perception constantly shape one another (Bressler & Menon, 2010; Fuster, 2004).

The limbic system

Moving inward from the specialized sheets of the cerebral cortex toward the deeper, subcortical regions of the brain, we encounter the limbic system. Phylogenetically one of the oldest structural networks in the human brain, the limbic system consists of a highly interconnected group of structures that serve as the primary command centre for regulating emotions, motivations, and survival-oriented behaviours (Kandel et al., 2013)

Anatomically, the limbic system is situated deep within the forebrain, forming a complex subcortical ring arrangement surrounding the brainstem. Historically introduced by Paul Broca in the 19th century, the term “limbic” originates from the Latin word *limbus*, which translates literally to “border” (Anastasi et al., 2010). This etymology precisely describes the system’s neuroanatomical location: it sits directly on the borderland above the primitive brainstem and underneath the highly evolved neocortex. Because it bridges the gap between raw physical sensations and higher-level cognitive thoughts, processing everything from memory to autonomic responses, the limbic system is widely recognized in neurobiology as the body’s emotional nervous system (LeDoux, 2000).

Rather than operating as a passive receiver of data, the limbic system works dynamically with cortical regions to manage how an individual interprets and reacts to environmental stimuli. From a functional perspective, the neuroanatomical literature (Anastasi et al., 2010; Kandel et al., 2013) outlines that the primary portfolio of the limbic system focuses on managing and regulating:

- Emotional affect and expression: Governing how an individual internally feels and externally responds to specific environmental situations or sensory stimuli.
- Behavioural drives and motivations: Guiding survival-oriented actions and basic biological behaviours.
- Memory integration: Processing and sorting experiences to convert short-term events into long-term learning via hippocampal pathways.
- Visceral and homeostatic regulation: Modulating responses related to hunger, thirst, pain and pleasure.
- Autonomic nervous system control: Co-regulating vital bodily functions such as heart rate, blood pressure, and core body temperature.

The four main components of the limbic network

To execute these diverse tasks, the limbic system relies on the continuous cooperation of four main interconnected structures, each holding a distinct functional profile (Anastasi et al., 2010, Kandel et al., 2013):

1. The thalamus

The thalamus functions as the brain's central relay station and sensory gatekeeper. It receives and processes incoming sensory information from nearly all the major senses—including hearing, taste, sight, and touch—and routes it to the appropriate areas of the cerebral cortex. Beyond raw sensory relay, the thalamus actively participates in memory consolidation, executive planning, and the initial shading of emotional responses.

2. The hypothalamus

Positioned directly below the thalamus, the hypothalamus is the ultimate manager of the body's internal equilibrium (homeostasis). It serves as a major endocrine hub, producing critical hormones and regulating the sleep-wake cycle. The hypothalamus directly manages mood, hunger, thirst, and sexual arousal, while simultaneously commanding the autonomic nervous system to adjust blood pressure, body temperature, and heart rate based on emotional or environmental demands.

3. The amygdala

The amygdala is a subcortical nuclear complex that plays a vital role in how we experience, decode, and express intense feelings, particularly anxiety, anger, and fear (LeDoux, 2000). It is heavily involved in emotional memory and social interpretation, allowing individuals to read and analyse behavioural cues, facial expressions, and intentions in others.

4. The hippocampus

The hippocampal formation is the primary organ responsible for neuroplasticity and the creation of new declarative memories. It takes temporary, fluid sensory experiences from the environment and structurally reorganizes them into permanent, long-term memories.

A noteworthy fact that deserves attention is that historically, classical neurology assumed the amygdala was a primary organ for memory storage. Modern neuroscience has corrected this view, proving that long-term declarative memory consolidation is strictly the responsibility of the hippocampal formation. Instead of operating in isolation, the amygdala and hippocampus work together as an intertwined cooperative and interconnected axis that translates external perception into lasting internal experience (Phelps, 2004). Structurally, when an individual experiences or witnesses an emotionally charged event, the amygdala fires first to instantly evaluate the stimulus. If it detects high emotional relevance—such as fear, trauma, or intense excitement—it triggers an immediate physical survival response through its autonomic connections. Simultaneously, the amygdala sends strong neurochemical signals to the hippocampus. This direct input alters hippocampal synaptic plasticity, essentially ordering it to encode

the contextual, spatial, and temporal details of that specific event with maximum priority (Phelps, 2004).

This coordinated system explains why emotionally valenced visual data is preserved with stark, vivid clarity over time, while neutral events quickly fade from our long-term memory storage.

Crucially, the comprehensive overview of the brain's structural topography, functional specialization, and subcortical pathways detailed up to this point serves a precise academic purpose: it provides the foundational framework required to fully comprehend the architecture and operational dynamics of the Mirror Neuron System (MNS).

Without this macro-anatomical roadmap, the behaviour of these specialized cells would appear as an isolated cellular anomaly. In reality, the mirror mechanism does not operate in isolation; its capacity to map external observations onto an internal simulation relies entirely on the continuous cross-talk between the specialized cortices, the somatosensory sheets, and the emotional limbic networks mapped above. (Carr et al., 2003; Rizzolatti & Craighero, 2004). Therefore, having established the physical and functional arena in which these processes occur, the groundwork is now perfectly laid to transition to the cellular level and examine the mechanics, discovery, and evolutionary significance of mirror neurons.

1.1.2 Mirror neurons

One of the most revolutionary milestones in modern neuroscience is the discovery of specialized neurons called mirror neurons. In the early 1990s, a research team led by Giacomo Rizzolatti—alongside colleagues Vittorio Gallese, Leonardo Fogassi, and Luciano Fadiga at the University of Parma—stumbled upon a class of cells that would fundamentally rewrite our understanding of brain computation (Gallese et al., 1996; Rizzolatti et al., 1996).

This discovery took place within the frontal lobe—specifically in Area F5 of the macaque monkey's (*Macaca nemestrina*) ventral premotor cortex. Before these

experiments, classical neurology treated this region as a downstream execution platform: a strict “motor output” zone responsible solely for coding the physical mechanics of hand and mouth movements.

Using single-cell extracellular recording to track individual neurons, the researchers were mapping how specific cells fired when the monkey performed goal-directed actions, such as reaching for, grasping, or manipulating a piece of food. The breakthrough, however, was entirely serendipitous.

During a routine break in the laboratory, a researcher picked up a piece of food. To the team's astonishment, the microelectrodes registered an intense burst of electrical activity in the monkey's Area F5 neurons. Crucially:

The monkey was sitting completely motionless, making absolutely no physical movement. It was merely observing the goal-directed action being executed by the human experimenter. Subsequently, rigorous testing confirmed that these identical neurons fired under two completely different conditions:

During action execution: When the monkey actively reached out to grasp the object.

During action observation: When the monkey remained still but watched another individual perform the exact same grasp.

Because these cortical cells looked at an external action and literally “mirrored” it within the brain's internal motor architecture, the team coined the term mirror neurons (Gallese et al., 1996; Rizzolatti et al., 1996). A groundbreaking and extraordinary discovery was just made.

Another significance of Rizzolatti and his colleagues’ study lies in how it collapsed the classic, rigid separation between perception and action. Area F5 neurons did not just react to arbitrary visual motion—they remained silent if the researcher waved their hand aimlessly or used a mechanical tool to grab the food. The cells only fired when the observed movement possessed a clear, biological teleological goal (an intention).

This biological specificity proves that the mirror neuron system is not a passive cinematic screen; it is an active translator. By utilizing the very same frontal lobe networks that plan our own behaviour to decode the behaviour of others, the human brain is hardwired for immediate, unmediated social comprehension. This cellular mechanism provides the missing link that ties the specialized visual cortices to the deep, emotional subcortical networks discussed previously, turning an observed sight into an internally felt reality (Rizzolatti et al., 1996).

To fully comprehend the functional architecture of this region, it is necessary to examine how Area F5 codes motor actions. Neurons in this area do not code for individual muscle contractions; instead, they store a veritable “motor vocabulary” centred on the ultimate goal of an action, heavily categorized by the type of manual grasping required: the precision grip and the power grip (whole-hand prehension). The former involves the fine opposition of the fingertips (thumb and index) to seize small objects, requiring millimetric spatial tuning. The latter involves wrapping the entire hand and palm around larger objects, prioritizing mechanical stability (Rizzolatti et al., 1988).

Within this motor vocabulary, Area F5 hosts two distinct yet complementary populations of cells: canonical neurons and mirror neurons.

Canonical neurons constitute a major population within Area F5 and are responsible for our interaction with inanimate objects. Classified as visuomotor neurons, they fire in two distinct situations: when the individual executes a specific type of grasp (e.g., reaching out and picking up an object), and when the individual merely looks at an object, while remaining completely still, and without any other individual present in the room. Canonical neurons are strictly selective for the physical properties (shape, size, and orientation) of an object and the specific grip it demands: A canonical neuron coded for a precision grip will fire intensely both during the motor execution of a fine finger opposition and upon the visual appraisal of an object whose geometry affords this specific grip—such as a small sphere, a grape, or a coffee cup handle. If a large cylinder is presented instead, that specific neuron remains completely silent (Murata et al., 1997). Conversely, a canonical neuron coded for a power grip will only activate upon

seeing or interacting with voluminous objects that naturally invite a full-hand interaction, such a heavy cylinder, a book or a large vase.

This phenomenon provides the biological foundation for what cognitive psychology terms affordance—the action-guaranteeing invitations offered by an object's design; the brain automatically simulates the appropriate grip before any physical movement begins.

In contrast, mirror neurons form an action-driven, social network. They remain silent when observing a static object, firing instead during both action execution and the observation of that same action performed by another individual. Like canonical cells, mirror neurons exhibit high selectivity for the kinematics of the gesture: a precision-grip mirror neuron resonates intensely when watching an experimenter pick up a seed with two fingers, but drops its firing rate if the same action is performed using a mechanical tool like pliers, as the system strictly requires biological kinematics to decode meaning (Gallese et al., 1996; Rizzolatti et al., 1996).

Therefore, within the cellular matrix of the premotor cortex, canonical neurons translate the geometry of an object into a potential action for the self (“what can I do with this object?”), whereas mirror neurons translate the action of another into a potential action for the self (“what is he doing with that object?”). Both utilize the shared motor vocabulary of grasping to give immediate meaning to the surrounding world (Iacoboni, 2008).

Mirror neurons localization

To map with millimetre precision where mirror neurons are located in the human brain, modern neuroscience no longer speaks of single isolated cells, but instead describes two major macro-circuits (Iacoboni & Dapretto, 2006; Rizzolatti & Craighero, 2004).

This mapping is divided into the core circuit (the primary motor circuit, which handles physical actions) and the extended circuit (the limbic and cognitive network handling

emotions and sensations). This subdivision links perfectly with the entire anatomy of the lobes and the limbic system described in the previous pages.

The core circuit

This is the original core of the human mirror neuron system, responsible for understanding physical movements and goal-directed actions (grasping, manipulating, kicking). It is primarily located in two closely interconnected cortical areas (Rizzolatti & Craighero, 2004):

- The ventral premotor cortex (vPMC): Located in the frontal lobe. In humans, this area corresponds to the posterior part of the inferior frontal gyrus and largely coincides with Broca's Area (Brodmann areas 44 and 45). It is the human homologue of the monkey's Area F5 described by Rizzolatti. It activates to decode the meaning of the action (“why is that person grasping that object?”) (Iacoboni et al., 2005; Rizzolatti & Craighero, 2004).
- The inferior parietal lobule (IPL): Located in the parietal lobe (Brodmann areas 39 and 40). This area is responsible for mapping the kinematic aspects of movement, calculating the trajectory through space, hand shape, and physical interaction with objects (Iacoboni & Dapretto, 2006).

The extended circuit

Going beyond pure motor action, one of the most revolutionary discoveries in modern neurobiology is that mirror properties extend to subcortical and paralimbic areas managing deep sensations and emotional effect (Carr et al., 2003). It is within these networks that visual perception transforms into internal resonance:

- The somatosensory cortex (S1/S2): Located in the parietal lobe, the region houses the so-called “tactile mirror system”. These neurons activate not only during first-person tactile experiences, but also when observing another

individual receiving a caress or experiencing a physical impact, allowing the brain to simulate somatic sensations (Keysers et al., 2004).

- The anterior part of the lobe of the insula and the anterior cingulate cortex (ACC): This axis represents the neurofunctional core for the mirroring of primary empathy, disgust, and pain. Specifically, networks within the anterior insula activate both when experiencing an aversive gustatory stimulus and when observing another person's facial expression of disgust (Wicker et al., 2003). Conversely, the ACC specializes in reflecting the affective dimensions of pain, driving both personal distress and social empathy (Singer et al., 2004)
- The amygdala-hippocampus axis: As anticipated in the section on the limbic system, the mirror neurons located in these deep structures do not respond to the geometry of the movement, but rather to its emotional and mnemonic value. The amygdala instantly decodes the threat or social affinity hidden in another person's gaze, while the hippocampus links that simulation to the subject's autobiographical memories (Carr et al., 2003; Iacoboni, 2009).

These discoveries reveal that mirror system is not an isolated anatomical structure, but rather a functional network distributed across the cerebral architecture. The human brain utilizes the neocortex (frontal with the ventral premotor cortex and parietal with the inferior parietal lobule) to simulate the physical dynamics of what it sees, the somatosensory cortex (S1/S2) to simulate its tactile contact, and the limbic and paralimbic networks (specifically the insula, ACC for the paralimbic network, and the amygdala and hippocampus for the limbic network) to simulate its emotional impact (Carr et al., 2003; Iacoboni & Dapretto, 2006).

The evolutionary bridge

As we transition from non-human primates to the human brain, the MNS undergoes an expansive process of evolutionary abstracting. A fundamental difference between the species highlights this leap: macaque mirror neurons do not fire when observing a mimed action. If an experimenter moves their hand through the empty air pretending to

execute a whole-hand grasp without an actual object present, the monkey's neuron remains silent. This occurs because the macaque lacks a behavioural repertoire for abstract symbolism or simulated actions (Iacoboni, 2008).

In contrast, the human mirror neuron system is highly plastic and capable of sophisticated abstraction. It fires intensely even when an action is entirely mimed or performed. The human system seamlessly encodes both transitive motor acts (actions directed toward an object, like lifting a glass) and intransitive motor acts (symbolic or expressive gestures without an object, such as waving goodbye or tracing a shape in the air).

This capacity for abstraction led the computational neuroscientist Michael Arbib to propose his evolutionary model of human language acquisition, known as the mirror system hypothesis (Arbib, 2002, 2005). Arbib argues that the MNS served as the necessary bridge for the emergence of syntactic speech, postulating a sequential evolutionary trajectory where communication shifted from manual gestures to spoken language.

In humans, this evolutionary transition is cemented by a stark anatomical fact: Area F5 in the macaque is the direct phylogenetic homolog of Broca's area, the primary human engine for language production. Landmark neurofunctional experiments conducted by Giovanni Buccino and colleagues (Buccino et al., 2001) confirmed that when humans observe complex, nested motor actions (such as kicking a soccer ball, biting an item, or arranging physical objects logically), Broca's area lights up as part of an integrated visuo-motor resonance loop. This demonstrates that the neural substrates for understanding language and understanding physical actions share the exact same evolutionary root.

1.1.3. The mirroring effect and interpersonal relationships

Between neuroscience and psychology

The discovery of mirror neurons did not simply add a chapter to neuroanatomy; it redefined the boundaries of psychology, philosophy, and the social sciences (Gallese, 2001; Rizzolatti & Craighero, 2004). What began in the early 1990s as the study of motor control in macaques has transformed into the keystone for understanding the human relational mind (Rizzolatti et al., 1996). The mirroring effect is the biological proof that human beings are constitutionally hardwired for social connection.

Prior to the studies of Rizzolatti and his team, classical neuroscience viewed perception and action as two watertight compartments. The brain saw something (visual system), processed the information (cognitive system), and finally planned a response (motor system). In this rigid model, understanding others was a purely logical and deductive process: I saw someone make a gesture and, somehow, “reasoned” out their intentions.

Mirror neurons shattered this view, demonstrating the existence of an immediate resonance mechanism. (Rizzolatti & Craighero, 2004). When we observe an action, our brain does not simply register it visually; it simulates it internally by reactivating the exact same motor areas (vPMC and IPL) that we would use to execute it firsthand (Iacoboni & Dapretto, 2006; Rizzolatti et al., 1996).

We do not need to think to understand the other person: we understand them because our brain embodies their experience (Gallese, 2001). This discovery has bridged the gap between the self and the other, transforming observation into active biological participation.

The mirroring effect in everyday life

The mirroring effect is not an abstract laboratory concept; it is the invisible director of nearly all our daily interactions. It is the invisible glue that synchronizes human behaviours in ways we are rarely aware of.

The contagion of yawning and laughter: This is the most mundane yet powerful example. Seeing or hearing someone yawn immediately activates the corresponding motor circuits in our brainstem. The same applies to a genuine laugh: the extended mirror system captures the emotion and triggers the facial motor response before the rational mind can even analyse the reason. Rather than being intellectual choices, these behaviours are governed by immediate sensorimotor resonance. For example, in a landmark neuroimaging study, Warren et al. (2006) demonstrated via fMRI that listening to non-verbal emotional vocalizations—specifically laughing—triggers immediate, robust activation in the listener's premotor cortical regions, particularly within the ventral premotor cortex (vPMC). This auditory-to-motor loop proves that the brain prepares the facial musculature to replicate the laughter before the conscious mind can even appraise the social context.

The spectator's catharsis (cinema and sports): Why do we jump out of our seats when a soccer player takes a free kick, or feel a knot in our stomach during an action scene in a movie? A neuroimaging research conducted by Wright et al. (2011) demonstrated that elite soccer players exhibit significantly greater activation within the front-parietal mirror network compared to novices when observing sport-specific actions, such as anticipating the direction of a penalty kick. This heightened neural resonance allows athletes to decode subtle kinematic cues from an opponent's body alignment, enabling them to accurately simulate and predict the trajectory of the ball before physical contact is even made. Consequently, the mirror system acts not only as a mechanism for passive understanding, but as a predictive simulation engine deeply refined by specific motor expertise.

Unconscious social synchronization: When two people are in deep synchrony during a conversation, they tend to involuntarily mimic each other's postures, tone of voice, or speech rate. In interpersonal psychology, this mirroring effect manifests as a profound social glue through the spontaneous alignment of these non-verbal behaviours. This phenomenon was famously conceptualized as the “Chameleon effect” in a foundational study by Chartrand and Bargh (1999). Through a series of controlled behavioural experiments, they proved that individuals automatically and nonconsciously mimic the unique mannerisms, postures, and facial expressions of their interaction partners.

Crucially, their data revealed that this physical mimicry is highly adaptive: individuals who were subtly mirrored reported liking their interaction partner significantly more and rated the social interaction as smoother and more harmonious.

From a neurobiological standpoint, this unconscious synchronization acts as a continuous, low-level validation system. As the mutual front-parietal and limbic networks of two speakers fire in real-time synchrony, the brain recognizes a behavioural match. This reciprocal motor mirroring drastically lowers amygdala-driven defensive barriers, creating a comforting psychological sense of safety and mutual belonging within human groups. Ultimately, this bidirectional motor resonance functions as a powerful evolutionary mechanism designed to signal affiliation, break down relational barriers, and build deep interpersonal rapport (Chartrand & Bargh, 1999; Iacoboni, 2009).

These ubiquitous instances of daily mirroring demonstrate that human motor resonance is far from a passive byproduct of perception; it is a fundamental cognitive asset that deeply shapes our psychological and behavioural reality. By translating observed kinematics into an internal somatic vocabulary, the mirror neuron system provides the subconscious scaffolding for how we learn, adapt, and react to the physical actions of others. Within the field of behavioural and cognitive psychology, this mechanism yields its most profound, measurable, and strategic applications when examined in high-performance environments. Specifically, it is within the domain of sports psychology and athletic training that this pre-reflective resonance transitions from a simple social glue into a powerful predictive engine, fundamentally redefining how athletes anticipate opponents' moves, acquire elite motor skills, and mentally rehearse peak performance.

CHAPTER 2

Sport psychology

2.1. The mirroring effect in sports

2.1.1 From social resonance to athletic expertise

At its core, modern sports psychology explores how real-time cognitive processing dictates physical coordination and interactive play in competitive environments. More precisely, it is an interdisciplinary science that investigates the dynamic interaction between psychological variables, neural mechanisms, and motor performance (Moran & Toner, 2017). Rather than focusing solely on emotional regulation and motivation, the modern paradigm incorporates cognitive neuroscience to understand how the brain perceives, simulates, and anticipates actions under intense temporal and competitive pressure (Yarrow et al., 2009). It treats the athlete not just as a psychological agent, but as a sophisticated perceptual-cognitive system (Aglioti et al., 2008).

Within this scope, the discipline investigates the role of the mirror neuron system as a vital predictive engine that shapes an athlete's psychological adaptation on the football pitch.

Rather than limiting its scope to emotional regulation or motivation, modern sports psychology places a heavy emphasis on cognitive-perceptual expertise (Mann et al., 2007). This involves investigating how athletes process dense visual environments, manage attentional narrowing, and execute split-second decision-making.

Within this framework, the concept of action-perception coupling serves as a cornerstone (Davids et al., 2008). This psychological principle dictates that perception and action are not separate, sequential operations (i.e., seeing a stimulus, thinking about a response, and then moving), but are instead completely intertwined. In high-stakes athletic environments, where physical velocity outperforms conscious deliberation, the

brain must possess a mechanism that translates visual inputs into immediate motor understandings. It is precisely at this intersection that the psychological framing of motor resonance and mirroring becomes essential.

Tactical mirroring and predictive anticipation

In everyday life, the “chameleon effect” shows that mirroring others helps people bond (Chartrand & Bargh, 1999). This natural habit reduces distance between people and creates a sense of belonging. However, in high-level sports, this system works very differently. Friendly bonding disappears, and this brain function becomes a sharp psychological tool to beat the opponent. In the arena of competitive sports, “resonating” with another individual is no longer driven by the psychological need for social bonding or empathy; instead, it is driven by the imperative of competitive survival in the game, proactive anticipation, and tactical neutralization. The pre-reflective motor vocabulary stored in the premotor and parietal networks is weaponized to strip the opponent of their temporal advantage.

When an athlete observes an opponent, their internal mirror network does not passively register the external cinematic movement. Instead, it aggressively simulates the underlying forces, trajectories, and kinematics within the observer's own somatic matrix. This real-time internal replication allows the athlete to execute three critical functions: act immediately, anticipate the opponent and decode strategies and deception.

In scenarios where a ball or an opponent moves faster than the speed of conscious visual processing (e.g., a tennis serve or a football penalty kick), explicit cognitive reasoning becomes entirely obsolete. In these high-velocity instances, motor resonance bypasses conscious thought; instead of routing visual data to the prefrontal cortex for deliberate appraisal and evaluation, it redirects the information instantaneously to the motor structures responsible for physical execution. Consequently, the athlete's brain initiates a bodily response before the individual can consciously comprehend the unfolding event, providing an unmediated, physical map of what is occurring. For example, when a goalkeeper tracks a striker, their mirror system automatically simulates the opponent's muscular contractions within their own somatic matrix. Rather than merely observing

an action from a detached perspective, the goalkeeper replicates the movement internally as a real-time kinetic map, effectively “feeling” the trajectory within their own musculoskeletal framework. This phenomenon demonstrates that the mirroring effect is a key tactical tool. It allows elite athletes to bypass slow visual processing by turning what they see into an immediate physical response.

By reading the subtle, early biomechanical adjustments of an opponent's body—such as the tilt of a pelvis or the deceleration of a stride—the athlete's brain can predict the final outcome of the action before it is fully executed. This anticipatory excellence is driven by the mirror neuron system's capacity to run predictive forward models, which are internal neural simulations that extrapolate the future trajectory of a movement (Wolpert & Flanagan, 2001). Instead of passively tracking the action as it unfolds, the MNS extracts advance kinematic cues (Abernethy, 1987) from the opponent's initial postural changes. Because the elite athlete possesses a highly developed, internalised motor repertoire (Calvo-Merino et al., 2005), their brain can instantly cross-reference these micro-adjustments with stored somatic memories. Consequently, the observer mentally completes the opponent's movement before it physically materialises. This anticipation is then able to grant them a vital temporal window to position themselves and counteract the play.

Furthermore, elite sports are defined by tactical deception (feints, fakes, and misdirections). A novice psychologist might assume that players look only at the ball; however, perceptual-cognitive expertise relies on the mirror system to decode the genuine biological kinematics of the opponent's core torso, allowing the athlete to see through a fake movement in a fraction of a second.

This tripartite predictive mechanism is robustly supported by empirical literature within neurosciences and sports science. For instance, the capacity to decode deception and bypass temporal latency during penalty kicks has been directly mapped by Tomeo et al. (2010). By utilising Transcranial Magnetic Stimulation (TMS), their research demonstrated that elite football players and goalkeepers possess highly tuned mirror networks that automatically simulate the actual muscular kinetics of an opponent, rendering them virtually immune to deceptive feints.

Furthermore, eye-tracking studies by Savelsbergh et al. (2002) explain the physical basis of this anticipation: expert players structurally anchor their gaze onto the opponent's anatomical core—specifically the pelvis, hips, and lower torso orientation—rather than peripheral cues or the ball itself. By focusing on these non-deceptive proximal segments, the observer's mirror system extracts uncorrupted kinematic data, transforming raw visual perception into an instantaneous, predictive tactical advantage.

Motor synchrony

Crucially, the psychological application of the mirror neuron system (MNS) extends far beyond isolated individual duels; it serves as the foundational architecture for collective team dynamics and intra-group synchronisation. In team sports, and specifically within the tactical framework of football, mirroring transitions from a mechanism of individual anticipation into a system of shared distributed cognition. When players are highly attuned to one another, their individual mirror networks align, creating what contemporary sports psychologists recognise as interpersonal motor synchrony (Marsh et al., 2009; Schmidt & Richardson, 2008). Within this state, shared motor representations allow a group of athletes to blur individual perceptual-motor boundaries and seamlessly operate as a single, cohesive unit (Sebanz et al., 2006).

An archetypical manifestation of this collective mirroring is observed in the mechanics of a compact defensive line. For a backline to operate effectively against an elite attacking threat, the four or three defenders cannot afford to act as separate individuals processing information sequentially. Instead, operating as a complex adaptive system characterised by high levels of spatiotemporal self-organisation (Duarte et al., 2012), they rely on an immediate, pre-reflective coupling of action and perception. Through years of collective training and shared motor repertoires, they must execute defensive movements—such as shifting laterally, dropping deep, or stepping up to trigger an offside trap—in perfect, instantaneous unison.

When the ball moves, the entire defensive unit mirrors not only the trajectory of the ball but also the subtle kinematic adjustments of each adjacent teammate. This real-time behavioural mimicry allows the backline to compress space fluidly, behaving

effectively as a single macro-organism controlled by a shared motor intent (Duarte et al., 2013). If a central defender adjusts their centre of gravity to contest a duel, the neighbouring full-back does not wait for explicit verbal commands; instead, their mirror network instantly simulates the partner's somatic trajectory, prompting an immediate, automated covering run.

From a cognitive and psychological perspective, this structural oneness provides a substantial competitive advantage on the pitch in three main different ways:

1. Temporal delay: By mirroring teammates' movements implicitly, defenders bypass the delay caused by verbal communication or conscious visual checking, allowing the line to remain flawlessly compact. Processing delays are eliminated in favour of parallel, instantaneous adjustments.
2. Predictive spatial control: Knowing and internalising a teammate's motor habits means their next movement is mirrored before it is fully completed. This continuous perceptual synchronization eliminates dangerous spatial gaps in the defensive block before the opposition can exploit them.
3. Emergent tactical synergy: The defensive unit ceases to be a collection of (generally in football) four distinct players and becomes a single, impenetrable psychological barrier. This fluid cohesion drastically increases defensive efficacy and imposes an immense cognitive burden on the opposition, effectively disrupting the opponent's attacking rhythm.

2.1.2 Football: a model of massive resonance

Structural magnitude of Italian football

The selection of football as the primary empirical model for this dissertation is justified by its absolute structural, cultural, and statistical hegemony within the Italian sporting ecosystem. According to the data validated in the official *ReportCalcio 2025*, published in January 2026, the Italian Football Federation (FIGC) operates as a monumental socio-athletic machine, coordinating approximately 11,000 affiliated clubs and

managing over 1.4 million total registered competitive players. This extensive institutional network generates an unceasing engine of physical movement, culminating in more than 500,000 official matches organised and executed annually across the peninsula. Beyond official federal registries, conservative institutional estimates indicate that the total number of regular practitioners—including non-registered amateur players, recreational grassroots participants, and urban corporate leagues—surpasses 4.5 million individuals.

From a neurophysiological point of view, this immense statistical density carries profound implications for research into the mirror neuron system (MNS). Cognitive literature establishes that motor resonance is not a generic, uniform reaction; instead, it is directly proportional to the observer's own motor and visual familiarity with the observed action (Calvo-Merino et al., 2006). In a society where football is omnipresent, the brains of millions of citizens are continuously exposed to a shared vocabulary of spatial coordinates, bodily kinematics, and tactical intentions. This national exposure creates an unparalleled collective motor resonance. By choosing football, this study does not investigate an isolated athletic subculture, but a highly standardised, deeply internalised neurological framework shared by a vast majority of the domestic population, bridging the gap between active physical practice and widespread cognitive simulation (Rizzolatti & Craighero, 2004).

Metric hierarchy of Italian sports

To isolate the structural dominance of football, its metrics must be systematically cross-referenced with the wider Italian sports registry. While general amateur wellness activities, such as fitness, aerobics, and gym conditioning, attract a high volume of non-competitive practitioners (~33.1% of the active population according to ISTAT data), they lack a unified competitive league framework. When evaluating codified sports governed by national federations, football occupies an undisputed first place, anchoring the entire national sports system with the largest absolute competitive base.

To preserve strict methodological integrity, this cross-disciplinary comparison utilizes a standardized dataset consisting of exact, absolute federation registration counts for all evaluated disciplines. Within this framework, the domestic sports hierarchy has recently seen major adjustments, notably with the explosive growth of racket sports under the Italian Tennis and Padel Federation (FITP), driven by international triumphs and massive infrastructural expansion. This surge has altered traditional rankings, pushing historically dominant team sports like volleyball and basketball into lower positions. The clear structural gap between football and other competitive disciplines is explicitly highlighted by the most recent 2025 multi-institutional metrics presented below:

Rank	Sport / Federation	Institutional data type	Official registered members	Data source
1	Football (FIGC)	Total registered members	1,400,000	<i>ReportCalcio 2025</i>
2	Tennis & Padel (FITP)	Total registered members	800,000	<i>Rapporto Sport 2025</i>
3	Volleyball (FIPAV)	Total registered members	315,000	<i>CONI National Registry</i>
4	Basketball (FIP)	Total registered members	313,000	<i>CONI National Registry</i>

Table 1: Most recent 2025 multi-institutional metrics of Italian sports federations.

(Note: Outside of official federations, general amateur fitness accounts for 33.1% of broad physical movement in Italy according to ISTAT demographic data, but lacks a unified competitive league structure).

The data compiled in the matrix illustrates the actual hierarchy of sports in Italy, dividing the landscape into the four most widely practised disciplines based on official national registration numbers:

- The absolute supremacy of football (slightly more than 1,400,000 registered players): This is the official metric established by the Italian Football Federation (*Federazione Italiana Giuoco Calcio*), which confirms that nearly one and a half million Italians play football in an official, institutional capacity

with weekly league matches (FIGC et al., 2025). This is a monumental figure that completely distances itself from any other sport, scientifically justifying why football serves as the primary empirical model for studying mass motor resonance within the domestic population.

- The boom of tennis and padel (800,000 registered practitioners): This represents the major macroeconomic and social trend of recent years, with the Italian Tennis and Padel Federation (*Federazione Italiana Tennis e Padel*) officially emerging as the second largest sporting force in the country (ICSC & Sport e Salute, 2025). Driven by unprecedented international success and rapid infrastructural expansion, tennis and padel have experienced exponential growth, structurally overtaking traditional team sports in terms of active participation.
- The steady footprint of volleyball (315,000 registered members) and basketball (313,000 registered members): These figures represent the exact number of competitive and amateur athletes officially registered within the Italian Volleyball Federation (*FIPAV*) and the Italian Basketball Federation (*FIP*), as centralized by the national Olympic committee (CONI, 2025). They remain deeply rooted, historic, and beloved team disciplines, but their combined federal base remains significantly smaller than the scale of football alone.

Furthermore, general fitness exhibits a substantially larger population share (33.1%) than traditional team disciplines (ISTAT, 2025). While this metric—also noted at the bottom of the dataset—appears to be the highest overall, it exclusively refers to unstructured conditioning, jogging, or recreational gym attendance. It represents an individual wellness activity rather than a codified sport governed by structured leagues, official referees, and strict team rules. Consequently, while fitness reflects a broad demand for physical well-being, football remains the undisputed apex of organized team sports and collective neural synchronization.

The metrics presented in this dataset reflect a highly uniform methodological framework based on exact, absolute counts within national federal registries (CONI, 2025; FIGC et al., 2025; ICSC & Sport e Salute, 2025). Conversely, the data for general fitness (33.1%) represents a percentage share of the active population extracted from

broader demographic surveys (ISTAT, 2025). Retaining this clear distinction between census-based federal registrations and sample-based demographic fitness trends ensures absolute transparency and prevents statistical bias, avoiding the speculative integration of heterogeneous data sources with differing population denominators.

The impact of Women's football

The contemporary Italian sports landscape is currently experiencing a profound paradigm shift. This movement is dictated by the exponential growth and structural evolution of women's football. Historically restricted by deeply entrenched cultural prejudices and systemic underfunding, the female game in Italy has systematically dismantled traditional barriers over the last two decades. This socio-athletic evolution was fundamentally accelerated by the landmark 2022 transition to full professionalism for the top-tier domestic league (*Serie A Femminile*). This legislative and structural shift completely re-engineered the athletic, medical, and economic security of female performers.

The official data consolidated in *ReportCalcio 2025* validates the sheer scale of this institutional breakthrough via two primary vectors. First, the sport has seen substantial macro-demographic growth; the total number of registered female players in Italy more than doubled between 2008 and 2024, officially surpassing the milestone of 50,000 active, card-carrying athletes. Second, this expansion has secured grassroots sustainability; the vital *Settore Giovanile e Scolastico* (Youth and School Sector) records an 11.8% surge in young practitioners under the age of 15, anchoring a stable foundation for the national sports ecosystem (FIGC et al., 2025).

From a neurocognitive perspective, this rapid demographic expansion provides a profound contribution to modern sports psychology. This growth is accompanied by a concurrent 45% increase in broadcasting and digital audiences (FIGC et al., 2025). Together, these factors fundamentally alter the functional relationship between action and perception. Historically, the Mirror Neuron System (MNS) relies heavily on an individual's personal motor repertoire. The brain resonates most intensely when

observing an action it knows how to physically execute (Calvo-Merino et al., 2005). Because women were long excluded from intensive football practice, a significant portion of the female population lacked these internalised motor programs. This historical absence prevented high-intensity sensorimotor mirroring during match observation.

Today, however, this dual exposure is actively rewriting the visual and motor dictionaries of an entire generation. By entering competitive academies, young female practitioners internalise the precise sensorimotor loops, somatotopic motor maps, and spatial orientation networks unique to football (Buccino et al., 2001). Crucially, this physical literacy transforms the nature of sports observation: rather than acting as passive spectators, individuals with direct playing experience utilise their mirror neuron architecture to internally simulate observed kinematics in real time. This process translates visual inputs into an immediate, first-person motor understanding. This motoric baseline dynamically interfaces with the wider public's expanding visual familiarity. As media visibility grows, non-playing female spectators leverage their growing observational visual expertise. This allows them to decode complex, multi-agent tactical strategies with the same heightened cognitive fluency as their male colleagues (North et al., 2009). Consequently, the cognitive benefits of motor resonance are undergoing a profound process of democratisation.

However, despite this undeniable surge in overall interest, a profound and deeply palpable gender gap still characterises the Italian sporting landscape. The historical head start enjoyed by men's football means that structural, economic, and cultural disparities cannot be dismantled overnight. True parity—both in financial compensation and institutional prestige—remains an ongoing challenge rather than an accomplished reality (Valenti et al., 2018). Achieving genuine socio-cognitive and structural equilibrium is a long-term endeavour. This process relies heavily on a multifaceted, self-reinforcing cycle of sustained capital investment, enhanced media visibility, and robust commercial sponsorships.

Professionalism is merely the first step. Long-term financial backing remains essential to build dedicated elite training facilities, advanced medical departments, and academy

networks specifically tailored for female athletes (Culvin, 2001). Enhanced and consistent television and digital exposure are equally critical. Visibility does not simply attract viewers. As established by the mirroring paradigm, it actively cultivates the visual expertise of the public and shifts deep-seated cultural perceptions.

Additionally, securing major corporate sponsorships is vital to transforming women's football into a self-sustaining financial ecosystem. This funding detaches the female game from its historical reliance on the financial surplus of men's clubs (Bowes & Culvin, 2021). Ultimately, the democratisation of the football-specific motor dictionary is intimately bound to these structural developments. Only through the deliberate combination of time, strategic investment, media prominence, and commercial validation can the contemporary gender gap be fully bridged. This integration will standardise collective motor resonance and cognitive synchronization across the entirety of the national demographic.

Football for youth development, inclusion and integration

The institutional reach of the FIGC extends far beyond elite athletic selection; *ReportCalcio 2025* structurally redefines the football ecosystem as a primary educational agency operating in close coordination with the formal school system and the family unit. With nearly 800,000 registered players under the age of 18, football stands as the most pervasive non-scholastic educational institution within the Italian republic. The integration between academic pathways and athletic development is institutionalised through wide-reaching school programmes, exemplified by the flagship “Valori in Rete” project. This initiative connects with over 2,000 scholastic institutions nationwide, engaging more than 150,000 students annually in structured projects that merge physical education with civic, ethical, and psychological training.

This immersion of youth sectors within structured football academies carries heavy neurocognitive and behavioural implications. The football pitch serves as a living social laboratory where young athletes are required to internalise complex regulatory systems, manage emotional distress, and practice resilience in the face of competitive failure. From a psychological standpoint, youth football demands the complete subordination of

individual ego to collective team goals. Through repetitive tactical drills, young players train their mirror neuron systems to read, simulate, and adapt to the physical movements of their peers from a very young age. In this way they are building an early capacity for interpersonal motor synchrony and cooperative problem-solving. By instilling these shared behavioural patterns during phases of peak neural plasticity, the football infrastructure functions as a critical societal tool, translating physical coordination into structured civic responsibility and relational maturity (Bailey, 2006).

One of the most ethically and scientifically significant sections of *ReportCalcio 2025* maps the expansion of adapted football, governed structurally by the FIGC's dedicated *Divisione Calcio Paralimpico e Sperimentale* (DCPS). This division provides fully structured, institutionalised competitive leagues for thousands of athletes presenting with cognitive, relational, psychiatric, or physical disabilities. By establishing standard competitive environments tailored to various levels of impairment, the federation has successfully shifted adapted sports away from isolated recreational models into an official, integrated league system that mirrors the exact competitive architecture of conventional football tournaments (Misener & Darcy, 2014).

Furthermore, in an increasingly multicultural domestic landscape, football operates as an indispensable tool for social inclusion and international integration. *ReportCalcio 2025* highlights that the FIGC currently registers over 66,000 football players of foreign origin across its grassroots, amateur, and professional academy ranks. This metric underscores the capacity of the sports infrastructure to engage demographics that might otherwise face socio-economic isolation or language barriers. On the pitch, the conventional obstacles of linguistic differences are bypassed by the universal grammar of motor activity, tactical space, and physical intent. The rules of the game provide a shared framework where mutual recognition is dictated entirely by athletic contribution and collaborative effort. In this way, the football pitch operates as a neutral, meritocratic space where language and cultural barriers are naturally dismantled through the universal grammar of motor activity (Spaaij, 2011).

From a cognitive perspective, this multicultural athletic environment provides a fascinating baseline for examining cross-cultural mirroring mechanisms. When players from diverse cultural and linguistic backgrounds are embedded within the same tactical system, their progress and success depend on their capacity to anticipate each other's actions without explicit verbal communication. The real-time simulation of an adjacent teammate's movement—such as a full-back anticipating a central defender's covering run—requires a tight alignment of individual mirror neuron networks. This continuous, pre-reflective behavioural mimicry builds deep interpersonal motor synchrony that transcends cultural backgrounds. Football, therefore, acts as an accelerator of social cohesion, using the shared physical realities of the human body to build authentic psychological integration and mutual empathy.

Media exposure

Beyond active physical participation, the rationale for this study relies heavily on the massive media footprint of the sport. In Italy, football occupies a position of absolute hegemony across television broadcasting networks, digital streaming platforms, and social media ecosystems. According to the latest consolidated market metrics available in 2026, the sport captures the active interest of over 31 million citizens (StageUp & ChainOn, 2025). This staggering pool encompasses the vast majority of the adult national demographic. This continuous, high-density exposure carries profound neurocognitive implications for the general population.

The sheer commercial and media scale of this phenomenon is clearly demonstrated by the macroeconomic indicators of the industry. During the last years, the sector comprising sports newspapers and broadcasters grew significantly, increasing its economic value to €1.185 billion. This media segment forms a crucial component of a broader sports market that generates a total aggregate impact on the national GDP of €12.412 billion (FIGC & PwC, 2025). This economic valuation directly reflects an unparalleled volume of sensory consumption. Domestic television audiences regularly exceed 470 million viewers, while the cumulative global audience for Italian football fixtures has scaled to 2.8 billion spectators. Furthermore, the Italian National Teams

alone generate over 122 million domestic viewings and a global reach of 2.2 billion (FIGC & PwC, 2025).

From a cognitive perspective, this relentless media immersion fundamentally reshapes the spectator's brain. Continuous exposure to high-level football matches transforms passive viewers into “visual experts”. Through thousands of hours of observational consumption—watching live matches, analysing slow-motion replays, and tracking tactical camera angles—even non-athletes can develop a highly visual vocabulary of the game. They possess the necessary tools to learn to decode the micro-postures of a defender or the trajectory of a shot before the action concludes, as long as an underlying interest in the sport and in the learning thereof is present (Balser et al., 2014).

Consequently, when a fan watches a football match, their mirror neuron system does not remain dormant. Instead, it activates to internally simulate the unfolding action in real time. This visceral neural resonance blurs the definitive line between active playing and passive observing. By using football as the primary empirical model, this study can explore a cognitive phenomenon that directly modulates the minds and predictive neural responses of millions of sports spectators.

CHAPTER 3

Methodology

3.1. Introduction to the study

While Chapters 1 and 2 mapped the neurological and psychological foundations of empathy—specifically analysing the structural mechanics of mirror neuron systems and emotional appraisal—this chapter transitions from theoretical models to real-world applications. Understanding how these internal mirroring systems operate is crucial when individuals observe complex emotional expressions through media stimuli. Therefore, this research moves beyond abstract laboratory frameworks to investigate how emotional expression is perceived, decoded, and internalized by spectators within the specific, dynamic context of sports media.

The core objective of this investigation is to explore how, and if, the mirroring effect can be successfully activated through media consumption, tracking the psychological shift from direct physical observation to screen-mediated simulation. Specifically, this research seeks to examine whether mediated embodiment—the act of watching an athlete on a screen—can trigger the same neurological and somatic mirroring systems as face-to-face interaction.

By establishing this framework, the empirical scope of this study places its central focus directly on the connection between the visual expression of emotions on screen and how these affective states are reflected within the spectator. This research does not treat media consumption as a passive act; instead, it investigates the active, echoing psychological pipeline through which a viewer decodes, absorbs, and somaticizes the emotional states of athletes. Concretely, this empirical effort isolates participants' perceptions and emotional responses to high-profile football events, focusing tightly on

their levels of situational engagement, identification processes, and emotional awareness in relation to the proposed stimuli.

To achieve this, the investigation is framed around a core **General Research Question**, accompanied by three highly localized sub-questions designed to guide the reader through the empirical analysis.

3.2. Research Questions

The primary, overarching inquiry of this thesis is formulated as follows:

General Research Question (GRQ):

How do mediated sports emotions activate empathetic mirroring in spectators, and in what ways do structural media features and individual viewer frameworks modulate this psychological reception?

To dissect this broad objective and provide a comprehensive analysis throughout the subsequent chapters, the empirical study addresses the following **Specific Research Questions (SRQs)**:

- **SRQ 1 (Gender differences in perception):** Is there a significant difference between male and female spectators in how they empathize with mediated sports emotions, and does the gender of the athlete on screen influence this response?

The first specific goal of this research question is to investigate how the viewer's gender interacts with the athlete's gender on screen.

First, it aims to explore conscious ingroup solidarity. It examines whether female viewers experience a stronger emotional connection and higher esteem for female athletes on screen, driven by a shared awareness of the social barriers, prejudices, and stereotypes that women must overcome to reach elite levels.

Second, it dives below the surface to look at a subconscious where decades of exposure to male-dominated sports media have trained audiences—including women—to accept the speed, intensity, and power of men's elite leagues as the universal baseline for entertainment. Furthermore, this research question tests whether media empathy is driven by biological and shared identity or by deep cultural conditioning. It investigates whether this media conditioning creates an unconscious mental block, causing viewers to perceive women's football as "slow" or "less valid" (*Serie B*). This reveals a profound cognitive conflict where a viewer's conscious ideological support for women's sports clashes directly with their subconscious, media-trained expectations.

- **SRQ 2 (Somatic reflection and media interference):** What specific role do an athlete's physical gestures play in somatic reflection, and which technical production features—such as editing cuts, background music, and commentary—act as mechanical catalysts or barriers to this mirroring process?

The main objective of this second research question is to investigate the physical bridge between the screen and the viewer's body. Specifically, it explores how an athlete's physical gestures, translate into a real somatic, or bodily, sensation inside the spectator. First, the inquiry examines embodied simulation. This means exploring whether the spectator simply understands the athlete's emotion logically or actually feels it physically. The study investigates how raw physical signs—such as putting hands on the head in frustration, screaming in joy, or collapsing from exhaustion—trigger the viewer's mirror neuron system, causing those exact feelings to echo within the viewer's own muscles.

Second, this question researches the vital role of muscle memory and personal athletic history. It aims to discover whether having past experience on the playing field acts as a necessary "internal database" to unlock this deep physical reflection. The study tests whether a lack of a sports background results in a form of "somatic blindness," where non-athletes can see the action on screen but are physically locked out of feeling it. Finally, the research aims to analyze how media production and editing choices act as either a catalyst or a barrier to empathy. It investigates how structural elements, including video editing, background music, duration, pace and sports commentary, either foster participant identification or, on the contrary, function as barrier to it.

- **SRQ 3 (Affective asymmetry):** Do certain emotional states —such as triumph and collective joy versus defeat, referee injustice, and acute frustration— elicit significantly stronger, or more shared reactions among viewers?

This research question aims to explore the asymmetry of emotional impact. Specifically, it investigates the hypothesis that positive emotions like joy and negative emotions like anger leave completely different psychological marks on the viewer's brain. The study intends to explore three main hypothetical dimensions through this question:

First, it seeks to investigate whether media clips depicting injustice leave a deeper, more painful, and more permanent cognitive mark compared to clips showing victory. The goal is to test if negative events—such as clear referee errors, painful defeats, or abrupt video cuts—create a stronger psychological imprint on the spectator than positive highlights.

Second, the inquiry aims to analyze how the media screen might amplify frustration. It examines the psychological mechanism of helplessness. Specifically, it investigates whether spectators internally simulate the observed injustice while experiencing a complete inability to act or change the outcome, thereby turning a mediated sporting moment into a frustrating experience.

Finally, this question investigates how viewers map these mediated emotions onto their own daily experiences. The primary hypothesis is that a structural asymmetry exists in this mapping process. On one hand, the study explores whether the reflection of on-screen joy requires a personal background in sports to be unlocked and linked to personal memories. On the other hand, it tests whether mediated frustration is a more universal and accessible emotion, allowing any spectator to easily connect it to everyday, non-sporting disappointments, and so resulting in being more reliable.

3.3. Research design overview

For this study, an exploratory sequential mixed-methods design has been adopted: it consists of a two-phase approach that combines quantitative and qualitative methods in sequence in order to achieve a richer and more nuanced understanding of the phenomenon. Practically, this thesis is divided into two sequential phases. It begins with the collection and analysis of quantitative data via a structured questionnaire; these numerical findings then guide a subsequent qualitative phase—focus groups—designed to probe and explain the patterns observed in the survey results. This sequential logic is particularly well suited to uncover the reasons behind broad tendencies: quantitative measures reveal what is happening at scale, while qualitative inquiry helps explain why.

The choice to use mixed methods reflects an explicitly pragmatic orientation: the approach assumes that the conventional dichotomy between qualitative and quantitative paradigms is false or at least unhelpful, and that a comprehensive account of social and educational phenomena requires both objective (etic) and subjective (emic) perspectives. Combining different data sources improves inferential power and construct validity and can deliver deeper insight than either method alone. Moreover, when quantitative and qualitative findings diverge, the iterative mixed-methods logic permits the design of additional investigative steps to resolve discrepancies and refine understanding.

Empirically, the study unfolds in two linked stages: Phase 1 (quantitative priority) consisted of a questionnaire delivered to participants who viewed six short visual stimuli: three pairs of clips, each pair including one sequence featuring the Italian

women's national football team and one featuring the Italian men's national football team. Because the study targeted Italian citizens, we deliberately selected pivotal moments from both women's and men's Italian football. Furthermore, the decision to include both sexes in each pair was deliberate: presenting both male and female protagonists avoids systematic gender bias in stimulus selection and allows direct comparison of audience responses to gendered representation under otherwise equivalent conditions. The questionnaire items were identical after each clip, enabling consistent measurement of emotional engagement and related constructs across stimuli.

Phase 2 (qualitative follow-up) used the quantitative results to inform the selection of focus topics and participants. Two focus groups were convened among respondents who had previously completed the questionnaire; selection for these groups did not discriminate by gender or age but was driven by expressed interest (or lack thereof) in sport. The first focus group comprised six participants of mixed gender, born between 1966 and 2000, while the second comprised five female participants born between 1959 and 2003. These groups were chosen to ensure both generational variation and the possibility to explore gendered perspectives more deeply. During the focus groups, participants discussed their reactions to the clips and elaborated on the reasons—representational, narrative and productional—behind their quantitative responses.

Finally, integration occurred at the interpretative stage: qualitative insights were used to explain, contextualize and sometimes qualify the quantitative patterns, yielding a comprehensive account of how and why visual representations of national football teams elicit particular emotional responses. This mixed-methods sequence thus leverages the strengths of both paradigms—width and generalizability from the survey, depth and interpretive richness from the focus groups—to produce robust, policy-relevant conclusions about representation, identification and emotional engagement in sport media.

3.4. Operational framework

For the study's aim and to systematically answer the research questions, an empirical study was conducted utilizing the specific domain of football. Football was deliberately chosen as the stimulus environment because it represents a culturally dominant arena characterized by high-intensity, unscripted, and universally recognizable displays of human emotion.

For the purposes of this design, and because video viewing lies at the very heart of both research phases, the following overview outlines the specific videos selected and integrated into the questionnaire: a total of six video clips were carefully selected from high-stakes matches involving both the male and female Italian national teams, featuring decisive moments from World Cup finals and semifinals, and European Championships. These clips were systematically curated and intentionally edited (e.g., cutting specific sequences like penalty outcomes or cutting crucial moment within the video) to isolate distinct emotional triggers, such as euphoria, frustration and anger, to cite some. These stimuli were subsequently presented to the participants through a structured questionnaire.

Given that this study adopts a sequential design, the methodological framework is structured chronologically to reflect the actual progression of the research. Consequently, the following sections will first detail the quantitative methodology utilized during Phase 1 (the structured questionnaire), then, will be followed by a comprehensive breakdown of the qualitative methodology deployed during Phase 2 (the focus groups). The results of the quantitative analysis are presented in Chapter 4, while those of the qualitative analysis are detailed in Chapter 5.

To ensure maximum clarity and methodological transparency, the operational details of this research are structured into the dedicated, detailed subsections below:

3.5. Phase 1 — The quantitative analysis

3.5.1. Procedures

Structure

The first quantitative phase included a controlled pretest of the questionnaire prior to full administration. This preliminary trial involved five participants whose feedback was instrumental in refining the final instrument. Thanks to this early exposure and the active dialogue with pretest respondents, the questionnaire was revised to accommodate diverse respondent profiles—irrespective of gender, age, or prior interest in the topic—and to allow space for dissenting or qualified opinions where necessary.

This first part of the study utilized a structured questionnaire featuring six short visual stimuli. These stimuli were organized into three distinct pairs, each containing one sequence featuring the Italian men's National football team and one featuring the Italian women's National football team. Given that the study specifically targeted Italian nationals, the selection of these clips intentionally focused on pivotal milestones from the country's international football history. This deliberate alignment was designed to optimize the participants' patriotic identification, situational familiarity, and emotional engagement with the presented scenarios.

The introductory section consists of three brief subsections addressing empathy, sport in general, and team sports specifically. This section is intended to gather information regarding participants' sporting background as well as their self-perceived level of empathy.

The core of the questionnaire is structured around a video–question sequence: following the viewing of each clip, participants have been asked to respond to five questions aimed at capturing the emotional responses elicited by the observed content. Overall, the three sections dedicated to the video stimuli comprise a total of 30 questions.

Furthermore, with regard to all videos stimuli, a systematic framework was applied across all six video stimuli. Immediately following the viewing of each individual clip,

participants were presented with the exact same single-choice question: “Which emotion did the video elicit in you?”

This universal approach was adopted under the methodological assumption that among the provided options there would always be one primary affective state that resonated most relevantly and reliably with the respondent based on the specific nature of the video. By presenting a balanced, multi-faceted emotional spectrum, the survey allowed participants to naturally gravitate toward the specific option that best captured their genuine, unconditioned psychological and somatic response to the visual narrative.

To map the entire experimental design across all three thematic sections (triumph, suspense, and defeat), the questionnaire provided a fixed array of ten distinct emotional options:

- Positive anchors: Excitement, Euphoria, Happiness, and Sense of belonging.
- Engagement/tension anchors: Involvement and Anxiety.
- Negative/reactive anchors: Frustration, Anger, and Indignation.
- Neutral anchor: Indifference.

To measure this resonance with scientific rigor, the survey intentionally utilized a strict single-choice format for every question immediately following each clip. Although respondents might theoretically experience multiple overlapping affective states while watching a sports event, this constraint was deliberately introduced to prompt participants to briefly reflect and isolate the single predominant emotion experienced immediately after viewing the footage. Eliminating multi-option selections forces a cognitive hierarchy of the experienced effect, thereby significantly increasing both the precision and the statistical comparability of the quantitative response data across the entire sample.

In the same way, when addressing the gender framework, the questionnaire includes supplementary items aimed at assessing representational identification. This question has as well been placed after each video. The participants are asked “Do you feel represented by this video?” followed, where applicable, by “If you feel represented, which factor do you consider most relevant to your identification with

the people shown in the clip?”—with gender explicitly listed among the possible options. These items are incorporated both as descriptive measures and as explicit research questions, since they permit testing whether respondents’ gender predicts perceived representativeness and, in turn, whether perceived representativeness modulates emotional reaction. By cross-referencing these answers with other questionnaire variables, the analysis can determine whether respondents are consciously aware of gender-based influences on their emotional responses, and whether gender operates as a stronger determinant of identification than the purely affective qualities of the observed content.

The overall presentation order for each section is reversed relative to the previous one, alternating visualization of men-women and vice versa. This deliberate sequencing was implemented to maintain a balanced alternation of content and a consistent questionnaire architecture, thereby helping to sustain the respondents' attention throughout the data collection process.

To provide a comprehensive overview of all the specific questions included within the questionnaire, a dedicated section has been compiled as an Appendix, located at the end of this thesis. This supplementary section allows for a thorough, transparent review of the complete research instrument's structural layout and exact phrasing as it was presented to the respondents during the data collection phase.

The final section of the questionnaire includes a question aimed at identifying which of the presented videos elicited the highest level of emotional engagement, followed by a set of sociodemographic questions.

Materials

To systematically investigate the nuances of emotional engagement within the sports communication landscape, the visual material was organized into a tripartite comparative matrix. Each of the three thematic macro-sections was strategically designed to contrast specific historical football events, balancing positive and negative

emotional valences alongside varying degrees of physiological arousal, independent of the athletes' gender.

These three emotional dimensions are systematically assessed through a repeated set of questions administered after each video.

- **Section 1 (Positive valence & triumph)** functions as the primary anchor for positive emotional valence, focusing explicitly on major historical triumphs and collective euphoria to investigate emotional mirroring (or the absence thereof) in response to happiness, collective belonging, and peak positive affect. Within this narrative block, the pinnacle of the men's 2006 World Cup victory over Germany—a match immortalized by two historically significant goals—is juxtaposed with the historic women's national team victory against Norway.

The primary objective of this structural pairing is to evaluate the psychological resonance of sports triumphs, examining how peak positive emotions and shared national pride translate into sustained cognitive engagement.

- **Section 2 (High suspense & anxiety)** shifts the analytical focus toward competitive tension, high-stakes emotional arousal, and structural anxiety by examining penalty shootouts—frequently cited as the most psychologically taxing moments in competitive sports. By concentrating intense affective tension into a few decisive moments where the match outcome hinges on a single action, this narrative block seeks to discover how structural suspense alters viewer engagement. To investigate this domain, the questionnaire contrasts the high-tension environment of the Under-17 (U17) women's penalty shootouts in 2015 with the intense spectacle of the men's European Championship penalties against Spain in 2020.

Within this framework, audience responses broken down by gender are of particular interest, as are the specific reactions to the initial U17 women's

clip. In this sequence, the players appear visibly younger than the protagonists in the subsequent male clip—an age variance that may facilitate greater situational empathy among certain respondents.

- **Section 3 (Negative valence & defeat)** explores the opposite end of the emotional spectrum, shifting the analytical focus toward the complex psychological impact of disappointment, empathy, and collective sorrow. This final domain specifically investigates more intense negative emotional reactions, aiming to evoke feelings of anger, injustice, and frustration. By exploring sports defeats through this narrative block, the research seeks to examine whether collective disappointment acts as a deterrent to media engagement or, conversely, functions as a powerful catalyst for empathetic processing. To evaluate these dynamics, the section pairs the men's devastating 2002 World Cup defeat against South Korea with the women's European Championship elimination defeat against England. The men's round-of-16 match perfectly exemplifies these intense negative states; marked by highly contested refereeing decisions, the broadcast provoked widespread unrest and a pervasive sense of powerlessness among spectators. One of the most emblematic incidents within this clip is the controversial sending-off of Francesco Totti—a core pillar of the national team—who was shown a second yellow card for simulation despite the action involving a clear foul against him. This specific episode was thought to serve as a powerful trigger for anger and indignation, sentiments that historical data shows resonated deeply with both domestic and international audiences.

Following a parallel trajectory of frustration, the second clip documents the Italian women's national team's hard-fought defeat by England. Within this sequence, three distinct elements are likely to generate heightened feelings of anger and perceived unfairness: critical missed goal opportunities by the Italian team, a decisive goal conceded in the dying moments of extra time, and an opponent's goal celebration perceived by some viewers as arrogant, provocative, and theatrical. Together, these multi-layered negative factors are expected to elicit a profound affective response in

viewers, providing a robust empirical basis to analyze how structural injustice and collective sorrow are reflected within the participants' questionnaire responses.

Technical editing

A critical phase involved the intentional editing and shortening of the original broadcast footage. In digital survey methodologies, long media clips are highly prone to triggering "survey fatigue" and cognitive exhaustion. If the video segments are too time-consuming, participants are significantly more likely to abandon the questionnaire entirely or rush through the final pages, inputting random or low-quality answers.

To preserve data integrity, maximize completion rates, and ensure thoughtful responses, the videos were condensed and merged around their most crucial, peak-emotional moments. Consequently, the stimuli were edited into a brief, compact format, with durations ranging from a minimum of 0:33 seconds to a maximum of 2:38 minutes.

Video stimulus	Thematic mapping	Specific context	Duration
Video 1	Section 1 (Positive valence)	Men's World Cup triumph	1:51 mins
Video 2	Section 1 (Positive valence)	Women's victory vs. Norway	1:44 mins
Video 3	Section 2 (High suspense)	Women's U17 penalty shootout	2:24 mins
Video 4	Section 2 (High suspense)	Men's Euro 2020 penalty shootout	1:59 mins
Video 5	Section 3 (Negative valence)	Women's Euro 2025 defeat	0:33 secs

Video stimulus	Thematic mapping	Specific context	Duration
Video 6	Section 3 (Negative valence)	Men's World Cup 2002 defeat	2:38 mins

Beyond basic trimming, a specific tactical manipulation was applied to Video 4 (the men's penalty shootout against Spain). The final, decisive moment of the shootout was intentionally cut from the clip, ending the video on a psychological cliffhanger. By withholding the ultimate narrative resolution, this specialized editing choice was designed to artificially amplify structural suspense and cultivate heightened curiosity, allowing the study to measure how an incomplete media narrative affects the viewer's lingering emotional state and mirroring framework.

Sourcing and copyright constraints

All media materials utilized in this study were originally sourced from the online video-sharing platform YouTube. To streamline the data collection process and establish a centralized, compact online repository, a dedicated YouTube channel was specifically created to host the edited clips. However, due to the presence of strict digital rights management (DRM) and copyright protections on elite sports broadcasts, the upload of certain materials faced significant platform restrictions.

Specifically, Video 2 and Video 5 triggered automatic copyright blocks across nearly their entire duration, preventing them from being published on the YouTube platform. To resolve this technical barrier while maintaining strict compliance with the architecture of Google Forms—which natively restricts direct video embedding solely to YouTube links—a hybrid hosting strategy was adopted. While Videos 1, 3, 4, and 6 were successfully embedded via the dedicated YouTube channel, Videos 2 and 5 were securely uploaded to a Google Drive repository and integrated into the questionnaire via alternative external hyperlinks, ensuring all respondents could seamlessly access the stimuli.

Privacy protocols and neutral titling strategy

To ensure operational security and maintain data control, strict privacy settings were applied to all hosted content. The videos uploaded to the dedicated channel were configured as "Unlisted," and the Google Drive files were restricted to link-only access. Consequently, these media assets are completely invisible to the general public and can only be accessed by individuals possessing the specific hyperlinks embedded within the survey. Furthermore, this access is strictly temporary, upon the completion and closure of the questionnaire phase. This protocol was implemented for purely technical and methodological purposes, with the sole objective of providing participants a safe and controlled environment to view the short video segments.

Finally, managing the stimuli through a custom infrastructure allowed for the elimination of external psychological conditioning and priming biases. On public streaming platforms, video titles are frequently sensationalized, emotionally charged, or misleading, which could inadvertently manipulate the spectator's appraisal before the video even begins. To ensure maximum scientific impartiality, all six video clips were stripped of their original metadata and retitled using exclusively objective, factual descriptions of the historical sports events they portrayed (e.g., defining only the teams involved, the year of the match, and the event). This neutral titling strategy prevented any pre-emptive cognitive bias, ensuring that the subsequent emotional and somatic mirroring responses were driven solely by the visual and auditory content of the stimuli themselves.

3.5.2 Participants profile and sampling

Because the study targeted Italian citizens, pivotal moments from both women's and men's Italian football were deliberately selected to maximize emotional resonance and patriotic identification among the respondents. Furthermore, pairing male and female national team sequences was intentionally designed to eliminate gender-based bias from the stimulus matrix. This parallel presentation guarantees that spectator responses to

gendered representation are evaluated under identical emotional valences, thereby facilitating a direct and scientifically rigorous comparison.

While the recruitment strategy aimed for maximum demographic breadth, the sole baseline constraint—intrinsically tied to the study's core theme—was the respondents' national and geographic identity. Specifically, participation was strictly limited to individuals who hold Italian citizenship and are currently residing within Italy. This foundational filter was essential to validate the intended psychological mechanisms of potential national pride, shared sports history, and collective memory.

Beyond this intrinsic national boundary, no further restrictive demographic constraints or exclusion criteria were applied during the recruitment phase. Instead, the sample embraced three primary fluid dimensions:

- **Gender dynamics:** No pre-filtering was applied to the respondents' gender. Because exploring gendered perception is a core objective of this research, the study intentionally set out to observe how different genders behave and respond to the clips. This approach allows the final analysis to map whether responses differ significantly between sexes, how these differences manifest, and whether the gender-based results reveal unexpected anomalies or unique behavioural peculiarities.
- **Cross-generational variance:** Age was deliberately left unrestricted to capture the widest possible spectrum of perspectives and trace how media reception shifts over time. Consequently, the survey sample includes a vast generational span, ranging from a minimum age of 18 to a maximum of 90 years old. The instrument was specifically limited to respondents aged 18 and older for ethical and practical reasons: adult consent is straightforward, the topics involve reflective evaluations of media and emotion that presuppose a certain level of cognitive and autobiographical capacity. Furthermore, restricting the sample to adults simplifies institutional review procedures. In short, the combination of pretesting, targeted sampling criteria and deliberate age stratification, strengthened the validity and generalizability of the quantitative phase, while preserving inclusivity across gender and interest profiles. This choice enriches

the study by highlighting how historical sports memory and shifting media consumption habits influence psychological responses across different generations.

- **Self-defined sports involvement:** Rather than restricting the survey distribution exclusively to pre-assumed sports fans, the study welcomed all individuals regardless of their relationship with athletics. To avoid biased assumptions, a dedicated self-assessment metric was embedded directly within the questionnaire items. This allowed respondents to autonomously report their own level of involvement or detachment regarding the sports world, providing a realistic cross-section of both avid fans and casual viewers.

Ultimately, it is vital to underline that the participants were not subjected to rigid pre-selection filters. The core value, complexity, and analytical richness of this quantitative phase derive precisely from this inclusive strategy, which provided every individual who volunteered to complete the questionnaire with the freedom to express their genuine opinions and unique perspectives.

As a result, the final version proved more inclusive and clearer, and when distributed through the chosen channels it yielded a heterogeneous sample of 120 completed responses. Among these 120 respondents: 73 identified as female, 46 as male, and 1 preferred not to disclose their gender.

3.5.3 Survey administration

To maximize outreach, balance sample heterogeneity, and ensure high response quality across a demographically diverse population, the survey's distribution channels were systematically tailored to the media habits of specific age cohorts. Rather than relying on a single dissemination method, a multi-channel recruitment strategy was deployed, partitioning the target population into three macro-generational brackets:

- **Younger cohorts (Ages 18–39):** For the 18–28 and 29–39 age bands, dissemination relied primarily on Instagram and WhatsApp, reflecting the high penetration and routine daily usage of these platforms among younger adults. To

complement this digital outreach and capture voices that might be underrepresented through purely algorithmic online feeds, the questionnaire was also administered within selected secondary and high schools. This institutional step was executed following formal administrative approval by teachers and relied strictly on the voluntary consent of eligible students.

- **Middle-aged cohorts (Ages 40–61):** For the 40–50 and 51–61 age bands, recruitment shifted toward a combination of WhatsApp distribution and peer-to-peer diffusion within personal and professional networks. This strategy purposefully leveraged existing social ties and interpersonal trust, utilizing the snow-ball sampling, which significantly encourages survey participation among demographics that are traditionally more responsive to direct, personal invitations rather than open social media links.
- **Older Cohorts (Ages 62–90):** For the oldest demographic bracket, Facebook was utilized as the primary digital channel, given its documented statistical adoption rate among older internet users. Recognizing the barriers imposed by the digital divide, respondents born in earlier decades (such as the 1930s and 1940s) were permitted to receive technical assistance from younger relatives or acquaintances. This assisted-completion protocol facilitated digital access and minimized literacy barriers without compromising the participant's voluntary intent.

Data aggregation

The implementation of this multi-channel framework was governed by rigorous methodological and ethical considerations. First, the selection of each platform was strictly evidence-based, aligning data collection environments with the proven demographic patterns of the target population to minimize systematic sampling bias. Second, institutional protections were maintained across all settings, ensuring that school-based testing and family-assisted digital completion honoured participant autonomy and inclusivity.

Finally, while deploying mixed distribution modes (spanning social media networks, institutional settings, and personal spheres) was necessary to achieve sample wideness, the data collected across all channels was ultimately consolidated into a single, unified dataset. This complete aggregation was a deliberate choice to prioritize an overall robust sample size and to treat the respondents as a cohesive national pool. Consequently, the analysis isolates individual responses as independent data points, focusing mainly on the correlations between the core variables (gender, cross-generational variance, and sports involvement) and the reactions to the video stimuli, rather than the digital medium through which the survey was accessed.

In sum, this calibrated, multi-channel recruitment strategy was designed to optimize both the quantity and the quality of the survey data, with the ultimate goal of strengthening the external validity and inclusiveness of the study's quantitative phase.

It is important to emphasise that the questionnaire findings provided the empirical basis for the qualitative phase: the focus groups were convened several days after the quantitative data had been collected and analysed. The questionnaire results informed the design and topics of those focus groups, which were used to corroborate, explicate and contextualize the survey findings; in other words, participants' qualitative responses served to confirm observed patterns and to offer interpretative explanations—grounded in their own choices and reflections—about why those patterns emerged.

3.6. Phase 2 — The qualitative analysis

The second part of this study implements a qualitative follow-up design, strategically utilizing the insights gained from the quantitative phase to explore the deeper psychological nuances behind the survey trends. At the core of this qualitative phase is the focus group, which is defined as a research method centred on guided, interactive discussions aimed at exploring participants' deep-seated perceptions, attitudes, and lived emotional experiences. The unique value of this approach lies in its interactive nature; rather than evaluating isolated individuals, it captures the real-time social dynamics,

shared subcultural vocabularies, and collective negotiation of meaning that occur within a group setting.

Within an explanatory mixed-methods framework, deploying focus groups immediately following a quantitative phase serves a vital strategic purpose. While the initial questionnaire successfully mapped the statistical "what" and "how much" of viewer engagement, these subsequent group discussions are designed to uncover the underlying "why" and "how" behind the numbers. This methodological transition allows the study to look past rigid metrics, effectively transforming baseline statistical patterns into a lived human narrative.

Sampling and comparative cohort design

To bridge these two research phases effectively, the participant selection process did not strictly discriminate by demographic categories such as gender or age. Since no restrictive prerequisites were established for the initial questionnaire, the same open approach was adopted in the qualitative analysis to ensure methodological consistency across the entire study. Instead, recruitment was intentionally driven by two primary criteria: the participants' expressed interest—or lack thereof—in sports, and the necessity of guaranteeing a wide generational spread.

Crucially, participation in the qualitative phase was strictly restricted to individuals who had already completed the initial quantitative questionnaire. Requiring focus group members to be drawn exclusively from the survey's original respondent pool was a vital methodological decision; it ensured that all participants shared an identical experiential background. Because every member had already been exposed to the exact same audio-visual stimuli and had navigated the same survey, the groups possessed a solid, common cognitive grounding. This shared framework allowed participants to fully interact, contrast their views, and engage in a deeper collective dialogue based on a uniform baseline of reference.

This sampling strategy resulted in a deliberate comparative design, convening two highly distinct focus groups positioned at opposite ends of the spectatorship spectrum:

- **Cohort 1 (The athletic profile):** Composed of active sports enthusiasts, football players, and club management board members who possess a deeply embedded connection to athletic culture.
- **Cohort 2 (The general and detached profile):** Consisting of unacquainted non-fans who are completely detached from sports institutions and media consumption.

Juxtaposing these two contrasting groups was essential to achieve a comprehensive, 360-degree understanding of the mirroring phenomenon. This comparative structure allows the research to simultaneously diagnose the psychological mechanisms driving deep emotional investment, empathy, and identity fusion within the athletic community, while unearthing the specific structural barriers, media production deficits, and cognitive reasons for indifference or detachment among non-sports observers.

Ultimately, the organization of these sessions was made possible through the collaboration and flexibility of all individuals involved. At the outset of each session, participants were fully briefed on the research objectives, the core thematic focus, and the structural flow of the interactive dialogue. Explicit consent for audio recording was requested and willingly granted by every participating individual, ensuring complete ethical compliance before the qualitative analysis commenced.

3.6.1. Cohort 1: The athletic profile of sports enthusiasts

Participant profile

The first focus group comprised six participants of mixed gender, born within a generational spectrum spanning from 1966 to 2000. To cultivate a deeply collaborative environment, the group was deliberately formed by the researcher's football teammates and members of the club's management board. These individuals possessed a pre-existing sense of community, mutual trust, and deeply rooted values shared through their active participation in club sports. This relational proximity was a deliberate methodological choice; by leveraging these close bonds, the study effectively bypassed the traditional, artificial "ice-breaking" phase. The pre-existing social capital created a

psychologically safe space that significantly minimized social desirability bias, encouraging the teammates to articulate their thoughts with raw honesty and a shared athletic vocabulary.

Specific aim and research purpose

The primary objective within this first group was to explore the phenomenological dimensions of sports spectatorship, deep emotional resonance, and gender-differentiated media consumption among active sports participants. Specifically, this session aimed to diagnose the psychological mechanisms driving deep emotional investment, empathy, and identity fusion within an active athletic community. By prompting participants to reflect on the six previously viewed video stimuli, this cohort's purpose was to uncover “why” and “how” individuals who live the sport from the inside decode media triumphs, structural anxieties (such as penalty shootouts), and collective defeats, translating raw engagement into a shared subcultural narrative.

Structural workflow

To capture authentic, uninhibited reflections, this session was conducted within an ethnographic setting directly tied to the participants' daily athletic lives, taking place in the immediate aftermath of a routine training session on the eve of an important competitive match. This strategic choice facilitated immediate psychological immersion.

The discussion protocol followed a semi-structured, progressive architecture designed to move participants from abstract conceptualizations to direct media evaluations. The operational workflow of the dialogue was divided into three sequential macro-axes:

1. **Conceptual and shared value mapping:** An open exploration of what sports symbolize to the active athlete, focusing on personal motivations, team socialization, and baseline ethical frameworks.

2. **Stimulus-driven evaluation:** The direct reintroduction of the six video clips, where participants were asked to express their feelings, thoughts and memories connecting the emotions expressed in the six stimuli.
3. **Representational and analytical critique:** A targeted deep-dive into the technical and narrative elements of media broadcasts, examining the impact of sports commentary, the perceived pacing of the matches, and the intensity of situational empathy toward on-screen peers.

3.6.2. Cohort 2: The general and detached profile

Participant profile

The second focus group comprised five female participants born between 1959 and 2003, offering a distinct gendered and cross-generational counter-perspective to the athletic cohort. In stark contrast to the first group, these participants did not share a personal history; they either did not know each other at all or were only partially acquainted through casual community proximity. This structural difference served a vital analytical purpose: by prioritizing individuality over a pre-existing collective identity, the composition minimized peer biases and prevented the emergence of groupthink or athletic peer pressure. This setup provided an uninfluenced, independent space where individual opinions could be safely voiced, making it an ideal sample to investigate casual viewership and the everyday barriers to media consumption.

Specific aim and research purpose

The primary objective of this second focus group was to investigate the baseline level of empathy and emotional resonance in individuals who are structurally unengaged or uninterested in sports. Rather than evaluating shared athletic memory, the research purpose here was to use the six video stimuli as diagnostic tools to test the limits of media-induced empathy. This session aimed to discover how individuals detached from sports culture decode sports imagery, process high-stakes athletic tension, and respond

to gendered representation when stripped of subcultural bias. At the same time, the session provided a qualitative space to investigate the self-reported factors behind their indifference, examining which specific elements of sports media fail to capture or sustain their attention.

Structural workflow

This session was convened within a local parish hall, a neutral civic space completely detached from any athletic institutions or club influences, reinforcing the general and unconditioned nature of the discussion.

Mirroring the structural trajectory of the first group but adapting the internal prompts to a non-fan profile, the discussion protocol allowed participants to voice their detachment without judgment. The semi-structured guide was organized around three alternative macro-axes:

1. **Biographical mapping of disengagement:** An exploration of the participants' personal histories with sports, looking into the reasons behind the early discontinuation of athletic practices, lifestyle choices, and everyday social values.
2. **External media appraisal:** The screening of the six video stimuli, focusing on how individuals who are structurally unengaged by sports culture decode highly emotional sports imagery and react to high-stakes cinematic tension.
3. **Perceptual and gendered media evaluation:** A direct discussion regarding mainstream sports representation, understanding the subjective attitudes behind participants' indifference, highlighting the specific features of sport broadcasting they find unappealing, and examining the role of gender in processing on-screen emotional content.

CHAPTER 4

Chapter 4: Phase 1 — The quantitative analysis

This chapter presents the empirical results of the quantitative phase, utilizing statistical data cross-tabulations and intersections to directly address the study's core research questions. By examining the systematic relationships and linkages between key variables, this analysis maps how different segments of the sample react emotionally and behaviourally when exposed to specific media stimuli. Furthermore, the following sections highlight the most compelling, interesting, and curious patterns discovered during the data processing stage, offering critical insights into the underlying dynamics of spectator engagement and setting the baseline for the subsequent qualitative phase.

4.1. Data visualization

To ensure both a clear presentation and a comprehensive analysis of the collected data, various data visualization tools and statistical charts were utilized throughout this study. Rather than relying on a single format, the analysis privileges a combination of bar charts, box-and-whisker plots, and comparative tables. Additionally, these tools are paired with percentage-based cross-tabulations (where necessary) to provide a deeper understanding of the relationships between variables. This multi-method visual approach allows for the effective presentation of both absolute frequencies and relative distributions, making it easier to identify significant data across the sample.

A structured color-coding system was implemented across all visual materials where data differentiation was necessary. To enhance readability and maintain methodological consistency, specific colours were assigned to represent the gender of the participants: dark red was utilized for the female cohort (Woman), cobalt blue for the male cohort (Man), and ochre yellow for the single one individual who selected 'Prefer not to say'. This standardized colour scheme ensures that demographic comparisons remain visually intuitive throughout the different sections of the chapter. Overall, the sample analysed consists of a total number of 120 respondents ($N = 120$), whose feedback forms the empirical basis for all the charts and tables presented below.

Regarding the captions, a specific approach was adopted for both data normalization and figure layout to ensure clarity. Throughout this study, the percentage values in several cross-tabulations (see Table 2, 3, 4, 5, 6, 7, 11, 13 and 16) were normalized by gender—calculating row percentages within each specific demographic category—rather than being derived from the overall, total number of participants. This adjustment is statistically vital due to the uneven gender distribution within the sample, which contains a significantly higher number of female respondents (N=73) compared to male respondents (N=46). If the percentages were calculated based on the total sample size, the disproportionately larger female group would skew the visual representation, effectively masking or distorting the true proportions and behavioural trends of the male group. Therefore, normalizing the data within each gender category levels the baseline, allowing for a fair, direct, and accurate comparison between men's and women's emotional responses.

In alignment with this need for analytical transparency, a strict pairing and labelling convention was also implemented for the layout of the visual displays. Specifically, charts displaying absolute frequencies are classified using a standard sequential number, while the corresponding chart analysing the exact same dataset in percentage terms is labelled with an “a” suffix (for instance Figure 8 and Figure 8a). By deliberately juxtaposing these paired figures in proximity within the text, the layout ensures a clearer visual connection and stronger coherence throughout the quantitative research, allowing the reader to effortlessly cross-reference the raw, absolute data with its percentage-based interpretations at a single glance.

4.1.1. Age cohorts and distribution channels

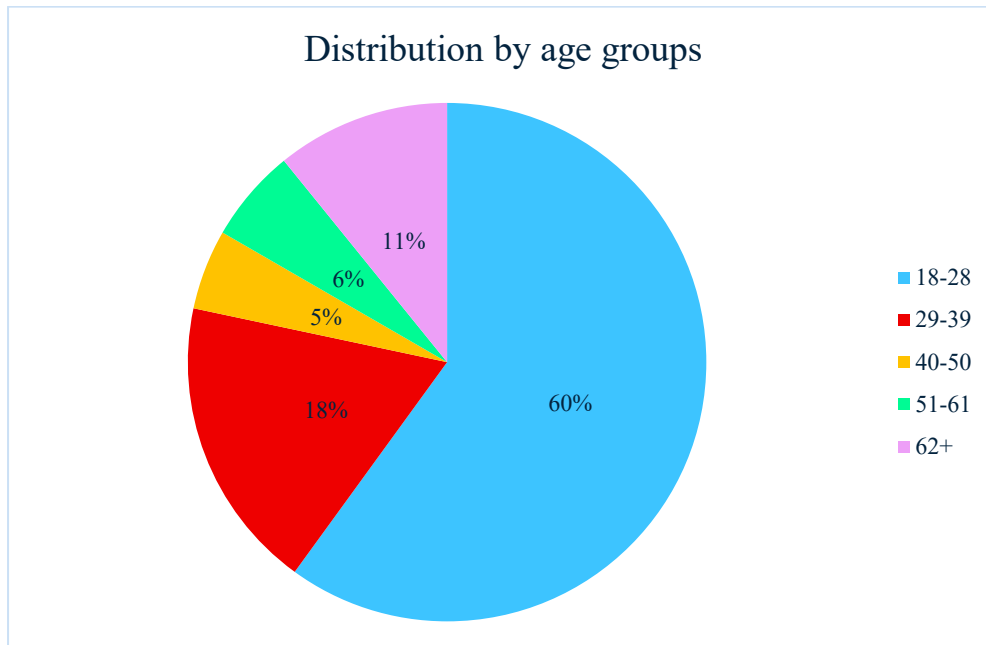


Figure 2: Distribution by age groups

For greater clarity and to provide a more orderly numerical and statistical treatment of the data—especially given that the sample proved wide and heterogeneous (birth years ranged from 2007 to 1935, spanning 72 years)—the dataset was consolidated into five age cohorts. The cohorts selected are: 18–28, 29–39, 40–50, 51–61 and 62+.

This reduction and grouping were adopted for several important reasons. First, collapsing individual birth years into broader cohorts improves statistical robustness: many single-year cells contained only one or a few cases, which obstructs reliable comparison and increases sampling noise. Second, using a small number of interpretable age bands facilitates intelligible reporting and visualization (tables, pivot tables, and charts). Third, the chosen intervals map reasonably well onto meaningful life-stage distinctions (young adulthood, early career/establishment, mid-career/family

phase, later adulthood and retirement age), which aids theoretical interpretation of differences in media response and emotional engagement. Fourth, grouping enhances comparative power across subgroups (for example, gender $\times$ age cohort analyses) because each cell contains a larger number of observations, increasing the stability of estimated percentages and reducing the likelihood of fragmented results.

It is important to note that the 62+ cohort is intentionally open-ended (62 and above) to capture the full range of older adults in the sample while preserving sufficient sample size for inferential tests. This pragmatic decision balances the desire for age-specific nuance with the methodological requirement of adequate n. per category. In sum, these five age cohorts were chosen to maximize statistical reliability, improve readability and interpretability, and align empirical analysis with meaningful sociological and life-course categories.

4.1.2. Video stimuli and gender

The central part of the questionnaire is divided into three sections, each comprising two videos: one referring to the men's national team (videos 1A, 2B, 3A) and one of the women's national team (videos 1B, 2A, 3B). The videos were presented in alternating order to make viewing more dynamic, keep attention levels high, and avoid bias. The first part of the data analysis consists of a pivot-table examination crossing two variables: respondent gender and whether the protagonists' gender influenced the respondent's emotional engagement. The respondents were asked whether the fact that the protagonists of the clips shown were men or women influenced their emotional engagement. The contingency tables reveal a striking and theoretically informative pattern.

To provide a comprehensive overview of the survey results, the following analysis presents the cross-tabulation data through a paired system of tables. The data is organized with Tables 2, 3, and 4, which display the raw data in terms of absolute frequencies. Those data are essential for establishing the empirical weight and tracking the precise number of respondents (N) within each subgroup. Conversely, Tables 2a, 3a,

and 4a translate these counts into percentage distributions to standardize the data, thereby allowing for meaningful comparisons across different video clips.

Within the percentage tables, the data follows a specific two-level logic designed to isolate distinct analytical dimensions:

1. Row percentages (demographic subgroups): The internal values for the “Woman”, “Man”, and “Prefer not to say” rows represent the distribution within that specific gender group, with each horizontal row summing up 100% to in the far-right column. This isolates how a specific demographic reacted independently of its group size within the sample.
2. Sample percentages (the bottom “Total” row): Conversely, the very last row at the bottom of each table displays the proportion calculated across the entire sample (N=120), capturing the overarching macro-trend for each video clip.

Applying this framework to the first variable makes the transition from macro-level sample trends (Table 2) to micro-demographic details (Table 2a) immediately evident. Across the full sample (N=120), as shown in the bottom row of Table 2a, only 14 participants (11.7%) reported that protagonist gender influenced their emotional engagement in response to the male-team clip (1A), while the vast majority—106 respondents (88.3%)—reported it did not. By contrast, a look at the bottom row of Table 3a for the female-team clip (1B) reveals that a substantially larger share—32 participants (26.7%)—reported that the protagonists' gender mattered to their engagement, while 88 respondents (73.3%) indicated it did not.

Did the fact that the protagonists were men/women influence your emotional involvement? 1A	No	Yes	Total
Woman	66	7	73
Man	39	7	46
Prefer not to say	1		1
Total	106	14	120

Table 2: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 1A (N=120).

Did the fact that the protagonists were men/women influence your emotional involvement? 1A	No	Yes	Total
Woman	90.4%	9.6%	100.0%
Man	84.8%	15.2%	100.0%
Prefer not to say	100.0%		100.0%
Total	88.3%	11.7%	100.0%

Table 2a: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 1A in percentages ($N.=120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 1B	No	Yes	Total
Woman	48	25	73
Man	39	7	46
Prefer not to say	1		1
Total	88	32	120

Table 3: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 1B ($N.=120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 1B	No	Yes	Total
Woman	65.8%	34.2%	100.0%
Man	84.8%	15.2%	100.0%
Prefer not to say	100.0%		100.0%
Total	73.3%	26.7%	100.0%

Table 3a: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 1B in percentages ($N.=120$).

Disaggregating by respondent gender clarifies the source of this difference: among female respondents ($n = 73$) the proportion answering “Yes” rises from 7 out of 73

(9.6%) for 1A to 25 out of 73 (34.2%) for 1B — a difference of 24.6 percentage points. Male respondents ($n = 46$), conversely, show identical proportions of “Yes” responses in both conditions (7 out of 46 = 15.2%), indicating a consistent pattern of gender-insensitivity to protagonist sex across the two stimuli. There was only one case out of the total 120 who selected “Prefer not to say,” thus not disclosing their gender.

These results suggest that protagonist gender is not a dominant determinant of emotional engagement for the majority of viewers, but it is an appreciable factor for a meaningful minority — most notably among women when the protagonists are female. Several plausible interpretations can account for this pattern. First, the data are consistent with a representational-identification mechanism: female viewers are more likely to report increased emotional engagement when they observe on-screen protagonists who share their gender, suggesting that visibility of women in athletic roles facilitates identification, role-modeling, and resonance with the on-screen emotional narrative. This phenomenon aligns with social identity and media representation theories, which predict stronger affective responses when media subjects reflect the viewer’s salient social group. Second, the asymmetry between responses to 1A and 1B may reflect differences in salience: male protagonists in football media are a normative expectation (a default representation in the social context of football), so their presence does not markedly alter emotional engagement for most viewers. In contrast, female protagonists in football media remain less normative and therefore more salient; their presence can trigger heightened attention and affective identification for those viewers who value or recognize gender representation. Third, the rise in “Yes” responses for 1B may partially reflect a novelty or visibility effect: if female football imagery is perceived as less common, it may produce stronger immediate reactions (pride, recognition, inspiration) among viewers who identify with the group, particularly younger women or those with prior engagement in women’s sport.

It is important to emphasize that protagonist gender is not the sole or necessarily the primary driver of engagement. The majority of participants in both conditions stated that protagonist gender did not affect their engagement, implying that formal production attributes and contextual factors — such as soundtrack, editing pace, camera work,

sports commentary, narrative framing, and the broader national identity cues — likely exert a dominant influence on viewers’ emotional response. Indeed, qualitative comments collected in the dataset repeatedly invoked “music, montage, and sports commentary” as decisive elements. Therefore, gender effects observed here should be conceptualized as conditional: protagonist gender can amplify engagement for some viewers (notably women, when protagonists are women), but often operates alongside or through production choices that shape emotional salience.

The invariance of male respondents’ responses (15.2% “Yes” for both videos) is a second noteworthy outcome. Several explanatory hypotheses are possible. Men in the sample may be less predisposed to report gender-based influences on their emotional reaction in the sporting domain, either because they evaluate sport primarily through other lenses (technical appraisal, spectacle, team affiliation) or because they are less likely to perceive gender as a personally relevant cue in football. Alternatively, the proportion may reflect an underlying stability in how male viewers process gendered sports stimuli: the same fraction of men felt gender was relevant regardless of whether the protagonists were male or female, suggesting that male viewers who are sensitive to gender-related cues react consistently across contexts. This pattern requires caution in interpretation because subgroup sample sizes are moderate ($n = 46$ for men) and self-report measures can mask subtle affective responses not acknowledged by participants.

Did the fact that the protagonists were men/women influence your emotional involvement? 2A	No	Yes	Total
Woman	58	15	73
Man	41	5	46
Prefer not to say	1		1
Total	100	20	120

Table 4: intersection between respondents’ gender and the influence of the protagonists’ gender on emotional involvement in video 2A ($N = 120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 2A	No	Yes	Total
Woman	79.4%	20.5%	100.0%
Man	89.1%	10.9%	100.0%
Prefer not to say	100.0%		100.0%
Total	83.3%	16.7%	100.0%

Table 4a: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 2A in percentages ($N.=120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 2B	No	Yes	Total
Woman	64	9	73
Man	41	5	46
Prefer not to say	1		1
Total	106	14	120

Table 5: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 2B ($N.=120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 2B	No	Yes	Total
Woman	87.6%	12.3%	100.0%
Man	89.1%	10.8%	100.0%
Prefer not to say	100.0%		100.0%
Total	83.3%	11.6%	100.0%

Table 5a: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 2B in percentages ($N.=120$).

The pattern observed in the second pair of stimuli slightly nuances the findings reported in the first pair. Although most female respondents continue to indicate that protagonist gender does not substantially alter their emotional involvement, a notable minority

reported greater identification when the protagonists were women (Table 4): in the female-team clip 15 women answered “Yes” that protagonist gender influenced their engagement, compared with 9 women who answered “Yes” for the male-team clip ($n = 73$ female respondents; total sample $n = 120$). By contrast, male respondents again show a remarkably consistent pattern of gender-neutrality: the vast majority of men indicated that protagonist gender did not affect their engagement, with only a very small fraction endorsing an effect.

This replication across two independent stimulus pairs (the earlier 1A/1B tables and the present 2A/2B tables) strengthens the conclusion that female viewers are more likely, under some conditions, to report enhanced empathic response to same-gender protagonists, whereas male viewers tend to report stable responses regardless of the protagonists’ gender. The recurrence of this pattern—similar proportions and the same directional difference across distinct clips—suggests the effect is not idiosyncratic to a single video but may reflect a more general tendency in the sample.

At the same time, it must be emphasized that the majority of respondents in all conditions deny a gender effect on engagement; therefore, gender operates as an important but not universal moderator of emotional response. Future analysis should test whether the observed female sensitivity is statistically significant (chi-square tests and effect sizes) and whether it interacts with other covariates (age cohort, fan status, prior participation in sport, or empathy scores). Qualitative follow-up—examining why some women cite gender as decisive (representation, role modeling, narrative framing, production choices)—would help clarify whether the reported identification stems from intrinsic representational factors or from the way particular clips were produced and contextualized.

Did the fact that the protagonists were men/women influence your emotional involvement? 3A	No	Yes	Total
Woman	65	8	73
Man	43	3	46
Prefer not to say	1		1
Total	109	11	120

Table 6: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 3A ($N.=120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 3A	No	Yes	Total
Woman	89.0%	11.0%	100.0%
Man	93.5%	65%	100.0%
Prefer not to say	100.0%		100.0%
Total	90.8%	9.2%	100.0%

Table 6a: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 3A in percentages ($N.=120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 3B	No	Yes	Total
Woman	52	21	73
Man	41	5	46
Prefer not to say	1		1
Total	94	26	120

Table 7: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 3B ($N.=120$).

Did the fact that the protagonists were men/women influence your emotional involvement? 3B	No	Yes	Total
Woman	71.2%	28.8%	100.0%
Man	89.1%	10.9%	100.0%
Prefer not to say	100.0%		100.0%
Total	78.3%	21.7%	100.0%

Table 7a: intersection between respondents' gender and the influence of the protagonists' gender on emotional involvement in video 3B in percentages ($N=120$).

The comparison between the 3A and 3B (Table 6 and Table 7), both depicting defeats, reveals commonalities and notable differences regarding the influence of protagonists' gender on participants emotional involvement. In particular, video 3A, showing the defeat of the men national team against South Korea, elicited a pronounced level of indifference since 109 respondents out of 120 (90.8%), reported that the protagonists' gender did not influence their emotional involvement, while only 11 respondents, (9.2%), reported that it did. This video was the only one, out of the six in the questionnaire, to receive this result. By contrast, video 1B (Table 3) documenting the victory of the women national team, showed that gender was a relevant factor for a larger minority of participants since 32 respondents out of 120 (26.7%), stated that gender influenced their engagement; among these 32 respondents, 25 were women, (20.8% percent of the total sample) and 7 were men (5.8%).

These results show that of all videos, the 1B's was the one where the gender of the players, women in this case, most influenced the emotional involvement of the respondents.

In the third section of the survey, the proportion of women reporting greater involvement with female-led videos increased again, with the share of "Yes" responses rising from 8 out of 73 women (11.0%) for the male-team defeat (3A) to 21 out of 73 women (28.8%) for the female-team defeat (3B).

In conclusion, it can be stated that the videos shown indicate that only a minority of respondents are influenced by the protagonists' gender but the magnitude of that influence differs markedly across videos, with video 3A (Table 6) showing widespread indifference and video 1B (Table 3) eliciting more gender-based identification, especially among women. Analysis of response consistency further shows that male participants responded in a highly uniform manner since all 46 men answered consistently with their responses to five questions except for the penultimate one where two men differed, yielding an approximate consistency rate of 95.7 percent equal to 44 out of 46 men. Taken together, the findings suggest that women do not exhibit a strong generalized preference for female versus male videos, yet they display a slight inclination to favour videos featuring women as protagonists while men appear largely unaffected by the protagonists' gender and the viewing of male or female athletes does not significantly alter their emotional involvement.

4.1.3. Emotions and gender

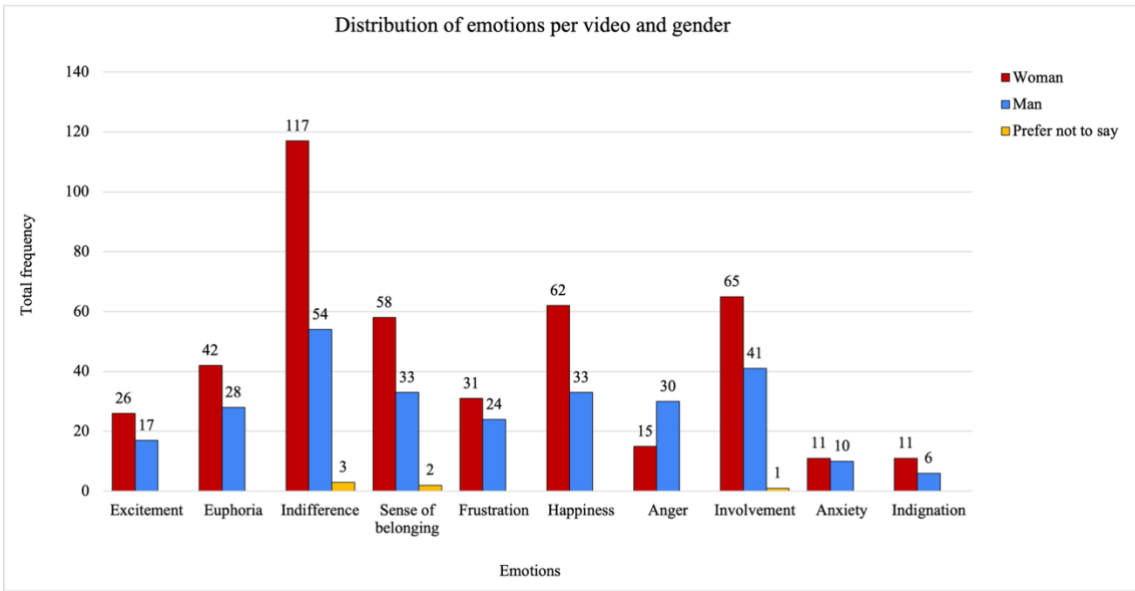


Figure 3: Bar chart showing the intersection of gender and emotional reaction among respondents.

The present analysis aims to investigate the complex dynamics of emotional engagement through a comparative study of gender-based responses. As illustrated in the provided bar chart (Figure 3), which aggregates the cumulative emotional reactions elicited by six distinct video clips, the data is disaggregated by gender—categorized as Female, Male, and Prefer not to say—to provide a granular view of the participants' experiences. The visual representation utilizes a specific color-coded scheme (dark red for female, cobalt blue for male, and ochre yellow for the remaining category) to facilitate an immediate comparative assessment of emotional mirroring, mapped across ten distinct emotional categories.

Upon examining the empirical findings, several significant trends emerge that characterize the participants' emotional landscape. First and foremost, a pervasive dominance of “Indifference” is observed across all demographic groups, with 117 reports from females and 54 from males. From an analytical perspective, this suggests that a substantial portion of the stimuli may not have reached the necessary cognitive or physiological threshold required to trigger a conscious mirroring effect in all subjects.

However, when emotional engagement does occur, it is frequently channelled through positive engagement and emotions. Specifically, categories such as “Involvement” (Female: 65; Male: 41), “Happiness” (Female: 62; Male: 33), and “Sense of belonging” (Female: 58; Male: 33) show high frequency. It is noteworthy that female respondents consistently reported higher absolute values in these categories; this quantitative gap points toward a potentially higher receptivity among women to positive social cues and collective emotional states. In stark contrast to these social trends, a critical outlier is found in the “Anger” category. Despite the female sample being numerically larger, the frequency of “Anger” was significantly higher in males (30) compared to females (15), representing the only negative emotion where male responses effectively doubled those of their female counterparts.

Building upon these observations, several interpretative hypotheses can be formulated through the lens of mirroring analysis and empathy research. A primary hypothesis suggests the existence of gender-specific mirroring triggers: the prevalence of “Anger” in males may indicate that the motor or emotional resonance triggered by the stimuli—

likely involving sporting competition or high-stakes conflict—aligns more closely with masculine socialization or biological predispositions toward competitive aggression. In this context, mirroring functions as a form of motor empathy, where the male viewer “re-lives” the physical or emotional frustration depicted on screen.

Complementing this is the hypothesis of higher social resonance in females, where the elevated scores for “Involvement” and “Sense of belonging” suggest that female mirroring mechanisms may be more oriented toward affiliative and relational outcomes. This implies a “relational mirroring” process, where the observer internalizes the success or cohesion of the group rather than individualistic conflict. Finally, the high rate of “Indifference” mentioned earlier leads to the hypothesis of an “Emotional filtering threshold”; if a viewer fails to perceive a sufficient degree of similarity or relevance with the protagonist, the mirror neuron system may remain under-activated, resulting in a lack of conscious emotional response.

In conclusion, the data confirms that emotional mirroring is not a monolithic physiological response but is a process significantly modulated by the gender of the observer. The stark divergence in “Anger” versus “Involvement” frequencies suggests that the resonance of high-tension scenes is filtered through gendered lenses, resulting in qualitatively different internal experiences of the same visual stimuli. Ultimately, this analysis provides a robust empirical basis for further exploration into how gender identity shapes our empathetic resonance in the modern media landscape.

4.1.4. Top emotional engagement per video

A significant finding for the analysis of the respondents' emotions was made possible by evaluating which of the 10 proposed emotions were most frequently elicited following the viewing of the six video clips. The bar chart (Figure 3) shows the three most frequently perceived emotions for each of the six video clips (N. = 120). It is important to note that while this discussion highlights the primary emotional peaks, all other recorded emotional reactions have been analysed too but aren't present in the chart in order to ensure a more impactful and less peripheral analysis.

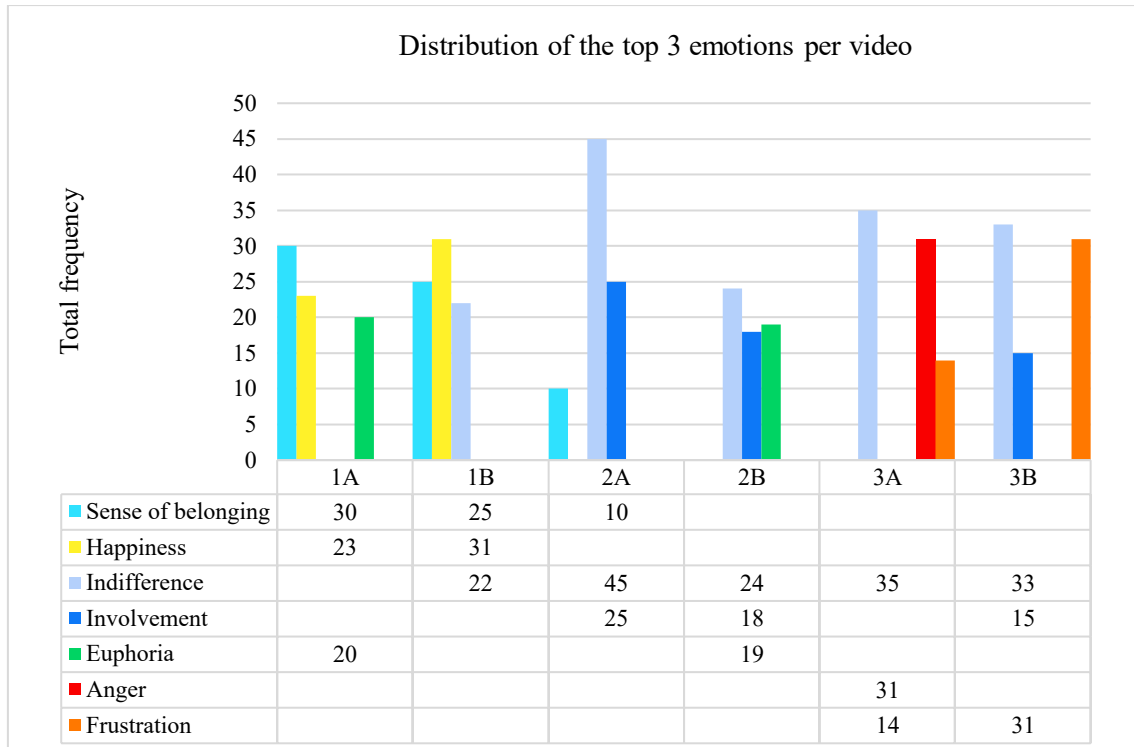


Figure 4: Bar chart showing the distribution of the 3 prevailing emotions in video 1A, 1B, 2A, 2B, 3A and 3B.

Sub-section 1. Positive resonance: The “Victory” clips (videos 1A & 1B).

The data reveals a significant positive emotional response to the first block of videos. In video 1A (Italy’s 2006 World Cup victory), the dominant emotions are “Sense of belonging, Happiness and Euphoria”, respectively selected 30, 23 and 20 times. This suggests that iconic sporting triumphs function as a powerful vehicle for collective memory; the historical significance of the two goals against Germany continues to trigger a strong “mirroring” effect, where the viewer relives the triumph as a personal and national success. Similarly, video 1B (the Women’s national team victory over Norway) shows high levels of positive engagement. The similarity in response across genders suggests that the “victory” stimulus is a universal emotional driver, capable of fostering a sense of shared identity and euphoria regardless of the gender of the athletes on screen. Furthermore, “Indifference” is also present, albeit at the lowest level across

all five choices, with a total of 22 times, following video 2B (24 votes), 3B (33), 3A (35) and 2A (45).

Sub-section 2. The “Indifference” gap (videos 2A & 2B)

A notable shift occurs in the second set of clips, where “Indifference” becomes a prominent variable. In video 2A (U-17 Women’s penalty shootout), “Indifference” reaches its highest peak, with 45 responses. This can be hypothesized as a result of “narrative detachment”: the dated quality of the footage, combined with a lack of vocal enthusiasm from the commentators, fails to provide the sensory “hooks” necessary to trigger emotional mirroring. The lack of a high-definition or immersive audio-visual experience likely left participants in a state of passive observation, but despite this detachment being predominant, emotions like “Involvement and Sense of belonging” are the next most felt emotions that the video aroused.

Conversely, video 2B (Men’s European Championship) manages to generate a more complex emotional profile despite the high indifference baseline. The deliberate editorial choice to use background music, a faster montage, and a “cliffhanger” ending (breaking the clip before the final outcome) successfully generated suspense. This suggests that cinematographic techniques—such as rhythmic editing and auditory priming—can partially compensate for a viewer’s lack of innate interest, transforming a standard sports clip into a compelling narrative that demands emotional investment. This can also be a reason why the emotions “Euphoria and Involvement” were also chosen in the video, selected 19 and 18 times respectively.

Sub-section 3. Frustration, duration, and perceived injustice (videos 3A & 3B)

The final block of videos presents the most diverse emotional data. In video 3A (Totti’s red card and the subsequent defeat at the World Cup), the high level of “Indifference” (35 responses) is a particularly interesting finding. This may be attributed to two main factors:

- Temporal constraints: The clip is significantly shorter than the others (under one minute), which may have prevented the “immersion phase” necessary for viewers to build empathy with the protagonist.
- Protagonist bias: There may be a lack of personal or emotional identification with the specific figure of Francesco Totti among some respondents, leading to a detached reaction to his expulsion.

At the same time, the emotions “Anger and Frustration” are chosen for the first time in the graph, with 31 responses for “Anger”, and 14 for “Frustration”.

On the other hand, video 3B (women’s National team defeat by England) elicited different reactions, with 31 votes for “Frustration” and 15 for the emotion “Involvement”. This clip functioned as a perfect “negative but emotional catalyst” due to several compounding factors: the bitterness of a last-minute defeat after a hard-fought match and the perceived arrogance of the opponents' celebration. From a psychological standpoint, this suggests that the “unjust” nature of the sporting outcome, combined with provocative behaviour from the “rival”, triggers an intense empathetic response in the form of collective frustration and, at analysing the video, perhaps a “negative” type of involvement.

In summary, the emotional landscape depicted in the bar charts reflects a complex interplay between the historical importance of the event, the technical quality of the footage, and the narrative structure of the clips. While this analysis has prioritized the three most frequent emotional responses per video to highlight the most significant trends, it is essential to conclude by stating that the total emotional computation—including less frequent reactions—is fully integrated into the study's percentage-based findings. These secondary data points remain crucial for a holistic interpretation of how sports media influences emotional mirroring in diverse audiences.

Sub-section 4: Peripheral data

Which emotion did the video elicit in you?	Anxiety	Involvement	Excitement	Euphoria	Happiness
1A	0.00%	15.00%	10.00%	16.67%	19.17%
1B	0.00%	17.50%	5.00%	12.50%	25.83%
2A	5.83%	20.83%	1.67%	5.83%	9.17%
2B	8.33%	15.00%	14.17%	15.83%	14.17%
3A	0.83%	8.33%	3.33%	3.33%	5.00%
3B	2.50%	12.50%	1.67%	4.17%	5.83%
Which emotion did the video elicit in you?	Frustration	Indifference	Indignation	Anger	Sense of belonging
1A	0.00%	12.50%	0.83%	0.83%	25.00%
1B	0.00%	18.33%	0.00%	0.00%	20.83%
2A	6.67%	37.50%	1.67%	2.50%	8.33%
2B	1.67%	20.00%	0.83%	0.83%	9.17%
3A	11.67%	29.17%	10.00%	25.83%	2.50%
3B	25.83%	27.50%	0.83%	7.50%	11.67%

Table 8: Intersection between elicited emotions per video in percentages.

Regarding the peripheral data (Table 8), the responses obtained with lower frequency are equally significant in understanding the mirroring mechanisms elicited by the viewed videos. In the videos depicting victories, (videos 1A & 1B), where positive emotions such as “Sense of belonging, Happiness and Euphoria” prevail, traces of “Anger and “Indignation” are nonetheless present, albeit in a low percentage (0.83% = 1 respondent).

In contrast, technical and neutral stimuli depicting the penalty shootouts, (videos 2A & 2B) saw a sharp rise in “Indifference”, which became the primary response (up to 37.50%), but while “Involvement and Euphoria” maintained a significant presence, minor data such as “Frustration and Anger” remained strictly marginal, fluctuating between 0.83% and 1.67% (1-2 respondents). This confirms that while these clips failed to engage a large portion of the audience, they also failed to trigger significant negative resentment.

Finally, negative and controversial stimuli depicting defeats (videos 3A & 3B) created a polarized landscape where “Indifference” (approx. 28%) coexisted with high peaks of “Anger and Frustration” (both at 25.83%). In this context, the minor data shifted

significantly: positive emotions like “Happiness and Euphoria”, which were dominant in the first block, were relegated to marginal roles, dropping to minimum frequencies of 3.33% to 5.83% (4-7 respondents). This inversion of minor and major data points highlights the profound impact of perceived injustice and defeat on the participants' emotional alignment.

4.1.5. Distribution of the most engaging sections by gender

This analysis presents three distinct graphical representations of the data. The first is a cross-tabulation table (Table 9) displaying the distribution of the most engaging sections among respondents, broken down by gender. The second representation (Table 9a) illustrates the exact same dataset but expresses the values as percentages of the total. Finally, the third visualization consists of a bar chart (Figure 5), which features the three reference sections (Section 1, Section 2, and Section 3) on the horizontal X-axis, and the total frequency of responses for each selection on the vertical Y-axis. Furthermore, this final chart incorporates gender as an additional comparative variable.

Which section engaged you the most?	Woman	Man	Prefer not to say	Total
Section 1	47	32	1	80
Section 2	7	7		14
Section 3	19	7		26
Total	73	46	1	120

Table 9: intersection between gender and the most engaging sections among Section 1, Section 2 and Section 3.

Which section engaged you the most?	Woman	Man	Prefer not to say	Total
Section 1	64.3%	69.5%	100%	66.6%
Section 2	9.5%	15.2%	0%	11.6%
Section 3	26.0%	15.2%	0%	21.6%
Total	100%	100%	100%	100%

Table 9a: intersection between gender and the most engaging sections among Section 1, Section 2 and Section 3, in percentages of the total.

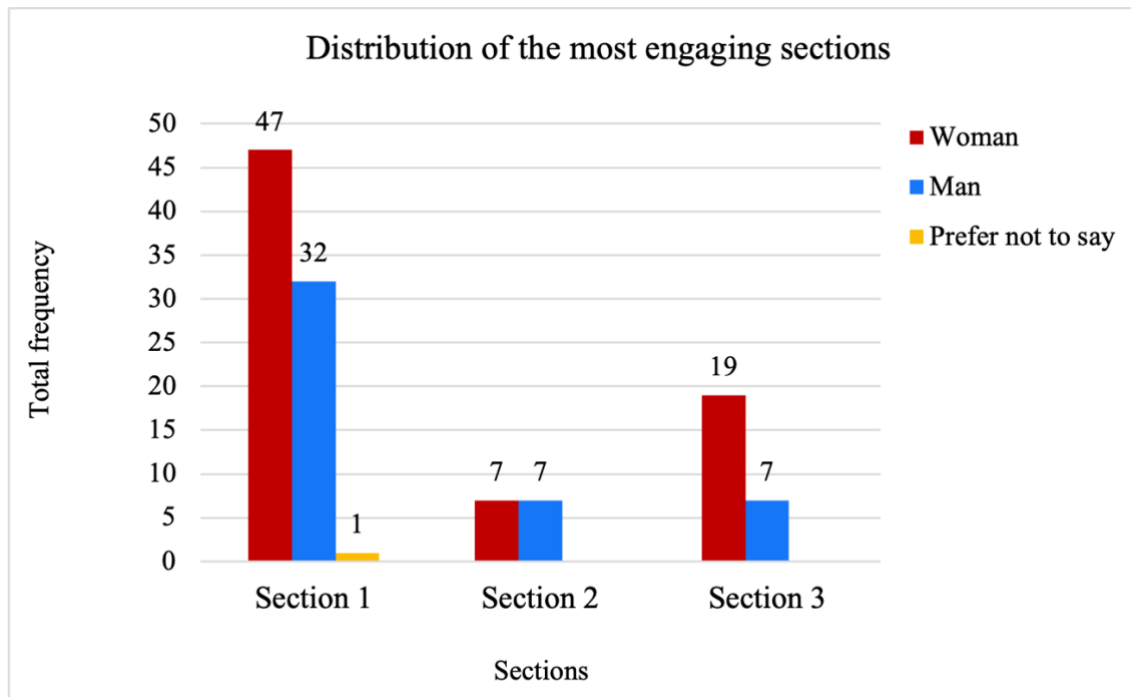


Figure 5: Bar chart showing the distribution of the most engaging sections per gender.

To briefly recall the framework, Section 1 covers the men's World Cup victory and the women's victory against Norway; Section 2 highlights the U17 women's and men's penalty shootouts; and Section 3 details the defeats in the women's European Championship and the men's World Cup.

Analysing the data across the full sample ($n = 120$; women = 73, men = 46, prefer not to say = 1), a clear majority—80 respondents (Table 9), that is 66.6% of the total (Table 9a)—identified Section 1, composed of celebratory sequences as the most emotionally engaging. Disaggregating by gender reveals that 47 of 73 women (64.3%) and 32 of 46 men (69.5%) selected Section 1. In absolute terms more women chose this section, yet as a proportion of each subgroup men were marginally more likely to report Section 1 as the most involving. In short, the preference for high-arousal, triumphant content is robust across genders.

Several factors plausibly may explain this pattern. Primarily, Section 1 offers high-valence, high-arousal stimuli—moments of collective triumph that naturally capture attention and generate intense affective responses; emotion research consistently shows that such stimuli elicit broad and immediate engagement. This highlights the critical importance of emotional valence (whether an emotion is perceived as positive or negative) and arousal (the level of physiological intensity) (Bestelmeyer et al., 2017). Moreover, victory sequences tend to activate a sense of collective identity and shared pride: viewers experience a “we-feeling” that transcends individual differences and produces strong, communal reactions. These sequences also function as potent memory cues, often evoking autobiographical recollections (for example, attending a decisive match or celebrating with family and friends), which further amplify subjective involvement.

Production choices likely magnify these effects. Celebratory clips typically combine evocative music, rapid montage, crowd reactions and emphatic commentary—elements that heighten emotional intensity. Indeed, participants’ open comments in subsequent responses, frequently singled out music and editing as decisive drivers of engagement, suggesting that form and style interact with content to produce impact. The slightly higher male proportion (69.5% vs. 64.3%) may reflect sampling variability, or it may indicate that, within this sample, male viewers who are more invested in football concentrate their engagement on victory imagery, whereas female viewers’ engagement may be more diffusely distributed across representational and narrative cues.

Methodologically speaking, qualitative coding of the free-text rationales will also be crucial to help disentangle whether respondents choose Section 1 primarily for its emotional arousal, for identity reasons, for production values, or for mnemonic resonance.

Overall, the evidence indicates that celebratory victory content functions as a powerful, cross-cutting driver of immediate emotional engagement, while gender and representational factors modulate and nuance audience responses depending on production and contextual variables.

4.1.6. Emotions and age cohorts

Which section engaged you the most?	18-28	29-39	40-50	51-61	62+	Total
Section 1	46	17	6	4	7	80
Section 2	10	2			2	14
Section 3	16	3		3	4	26
Total	72	22	6	7	13	120

Table 10: intersection between age and the most engaging sections among Section 1, Section 2 and Section 3 by age cohorts.

Which section engaged you the most?	18-28	29-39	40-50	51-61	62+	Total
Sezione 1	38.3%	14.1%	5%	3.33%	5.8%	66.6%
Sezione 2	8.3%	1.6%	0%	0.00%	1.6%	11.6%
Sezione 3	13.3%	2.5%	0%	2.50%	3.3%	21.6%
Total	60%	18.3%	5%	5.83%	10.8%	100%

Table 10a: intersection between age and the most engaging sections among Section 1, Section 2 and Section 3 by age cohorts in percentages.

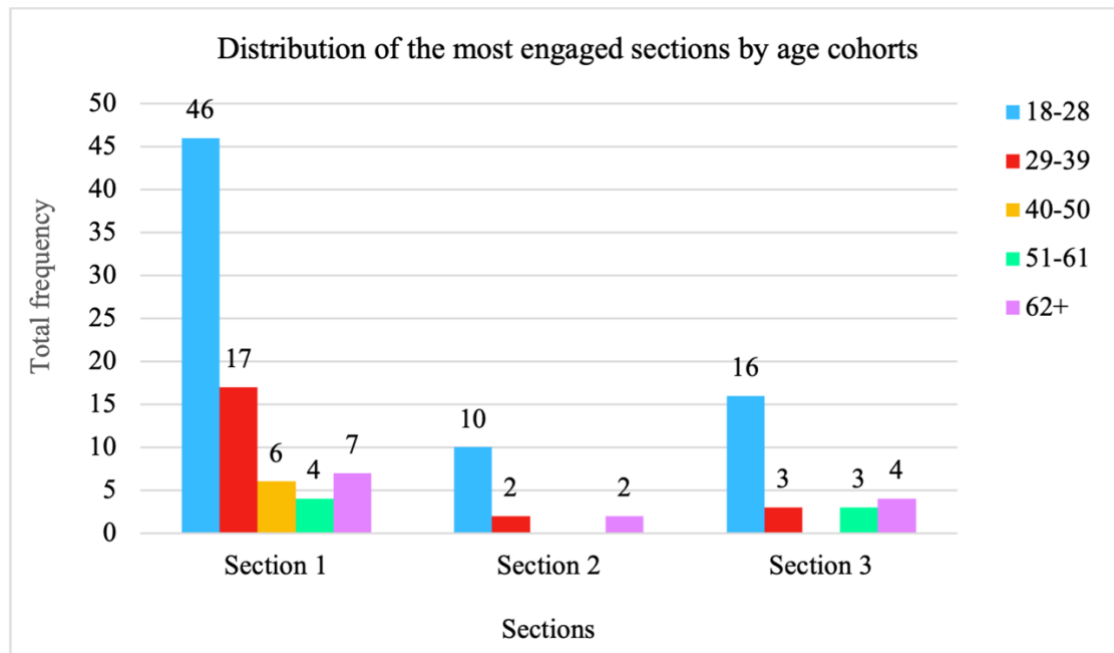


Figure 6: Bar chart showing the distribution of the most engaged sections by age cohorts.

The analysis examines the level of engagement and emotional impact elicited by the three reference sections, Section 1, Section 2, and Section 3 by respondents' age cohorts. Overall, Section 1, which highlights moments of triumph, emerged as the most impactful narrative, capturing a substantial majority of the sample with 80 total responses (Table 10), accounting for 66.6% of the total (Table 10a). This preference underscores how high-valence, positive emotional stimuli (victory and celebration) possess a superior capacity to engage individuals compared to high-tension contexts like penalty shootouts (Section 2, 11.6%) or negative emotional states like sports defeats (Section 3, 21.6%).

From a demographic perspective, a clear generational trend is observable across the sample (N = 120) (Figure 6). The youngest demographic cohort (aged 18–28) represents the most responsive and highly engaged segment, making up 60% of the entire sample (72 respondents). Within this specific group, Section 1 recorded its highest engagement with 46 responses (representing 38.3% of the total dataset), followed by Section 3 with 16 responses (13.3%) and Section 2 with 10 responses (8.3%).

As age increases, a sharp contraction in total engagement is visible, particularly within the 40–50 age bracket, which accounts for a mere 5% of total responses, directed exclusively toward Section 1. Interestingly, while older cohorts exhibit significantly lower response volumes overall, Section 1 consistently remains the dominant preference across all age groups, including the 62+ demographic, which allocated 7 out of its 13 total responses (5.8% of the total) to the narrative of victory. In conclusion, the data demonstrates that while engagement levels are heavily skewed toward the younger demographic, the psychological impact of positive sports triumphs acts as a universal emotional driver across the entire age spectrum.

4.1.7 Empathy and gender

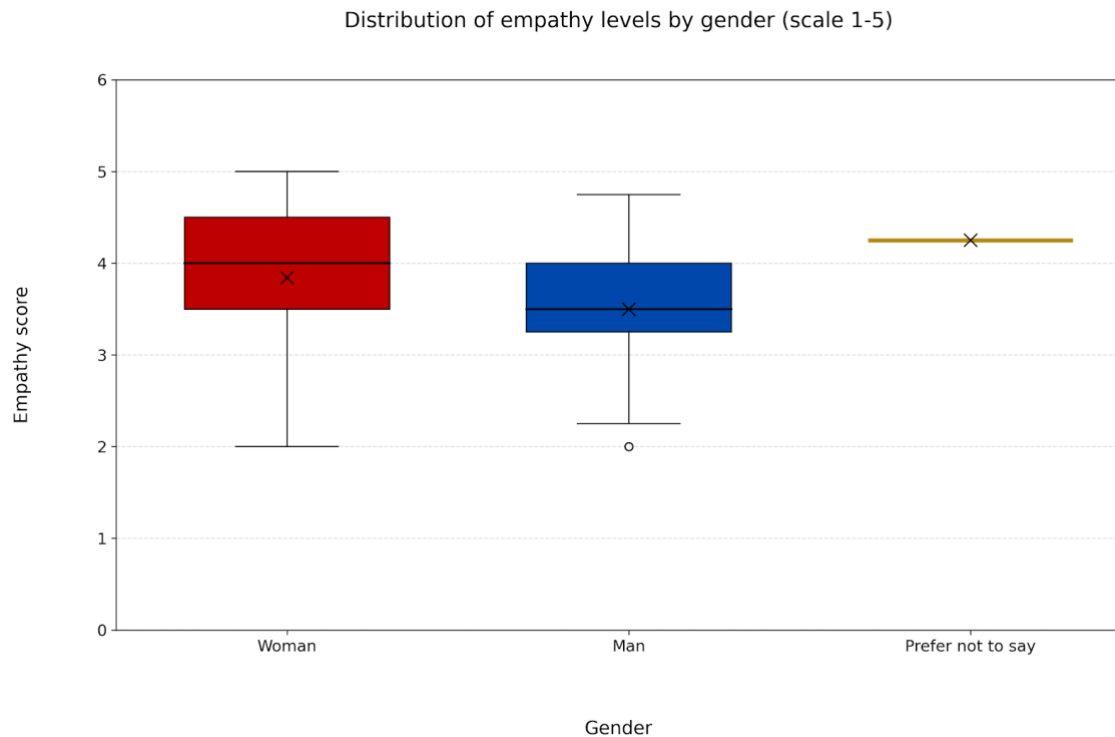


Figure 7: Box plot showing a comparative analysis of empathy levels by gender based on the participants' responses to five questions, measured on a 1-to-5 scale.

To provide a rigorous representation of the empathic sensitivity across the sampled population (120 participants), the data was analysed using the Box and Whisker Plot (commonly referred to as a box plot), a method originally formalized by Tukey (1977) for exploratory data analysis. This non-parametric graphical tool was specifically selected for its efficacy in illustrating the distribution of a quantitative sample through essential indices of position and dispersion, offering a more nuanced perspective than a simple comparison of averages. In statistical analysis, an index of dispersion is a synthetic metric that describes the variability within a quantitative distribution. It measures the degree to which individual observations deviate from a central reference

point. This reference point is typically an index of position, with the arithmetic mean and the median being the most prevalent indicators in scientific applications.

In the context of this study, the median was prioritized as the primary indicator of central tendency. The median represents the specific value assumed by the statistical unit located exactly at the geometric centre of the ordered distribution.

The decision to use the median rather than the mean is grounded in the principle of statistical robustness. Unlike the arithmetic mean, the median is not disproportionately influenced by outliers (extreme values) or skewed data patterns. In psychological research—where responses on Likert scales often exhibit “ceiling” or “floor” effects (clustering toward the maximum or minimum values)—the median provides a more faithful reflection of the “typical” participant's psychological state. This methodological choice ensures that a few extreme responses do not distort the overall representativeness of the gender-based cohorts.

The graph (Figure 7) is represented through a central rectangle—the “box”—from which two linear segments—the “whiskers”—extend. This structure allows for a clear visualization of how the population is partitioned:

- The Box (interquartile range): The rectangle is delimited by the first quartile ($q_{1/4}$) and the third quartile ($q_{3/4}$). Quartiles are positional parameters that partition the sorted dataset into four equal subsets. The first quartile (Q_1) marks the 25th percentile, while the third quartile (Q_3) marks the 75th percentile. The area within the box, known as the “interquartile range” (IQR), effectively captures the central 50% of the population, highlighting where the core of the data resides.
- The internal median line: An horizontal line divides the box at the median, demonstrating the exact balance point where the distribution is split into two equal halves.
- The whiskers: These segments extend to the minimum and maximum values observed within the dataset. They illustrate the overall range of the sample and the reach of the distribution's tails, revealing the full extent of the empathic scores reported by participants.

- The Mean ($\bar{x}$): represented by an “x”, the arithmetic mean serves as a secondary reference point to highlight distributional asymmetry.

The empirical evidence derived from the four empathy-specific items reveals a distinct divergence in self-reported empathy when disaggregated by gender: Through this graphical arrangement, the dataset is segmented into four equally populated intervals, each containing 25% of the statistical units. This configuration allows for an immediate, multi-dimensional assessment of the data. To better understand the box plot, there are some fundamental elements that need to be analysed:

- Overall spread: The total distance between the upper and lower whiskers provides a clear visualization of the total dispersion, allowing for a direct comparison of how “diverse” the responses are within each gender category.
- Density and concentration: A compressed box or whisker indicates a high density of responses within that specific range, suggesting a shared consensus among participants. An example of this density is the third demographic category, 'Prefer not to say', that presents a unique case within the distributional analysis. Although this group is represented by a single respondent ($N = 1$), the recorded empathic score of 4.25 is remarkably high, positioning this individual above the median scores of both the female and male cohorts.

From a statistical perspective, this category exhibits absolute convergence: the arithmetic mean ($\bar{x}$) and the median coincide perfectly. This alignment results in a symmetrical point-distribution, which, unlike woman and men distributions, serves as a stable analytical benchmark. The lack of dispersion in this category is a direct mathematical consequence of the sample size; however, the high value reported warrants qualitative consideration.

It could be hypothesized that the individuals who opted for gender-neutral identification might possess a heightened self-awareness or a more nuanced perception of social dynamics, which aligns with the elevated empathic concern recorded. While these results cannot be generalized due to the limitation, they

offer a significant data point that enriches the overall diversity of the empathic spectrum observed in this study.

- Symmetry and outliers: The male cohort is characterized by a high degree of distributional symmetry, evidenced by the exact alignment of the mean and median at 3.50. While this suggests a balanced central tendency, the extended range of the whiskers—reaching the absolute minimum of the scale—highlights a significantly higher inter-individual variance compared to other groups. Consequently, empathy within the male sample appears less as a concentrated norm and more as a diverse spectrum. The convergence of mean and median in this context serves as a statistical anchor, confirming that despite the broad internal differences, the collective empathic orientation of the group remains stable at a moderate-high level.

Furthermore, a distinctive feature of the male cohort's distribution is the presence of an outlier, represented by an open circle at the 2.00 mark, situated below the lower whisker. In a box plot, whiskers typically extend to the lowest and highest values. Any data point beyond this threshold is classified as an outlier. The outlier at 2.00 indicates that while the vast majority of male participants reported empathy scores between 2.25 and 4.75, there is at least one individual whose self-perception of empathy is significantly lower than the rest of the group's "normal" range distribution. By isolating this single data point as an outlier, the lower whisker does not extend to the absolute minimum—avoiding distortion when a value is situated too far from the bulk of the data—and instead focuses on the majority of the distribution. The result is a clear distinction between the consistent behavioural patterns of the majority and the unique, extreme scores that characterize the full spectrum of the sample.

To conclude, the fact that the higher whisker does not reach the 5.00 mark indicates that, within this specific sample, no male respondent recorded the highest possible score across all four empathy items. This suggests a "ceiling" at 4.75, which, while high, remains mathematically distinct from the absolute peak of the Likert scale.

- **Skewness:** The position of the median relative to the box boundaries reveals whether the distribution is balanced or skewed toward a specific end of the scale. For example, the female cohort (Woman), demonstrates a superior empathic orientation with a median of 4.00 and a mean of 3.84. The distribution is highly concentrated toward the upper bound of the scale (IQR: 3.25 – 4.50), with a minimum value of 1.75. The high proximity between the median and the top of the box suggests a strong consensus toward high empathic sensitivity. Nevertheless, the negative skewness is caused by a small subset of respondents who reported scores significantly lower than the group's central tendency (as shown by the lower whisker extending to 1.75). These scores change the relative positioning of the arithmetic mean (represented by the “x”). As we can see in the graph for this group, the mean (x) is positioned slightly but visibly below the median (4.00). These lower values exert a “mathematical pull” on the mean, dragging it downward, away from the median, since the mean is sensitive to every single observation.

Overall, the female sample exhibits a high level of empathic sensitivity characterized by a robust consensus, as evidenced by a median value of 4.00 which effectively shields the analysis from the downward skew caused by limited lower-scoring outliers. Prioritizing the median over the mean preserves the statistical integrity of the dataset, allowing the prevailing psychological trend to emerge clearly without being obscured by isolated exceptions. Furthermore, the minimal distance between the third quartile and the median underscores a significant internal consistency, confirming a shared emotional landscape defined by high empathic engagement.

Psychological and methodological interpretation

From a methodological point of view, the divergence between the mean and the median in the female group justifies the use of the median as the more representative indicator of the “typical” empathic response. It suggests that while the “average” (mean)

is slightly dampened by a few individual exceptions, the prevailing psychological trend among women in this study is one of high empathic resonance.

This asymmetry distinguishes the female cohort from the male cohort. While both groups show high variability, the female distribution is “anchored” at the top of the scale, with its average influenced only by a sparse tail of lower scores. This confirms that for the female gender, high empathy is not just an average value, but a concentrated behavioural norm within the sampled population.

In summary, the box plot analysis reveals a nuanced distinction in how gender influences empathic consistency. The male distribution appears more compact and strictly bounded within its symmetrical range, with no individual reaching the absolute peak of the scale. In contrast, while the female cohort exhibits a negative skewness between the mean and the median, it demonstrates a significantly broader response range. This group covers a wider spectrum of the scale, extending from lower scores up to the maximum empathy level of 5.00. This suggests that gender-based generalizations should account for the fact that the female population, despite a higher central consensus, encompasses more extreme peaks of empathic sensitivity and a greater overall diversity in the breadth of responses compared to the male sample. This difference among the primary two groups, represents a significant divergence in how the two genders self-perceive their “affective resonance” and “perspective-taking” abilities.

Neuropsychological implications

From a neurobiological standpoint, these results align with existing literature suggesting that the Mirror Neuron System (MNS) often exhibits higher activation in women. (Cheng et al., 2008; Schulte-Rüther et al., 2008). This heightened baseline of empathy suggests that female viewers may possess a more permeable emotional barrier when exposed to sporting stimuli. Consequently, the mirroring of a televised athlete’s triumph or agony is not merely a cognitive acknowledgment of the event but a visceral internal simulation (Cheng et al., 2008; Schulte-Rüther et al., 2008).

These findings can be discussed through the lens of social role theory, originally formulated by Eagly (1987). The higher scores among women may reflect a lifelong socialization toward “emotional labour” and a “communal orientation,” which systematically enhances their sensitivity to non-verbal and facial cues (Eagly & Wood, 2012; Hall, 1978). (as seen in the empathy questions regarding understanding feelings without explicit words). In the context of this thesis, this means that the female participants were potentially more attuned to the “human element” of the football clips—the facial expressions of players or the body language of defeat—rather than just the technical outcome of the match.

Furthermore, this higher empathetic baseline provides a critical interpretive key for the emotional peaks observed in the video analysis: The “Indifference” threshold.

4.1.8. The “Indifference” threshold

The following analysis concerns the threshold of indifference of respondents, divided by gender, towards individual videos.

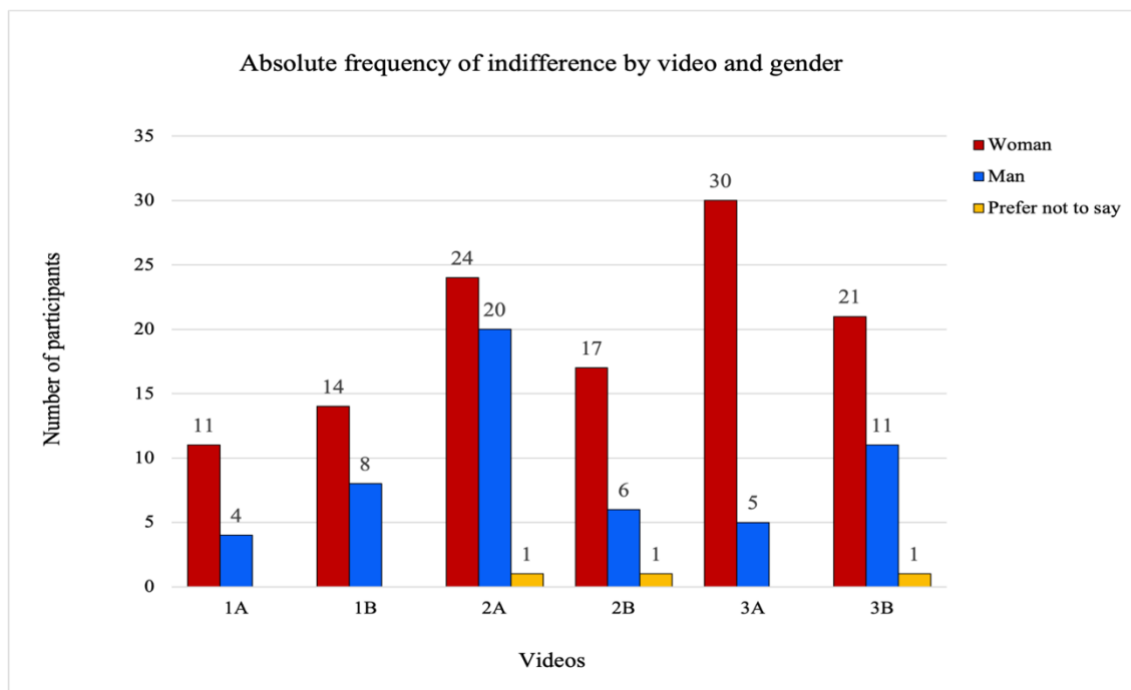


Figure 8: Bar chart showing the absolute frequency of indifference in video 1A, 1B, 2A, 2B, 3A and 3B by gender.

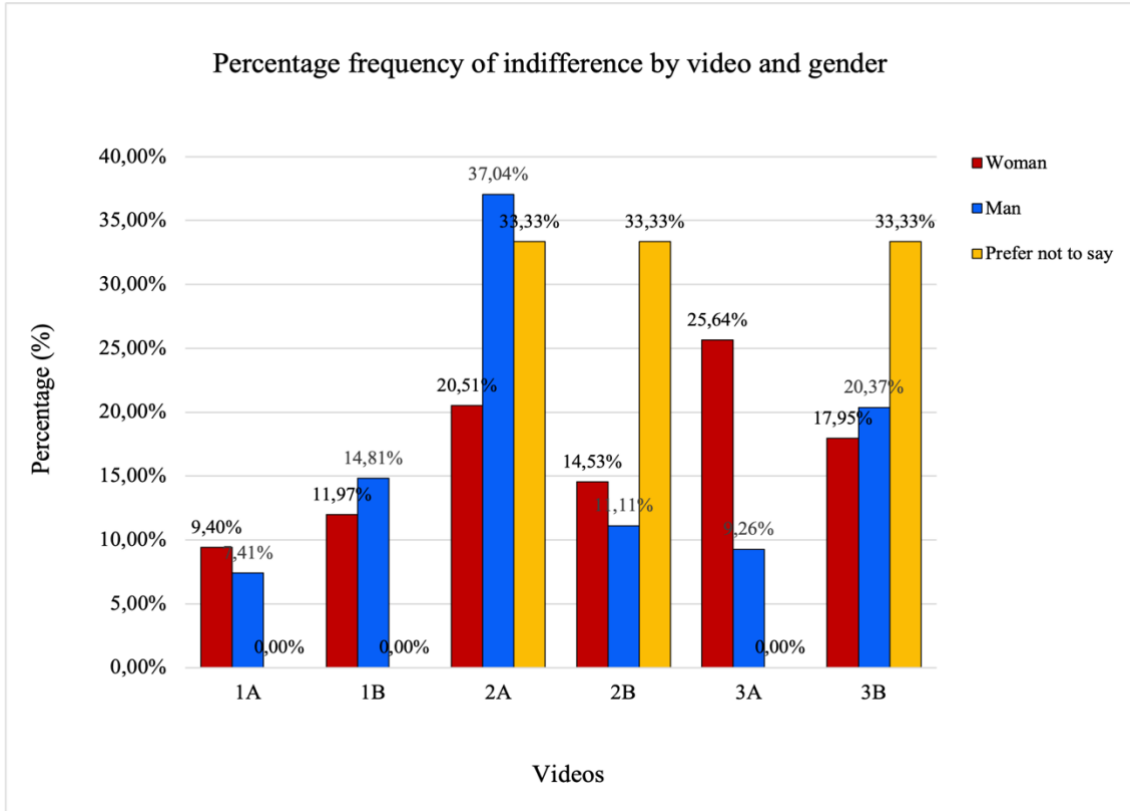


Figure 8a: Bar chart showing the percentage of indifference in video 1A, 1B, 2A, 2B, 3A and 3B by gender.

Absolute frequency chart (the “raw scale”)

The first chart (Figure 8) shows the actual number of individuals who reported indifference. Its primary goal is to provide a sense of the “real weight” of the responses within the total sample. It shows exactly how many people remained detached during a specific stimulus. From this, can be observed the literal distribution of responses, which is useful for understanding the overall volume of the data collected.

Percentage (normalized) chart (the “relative incidence”)

Before diving into the specific emotional responses, it is imperative to clarify the methodological choice of using column percentage normalization for the data

representation. In this study, the sample size between genders is inherently unbalanced, consisting of 73 females, 46 males, and 1 “Prefer not to say” respondent, resulting in a total of 174. Utilizing absolute frequencies alone would have resulted in a significant “scale bias,” where the female responses would visually dominate the charts simply due to their higher headcount, potentially leading to a misleading interpretation of the data.

To address this, has been adopted the “% of column total” approach to “normalize” the groups. This scientific method shifts the focus from raw counts to the proportional incidence of a specific emotion within each gender group. While absolute numbers show the volume of responses, this normalized graph (Figure 8a) reveals the true “intensity” of the emotional reaction. For instance, a raw count of 10 indifferent men represents a much higher percentage of the male population than 10 women do for the larger female cohort. Furthermore, this process hasn’t been done through the total percentage of the total, because it would have been too similar to the first graph.

By eliminating the weight advantage of the more numerous groups, this approach allows to answer the question: “Proportionally, which gender is more prone to indifference?”. This provides a level playing field for comparative analysis, ensuring a scientifically rigorous discussion on gender-based emotional resonance and allowing for the identification of genuine emotional trends rather than simple demographic reflections.

The statistical irrelevance of the “Prefer not to say” category

Taking into consideration the second chart (Figure 8a), a visual observation of it reveals extreme oscillations in the “Prefer not to say” category, often reaching peaks of 33.33% or 0%. It is imperative to underline that from a strictly statistical and qualitative standpoint, these values must be treated as statistically irrelevant for the broader conclusions of this thesis.

The category consists of a single respondent (N=1). In the context of column normalization (Figure 8a), if this individual selects “Indifference,” the resulting value

for that column is not a representation of a trend, but a binary reflection of a single person's choice. Mathematically, since the respondent showed indifference in 3 out of 6 videos (videos 2A, 2B and 3B), the percentage appears disproportionately high.

It is important to acknowledge that the inclusion of this category in the bar charts is graphically impactful, sometimes even overshadowing the trends of the larger groups. This is a direct consequence of the normalization process: because the “Prefer not to say” column has a total base of 1, its response is amplified to a maximum degree.

In a research context, while it is ethically correct to include all respondents to respect the diversity of the sample, the “Prefer not to say” data should be viewed as a qualitative outlier. Its presence in the normalized graph serves as a reminder of the sample's composition but does not contribute to the “gender similarity” or “gender gap” hypotheses discussed in the following sections.

The instances where the “Prefer not to say” group hits 33.33% (videos 2A, 2B, and 3B) are particularly visible. The reason for this individual's specific indifference in the technical/suspense phase (videos 2) and the final defeat (video 3B) could be attributed to a variety of subjective factors—ranging from a lack of interest in football to a personal detached viewing style—that cannot be generalized. Therefore, the focus of the subsequent analysis will remain strictly on the comparison between the male and female cohorts, where the sample sizes ($N=46$ and $N=73$) provide the necessary robustness for drawing psychological and sociological inferences regarding sports-induced empathy.

Therefore, in the absolute frequency chart (Figure 8), this data point is almost invisible, which accurately reflects its minimal impact on the overall sample. However, in the normalized chart (Figure 8a), the percentage is mathematically amplified (as 1 person equals 100% of that specific category). While this is graphically striking, it is treated as a qualitative outlier and is statistically irrelevant for the general conclusions of the study. The scientific focus remains on the comparison between the male and female cohorts, where the sample size provides the necessary robustness for identifying significant behavioural patterns.

Analysis of the charts

For a complete analysis, it is essential to outline the data processing workflow adopted to transform the raw survey responses into the analytical charts presented. The objective was to create a clear, comparative view of emotional engagement across different video stimuli, segmented by gender.

The transition from raw data to final visualization followed a structured four-step process:

1. **Data restructuring:** The original dataset followed a horizontal structure where each video had its own column. To allow for a multi-dimensional analysis, the data was “verticalized.” This involved creating a unified database where each row represents a single observation characterized by three variables: video, participant gender, and emotional response.
2. **Pivot table synthesis:** Using the restructured data, pivot tables were generated to aggregate the frequencies of the “indifference” response. This allowed for the intersection of the six video stimuli (1A through 3B) with the three gender categories (woman, man and prefer not to say).
3. **Absolute frequency mapping:** The first level of visualization focused on absolute counts—the raw number of participants who selected indifference for each video.
4. **Column normalization:** On the other hand, the second graph (Figure 8a) was made through the same data formation and grouping process but calculated at the end in percentage terms. The total data was transformed into column percentages, and this step was crucial to “level the playing field” between groups of different sizes, particularly given the sample imbalance between the two main groups (73 females vs. 46 males).

To provide a comprehensive understanding of the phenomenon, two distinct types of bar charts are then utilized. Understanding the difference between them is vital for the interpretation of the study’s findings.

The first bar chart titled, "Absolute frequency of indifference by videos and gender", (Figure 8) that illustrates the raw count of respondents who selected "Indifference" for each clip. This first visualization is essential for identifying the total volume of responses within the sample (N. = 174). The second bar chart titled "Percentage frequency of indifference by videos and gender", (Figure 8a) shows the percentages of each gender by videos to "normalize" the previous data, given that the two main gender groups are of different sizes (N. women = 73, N. men = 46).

Analysis of the chart: "Absolute frequency of indifference by videos and gender"

When evaluating the responses obtained in the first chart (Figure 8) through the lens of absolute frequency, the raw data provides a direct mapping of the physical headcount within the sample, illustrating exactly how many individuals experienced a lack of emotional resonance during each clip. In the opening phase, the raw numbers show a relatively low baseline of detachment, with video 1A recording 11 women and 4 men, which increases slightly in video 1B to 14 women and 8 men, while the single "Prefer not to say" respondent remains at zero for both introductory triumphs. This initial engagement suggests that the historical memory of the 2006 male World Cup victory and the competitive nature of the women's victory against Norway were generally successful in capturing the attention of the participants, preventing widespread detachment from the outset.

As the investigation progresses into the second phase, a dramatic surge in absolute detachment becomes visually dominant. Video 2A, which features the 2015 Under-17 women's penalty shootout, registers a substantial spike with 24 women, 20 men, and the sole "Prefer not to say" participant all selecting indifference. This widespread detachment can be heavily attributed to structural and qualitative factors, as the footage suffered from a flat, unengaging sports commentary and dated editing that failed to build narrative tension. In stark contrast, video 2B, which displays the Euro 2020 men's penalties against Spain, witnesses a significant drop in raw numbers, falling to 17 women and just 6 men, despite the "Prefer not to say" participant remaining indifferent. This recovery demonstrates how modern media production, cinematic suspense, an

open ending, and an evocative musical score can successfully re-engage an audience, cutting through raw detachment by transforming a standard sporting event into a high-stakes narrative.

The final phase explores negative emotions through defeat and frustration, exposing a massive divide in raw volume. Video 3A, depicting Totti's iconic 2002 World Cup red card, marks the absolute highest frequency of indifference for the female group with 30 counts, while the male group drops to its lowest absolute level with only 5 respondents. The brief duration of this clip, under one minute, coupled with a lack of historical or cultural ties to that specific sporting injustice, created a severe narrative disconnect for many female viewers, whereas the male audience remained highly reactive. Lastly, video 3B, showcasing the women's Euro 2025 defeat against England, shows a stabilization in raw volume with 21 women and 11 men reporting indifference, alongside the “Prefer not to say” individual. While this absolute perspective successfully charts the raw distribution of the 174 responses, it inherently suffers from scale bias due to the uneven sample sizes of the demographic groups, making a transition to relative frequencies statistically imperative.

Analysis of the chart: “Percentage frequency of indifference by videos and gender”

To eliminate the scale bias inherent in the raw headcount and achieve a scientifically rigorous comparison, the second analysis shifts entirely to relative frequencies using column percentage normalization (Figure 8a). By evaluating the data as a proportional breakdown where each gender column represents 100% of that demographic's indifferent responses, the analysis measures the internal intensity of detachment within each group, rather than their sheer volume.

This methodological shift reveals that during the initial phase, indifference remains at its lowest baseline for both major cohorts, yet the internal trends diverge. In video 1A, the iconic 2006 World Cup victory limits male indifference to just 7.41%, reinforcing the power of a shared cultural legacy. However, when transitioning to the female victory against Norway in video 1B, the internal detachment among men nearly doubles

to 14.81%, while the female sample remains proportionally stable at 11.97%. This early variation indicates that even within highly engaging baseline conditions, a lack of long-term historical legacy and a lower degree of gender identification can trigger a rapid proportional drop-off in male emotional resonance.

This internal volatility becomes significantly more pronounced during the second phase, where media production elements actively dictate the boundaries of audience engagement. In video 2A, featuring the 2015 Under-17 women's penalties, the male sample reaches its absolute peak of internal detachment, with 37.04% of all indifferent men tuning out. This surge highlights how flat commentary and unengaging editing can create a profound cinematic distance, leaving more than a third of the demographic emotionally isolated. Conversely, video 2B completely reverses this trend as male indifference plummets to 11.11%, marking a remarkable internal decrease of 25.93 percentage points. Since the penalty shootout remains identical between the two clips, this dramatic shift underscores the primary finding that modern narrative construction, like the atmospheric music, and structural suspense are far more deterministic in generating empathy than the sport itself. Meanwhile, the female population displays a much higher resilience to these production variances, experiencing a light oscillation from 20.51% down to 14.53%, showing that their emotional connection was less dependent on the cinematic frame.

The final phase introduces the second sharpest proportional gender divide of the chart, highlighting how historical ties and in-group dynamics dictate defensive emotional responses. In video 3A, Totti's controversial 2002 red card compresses male indifference to its absolute minimum of 9.26%, proving that the historical injustice still triggers other emotions than indifference within nearly the entire male cohort. For the female sample, however, this clip evokes their highest internal detachment at 25.64%, illustrating a clear narrative disconnect where the clip's extreme brevity prevented viewers without pre-existing cultural attachments from building sufficient tension. On the other hand, this dynamic is inverted in video 3B, where the painful Euro 2025 defeat against England causes female indifference to drop to 17.95%. The arrogant, plateal celebration of the English striker effectively serves as an in-group empathy catalyst, pulling the female audience back into active engagement, whereas the male cohort

detaches further, rising to 20.37%, possibly due to a structural lack of alignment with the specific suffering of that tournament.

A crucial statistical nuance within this normalized framework manifests in the extreme visual oscillations of the “Prefer not to say” category, which consistently registers spikes of 33.33% across videos 2A, 2B, and 3B. While these three bars are highly impactful from a graphic design point of view, they represent a distinct mathematical artifact of column normalization rather than a broader sociological trend. Because this specific demographic column is comprised of a single respondent (N=1), any individual choice is amplified to an absolute value. The individual happened to select indifference exactly three times out of the six stimuli, resulting in a perfectly repeating 33.33% metric. Therefore, while it remains ethically necessary to display this minority category to maintain total transparency regarding the sample's composition, its high visual prominence must be treated as a qualitative outlier, leaving the robust and balanced data of the male and female cohorts as the true foundation for the study's conclusions on mediated empathy.

Comparative findings — Figure 8 and Figure 8a

Following a detailed analysis of both visualizations, it is evident that the two charts cannot be directly compared, as they operate on fundamentally different analytical dimensions. Although both illustrate the exact same emotional state—indifference elicited by the video stimuli—the conflicting results they present demonstrate that they serve distinct research purposes. The first chart provides a practical, visual representation of the absolute headcount within the sample, mapping the literal volume of individual responses. Conversely, the second chart normalizes these figures into column percentages, assessing the internal intensity of the emotion within each specific gender demographic.

This methodological divergence is clearly highlighted when comparing specific video stimuli across both frameworks, where several complete trend inversions occur. In the first part, while video 1A presents relatively aligned results between both metrics, video

1B immediately exposes the mathematical contrast. In absolute terms, women appear more indifferent than men (14 women vs. 8 men); however, the normalized data reveals an opposite reality, demonstrating that men actually experienced a higher proportional rate of detachment (14.81% men vs. 11.97% women).

An even more striking and controversial divergence manifests in video 2A. In terms of absolute frequency, female participants seem to exhibit greater detachment (24 women vs. 20 men). Yet, once the scale bias is eliminated through normalization, the result completely reverses: the male cohort exhibits a profound surge in indifference, outpacing the female group by a substantial margin of 16.53 percentage points.

A final instance of this phenomenon is observable in video 3B. Here, the absolute data displays a higher headcount for the female sample (21 females vs. 11 males), whereas the percentage-based framework indicates a higher relative incidence among men, albeit by a narrower margin of 2.42 percentage points.

These discrepancies underscore a critical statistical truth: even when examining the exact same psychological phenomenon, the choice of measurement scale radically shapes the empirical outcome. When the research objective requires identifying the literal number of participants, the absolute frequency chart remains the correct reference point. However, when evaluating the broader, proportional impact of a stimulus on a specific demographic, the normalized percentage chart is scientifically imperative. Integrating both models within this thesis was a deliberate methodological choice designed to deepen the critical analysis, successfully demonstrating how changing the analytical lens inherently transforms the interpretation of the empirical reality too.

4.1.9. Analysis of engagement drivers and barriers to the 2006 men's World Cup victory (video 1A)

Introduction and structure of the dataset

This section analyses the answers obtained after the display of the very first clip regarding the 2006 men's world cup victory. From the very beginning, it is essential to recall the uniform sequential structure of the questionnaire applied to each video stimulus within the questionnaire. The analytical framework relies on a two-step "funnel" approach designed to isolate and examine the nature of user engagement. First, participants were presented with a binary filter question: "Did you feel emotionally engaged by the video shown?". This initial step served to segment the sample into two distinct macro-groups based on the presence or absence of an emotional connection. Immediately following this, respondents who answered affirmatively were funnelled to a second, multi-categorical item: "If yes, which element contributed most to your emotional engagement?". By utilizing this conditional logic, the study ensures that the subsequent analysis of the qualitative categories is strictly grounded in a verified state of emotional engagement. This method prevents the options from being diluted by neutral or unengaged feedback, thereby strengthening the internal validity of the dataset.

Building upon this structural framework, this subsection provides a detailed analysis of the feedback obtained from video stimulus 1A. Within the architecture of the survey, this specific clip was utilized to examine the dynamics of peak positive emotional valence, collective euphoria, and national celebration. In alignment with the funnel structure, the subsequent data analysis focuses exclusively on the cohort of respondents who answered affirmatively ("Yes") to the primary filter question, identifying the exact elements that served as determinant facilitators for their psychological engagement.

From a methodological point of view, the data was gathered using a mixed-format question design that offered a combination of pre-selected closed options and an open-ended "Other" field. This structure allowed participants to either align with predefined theoretical facilitators or articulate their personal, qualitative experiences in their own words. To preserve the authentic voice of the respondents and ensure that no nuanced

feedback was omitted, a subsequent process of coding was performed on all qualitative text entries. Every open-ended response was systematically unpacked, analysed semantically, and grouped into new recurring thematic blocks. Doing so, the result is an extension of the original closed categories to provide a comprehensive and wide view of the viewer experience.

As a result of this comprehensive categorization process, seven distinct analytical categories were established to map the entire spectrum of engagement drivers:

- Category 1 (Same gender): Derived from the pre-selected options, this category captures the influence of demographic affinity, specifically focusing on how the shared gender between the viewer and the players on screen favoured a baseline connection (“The fact that the protagonists are of my same gender”).
- Category 2 (Video construction and editing): A pre-selected structural option that accounts for the formal and technical qualities of the media product, including the clip's rhythm, audio-visual synch, and choice of background music (“The way the video was structured”).
- Category 3 (Interest in sport/football): The final pre-selected option, which isolates the respondents' prior personal interest, baseline passion, and existing consumption habits regarding football and sports culture in general (“The fact that I follow/am interested in sports/football”).
- Category 4 (Memories and nostalgia): The first category emerged from the open-ended responses. It groups all entries rooted in autobiographical memory, temporal distancing, and nostalgia, capturing how the video acted as a cognitive bridge to past life stages, family moments, or youth recollections.
- Category 5 (Sense of belonging and patriotism): This category synthesizes qualitative responses that emphasized macro-identity factors, national pride, and a shared socio-cultural attachment to the Italian national team and the country itself.
- Category 6 (Commentary): Emerging as a standalone technical driver, this classification aggregates responses highlighting the aural and narrative framing of the video, specifically focusing on the emotional impact and delivery of the sports commentator.

- Category 7 (Shared joy): Rooted in empathy and emotional contagion, this final category captures responses centred on the visible happiness of the players and fans. It illustrates the mirroring effect at its maximum and explicit level, where the viewer's engagement is directly engaged by witnessing and absorbing the pure joy displayed by others.

Crucially, because respondents frequently highlighted multiple elements within their open-ended text, the following analysis does not treat the data as mutually exclusive individual votes. Instead of calculating a simple headcount of “Yes” voters for the first graph, and “No” for the second one, the analytical focus is placed on the cumulative frequency of the motivations. Consequently, the resulting dataset reflects the absolute resonance and relative weight of each individual thematic component, offering a comprehensive look at the multi-faceted nature of sports media engagement.

Data displays

In addition to the structural layout, a deliberate dual-tone chromatic strategy is implemented to reflect the underlying data collection methodology visually. Rather than employing multiple distinct colours—which could inadvertently clash with the emotional color-coding used in previous sections—the chart utilizes two specific shades of blue. A darker, saturated blue is assigned exclusively to the pre-selected structural categories (Categories 1, 2, and 3), representing the deductive framework of the questionnaire. Conversely, a lighter, softer blue is applied to the categories that emerged inductively from the open-ended text entries (Categories 4, 5, 6, and 7). This chromatic distinction provides an immediate visual breakdown, allowing the reader to instantly differentiate between the baseline theoretical drivers and the spontaneous, qualitative insights articulated by the respondents. To let the visual analysis be congruent and immediate, this selection of colours per categories is applied for both charts analysed in the section.

For the purposes of this analysis, choosing a horizontal bar chart over a traditional vertical column chart has been a deliberate methodological decision based on data visualization best practices. 3 main reasons have been taken in consideration:

- Visualization and cognitive biases: The thematic categories identified within this study contain relatively long descriptive phrases (such as “Video construction and editing” or “Sense of belonging and patriotism”). In a standard vertical column chart, the software would be forced to rotate these text labels by 45 or 90 degrees below the axis to prevent them from overlapping. This rotation hinders scannability and reduces reading comfort. Conversely, a horizontal layout allows these long labels to be displayed horizontally, keeping them perfectly readable from left to right.

Furthermore, the decision to select a horizontal bar chart arranged in descending order is grounded in empirical findings from eye-tracking studies applied to data visualization (e.g., Borkin et al., 2013). These studies demonstrate that Western readers scan visual displays by applying the same cognitive biases inherent in text-based reading—namely, moving from left to right and from top to bottom. By positioning the textual labels on the left and placing the most statistically significant category (Category 3, Frequency 43) at the absolute top, the layout naturally accommodates the reader’s spontaneous scanning patterns.

Consequently, the cognitive processing system immediately encounters the primary data point in the upper-left corner and evaluates its lateral extension to the right with minimal cognitive load. In contrast, a vertical chart featuring rotated labels would disrupt this fluid visual progression, forcing the eye into repetitive compensatory movements between the horizontal baseline axis and the vertical bars.

- Top-to-bottom processing flow: Because the categories are sorted in a strict descending order (from the maximum frequency of 43 down to 6), the horizontal chart establishes a clean “cascade” structure. This layout allows the eye to instantly grasp the data hierarchy, recognizing the dominant engagement factors at the very top before scanning down to the less frequent ones.

- **Effective visual ranking:** Horizontal bars make parallel visual comparisons between different bars highly intuitive. It allows the reader to immediately evaluate relative proportions—such as noticing at a glance that the second category is nearly double the size of the fifth—without having to constantly cross-reference the raw numbers.

Analysis of the graph – positive emotional valence

As mentioned earlier, the following chart illustrates the seven different categories, each with its relative frequency of responses, taking into consideration video 1A.

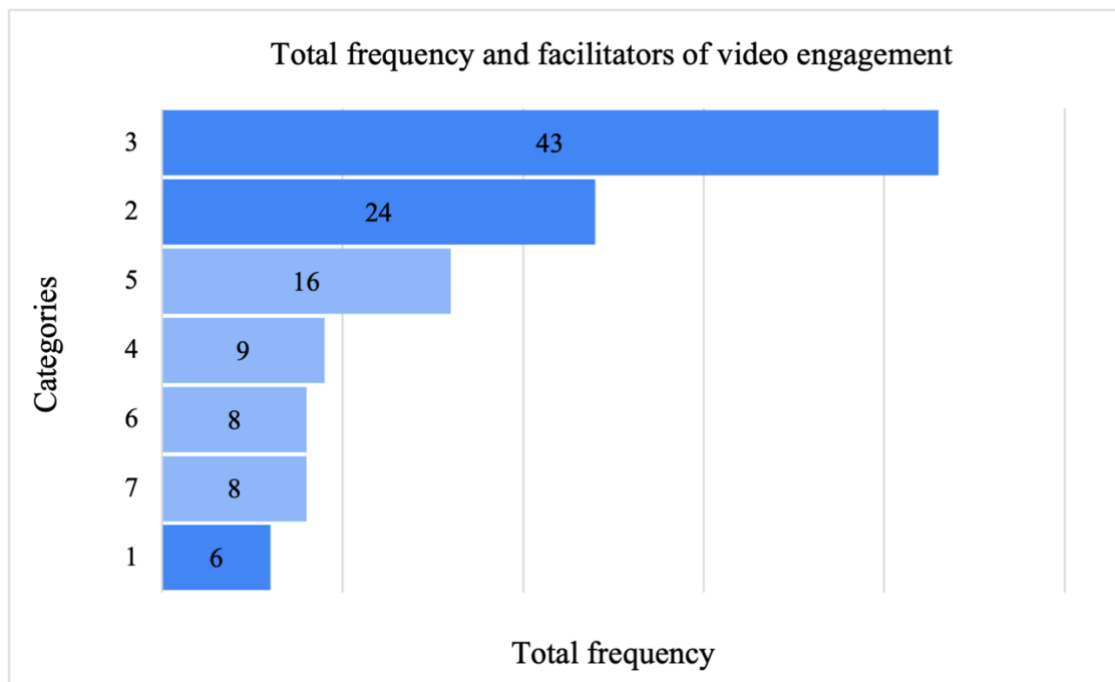


Figure 9: Horizontal bar chart showing the intersection between the total frequency of positive responses within the correspondent categories of video 1A.

The distribution of frequencies across the seven identified categories reveals a deeply stratified and multi-layered architecture of emotional engagement. By looking at the

cumulative resonance of these motivations behind each answer, the data moves beyond a simplistic headcount to expose the underlying hierarchy of how viewers process peak positive emotional valence. This complex distribution suggests that media immersion is a collaborative phenomenon, negotiated between the video itself and the deeply rooted psychological, historical, and cultural predispositions that the viewer brings to the screen.

Category 3

Category 3, which represents a pre-existing interest in sports and football, achieved the highest selection frequency among the respondents. It means that pre-existing knowledge functions as the primary psychological threshold for media immersion. Visually, this means the first bar, Category 3, is the most popular choice, with 43 mentions. This concept is theorized in the “Affective Disposition Theory” (ADT), which was originally developed by Zillmann and Cantor (Zillmann & Cantor, 1977). Although the theory was first created to explain general media entertainment, Zillmann et al. later applied it directly to sports in their famous essay, “Enjoyment from sports spectatorship” (Zillmann et al., 1989). Subsequently, scholars like Arthur Raney labelled this specific framework as the “Disposition theory of sports spectatorship” to clearly distinguish it from the general theory applied to films or comedies (Raney, 2006).

According to the theory, this category shows that a pre-existing interest in sports is a key factor for emotional engagement with the video. This means that when watching the clip, certain visual and auditory elements act as a trigger for this connection. In these cases, emotional involvement does not form suddenly during the video itself. Instead, it is built over time through long-term fanship allegiance.

Therefore, we refer to “emotional engagement” as the emotional involvement resulting from watching the video, and to “media enjoyment” as the pleasure derived from the visual content. Together, these two factors do not appear spontaneously while watching the screen. Instead, they come directly from the fan's pre-existing affiliation. Zillmann

and his team explain that a media clip and the resulting engagement are not isolated or static factors. Instead, they grow from relationships built over time through pre-existing cognitive schemas toward a preferred team or sport in general. In the case of Video 1A, the respondents' emotional engagement does not come from simply watching the video. Instead, the video stimulates an established network of past passions and memories, which ultimately amplifies their emotional response.

Category 2

Following the order disposition of the categories, Category 2 (Video construction and editing) resulted to be the second most popular choice, with 24 mentions. This means that nearly a quarter of the participants highlighted the technical side of the video as a main driver of their emotions. It proves that even when dealing with famous historical events, the formal quality of the editing is essential to capture attention.

This finding, based on the “Excitation transfer theory” was also developed by Dolf Zillmann (Zillmann, 1983). This theory states that the residual excitement caused by an initial stimulus (stimulus A) can transfer over and influence the emotional response to a subsequent stimulus (stimulus B). In other words, the physical energy triggered by the first thing we experience does not disappear instantly. Instead, it carries over and amplifies our reaction to the next event.

In video 1A, the structural factors featured—such as the background music and the editing rhythm—acted as stimulus A, raising the viewers' physical energy. When the actual victory moments or the goal scored appeared (stimulus B), this leftover energy transferred directly onto the event, intensifying the final emotional response.

For this excitation-transfer process to take place effectively, specific conditions must be met. Talking into consideration the time factor, the temporal proximity between one stimulus and the sequent one, plays a crucial role in perception when short. Because the initial arousal is recent, the physical activation is still fully present when the viewer encounters the next stimulus. But as time goes by, the physical excitement naturally

disappears. Therefore, the transfer effect is only potent if the second stimulus occurs before this decay takes place.

These factors refer to how quickly a viewer responds and creates an emotional reaction. A short latency and a brief delay enhance the likelihood of a successful emotional transfer.

During the final phase of the physical engagement, the “time of recovery” is the time it takes for the body to return to its emotional baseline. A high time of recovery means the physical excitement persists longer in the body, creating a larger window of opportunity for the transfer to influence the subsequent situation.

Ultimately, the fast-paced editing and seamless production of Video 1A perfectly satisfied all these temporal criteria, successfully converting structural pacing into maximum emotional resonance.

Category 5

This category, derived from the respondents’ spontaneous answers, represents the sense of belonging and patriotism, that the respondents felt during the video. It stands out as the most prominent spontaneous driver with sixteen occurrences. Additionally, it is the first bar to feature a different colour compared to the two previous categories, making it instantly visually distinguishable. This statistical prominence indicates that the 2006 men’s World Cup victory completely transcends the boundaries of standard sports entertainment, functioning instead as a powerful tool for macro-identity. In this context, the video operates under the dynamics of social identity, where the viewer's emotional engagement is explicitly tied to their membership in a larger, collective ingroup. Based on the analysed responses, “sense of belonging”, “pride” and the term “my nation” were the most frequently used terms regarding the Italian national team. Therefore, they played a crucial role in the viewers’ identification with the video.

The media stimulus effectively activates a shared socio-cultural attachment and a wave of national pride that bridges the gap between solitary media consumption and broader

anthropological dynamics of community. For these respondents, the clip is not merely a record of an athletic achievement, but a ritualistic celebration of shared national heritage.

Category 4

This temporal and historical depth is further expanded by Category 4, which captures memories and nostalgia through nine distinct mentions, highlighting how retrospective media consumption can trigger complex cognitive bridges. Because the 2006 World Cup triumph is situated at a specific historical distance, the video functions as an autobiographical anchor that allows viewers to engage with. The analysed responses indicate that the clip consistently prompts participants to reconnect the sports event with personal life stages, youthful recollections, or specific family environments that characterized their lives two decades prior. In psychology, this manifestation of media-induced nostalgia is recognized as a vital resource for maintaining self-continuity and fostering social connectedness (Wildschut et al., 2006). This demonstrates that a significant portion of a media text's modern emotional power is drawn from its capacity to stir deeply personal, time-locked biographical memories.

Category 6 and 7

The data further reveals an intriguing structural and empathetic balance in the middle of the spectrum, where Category 6, focusing on commentary, and Category 7, centred on shared joy, display an identical frequency of eight mentions each. The resonance of Category 6 isolates the narrative power of the sports commentator, whose vocal delivery, acoustic tone, excitement, and iconic catchphrases serve as an indispensable auditory frame that shapes, guides, and intensifies the viewer's emotional journey. Concurrently, Category 7 captures a pure psychological mirroring effect rooted in emotional contagion. For this segment of the sample, engagement is driven entirely by empathy; witnessing the genuine, visible happiness and raw celebration of the players

and fans on screen causes the viewer to internally reproduce that exact same positive valence. This double result shows that a media product can simultaneously leverage technical acoustic elements and natural human empathy to achieve identical levels of emotional resonance.

Category 1

Finally, Category 1, which tracks demographic affinity through a shared gender with the protagonists on screen, appears as the least frequent facilitator with only six preferences. This low frequency provides highly significant analytical insight, suggesting that when a media product captures a monumental historical milestone characterized by massive national celebration and profound socio-cultural impact, micro-demographic variables become secondary. Under the influence of overwhelming collective euphoria and intense production value, individual demographic differences like gender affinity are effectively overshadowed by these macro-level dynamics. This hypothesis suggests that the massive scale of the event allows the video to go beyond demographic differences. Consequently, it connects with all types of viewers, uniting them in a single, shared emotional experience.

Analysis of the graph – negative emotional valence

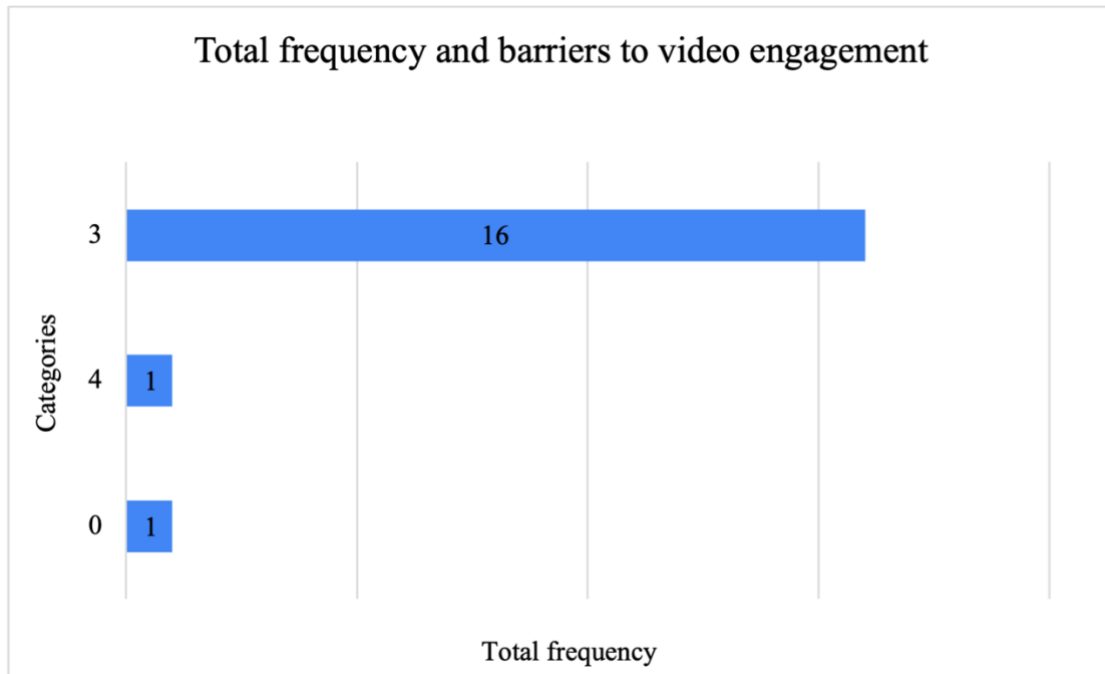


Figure 10: Horizontal bar chart showing the intersection between the total frequency of negative responses within the correspondent categories of video 1A.

Contrary to the earlier analysis of the positive feedback gathered following the viewing of video 1A, this graph examines the negative responses. Specifically, it analyses the reasons why a small portion of the participants did not feel emotionally involved while watching the video.

The data reveals a clear imbalance among the categories, with one absolute dominant factor, the Category 3

Category 3

With a frequency of sixteen occurrences, this category represents the primary barrier to engagement. Sixteen participants explicitly stated that their lack of emotional involvement was due to a complete lack of interest in football or sports in general. From

a theoretical point of view, this finding strongly aligns with Raney's application of Zillmann's disposition theory of sports spectatorship, even with a negative outcome. (Zillmann, 1983; Raney, 2006). It confirms that a pre-existing positive disposition toward the subject matter is a fundamental prerequisite; if a viewer is attached, or in this case, detached from the sport, the media product cannot trigger any empathetic or emotional alignment, regardless of its quality.

Category 4

This category represents a negative psychological recall. Only one participant experienced this barrier, explaining that the historical event brought back an unpleasant personal memory or a negative association related to that specific time period two decades ago. In this case, nostalgia acted as an emotional deterrent rather than a positive driver.

Category 0

Finally, one response was categorized as an unmotivated denial. The participant stated they were not involved but provided no further explanation or qualitative reasoning to justify their position.

Ultimately, the analysis indicates that personal interest is the most critical threshold for media impact. While high production value and historical milestones are powerful tools to amplify emotions, they are generally ineffective when facing a total absence of sporting interest or pre-existing fan identity.

In conclusion, the distribution of the frequencies within this matrix reveals that emotional detachment is not an arbitrary or random reaction; rather, it is systematically anchored to specific friction points. When analysing the respondents who remained unengaged, the data highlights that generic barriers, such as a lack of personal interest in sports and football and negative past memories, exerted the most significant damping

effect on emotional output. Identifying these dominant barriers provides crucial context for the study, proving that when emotional connection fails, it is primarily due to predefined contextual distance rather than the specific demographic characteristics of the participants.

Chapter considerations

In conclusion, this chapter has provided a data-driven empirical mapping of viewer engagement across various media stimuli and emotional dimensions. By cross-tabulating the quantitative data with demographic variables, a highly stable and replicable dual-layered pattern has been documented. On one hand, the analysis revealed a gender-specific effect on emotional activation: female respondents demonstrated a statistically higher sensitivity to same-gender representation, showing a significant increase in emotional involvement when exposed to female-led clips (1B, 2A, and 3B). On the other hand, male respondents exhibited a pattern of gender-invariance, maintaining stable baseline responses across all experimental conditions, regardless of the protagonist's gender.

The integration of the final analysis on engagement barriers completes this empirical trajectory. While the demographic breakdowns clarified “who” became emotionally involved and under what narrative conditions, the analysis of non-engagement factors successfully diagnosed “why” certain segments of the sample remained detached, pointing to structural and content-driven barriers such as a general lack of interest in sports.

Ultimately, these quantitative findings demonstrate that emotional involvement depends on a complex interplay between gender representation and personal predisposition. However, while these statistical trends effectively answer what emotional reactions occurred and confirm significant correlations between media stimuli and the respondents' emotional arousal, they also raise deeper psychological questions regarding “how” and “why” these dynamics unfold in the minds of individual spectators. To contextualize these statistical peculiarities, explore variance in sports

empathy, and look past rigid numerical metrics, the next chapter will transition into the qualitative findings gathered from the two comparative focus groups.

CHAPTER 5

Chapter 5: Phase 2 — The qualitative analysis

5.1 Focus group analysis

Building upon the methodological framework established in Chapter 3, this qualitative phase operationally investigates the underlying mechanisms behind the previously documented statistical trends. This methodological transition allowed the study to look past rigid metrics and investigate the participants' lived emotional experiences, interpersonal social dynamics, and shared subcultural vocabularies.

To maintain sampling consistency, participant selection bypassed rigid demographic restrictions, utilizing instead a dual-cohort approach defined by sports interest and generational diversity. This strategy contrasted two polarized segments of the spectatorship spectrum—an embedded athletic cohort composed of active football players and sports enthusiasts, and a detached cohort of unacquainted non-fans—thereby ensuring maximum analytical depth. Both interactive sessions followed a standardized protocol, designed to transition from abstract personal perceptions to concrete media critiques, helping participants progressively unlock and articulate their true emotional responses, beginning with a baseline calibration of what sport symbolizes conceptually to anchor subsequent evaluations in the participants' broader personal philosophies. Following this grounding phase, respondents directly dissected the media stimuli across a complex matrix of three core thematic pillars: the telenarrative framework, which examines the structural and emotional impact of media production, tactical pacing, and sports commentary; the emotional continuum, probing the psychological divergence between processing the collective euphoria of triumph versus the lingering memory of structural injustice; and identification and empathy, evaluating the capacity for experiential mirroring by mapping identity fusion in active fans against the root causes of detachment and indifference among non-fans. While this overarching thematic trajectory remained uniform across both groups, the discussion scripts and prompts were uniquely tailored to match each cohort's distinct profile,

effectively translating the baseline quantitative metrics into a nuanced, lived human narrative.

5.1.1. First cohort: The athletic profile of sports enthusiasts

The first focus group comprised six participants of mixed gender, born between 1966 and 2000, representing a diverse generational spectrum within the sporting community. To capture authentic, uninhibited reflections, this session was conducted in an ethnographic setting directly tied to the participants' daily athletic lives. Specifically, the group was formed by the researcher's football teammates and members of the club's management board, and the discussion took place immediately following a routine training session.

This specific environmental and relational context was methodologically deliberate, serving as a strategic ethnographic choice designed to capture uninhibited qualitative data rather than detached, sterile reflections due to any types of restraints. By using the close bonds and trust found among the teammates, the study effectively bypassed the traditional, artificial "ice-breaking" phase. The preexisting sense of community, mutual trust, and deeply rooted values shared among the players and club management, which are intrinsic to sports and taught by being part of a team, created a psychologically safe space. These elements, combined with a sense of belonging and community-driven factors composed the pre-existing key elements. This relational proximity significantly minimized social bias, encouraging participants to articulate their thoughts with raw honesty and a shared vocabulary.

Crucially, this social synergy was further amplified by the strategic timing of the session. Conducting the focus group in the immediate aftermath of a training session on the eve of an important match, facilitated an immediate psychological immersion. Furthermore, because the participants already knew each other well, the discussion naturally extended to deeply personal experiences. Operating on a baseline of shared background knowledge, they took for granted what they already knew about one another, which allowed them to freely share intense past and present emotions. This

open exchange did not just deepen their existing personal bonds; it allowed the teammates to truly empathize with one another, gaining a profound understanding of the unique ways each individual personally identifies with and approaches the world of sports. Ultimately, this deliberate research design allowed to unlock insightful and authentic exploration of emotional investment, empathy, and spectator resonance.

5.1.2. Second cohort: The general and detached profile

Conversely, the second focus group comprised five female participants born between 1959 and 2003, offering a deeply gendered and generational counter-perspective. This session was convened within a local parish hall, a neutral civic space detached from any athletic institutions. In stark contrast to the first group, these participants did not share a close personal history; they either did not know each other at all or were only partially acquainted through casual community proximity. This structural difference served as analytical purpose by minimizing peer biases and creating an uninfluenced space to explore sports disengagement, given that, by definition, this group was set up specifically to analyse the general level of detachment. Because these participants lacked close social ties, their individual opinions were not subject to groupthink or the kind of athletic peer “pressure” that could have been found in the previous group. This is because, unlike the first one, individuality was the key factor. Consequently, this neutral environment provided an ideal setting to thoroughly investigate casual viewership, varying degrees of detachment, and the everyday barriers to media consumption.

5.1.1.1. First focus group: Athletes cohort

Within this first group, the objective was to explore the phenomenological dimensions of sports spectatorship, emotional resonance, and gender-differentiated media consumption. The thematic analysis of the transcript yielded five primary overarching themes: sports as a vital socialization tool, male vs female sports commentary and the “pacing paradox”, emotional memory, the empathy continuum, and how sports is the perfect teacher of transversal life skills.

5.1.1.2. 1st Theme: Sports as a vital socialization tool

The qualitative analysis began by asking participants to define what sport means to them. For these active athletes, sport is far more than a simple hobby or a way to pass the time; it is a fundamental part of who they are, deeply tied to values like well-being, passion, and strong commitment. For those who also work in the sporting field, it becomes an all-encompassing part of their existence, beautifully summarized by a statement: "Football is everything for me, it is life".

Because sport is so deeply woven into their daily lives, their reactions to the sports videos shown later in the study are naturally shaped by this lifelong personal investment. When discussing what motivated them to start playing football, the participants' stories reveal two very different pathways: one casual and peer-driven, and the other rooted in local community institutions. For instance, one participant described a completely accidental entry into the sport during elementary school. She wanted to try different activities, and when her city hosted an open-door event for a girls' football team, her father encouraged her to go with a friend. Although her friends quickly abandoned the sport ("they fled" after a week), she stayed because an independent, personal passion had been sparked. This shows that while local opportunities and friends are important to cross the starting line, long-term commitment requires a deeper personal connection.

On the other hand, older or male participants experienced a more structured, traditional pathway. For instance, a male counterpart recalled playing with friends in his town parish as a child, where a scout noticed his potential. This led him through the entire youth sector all the way to the first team. In this case, the parish served as a crucial local incubator, providing a safe, informal space for children to play before transitioning into organized sports.

Beyond how they started, the power of the peer group emerged as a primary reason why these athletes continued playing for so long. This same person, going on with his

experience, emphasized that his team was not just a sports club, but a tight-knit group of friends who were the same age and went to school together. This overlapping of their social, academic, and athletic lives created a strong support system. As he noted, this shared environment provided a valuable space for exchanging views and helped them mature emotionally together. The team effectively became a laboratory for personal growth and collective identity.

These personal backgrounds show that for active athletes, sport is lived as a rich personal and social journey. Because their athletic identities were built through intense community experiences, hard-fought personal spaces, and deep friendships, they do not watch sports media passively. When they view the video clips of matches, they do not just see an external game; instead, they mentally project themselves onto the pitch, filtering the media through the lens of their own lived experiences from the very beginning, shared struggles, and emotional memories.

5.1.1.3. 2nd Theme: Gender difference of sports commentary and the “pacing paradox”

A crucial node of the discussion—and one that directly explains the quantitative trends observed in the previous questionnaire—revolved around how athletes consume sports media and why certain video stimuli triggered higher emotional engagement than others. The first focus group revealed that a spectator's emotional involvement is not determined solely by the athletic performance on display, but is heavily dependent on media framing, narrative commentary, and broadcast pacing. Multiple participants highly emphasized that, the way a match is narrated acts as either a powerful emotional conduit or a psychological barrier to engagement. They explicitly noted that male sports commentary is structurally more immersive and emotionally charged, stating that it immediately grabs the viewer because the commentators sound as if they are genuinely living the moment. Conversely, a significant critique was aimed at the media production of women's sports, which participants characterized as “flat” and lacking celebratory intensity, even during monumental athletic achievements.

This qualitative finding is strongly supported and analysed in the Dolf Zillmann's "Excitation transfer theory" (Zillmann, 1983). Connecting a previous analysis regarding the "total frequency and facilitators of video engagement", to the statements for a personal point of view, the physiological and emotional arousal experienced by media consumers is heavily amplified by external auditory and visual cues. In fact, in sports broadcasting, the high-energy vocal delivery of a commentator serves as the primary catalyst for this arousal; when the commentary is flat, the spectator's emotional transfer is effectively blocked.

Furthermore, this "flatness barrier" aligns with extensive media research by sports sociologists like Michael Messner and Cheryl Cooky (Cooky, Messner & Musto, 2015; Messner & Cooky, 2010) who have documented a persistent "production value bias" in women's sports. Their studies demonstrate that women's athletic events have historically been broadcast with lower technical investments, fewer camera angles, and less enthusiastic commentary. This deficit in media framing artificially makes the event appear less dramatic, proving that lower viewer engagement often stems from poor production values rather than the quality of the sport itself.

This production deficit directly influences what can be termed the "Pacing paradox". The focus group unveiled a fascinating behavioural contradiction among the female players: while they passionately love playing football, they frequently dislike watching the female version of it on television. Participants explained that they prefer watching men's football because they perceive it as faster, more dynamic and highly intense, while viewing female football feels too slow to keep them entertained. This preference highlights a deep cognitive conditioning. Because mainstream media has trained audiences to expect the hyper-fast physical velocity and rapid editing rhythms of men's elite leagues, spectators subconsciously use this as the universal baseline for entertainment. When female athletes watch women's football, their internal expectations of speed—conditioned by years of watching male broadcasts—clash with the physical reality of the game, creating a sense of dissatisfaction.

Interestingly, the focus group demonstrated that this pacing paradox is highly sport-specific and dependent on the visual structure of the discipline. Participants noted that this gender-based discrepancy completely disappears in sports like volleyball, where they watch the female teams with great enthusiasm. In volleyball, the structural flow of the game and the nature of the physical movements mean that gender differences in speed are far less visually disruptive to the spectator. This crucial nuance proves that the pacing paradox is not a blanket rejection of women's sports, but a reaction to how specific sports fields and movements are captured and delivered on screen. Ultimately, these qualitative insights show that sports viewership is a constructed reality. The athletes' reflections provide a clear explanation for the quantitative survey data, demonstrating that flat commentary and conditioned expectations of speed heavily dictate viewer empathy, meaning that the way a sport is narrated and paced matters just as much as the game itself.

Referring to media usage, another critical dimension explored was the role of the physical environment in shaping spectator empathy. The discussion revealed that a viewer's emotional connection to a sports event changes dramatically depending on whether the experience is mediated through a screen or experienced live within a shared physical space. A participant introduced a vital distinction between mediated viewing (watching on television or listening to the radio) and unmediated viewing (being physically present at the stadium). She noted that watching a match on television often results in little to no emotional reaction: "...on television I do not feel entertained." "...I feel nothing". However, being physically present at the stadium completely alters the experience, making it "...a totally different thing".

Crucially, she highlighted that the live stadium atmosphere acts as a universal equalizer for engagement. When sitting in the stands, the shared energy of the crowd unlocks an immediate, context-driven emotional response that completely bypasses any gender-based biases or comparisons regarding the speed of the game: "Whether it is a male or a female match, like when I went to see Milan-Inter women four years ago...." "...if I am there, I feel it entirely, regardless of the players' gender." This demonstrates that while a mediated broadcast requires external catalysts like high-stakes commentary or personal

attachment to create excitement, the physical architecture and collective energy of a stadium naturally generate high emotional intensity on their own.

This sense of proximal presence was further echoed by a member of the staff, who is used to watch the matches directly from the perspective of the team bench rather than the stadium stands. In other words, the perspective of someone who is not actively involved in the match themselves but is watching from the bench alongside the rest of the team, has a significantly greater impact when engaging with the match. For him being physically close to the action creates a powerful bond with the players that cannot be replicated through a television screen. He explained that his strongest emotions are lived right on the field, triggered by the direct observation of raw human dedication: “I get more emotional on the pitch... seeing the girls put in the effort, I feel very strong emotions”. Whether looking at it from the stands or the bench, physical proximity allows spectators to capture the unedited reality of the sport—the sound of the whistle, the physical impact, and the visible exhaustion of the athletes.

From a theoretical point of view, these observations regarding the stadium experience align perfectly with the concept of situated empathy and Émile Durkheim’s foundational sociological theory of collective effervescence (Durkheim, 1912). This integrated framework explains how a community, when gathered within a confined physical space, comes together to simultaneously communicate the same thought and participate in the same action, thereby generating a collective emotional energy that transcends individual psychology. In a live sporting environment, the stadium ceases to be a mere physical venue and becomes a sacred, ritualistic space where the spectator is completely enveloped by a shared, multi-sensory atmosphere. This intense concentration of human emotion creates a state of collective effervescence, where the psychological boundaries between the self and the crowd temporarily dissolve. The shared energy of the stands sweeps individual viewers up in a wave of synchronous focus, triggering an immediate, somatic form of empathy. Within this live ritual, technical production values, cognitive preconceptions, or gender-based biases are effectively rendered irrelevant, as the raw, unmediated experience of the crowd's reaction directly dictates the emotional value of the event.

Conversely, when a viewer is separated from the live event by a screen, this collective energy is inherently lost. Mediated viewing detaches the spectator from the physical architecture of the event and relocates the experience into a domestic, low-stakes environment. Because mediated spectatorship lacks this natural somatic resonance, the media broadcast must work significantly harder to engage the viewer. Television networks must deploy an intricate compensatory syntax—utilizing rapid editing rhythms, high-definition multi-camera angles, and passionate narrative commentary—to artificially recreate the emotional immersion that a live stadium provides naturally. Therefore, when a broadcast fails to provide these high production values, the viewer remains trapped in a state of emotional detachment, proving that empathy in sports media is a technologically constructed phenomenon.

5.1.1.4. 3rd Theme: The valence of emotional memory

When evaluating which questionnaire videos left the most permanent psychological footprint, the conversation immediately shifted toward the collective euphoria of historical triumphs. The screening of iconic victories, such as the World Cup and engaging matches like Italy vs. Norway, elicited an immediate, visible wave of excitement across the room, illustrating how media nostalgia acts as an active emotional resource. This perspective closely aligns with what Niemeyer demonstrated in her work regarding nostalgia transmitted through the media (Niemeyer, 2014). She believes that media institutions and broadcast platforms do not merely document or passively preserve history; rather, they actively construct it. Through specific production techniques, such as editing, strategic choices of music, dramatic camera angles, and customized storylines, media products frame the past to trigger an instantaneous nostalgic response. Within this framework, television and digital media possess the unique power to mythologize historical events, transforming a past match into an emotionally charged experience that can be re-consumed and relived indefinitely.

Consequently, when the focus group participants react so intensely to these historical clips, they are not merely recalling a factual sporting event; they are engaging with a

meticulously media artifact that guarantees an immediate emotional payoff. This satisfaction renders the memory of triumph permanently accessible.

Instead of watching the clips passively, the participants began reliving the events in real-time through their dialogue. For instance, a teammate immediately took the floor to explain the permanent power of these archives:

For me, rewatching these moments is an incredible emotional anchor. Even though I already know exactly how it ends, I still get the same chills, the same exact excitement as the first time. You see those colours, you hear the crowd screaming, and you are right back there celebrating.

This reaction perfectly captures the core of Zillmann's disposition theory (Zillmann, 1983; Raney, 2006), proving that a spectator's enjoyment is maximized and preserved when a beloved team achieves a triumphant outcome.

What emerged most vividly from the interaction in the room was that the predictability of the video clips did not kill the suspense; rather, it enhanced it. The participants nodded in agreement as the discussion showed that knowing the winning outcome provides a safe framework that guarantees a positive emotional payoff. As the dialogue progressed, the cohort agreed that these historic clips trigger a timeless loop of joy, allowing them to cross-reference their personal memories with legendary sporting milestones.

By letting the participants' actual words take centre stage, it becomes clear that these historical media clips do not function as dead archival data. Instead, they serve as living emotional catalysts that instantly reactivate the participants' athletic identity, transforming a simple research stimulus into a shared celebration.

In contrary, while triumphant memories offer a reliable reservoir of positive affect, the focus group exposed a striking psychological asymmetry: negative emotional memories rooted in perceived unfairness or referee errors leave a significantly deeper, more indelible cognitive scar than victory leaves a mark of joy.

This phenomenon aligns with the “Cognitive appraisal theory” (Lazarus, 1991). In fact, the core premise of Lazarus's framework posits that an objective event does not inherently generate an emotion; rather, the specific psychological reaction is determined entirely by how an individual cognitively interprets and evaluates the stimulus. When a disruptive event occurs on the pitch—such as a critical officiating error—the human brain instantaneously processes the situation through two distinct stages of evaluation. During the primary appraisal stage, the individual analyses the situational relevance of the event in relation to their personal goals, evaluating its overall significance and determining whether the stimulus constitutes a threat, a loss, or a challenge. Within the focus group discussions, when participants were exposed to clips of controversial officiating—such as the infamous South Korea vs. Italy 2002 World Cup match or memories of their own local defeat against a specific team—their primary appraisal mechanisms immediately detected a severe threat and an immense psychological loss. The unfair decision directly jeopardized their competitive goals, essentially threatening to invalidate weeks of gruelling athletic sacrifice, training, and strategic preparation. This initial shock is compounded during the secondary appraisal stage, where the athlete evaluates their available coping resources and defensive options, specifically assessing their personal agency and the feasibility of strategies required to alter the outcome. It is precisely at this juncture that the psychological trauma of sports injustice solidifies for the participants. In the face of a definitive and erroneous refereeing decision, the secondary appraisal yields a devastating realization of total powerlessness, as the athletes recognize they possess zero control over the official's absolute authority. This helplessness and moral outrage perfectly elucidates the agonizing reality voiced by one of the focus group participants, who lamented “the inability to defend yourself against an error that is not yours.” Furthermore, when analysing these moments, another player reflected on the oppressive lack of agency felt during the same match:

What burns the most is the complete inability to defend yourself against an error that is not yours. You spend weeks training, sacrificing everything on the pitch, and then a single whistle completely wipes out all your effort. It's a feeling of total powerlessness that stays with you forever.

This sentiment was heavily echoed by the rest of the cohort, who agreed that the nature of a refereeing error alters the very structure of the memory.

Another participant chimed in to conceptualize this difference, noting that while a fair defeat can be rationalized, metabolized, and accepted as a natural metric for competitive growth, an unjust loss represents a “profound ethical violation” rather than a mere sporting failure.

From a media effects perspective, this explains why video stimuli depicting referee errors or structural unfairness triggered some of the most permanent and vivid psychological footprints in the questionnaire phase, albeit with a heavily negative valence. Because the media artifact preserves the exact visual evidence of the mistake, re-watching the incident does not dull the anger over time. Instead, it functions as a recurring psychological trigger that forces the athlete to relive the disruption of fair play. The “indelible scar” of injustice is thus cemented as a permanent cognitive marker, proving that when the ethical boundaries of sport are violated on screen, spectator empathy is driven by a deep, protective demand for justice.

5.1.1.5. 4th Theme: The “empathy continuum”

This thematic dimension explores the complex nexus between athletic identity, proxy empathy, and media spectatorship. The focus group discussions revealed that an athlete's capacity to deeply empathize with a mediated sports stimulus is not an abstract, purely cognitive exercise; rather, it is fundamentally anchored within their own physical practice, muscle memory, and bodily history.

To systematically map and interpret this phenomenon, this study introduces a concept emerged from the analysis of the data: “The empathy continuum”. Far from being a passive or instantaneous switch, media-induced empathy in sports operates as a linear psychological and somatic trajectory, which can be visualized as:

[Active practice of sport] —> [Experiential mirroring] —> [Deepened spectator empathy]

This continuum argues that the active practice of a sport serves as a prerequisite that fuels a localized form of experiential mirroring, which subsequently elevates the viewer's psychological engagement to a state of deep, proxy empathy. If the initial stage of physical practice is absent, the trajectory collapses, leaving the viewer outside the continuum.

The primordial stage: Active practice of sport as a cognitive database

The continuum originates within the physical body of the athlete. Years of rigorous training, conditioning, competitive stress, and physical sacrifice do not merely develop motor skills; they construct a dense, internal database of somatic and psychological memories.

In this study, the participants' history as active sport practitioners' functions as the primary lens through which any media artifact is filtered. The fatigue, the pressure of a high-stakes match, the weight of systemic expectations, and the exact physical sensation of athletic effort are already deeply encoded within the participants' cognitive architecture before they interact with the video stimuli.

The bridge: Experiential mirroring and embodied simulation

When an athlete is exposed to a sports broadcast, this internal database is activated through the second stage of the continuum: Experiential mirroring. To provide a scientific validation for this empirical observation, this study draws upon the neuro-sociological paradigm of Embodied Simulation Theory, (Gallese, 2005) through his co-discovery of mirror neuron systems.

Gallese posits that when we observe actions performed by others, or witness their expressions of affect, our internal mirror systems activate the same neural networks that would be involved if we were performing that action or experiencing that emotion firsthand. Crucially, he demonstrates that this simulation is significantly more intense

and precise when the observer possesses a direct, physical familiarity with the observed action.

Within this empathy continuum framework, experiential mirroring represents the psychological manifestation of this embodied simulation. When the focus group participants watch a video clip, they do not decode the images as distant spectators. Instead, because they share the same physical knowledge as the on-screen actors, their brains simulate the reality of the performance. The media stimulus triggers a localized resonance: the viewer literally “feels” the compression of effort, the exhaustion, and the physical stakes, establishing a somatic bridge that translates visual data into a shared, felt reality. This first two-stage path is only possible due to the prior experiential background of the observer, without which the portrayed emotions cannot be fully comprehend or internalized.

The climax: Deepened spectator empathy

Once the bridge of experiential mirroring is established, the trajectory culminates in a highly intensified state of spectator empathy. This final stage does not manifest uniformly but rather branches into two sophisticated psychological phenomena: Identity fusion and narrative transportation.

└───────────> Identity fusion (Swann et al., 2009)

Deepened spectator empathy

└───────────> Narrative transportation (Green & Brock, 2000)

Identity fusion (Swann et al., 2009)

The first manifestation of this deepened empathy involves a process of radical psychological de-individuation, where the boundaries of the individual ego dissolve into the collective group identity. This dynamic aligns with William Swann's "Identity fusion theory" (2009), which outlines a visceral feeling of oneness with a group where the personal self and the social self, merge into a functional, synergistic whole. During the focus group, this complete alignment became manifest when evaluating the participants' relationship with their preferred teams. One participant in particular, highlighted this profound state of identity fusion, explaining the psychological reality of her spectatorship:

The players and I are one single team. When they are out there on the pitch, it is not just them playing while I watch from the sidelines or through a screen. It is us together. Their lungs burning is my lungs burning; their triumph is my triumph. There is no separation between my identity as an athlete and their identity as a team.

By shifting her pronoun usage from "they" to "us", she exemplifies how media-induced empathy operates as a proxy system. Because her identity is fused with the collective athletic entity, the screen ceases to be a barrier of separation; she mentally co-authors the performance, projecting her own physical memories onto the broadcasted bodies of the players.

Narrative transportation (Green & Brock, 2000)

The second manifestation of deepened empathy shifts from tactical alignment to an engagement with universal human vulnerabilities. According to Melanie Green and Timothy Brock's "Narrative transportation theory" (2000), individuals become entirely absorbed, or "transported", into a narrative world through a combination of cognitive focus, emotional resonance, and vivid mental imagery. When transported, a viewer

drops their critical defences and experiences genuine, intense emotional reactions to the story's protagonists.

The focus group data proved that technical perfection alone can often feel cold or alienating, whereas raw human struggle creates an immediate catalyst for proxy empathy. The cohort discussed being moved to tears by a video clip portraying an athlete who rose from severe socioeconomic poverty to the Olympic stage, only to suffer a catastrophic, career-ending accident. One of the participants articulated the emotional mechanics of this response:

Technical skills are impressive, but they don't make you cry. What breaks you down completely is seeing the human cost behind the athlete. When you watch someone crawl out of absolute poverty, sacrifice everything to reach the absolute peak at the Olympics, and then lose it all in a split second due to a tragic injury, you don't look at the sport anymore. You look at the fragile human being. That vulnerability is what hits you right in the chest because we all know what it means to hurt and lose everything we've worked for.

Through the lens of Green and Brock's theory, the participants are undergoing deep narrative transportation. The technical execution of the sport becomes secondary to the existential narrative of sacrifice and fragility. Because these viewers possess an internal database of physical vulnerability and athletic fear, they are instantly transported into the character's suffering, transforming a simple sports broadcast into a profound, shared moral drama.

The non-fan perspective and emotional contagion

To further validate the empirical necessity of an active athletic background in activating the empathy continuum, the focus group was asked to speculate on how non-fans would react to the exact same video stimuli. The athletes universally predicted widespread indifference or a superficial, shallow reading of the content from non-fans.

This critical divergence has been theorized for the first time by the paradigm of “Emotional contagion” as “the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently, to converge emotionally” (Hatfield, Cacioppo, & Rapson, 199, p. 5).

In alignment with this theory, the focus group participants conceded that a non-fan might temporarily mirror the excitement of a crowd during massive, high-stakes international events, such as the World Cup. However, the cohort conceptualized this reaction not as genuine empathy, but as “the excitement of the room”, better expressed, the ambient euphoria, a localized, passive byproduct of social contagion. According to the participants' analysis, while a non-fan can easily catch the external energy of a loud room or a packed stadium, they remain fundamentally blind to the inner layers of the sport. The focus group agreed that without an internal experiential framework, a non-fan lacks the somatic and tactical knowledge required to decode the deeper elements of the broadcast, such as a complex tactical buildup, the psychological warfare between opponents, or the silent physical agony of a player pushing through an injury.

[No physical practice] —> [No experiential mirroring] —> [Mere emotional contagion / ambient euphoria]

This contrast provides the ultimate confirmation of our model. Without a personal history of physical practice, the viewer remains blind to the deeper strategic, somatic, and emotional layers of the sport. While emotional contagion allows non-fans to mimic the outward energy of an environment, they lack the experiential framework required to decode the micro-expressions of pain, exhaustion, and tension on screen. Consequently, the consensus among the athletes reinforces the core premise of our model: while emotional contagion allows non-fans to react to the environment, true proxy empathy remains strictly restricted to those who carry the visceral, physical reality of the game within their own bodies.

5.1.1.6. 5th Theme: Transversal life skills

The final thematic layer derived from the qualitative data shifts focus from immediate media reception to the long-term, behavioural, and ethical legacy of competitive athletics. The focus group concluded with a profound, reflective consensus: the structural, physical, and psychological demands of competitive sport do not remain confined to the pitch. Instead, they translate directly into vital, transversal life skills, serving as a permanent ethical framework applicable to both professional careers and personal spheres.

This intentional internalization described by the cohort highlights a practical manifestation of what researchers categorize as a life skills transfer (Gould & Carson, 2008). The players' reflections demonstrate that the ethical lessons of sport do not automatically migrate into everyday life; rather, they become permanent assets because the athletes actively reflect upon them, turning their sports socialization into a conscious tool for personal development.

The de-centring of the ego

A prominent dimension of this ethical legacy is the learned capacity to put individual desires, ego, and immediate frustrations aside for the preservation of the collective good. During the focus group, this structural compromise was highlighted by participants two teammates as one of the most painful yet transformative lessons of their athletic socialization. A participant in particular, articulated the raw behavioural discipline required by this dynamic:

In competitive sport, you quickly learn that you are not the centre of the universe. There are countless moments where you have to lower your head, listen to your coach or your teammates, and accept decisions that you completely disagree with, simply because it is the only way to move the team forward. If you let your ego explode, the whole machinery breaks down.

Another teammate immediately expanded her reflection, explicitly linking this athletic subjugation to her external, professional, and academic life:

This is exactly what teaches you how to swallow your pride in the real world. When I am working on a complex group project at university or dealing with a difficult dynamic in the workplace, I don't throw a tantrum when things don't go my way. Sport gave me the psychological armour to say: "Okay, this isn't about me right now; it's about the goal." You learn to adapt, compromise, and perform your role for the collective outcome.

Through Gould and Carson's theory, this dialogue illustrates how the structural constraints of a sports team foster a mature model of moral development. The phrase "lower your head, listen, and accept" is not a description of passive submission; rather, it represents an active, strategic exercise of emotional regulation and systemic alignment that becomes permanently embedded in the athlete's behavioural repertoire.

The virtue of commitment

Beyond the containment of the ego, the focus group emphasized that competitive sport instils a rigid, unyielding discipline of consistency—conceptually expressed by the participants through the Italian core value of "costanza".

The participants conceptualized "costanza" not as an abstract moral ideal, but as an enforceable social contract with their peers. A player highlighted how this internalized accountability dictates her time-management choices, often forcing her to prioritize systemic commitments over personal leisure:

Sport forces a type of consistency that non-athletes often find obsessive. There are Saturdays when your friends are going out, or winter nights when you are completely exhausted from work or study and your body is begging you to stay on the couch. But you know that ten other people are waiting for you on the pitch in the freezing cold. You don't skip it. You show up because you honour the collective commitment. That sense of duty becomes a habit that you apply to everything else you do in life.

This testimonial demonstrates that the virtue of commitment is forged through the repetitive negotiation between immediate gratification and long-term collective responsibility. The athlete's internal database recognizes that skipping a single training session threatens the equilibrium of the entire group entity. This rigid experiential socialization establishes a permanent baseline of conscientiousness, ensuring that when these individuals enter professional landscapes, they approach deadlines, projects, and institutional responsibilities with the same deep-seated, somatic accountability.

First focus group considerations

The qualitative data gathered through the first focus group provides a robust, multi-dimensional understanding of how active athletic practice shapes, filters, and intensifies the consumption of sports media. Far from being a passive, purely recreational activity, sports spectatorship for athletes is revealed to be a deeply embodied, cognitive, and ethical process. By synthesizing the empirical evidence across the analysed themes—including the complex cognitive friction identified through the pacing paradox—this study establishes a clear divergence between the superficial consumption of the general public and the profound, reflective engagement of the athlete-spectator.

This research formulates also the concept of the empathy continuum. The data demonstrates that an individual's physical history on the pitch functions as an active cognitive database. When exposed to media stimuli, this database triggers experiential mirroring—a localized form of embodied simulation (Gallese, 2005). Consequently, the athlete literally “feels” the broadcasted performance. This somatic bridge allows for an escalation into identity fusion (Swann et al., 2009), where the boundaries between the spectator and the on-screen team dissolve into a symbiotic “us,” and narrative transportation (Green & Brock, 2000), where viewers absorb the raw existential fragility of an athletic career.

Furthermore, the focus group exposed a striking psychological asymmetry in media reception. While triumphant clips offer temporary positive affect, media depictions of referee errors and structural unfairness leave a permanent, negative cognitive scar (such

as the reactions to the South Korea vs. Italy 2002 match and the personal defeat against a disliked team). Viewed through Lazarus's cognitive appraisal (1991) and Weiner's attribution theory (1985), these clips force the athlete to relive a state of absolute helplessness against an external agent. The media preserves the evidence of the mistake, transforming a standard sporting disappointment into a profound ethical violation that refuses to be metabolized.

Lastly, the study validates the necessity of an athletic background by isolating the "non-fan perspective." While non-fans can temporarily mirror the environmental excitement of a mega-event through emotional contagion (Hatfield et al., 1993)—a phenomenon conceptualized as ambient euphoria—they remain cognitively blind to the strategic, muscular, and psychological warfare happening on screen. True proxy empathy requires an internal experiential struggle that only direct athletic socialization can provide.

5.1.2.1. Second focus group: Non-athletes' cohort

The primary objective of the second focus group is to investigate the level of empathy in individuals who are unengaged or uninterested in sports. Specifically, it examines how these participants react to sports imagery through the media. Furthermore, it explores the psychological dynamics of discontinuing athletic practice, focusing on lingering regrets and conscious life choices. Finally, the study analyses how sports socialization shapes their non-athletic traits and impacts their everyday lives. Similar to the previous section, the following analysis is divided into five core themes identified during the discussion: the mechanisms for emotional engagement and neuromarketing, the gender paradox, the asymmetrical attribution of joy and frustration, individuality vs collectivity and personal regrets and sport and values.

5.1.2.2. 1st Theme: The mechanisms of emotional engagement and neuromarketing

Before exposing the cohort to the football-related media stimuli, the focus group session initiated a broader discussion on everyday emotional triggers and media consumption preferences. The inquiry sought to isolate the precise structural, narrative, and aesthetic

elements required to capture a viewer's emotional investment, even when the underlying topic is of no inherent interest to them.

The findings revealed a highly receptive audience whose psychological engagement is mediated by a sophisticated interplay of narrative vulnerability, an uncompromising demand for authenticity, and a co-constructed ideal of sensory-technical execution.

Sentimental anchors for personal engagement

The opening phase of the discussion demonstrated that even among self-proclaimed non-fans or detached media consumers, emotional susceptibility remains exceptionally high when content touches upon specific sentimental or vulnerable narrative anchors. Participants noted a natural, almost involuntary gravity toward narratives that depict deep interpersonal affection, animal welfare, or systemic human struggle.

When reflecting on what types of everyday media content elicit the strongest emotional or somatic responses, one participant shared:

Personally, I am deeply moved by movies, maybe romantic comedies or more sentimental stories. Or otherwise, simply reels I find on social media or any film or series inherent to animals. That is something that involves me deeply... I remember watching certain TV series where I spent half an hour crying at the finale.

This empirical tendency to heavily prioritize animal vulnerability over human narratives is robustly supported by contemporary sociopsychological literature. Specifically, a landmark study by Levin, Arluke, and Irvine (2017) on cross-species empathy demonstrated that individuals frequently exhibit significantly higher levels of distress and empathic concern toward animal victims than toward adult human targets. The scholars argue that this empathic bias is fundamentally rooted in the human perception of absolute moral innocence and defencelessness. Unlike adult human peers—who are instinctively filtered through a cognitive lens of social accountability, potential malice, and strategic deceit—animals are psychologically categorized as universally pure and dependent.

Because animals lack the capacity for social manipulation or hidden motives, they completely bypass the natural distrust that humans often feel toward one another. This total absence of deceit creates a direct, unconditioned channel for emotional connection.

This perception of absolute innocence is deeply rooted in the evolutionary paradigm of the baby schema (*Kindchenschema*), an ethological concept originally formulated by Konrad Lorenz in 1943. In a more recent framework, Borgi et al. (2014) extended this classical model to human-animal interactions, demonstrating how companion animals share a distinct cluster of infantile craniofacial features with human newborns. These anatomical hallmarks—characterized by an augmented head-to-body ratio, a prominent forehead, and oversized, low-set orbital structures—are highly salient across both species. To empirically evaluate this attentional bias, the researchers deployed specialized eye-tracking infrastructure to quantify the precise spatial distribution of the participants' visual focus. Their empirical data confirmed that this specific facial configuration triggers an automated mechanism of attentional capture, systematically prioritizing visual engagement regardless of whether the target stimulus is human or non-human.

From an evolutionary perspective, these physical markers act as an innate trigger. They capture human attention within fractions of a second. This immediate reaction lowers interpersonal aggression while simultaneously stimulating the brain's pleasure, reward, and caretaking networks (Borgi & Cirulli, 2016).

Companion animals retain these youthful features throughout their entire adult lives. Because they keep these traits, humans continuously view them as helpless and dependent. Therefore, the non-fan cohort's intense emotional investment in animal narratives is not a superficial preference. It is a predictable neurological and psychological response to a visual stimulus that represents pure, uncorrupted vulnerability.

Furthermore, this immediate connection to narrative drama is further amplified when the visual material introduces structural social inequality or marginalized subjects. For this detached cohort, empathy is not a passive intellectual exercise; it is an experiential mirror triggered by raw human vulnerability. This dynamic became highly apparent

when discussing non-fictional, real-world media coverage, with another participant, stating:

I find myself deeply involved and empathizing with fragile categories—the elderly, children, or immigrants. It is about how the story is told, but also how you relate it back to your own lived experience, making it much easier to empathize.

These testimonies highlight that the baseline consumer does not require a pre-existing passion for a subject to experience emotional arousal; rather, they require a narrative framework that taps into universally recognizable scripts of empathy, protection, and shared human condition.

The authenticity gate

However, this high capacity for empathy is strictly guarded by what can be conceptualized as the “authenticity gate”. In an era dominated by hyper-curated digital spaces and algorithmically driven content, non-fans have developed a sophisticated psychological defence mechanism against perceived narrative manipulation.

The participants expressed a profound, explicit skepticism toward short-form social media content, such as Instagram reels or TikTok stories, suspecting that the emotional narratives presented are structurally engineered or performative. As one participant acutely observed:

I often find difficulty with social media content because when a person is telling a story, I immediately ask myself: “Is this real, or is it simply done for views and likes?”. Because of this, you experience much more intense, unconditioned emotions from real-life, lived experiences rather than from a story made to look fictitious.

This psychological boundary is crucial for media researchers. It implies that for a visual stimulus to successfully trigger genuine emotional valence, it must pass a strict cognitive verification process. If the viewer detects an artificial or transactional motive

behind the visual narrative, the emotional connection collapses, replaced by cognitive detachment or mild cynicism.

To bypass this gate, media stimuli must either carry verified factual weight—such as historical sports footage or live unscripted broadcasts—or possess an organic, transparent delivery that mimics the visceral nature of face-to-face human interaction.

The “ideal video” co-construction

To further deconstruct these abstract preferences, a specific thought experiment was introduced, posing a deliberate operational question to the group:

“What elements must a visual content have to attract you and keep you involved, even if the primary topic does not interest you at all—for example, a video showing how a simple wooden table is constructed?”

In response to this prompt, the participants systematically collaborated to co-construct an “ideal video framework”. They mapped out a comprehensive multi-sensory blueprint that effectively transforms a mundane, technical task into a captivating cinematic experience. The group mutually agreed that a linear, static documentation of the table's assembly would result in immediate cognitive fatigue and disengagement “if there is just a static shot of someone assembling a table, you get bored”.

Instead, they argued that the content must be elevated through strict technical and sensory synchronization. The ideal video must feature:

- **Sensory pluralism (ASMR dynamics):** Rather than skipping to the final product, the video should capture the tactile, auditory crispness of the raw materials, such as the sound of opening the packaging or the texture of the wood grain, utilizing Autonomous Sensory Meridian Response (ASMR) triggers to induce physical immersion.
- **Dynamic cinematography & photographic depth:** The visual architecture must reject monotonous angles, incorporating varied focal lengths, rich colour grading, and high-quality environmental composition (e.g., framing the craft within natural landscapes like forests or rustic workshops).

- Audio-visual synchronization: The background score cannot be a generic, decoupled track. There must be an absolute, rhythmic synchronization between the visual edits, the physical movements of the craftsman, and the emotional rising action of the music.

Crucially, through this collaborative dialogue, a core conclusion was synthesized: technical assets must ultimately serve a subjective human narrative. It was widely agreed among the participants that a mundane object, like a table, should not be treated merely as a passive product, but rather as an extension of a human life.

Based on the cohort's collective input, the mechanics of viewer engagement were mapped out, demonstrating that interest depends heavily on moving from a rigid, objective documentation to a deeply subjective storyline. For instance, it was highlighted that centring the visual content around a specific craftsman—such as an artisan with unique life experiences who lives in the woods and works in harmony with nature—introduces a vital human element. Through this consensus, it was demonstrated that this human component, when wrapped in high-quality photography and synchronized music, effectively compels the viewer to look past the object itself. Ultimately, this narrative shift allows a detached audience to bypass an initial lack of interest in the physical object and connect with the human truth behind its creation.

Effect on neuromarketing

When we synthesize these three pillars—sentimental vulnerability, the demand for authenticity, and technical-narrative synchronization—we arrive at the exact intersection where media psychology meets neuromarketing. As introduced in Chapter 2, neuromarketing represents a cutting-edge, transdisciplinary framework that bridges neuroscientific methodologies with behavioural analysis to measure consumer responses to marketing and media stimuli. While traditional methodology relies on self-reported data (which can be distorted by cognitive biases or social desirability), neuromarketing focuses on the subconscious, neuro-somatic layer of media reception. It investigates how visual and auditory stimuli activate specific brain structures—such as the amygdala for emotional processing, the prefrontal cortex for approach-avoidance

behaviour, and the hippocampus for memory encoding—long before the viewer consciously formulates an opinion (Davidson, 1990).

The “ideal video” of the table co-constructed by the participants serves as a textbook operational model for neuromarketing optimization. When a media asset seamlessly synchronizes ASMR auditory cues with high-definition visual pacing, it triggers automatic attentional arousal and sensory immersion. In neuroscientific terms, this multi-sensory synchronization reduces the cognitive load required to process the information, making the viewing experience inherently pleasurable.

Furthermore, by embedding the technical process within a humanized, authentic story (the craftsman in the woods), the video cleverly bypasses the cognitive resistance of the “authenticity gate”. From a neuromarketing standpoint, storytelling activates mirror neurons, allowing the viewer to experientially mirror the actions and emotions displayed on screen. This neural mirroring shifts the consumer's brain state from passive observation to active emotional alignment, significantly increasing both emotional valence (the positive or negative nature of the emotion) and memory encoding.

Ultimately, this exploration demonstrates that a viewer's brain is structurally wired to respond to the form and human truth of a visual message rather than just its explicit topic. By understanding these deep-seated, subconscious neural pathways, researchers and media creators can deliberately synthesize technical aesthetics and narrative vulnerability to forge deep emotional resonance, successfully capturing the human mind across any thematic domain.

5.1.2.3. 2nd Theme: The gender paradox — consciousness vs unconsciousness

The focus group discussions exposed a striking psychological conflict. This tension occurs between conscious gender solidarity and subconscious, media-driven conditioning. When evaluating sports broadcasts, female participants experience a profound clash between their ethical beliefs and their automatic emotional responses.

On a conscious level, they express deep respect for female athletes breaking barriers. On a subconscious level, however, their emotional engagement is heavily trained by a male-dominated media landscape. This duality reveals how deeply media consumption shapes our underlying cognitive architecture.

When exposed to the media clips of the women's national football team, participants demonstrated immediate, identity-driven empathy. This reaction is deeply rooted in shared gender socialization. The participants did not view the players merely as athletes, but as peers navigating a structurally unequal system. This shared experience creates a profound sense of respect and esteem.

The emotional connection is forged through the recognition of a shared struggle against cultural stereotypes. One participant captured this sense of identity mirroring perfectly:

I felt much more empathy when the women appeared because I say to myself: “Wow, these are women like me who are playing a sport that is pre-eminently considered masculine”. I felt closer to them due to gender identity.

This phenomenon is recognized as in-group solidarity. For non-fans, this bond functions as a powerful emotional bridge; they bypass their general indifference to football because they connect with the narrative of resistance. Seeing women succeed in a historically restricted, male-dominated space becomes a source of collective pride. In fact, the female athletes' effort is translated into an internal inspiration. It directly reinforces the participants' own self-esteem in their daily lives. On this explicit layer of awareness, the viewing experience is empowering, highly empathetic, and politically aligned with gender equity.

Despite this explicit solidarity, the focus group data revealed a conflicting undercurrent of cognitive conditioning. Mainstream media does not just distribute content; it actively trains our brains to accept certain standards as “natural”. Over decades of television and digital streaming, elite male sports have been positioned as the invisible default setting for athletic entertainment.

This continuous exposure creates an implicit bias. It forces viewers to use the male model as the definitive lens through which all sports are judged. One participant courageously highlighted this internal contradiction where she experienced a sudden moment of self-awareness during the questionnaire:

I questioned myself during this questionnaire because I realized that the men's football had a much greater effect on me, while the women's didn't. It is as if, unconsciously, I considered the female version as 'Serie B'—as less valid—even though it's completely foolish because women work twice as hard as men to get there. I realized I am completely succumbing to this media narrative.

This honest reflection illustrates the power of cultural hegemony. The participant experiences acute cognitive dissonance—a state of mental discomfort caused by holding two conflicting beliefs. Visually and ethically, she values the women's efforts, yet, neuro-emotionally, her brain remains stubborn. Her emotional arousal networks fail to activate with the same intensity during the women's matches.

Because men's football has monopolized media attention, it sets the standard for speed, physical impact, crowd noise, and broadcasting production value. When a sport carries such a massive cultural disparity—as football historically does in Italy—the spectator's brain has been heavily conditioned by the male baseline. As a result, watching the female counterpart can produce an involuntary sense of cognitive detachment or dissatisfaction, leaving the viewer feeling as though the spectacle is less valid.

To fully understand this paradox, it is vital to note that this cognitive gap is not permanent across all athletic disciplines. The focus group participants explicitly stated that this feeling of detachment is entirely dependent on the specific sport's media history. Even in this second focus group, the participants noted that the bias completely disappears when evaluating structurally balanced sports, pointing directly to basketball but to volleyball as a prime example: “If you look at volleyball, you don't feel this gap between men and women”. This cross-sport contrast provides crucial evidence for media researchers. The discrepancy in emotional engagement is not biological; it is

purely environmental. In countries like Italy, volleyball has historically maintained an equitable media footprint. Both the male and female national volleyball tracks enjoy symmetrical television coverage, professional prestige, and commercial investment. Because the media framing of volleyball has always been balanced, the brains of the spectators were never trained to view one gender as a “lower tier” version of the other. In the volleyball matrix, the female game stands independently as a premium spectacle.

This finding completely shifts the analytical paradigm. It proves that the “Serie B” bias admitted by the participants is a direct byproduct of lopsided media exposure. When media gatekeepers systematically starve a discipline of production value and airtime, they unconsciously train the public's brain to detach from it.

Ultimately, this analysis on gender discrepancies highlights how long-term media conditioning can overwrite our conscious ideological beliefs, creating a deeply interiorized baseline that dictates subconscious emotional alignment, even when we actively wish to support social equity.

5.1.2.4. 3rd Theme: The asymmetrical attribution of joy and frustration

An analysis of how participants project mediated emotions onto their daily lives reveals a stark psychological asymmetry. Positive and negative emotional valences do not follow the same interpretive pathways: while the exaggerated ecstasy of an athletic triumph often feels distant, alien, or excessive to a non-fan cohort, negative experiences like defeat and impotence are instantly recognized as a universal human currency. This divergence uncovers an uneven emotional mapping process where victory requires highly specific physical criteria to resonate, whereas frustration can be mapped onto any ordinary social disappointment.

To visually clarify this phenomenological asymmetry, the qualitative responses have been categorized based on how participants cognitively bridge the gap between media exposure and autobiographical experience.:

Mediated emotion seen in videos	Real-life personal mapping	Psychological mechanism
Joy, Euphoria, Triumph	Hitting a basketball shot, final dance recitals, winning shared team competitions.	Experiential The positive affect requires an identical physical memory of success to be fully replicated in the mind.
Frustration, Impotence	Watching a terrible movie at the cinema, getting stood up by a date at the last minute, uncommitted group peers.	Expectation-disruption Frustration is interpreted as a general violation of social agreements or wasted personal investment.

Table 11: Structural breakdown of personal emotional mapping and underlying psychological mechanisms in non-athlete cohorts.

As systematized in Table 11, the comparative mapping process reveals two divergent psychological engines:

- The Experiential mechanism (positive valence): The replication of high-intensity positive affect—such as joy, euphoria, and triumph—presents a high cognitive barrier. Participants could only map these emotions onto specific, highly structured physical memories of success (e.g., hitting a critical basketball shot or performing in final dance recitals). Without an identical somatic template, the positive effect cannot be fully simulated or replicated in the mind.
- The Expectation-disruption mechanism (negative valence): In stark contrast, frustration and impotence bypass the need for sport-specific expertise. These negative emotional states are interpreted as a general violation of social agreements or a sense of wasted personal investment. Consequently, non-fans effortlessly translate athletic defeat into common, everyday socio-relational letdowns, such as watching a terrible movie at

the cinema, being stood up by a date at the last minute or dealing with uncommitted group peers.

For individuals detached from sports culture, the highly dramatic, near-manic joy displayed during an athletic victory can create a sense of psychological alienation. The screaming crowds, the unbridled tears of ecstasy, and the intense physical celebrations are frequently perceived as performative or excessive. Because the baseline lifestyle of a non-athlete lacks these extreme emotional peaks, this level of triumph feels structurally alien.

Conversely, failure, restriction, and disappointment require no sports-specific training to be understood. Everyone has experienced the pain of a derailed goal or the helplessness of an unalterable outcome. Consequently, non-athletes often find it significantly easier to empathize with a team's moments of defeat and raw frustration. The shared vulnerability of losing bridges the gap between the sports world and the detached spectator, making negative valence much more accessible than the remote concept of athletic glory.

Kinaesthetic memory

When analysing instances of high-stakes competitive triumph, such as the men's 2006 World Cup victory, a distinct cognitive boundary was observed. Participants did not link this intense onscreen euphoria to abstract, non-physical achievements in their adult lives, such as passing a difficult university exam or securing a professional promotion. Instead, for the positive effect of a sporting victory to truly resonate, the human brain demands a matching somatic blueprint.

To successfully mirror and replicate this specific joy, the viewer must possess a stored physical memory involving movement, performance anxiety, and physical exertion. This is why the positive emotions in the clips were mapped exclusively onto the participants' own athletic or artistic pasts. As one participant noted when reflecting on shared joy:

I would still stay within the realm of games played together with friends, or sports matches. You feel that same emotion when you win with your team, when you win together—that shared emotion of joy, the shared one, in my opinion.

For those with an artistic background, the triumph on screen only triggered genuine emotional alignment when it could be anchored to a visceral memory of collective performance, such as a year-end dance showcase:

I could draw a parallel to when I used to dance. There is that situation of the final recital where, after months and months of preparing the exact same choreography, you finally put on the show, and it turns out perfect. Right there, you feel a beautiful sense of belonging and esteem for what you managed to achieve together.

Even for those who practiced team sports in early youth, the euphoria was anchored strictly to physical actions, with another participant recalling:

The joy for the boys' victory can be compared to when I scored a basket...the immense satisfaction I felt when I scored a basket for my team.

Without this personal history of movement, performance, and sweat, the euphoria of sports remains an uninterpretable, distant spectacle.

Broken expectations

A completely different psychological mechanism occurs when non-fans witness competitive frustration or sports-related impotence, such as a missed penalty or an abrupt, cliffhanger editing cut. When processing these negative valences, sports-specific contexts are bypassed entirely. Instead, the distress seen on screen is mapped directly onto mundane, everyday social disappointments where personal expectations are violently disrupted by external forces.

When asked to describe a personal equivalent to the frustration experienced during the video questionnaire, one participant immediately linked it to a waste of personal time and resources:

I feel frustration when I watch a terrible movie—like when you actually go to the cinema, you invest time and money, you have these great expectations, and in the end, it turns out to be a completely low-quality, bad film right then and there.

Another participant explicitly mapped this feeling of sports-related impotence onto the vulnerability and social rejection of being stood up by a friend or a date at the last second:

For me, it would be the frustration of when you have an appointment or you plan an evening out, you get ready, you can't wait, and then they flake on you at the very last minute. You expect to see them and do as planned, and instead, you are left completely empty-handed.

Finally, the underlying feeling of anger and helplessness caused by an uncooperative sports team or a broken athletic goal was mirrored in the interpersonal strain of uncommitted group peers:

We had gone to a regional competition. I already had the perception that the group was divided—there were people who committed and believed in it, and others who just followed the wave. Clearly, we didn't do well and finished third to last. In that moment, I felt absolute impotence because I knew I had done my absolute best... but at the same time, I felt anger, because if the others had just committed a little bit more, it would have given off a completely different energy.

Through this disruption model, negative sports valence is decoded as a general violation of a social contract or a shared commitment. It represents the psychological frustration of a wasted personal investment. This finding demonstrates a crucial reality in media psychology: while shared athletic victory requires a precise, lived physical memory to be felt, a broken expectation hurts universally, allowing non-fans to deeply digest sports frustration through the lens of ordinary human disappointment.

5.1.2.5. 4th Theme: individual vs. collective athletic identity and socialization regrets

The dialogue surrounding the participants' personal histories highlighted a sharp distinction between the psychological frameworks of team sports versus individual sports. This theme explores how personal athletic backgrounds shape adult identity, driven by a deeply emotional connection to past memories. For this non-fan cohort, the sports field is not just an entertainment space, but a nostalgic archive of youth, growth, and interrupted passions.

Individual vs. team mindsets

When analysing personal histories, a clear psychological division emerged between participants who practiced individual disciplines (such as figure skating, running, or rhythmic gymnastics) and those who engaged in team sports (such as basketball or handball). This structural split permanently altered how individuals handle pressure and build relationships in their adult lives.

Participants from individual disciplines described their athletic experience as an intense, isolated journey of self-reliance. Without teammates to share the burden, failure and success belonged entirely to the self. This environment forged a quiet, resilient internal strength, conceptualized by one participant as an ongoing internal duel: “It is you against you. Everything depends entirely on you; you have to challenge yourself for yourself.”

Conversely, team sports were remembered not as lonely battlegrounds, but as vital social safety nets. This collective environment built relational security, accelerated social confidence, and taught individuals how to manage group dynamics. The emotional reward of a team victory was amplified because it was shared with peers who carried the same weight. As a former team athlete reflected: “It helps you at a social level to be more secure, to interact without problems, and to share intimate moments of victory.”

This structural split shows that early athletic socialization installs a permanent behavioural blueprint. Individual athletes develop a deep sense of internal

accountability, while team athletes preserve a high value for communal trust and collaborative support.

The bittersweet nostalgia of “standby” passion

A powerful finding from the focus group was the emotional weight attached to the abandonment of competitive sports. Most participants stopped their structured athletic careers between the ages of 15 and 18. This drop-off was driven by standard life transitions, such as academic pressures, university entry, or moving abroad for the Erasmus exchange program.

However, this focus group demonstrates that this separation did not cause an emotional detachment from the sport. Instead, it left behind a bittersweet nostalgia and a lingering sense of unfinished business. Participants do not view their competitive past as a closed chapter, instead, they treat it as an open relationship that has been frozen in time. One participant beautifully articulated this psychological state of suspension:

I have this reminder tied to my handkerchief... I haven't finished there, I just put it on standby because I had to fix other things first, but I will take it up again.

This emotional attachment highlights that youth sports represent a unique life stage filled with high-intensity emotional peaks. There is a collective recognition within this cohort that modern adult exercise habits—such as independent gym workouts, corporate yoga, or solo jogging—cannot replicate the visceral thrills of youth competition. The sterile environment of a commercial gym lacks the shared purpose, the adrenaline of the scoreboard, and the deep social bonds of a youth club. Consequently, these memories remain highly active. The intense emotional investment these non-fans display when watching athletic narratives on screen is often a subconscious longing to reconnect with their own “standby” passions and the uncorrupted vitality of their youth.

5.1.2.6. 5th Theme: transversal life skills — the ethical and behavioural legacy of sport

The final domain extracted from the second focus group investigates how individuals who identify as non-athletes interpret the ethical and behavioural legacy of sport. For this cohort, athletic practice is not viewed through the lens of organized, competitive spectatorship. Instead, it is separated from institutional leagues and reimagined as a personal philosophy for navigating adult life. The dialogue reveals that even without a background in elite sports, the psychological framework of training can be adopted as a powerful engine for personal resilience.

When reflecting on the behavioural traits associated with sports, the non-sportive cohort isolated consistency as the most prominent legacy of athletic training. From their perspective as external observers, the rigid discipline displayed by athletes is treated with a mix of fascination and cognitive distance. The group notes that athletic socialization forces an individual to develop an interiorized habit of execution that completely bypasses personal mood, weather conditions, or temporary exhaustion.

Ultimately, sport forces a type of consistency that non-athletes sometimes find unyielding. This routine appears so uncompromising to an outsider that it transcends standard dedication, framing the athlete's lifestyle as something fundamentally distinct from ordinary routines.

To this detached audience, however, this rigorous drive is recognized as a highly valuable psychological asset when transferred into non-sporting environments. The cohort agreed that while a non-athlete might easily abandon a demanding task due to a lack of immediate motivation, an individual who has interiorized this systematic athletic logic possesses a clear structural advantage when managing heavy professional workloads or enduring exhausting periods.

The running metaphor as an internal resilience engine

The clearest operationalization of this legacy emerged from a participant who recently transitioned to independent running. Free from the collective pressure of team sports or the toxic expectations of elite environments, this individual projected the mechanics of physical exertion directly onto the emotional ups and downs of everyday human existence:

I see it as a metaphor for life: it is a whole process, and in the process, there are highs and lows. There are times when you run and you feel like a tank, completely empty, other times you feel like a gazelle, and times where you struggle. But it's fine anyway, even if you run slower. The only important thing is to do it, to be constant.

This reflection provides a vital conclusion for the analysis of the non-fan template. The “empty tank vs. gazelle” dynamic demonstrates that the psychological utility of sport does not require flawless, elite performance. Instead, it offers a functional framework for self-regulation.

By accepting moments of vulnerability (“running slower”) as a natural part of the broader process, this mindset allows the individual to endure professional and personal challenges without despair. Ultimately, the focus group proves that for non-fans, the true value of sport is not found in media consumption or team loyalty, but in the internal adaptation of its core principles—grit, accountability, and endurance—as tools to navigate the real world.

Second focus group considerations

The qualitative insights gathered from the second focus group offer a profound psychological profile of the contemporary non-fan cohort, redefining them not as an indifferent audience, but as an alternative sphere of meaning who observe the mechanics of sport to better navigate reality. While these participants actively reject traditional sports spectatorship, they demonstrate a remarkable capacity to decode and adapt athletic principles into their own lives through a distinct asymmetrical emotional

mapping matrix. Within this framework, mediated athletic triumph often causes psychological alienation due to the lack of a matching somatic schema, whereas competitive frustration is instantly recognized as a universal currency, mapped effortlessly onto ordinary social disruptions. Furthermore, their personal histories reveal a bittersweet nostalgia for interrupted youth sports careers kept on an emotional “standby”, preserving early individual or team behavioural patterns that permanently dictate how they handle adult workplace or academic hierarchies. Ultimately, by stripping sport of its commercial baggage, this cohort completely disentangles athletic values from institutional leagues to build an internal resilience engine. This philosophy is perfectly captured by the running metaphor of navigating life's volatility through both “tank” and “gazelle” phases, proving that for non-fans, the true legacy of sport lies in an uncompromising consistency, that serves as a vital psychological toolkit for enduring the natural fluctuations of the real world.

CHAPTER 6

Conclusions

This thesis is designed to investigate the mechanics of the mirroring effect within the sporting domain, specifically examining how the activation of mirror neurons is stimulated by visual media to elicit psychological identification in individuals. Additionally, this study aims to evaluate how these mirroring mechanisms operate effectively within the scope of neuromarketing, mapping responses of hypothetical consumers through empirical participant feedback across both quantitative and qualitative dimensions. By transitioning from the neurophysiological foundations of the Mirror Neuron System (MNS) to a real-world, screen-mediated environment, this study examined whether watching an athlete playing can activate engagement and involvement across highly polarized spectator profiles, spanning active sports enthusiasts to completely detached non-fans.

Utilizing an exploratory sequential mixed-methods design, the empirical research uncoupled broad statistical trends from a structured questionnaire (N=120) and contextualized them through the human narratives of two polarized focus groups: Cohort 1 (The athletic profile) and Cohort 2 (The detached profile).

The integration of these datasets reveals that sports spectatorship is an active, co-constructed psychological phenomenon. Media empathy is driven by a combination of video production qualities, gender identity and the spectator's own kinaesthetic background.

6.1. Convergence and divergence between methods

The integration of quantitative metrics and qualitative focus group transcripts highlights critical areas of convergence and divergence, providing a 360-degree view of the mirroring phenomenon. To comprehensively evaluate this cross-methodological process, both the quantitative and qualitative datasets were systematically cross-

examined to isolate the salient themes where the empirical findings either match or conflict. By matching large-scale statistical trends with detailed and personal narratives, this synthesis unearths the complex psychological realities of sports spectatorship, revealing the following core analytical intersections where the methods seamlessly complement or openly diverge from one another.

The gender paradox (Convergence)

The survey data illustrated a powerful gender-differentiated catalyst: female respondents demonstrated a significant spike compared to other stimuli, in emotional involvement when exposed to female-led clips (Chapter 4, Section 4.1.2). For instance, in Video 1B (the women's national team victory), 34.2% of female viewers reported that protagonist gender explicitly heightened their engagement, compared to only 9.6% in the male-led Video 1A (Chapter 4, Section 4.1.2).

The qualitative analysis of Cohort 2 (non-athletes) provided a profound psychological explanation for this statistical pattern, unearthing a clear clash between conscious in-group solidarity and subconscious conditioning (Chapter 5, Second cohort, 2nd theme). While the female participants consciously experienced deep respect and identity mirroring for female athletes breaking into masculine spaces, they admitted to an involuntary “Serie B bias” (Chapter 5, Second Cohort, 2nd theme).

Conditioned by a male-dominated media landscape that establishes elite men's leagues as the universal baseline for speed and intensity, their subconscious emotional arousal networks often failed to activate with the same intensity during women's matches (Chapter 5, Second cohort, 2nd theme). The focus groups confirmed that this cognitive friction is purely environmental, pointing to sports like volleyball—which enjoys a historically equitable media footprint in Italy—as a matrix where this gender gap completely disappears (Chapter 5, Second cohort, 2nd theme).

The media production and indifference dynamic

(Convergence)

The integration of the mixed-methods data establishes a powerful point of convergence regarding how technical broadcast formatting directly shapes audience engagement. The quantitative analysis documented a dramatic surge in total audience detachment during Video 2A (the U17 women's penalty shootout), where the selection of “Indifference” reached its highest peak at 45 responses, accounting for 37.50% of the entire sample (Chapter 4, Section 4.1.4 & Section 4.1.8). Proportional column normalization further highlighted that the male cohort experienced its most severe internal detachment during this exact clip, with 37.04% of all indifferent men disengaging (Chapter 4, Section 4.1.8). Conversely, when exposed to Video 2B (the men's Euro 2020 penalty shootout), the male cohort experienced a precipitous drop in internal indifference down to a mere 11.11% (Chapter 4, Section 4.1.8).

The qualitative findings from the focus groups directly explicated this statistical volatility through the lens of Dolf Zillmann’s Excitation Transfer Theory (Chapter 5, First cohort, 2nd theme). Active athletes highlighted that the vintage, low-investment broadcast of Video 2A suffered from a severe psychological “flatness barrier” due to its unengaging sports commentary and dated editing style, which effectively deprived the brain of sensory input and blocked somatic response. In contrast, the cinematic suspense, rapid rhythmic editing, and atmospheric background score of Video 2B operated as technical catalysts that artificially manufactured empathy, cutting through the baseline indifference of the audience (Chapter 4, Section 4.1.8) (Chapter 5, First cohort, 2nd theme).

To verify whether this high baseline of male detachment in Video 2A was driven by an out-group gender bias—meaning men disengaging simply because they were watching female athletes—the study cross-referenced the survey's demographic identity items (Chapter 4, Section 4.1.2). The quantitative pivot tables disproved this demographic assumption, revealing that an overwhelming majority of 41 out of 46 male respondents explicitly stated that the athlete's gender did not influence their emotional involvement

in Video 2A (Chapter 4, Section 4.1.2). Consequently, this confirms a solid convergence: the initial state of audience detachment is fundamentally a medium-driven, production-related issue rather than a product of gendered alienation.

(Divergence)

While the data regarding male spectators followed a straightforward, predictable path, a profound methodological friction and interpretive divergence emerged when examining the female population's response across the same penalty clips. On a purely quantitative level, the normalized survey data in Figure 8a displayed an apparent profile of female resilience and aesthetic stability. While male indifference fluctuated brutally by an extensive 25.93 percentage points between the two stimuli, the female population fractured this linear media logic, experiencing a minimal, controlled oscillation from 20.51% in Video 2A to 14.53% in Video 2B (Chapter 4, Section 4.1.8).

This quantitative stability initially appeared to align perfectly with two other independent survey findings: first, the descriptive pivot tables from Chapter 4.1.2 documented that female viewers experience a higher conscious affinity and representational identification when observing same-gender protagonists on screen; second, the non-parametric box plot analysis established that women possess a superior baseline of self-reported general empathy, covering a significantly wider response range that extends all the way up to the absolute maximum score of 5.00 (Chapter 4, Section 4.1.7). Taken together, the survey metrics painted a picture of an empathetic, gender-solidary female audience whose internal mirroring systems were structurally resilient enough to remain emotionally involved regardless of poor video post-production or low broadcast quality (Chapter 4, Section 4.1.8).

However, the qualitative follow-up through the focus groups completely challenged and contradicted this assumption of effortless quantitative resilience, revealing a deep undercurrent of incongruence. When prompted to discuss their lived viewing experiences, female participants explicitly stated that video construction, match pacing, and media production values are, in fact, highly deterministic factors in their ability to mirror onscreen emotions (Chapter 5, First cohort, 2nd theme). Rather than bypassing

the technical deficits of Video 2A, they admitted that the flat narrative framing and absence of strong vocal celebration functioned as an active psychological barrier that severely disrupted their capacity for immersion (Chapter 5, First cohort, 2nd theme).

This qualitative disclosure uncovers a fascinating subconscious paradox. On a conscious level, women possess a high general empathy baseline and an explicit desire for in-group gender solidarity with female athletes (Chapter 4, Section 4.1.2 & Section 4.1.7) (Chapter 5, Second cohort, 2nd theme). Yet, on a subconscious level, their minds have been heavily conditioned by a male-dominated media landscape that establishes the hyper-fast velocity and premium production values of elite men's leagues as the invisible default setting for sports entertainment (Chapter 5, First cohort, 2nd theme & Second cohort, 2nd theme). When confronted with the slower physical reality and lower technical execution of Video 2A, this deep-seated conditioning triggers an involuntary “pacing paradox” and an implicit— and previously analysed— “Serie B bias”, causing female spectators to experience acute cognitive dissonance and internal detachment (Chapter 5, First cohort, 2nd theme & Second cohort, 2nd theme).

Ultimately, this methodological friction resolves the quantitative anomaly: female empathy is not immune to poor media production. Instead, their conscious ideological support and high disposition toward the human element temporarily masked a deep, underlying media frustration in the survey data, proving that screen-mediated empathy remains heavily restricted, conditioned, and disrupted by the cinematic frame across both genders.

6.2. Research questions

To answer the main research question of how mediated sport emotions activate empathy in viewers, this study shows that mirroring onscreen emotions is not an automatic reflex. Instead, it is a psychological process shaped by two main things: the media filter and the viewer's background. Therefore, to provide a complete and grounded answer, it is necessary to examine the findings of the sub-research questions, as they build the foundation for this conclusion.

(SRQ 2) Somatic reflection and media interference

The mirroring process starts when we see an athlete's physical movements and facial expressions. However, this reaction depends heavily on the viewer's personal background. In the qualitative phase, the active athletes in the First cohort explained that raw physical gestures, facial expressions, and body language are the primary triggers for identification (Chapter 5, First cohort, 4th theme). Because these participants have a personal sports background, they use their own stored muscle memory as a cognitive framework to map the observed movements onto their own bodies, unlocking deep physical resonance and somatic reflection.

However, this baseline neurological mirroring is immediately shaped by production effects, which function as either technical barriers or catalysts. In Chapter 5 (First cohort, 2nd theme), the active athletes explicitly stated that poor broadcast production functions as a psychological “flatness barrier”. Specifically, they highlighted that unengaging sports commentary and dated editing, fail to create somatic response, which blocks the viewer's excitement and causes audience empathy to shut down into high states of indifference. Conversely, the participants in the Second cohort, (1st theme), highlighted that they prefer a more engaged video construction as well to trigger empathy and connection. However, they also added an important nuance, stating that a balanced, non-excessive frenzy is highly appreciated, especially within the sports commentary, to maintain effective engagement without becoming overwhelming (Chapter 5, Second cohort, 1st theme).

(SRQ 1) Gender differences in perception

This video quality factor is closely tied to the viewer's gender. Specifically, even though almost all male respondents explicitly stated that watching female athletes does not affect their emotional involvement (Chapter 4, Section 4.1.2), their internal indifference still jumped by 25.93 percentage points when facing the female video compared to the male video (Chapter 4, Section 4.1.8). This sharp increase could be caused by an incongruence of perception between the viewer's gender and the athlete's gender, a

reaction to the poor construction of the video itself or other reasons that has not been brought to light.

Conversely, women remained statistically stable across different clips, with their overall level of indifference towards the videos ‘stimuli shifting minimally. This numerical stability aligns with the box plot data showing that women cover a wider spectrum of general empathy, reaching the maximum score (Chapter 4, Section 4.1.7).

(SRQ 3) Affective asymmetry

Finally, this entire empathy process changes depending on the specific emotion shown on screen. The data reveals a major difference between positive and negative emotions. Positive emotions like winning and collective joy act as an “exclusive currency”—meaning you need to have a matching athletic background to fully share that happiness without feeling disconnected (Chapter 5, Second cohort, 3rd theme).

Negative emotions (defeat, frustration, referee injustice), however, act as a universal human language. Based on Lazarus’s Cognitive Appraisal Theory, seeing an athlete suffer triggers an immediate sense of helplessness (Chapter 5, First cohort, 3rd theme). Because any viewer can easily map this onscreen distress onto ordinary, everyday life disappointments, negative emotions are easier to feel and relate. This makes collective sadness a much more accessible and shared emotion for the general audience than athletic glory (Chapter 5, Second Cohort, 3rd theme).

Ultimately, the main research question finds its answer in this connected reality: watching sports on screen is a shared process where video editing (**SRQ 2**), cultural gender conditioning (**SRQ 1**), and the type of emotion (**SRQ 3**) work together to decide if we are just watching a game or truly feeling the human experience.

6.3. Limitations

Being an innovative experimental study that has not been conducted before through this methodology approach, this research presents both unique strengths and specific

weaknesses. Acknowledging these boundaries is essential for transparency and for guiding future research.

The main limitations encountered in this study are outlined below:

Video ordering and duration: The sequence in which the videos were shown to participants was fixed. To obtain even more precise data and ensure that responses were not conditioned or primed by the very first clips viewed, a fully randomized video order could have been implemented. Furthermore, the videos could have been shorter to avoid appearing lengthy and tedious; however, the decision was made with the aim of maximising the viewer's emotional engagement as much as possible.

Excel's visual rounding: Regarding data presentation, a minor technical limitation stems from Microsoft Excel's visual rounding mechanism in the cross-tabulations (such as in Tables 4a and 5a). Because the software calculates totals using raw underlying data (up to 15 decimal places) but truncates individual display cells to a single decimal place, the horizontal sums would have been visually appeared to equal 99.9% or 100.1% while the "Total" column strictly displays 100.0%. The underlying data remains mathematically sound, as the software correctly sums the raw internal values rather than the visually rounded display values.

Ambiguous responses in Chapter 4: In the final graph of Chapter 4, a total of 11 ambiguous or conflicting "Yes/No" responses were detected. To preserve the general unity and capture the full complexity of the data, these cases were kept in the final analysis rather than discarded. They were processed by prioritizing the respondents' initial stated preference.

Focus group composition: The dynamics of the qualitative phase presented some limitations in group structure. Overall, the study would have benefited from larger focus groups. Additionally, utilizing mixed-gender focus groups—especially within the second cohort—would have provided a much stronger foundation for comparison.

6.4. Future horizons

In conclusion, this thesis demonstrates that modern sport psychology must expand its traditional boundaries to fully encapsulate the media-saturated landscape of the 21st century. Emotional mirroring is far more than a physiological reflex; it is a sophisticated, vibrant negotiation mediated by the very screens that connect us. Our mirror neuron system does not remain silent during spectatorship, but its activation is filtered through the viewer's gender identity, lifelong media conditioning, and somatic history.

Driven by the growth of women's sports academies, it is evident that despite the ground still to be recovered to close the gap with the men's game, women's football makes the heart beat just as intensely, as both fields ultimately represent the very same beloved sport—one that inherently instils foundational core values that last a lifetime. This shared emotional resonance is actively rewriting the cognitive architecture of an entire generation. As media visibility grows and structural, economic, and commercial sponsorships work to dismantle historical disparities, the public's observational visual expertise will continue to synchronize.

By mapping the subconscious, neuro-somatic layer of media reception, this study highlights how these results obtained from human behaviour can serve as a fundamental pillar for neuromarketing and future sport psychology research. Ultimately, it stands as powerful proof that when we look through the media screen, we do not merely observe an external game—we run a visceral, internal simulation of the human condition.

APPENDIX

This appendix provides an overview of the questionnaire's development and is included to ensure methodological transparency, allowing readers to view the exact questions to which the participants responded. The survey was administered in Italian to target Italian native speakers, aligning with the fact that all selected videos featured the Italian national team. The questionnaire is structured into distinct thematic sections based on the topics analysed. The first section, dedicated to “Empathy”, contains general questions regarding the participants' self-perceived empathy. This section was fundamental in establishing whether respondents exhibited a high or low baseline of empathy and identifying the specific stimuli that triggered these responses.

Empatia

1. Esprimi il tuo stato di accordo con le seguenti affermazioni (1=per niente d'accordo - 5=molto d'accordo) *

Contrassegna solo un ovale per riga.

	1	2	3	4	5
Riesco a capire cosa prova una persona anche senza che me lo dica esplicitamente	☐	☐	☐	☐	☐
Le persone si fidano di me	☐	☐	☐	☐	☐
Mi risulta facile mettermi nei panni degli altri	☐	☐	☐	☐	☐
Le campagne pubblicitarie mi convincono dell'acquisto dei loro prodotti	☐	☐	☐	☐	☐
Quando vedo una scena di un film triste, mi viene un nodo alla gola	☐	☐	☐	☐	☐

Moving forward with the questionnaire's structure, the focus then shifts directly to the sports domain. To evaluate the participants' general engagement, specific questions

were introduced to measure their level of interest in sports, followed by queries examining their personal sporting background and past athletic involvement.

Sport

2. Ti interessa lo sport? *

Contrassegna solo un ovale.

☐ Si

☐ No *Passa alla domanda 5.*

3. Quanto lo sport è importante nella tua vita? (1=per nulla importante - 5=molto importante)

Contrassegna solo un ovale.

1 2 3 4 5

Per ☐ ☐ ☐ ☐ ☐ Molto importante

4. Ti capita di empatizzare (sentire le emozioni che provano gli altri come se fossero tue) con gli sportivi che vedi?

Contrassegna solo un ovale.

☐ Si

☐ No

☐ Non saprei

Sport di squadra

5. Hai mai praticato calcio o altri sport di squadra? *

Contrassegna solo un ovale.

- ☐ Sì, ho praticato/pratico calcio
- ☐ Sì, ho praticato/pratico un altro sport di squadra
- ☐ No, ma ho praticato/pratico uno sport individuale
- ☐ Non ho mai praticato/non pratico nessuno sport

6. Quanto ti interessa il calcio? (1=per nulla importante - 5=molto importante) *

Contrassegna solo un ovale.

1 2 3 4 5

Per i ☐ ☐ ☐ ☐ ☐ Molto importante

7. Ti consideri un tifoso/a di una squadra specifica?

Contrassegna solo un ovale.

- ☐ Sì
- ☐ No

8. Guardi le partite con regolarità?

Contrassegna solo un ovale.

- ☐ No, sono un/a tifoso/a occasionale
- ☐ Le guardo sporadicamente
- ☐ Cerco di guardarle quando posso
- ☐ Le guardo tutte

The core of the questionnaire is structured around the viewing of three distinct video pairs, with each pair corresponding to a specific section: Section 1, Section 2, and Section 3. The clips depict iconic moments of both the men's and women's Italian national football teams and are presented in an alternating sequence to ensure a balanced comparison and maintain consistent participant engagement. Following each individual video, a block of eight questions is presented to evaluate the viewer's emotional responses and overall reaction. These questions aim to investigate the specific nature and intensity of the feelings elicited by the different stimuli, assessing how variations in video content—intentionally designed to convey distinct emotional tones—produce diverging emotional outcomes. Within this block, certain questions, such as Questions 9, 10 (which evaluate the engagement of specific visual elements), and 15, provide open-ended text fields. This design allows respondents to freely articulate their thoughts, memories, and sensations, enabling them to connect the broadcast footage directly to their own lived experiences and past personal sporting moments. Similarly, in cases where a video fails to elicit emotional engagement, Question 11 presents a series of options detailing the specific factors that hinder this connection, likewise including an open-ended text field for further elaboration.

To ensure methodological consistency, the same block of eight questions is identically repeated after each video screening.

Mirroring e percezione

Il mirroring è un effetto che si attiva quando vediamo compiere delle azioni o provare dei sentimenti altri in cui ci rivediamo, riconosciamo e familiarizziamo.

Ti verranno presentati degli episodi. Esprimi il tuo grado di accordo con le affermazioni che seguiranno.

Italia - Germania, Mondiali 2006



<http://youtube.com/watch?v=YUmRccgwi9k>

9. Ti sei sentito/a emotivamente coinvolto/a con il video mostrato? *

Contrassegna solo un ovale.

- ☐ Sì
- ☐ No

10. Se sì, quale elemento ha contribuito maggiormente al tuo coinvolgimento emotivo?

Contrassegna solo un ovale.

- ☐ Il fatto che i protagonisti siano del mio stesso genere
- ☐ Il fatto di seguire/interessarmi allo sport/calcio
- ☐ Il modo in cui il video era costruito (musica, montaggio, ritmo)
- ☐ Altro:

11. Nel caso non ti senta coinvolto/a, quale elemento ha limitato il tuo coinvolgimento emotivo?

Contrassegna solo un ovale.

- ☐ Il fatto che i protagonisti non fossero del mio stesso genere
- ☐ Il fatto di non seguire/interessarmi allo sport/calcio
- ☐ Il modo in cui il video era costruito (musica, montaggio, ritmo) non mi ha coinvolto
- ☐ Altro:

12. Esprimi il tuo grado di accordo con le seguenti affermazioni (1=molto in disaccordo - 5=molto d'accordo) *

Contrassegna solo un ovale per riga.

	1	2	3	4	5
Ho sentito di partecipare fisicamente all'azione	☐	☐	☐	☐	☐
Ho sentito di vivere in prima persona la situazione	☐	☐	☐	☐	☐
Ho sentito un coinvolgimento positivo	☐	☐	☐	☐	☐
Ho sentito un coinvolgimento negativo	☐	☐	☐	☐	☐
Ho sentito l'impulso di reagire	☐	☐	☐	☐	☐
Mi sono sentito/a inerme	☐	☐	☐	☐	☐

13. Il fatto che i protagonisti fossero uomini/donne ha influenzato il tuo coinvolgimento emotivo? *

Contrassegna solo un ovale.

☐ Sì

☐ No

14. Hai mai vissuto in prima persona e/o assistito ad una situazione sportiva simile a quella mostrata nel video, provando emozioni simili? *

Contrassegna solo un ovale.

☐ Sì

☐ No

15. Se sì, specificare in quale situazione

16. Che emozione ha suscitato in te la visione del video? *

Contrassegna solo un ovale.

☐ Eccitazione

☐ Euforia

☐ Indifferenza

☐ Spirito di appartenenza

☐ Frustrazione

☐ Felicità

☐ Rabbia

☐ Coinvolgimento

☐ Ansia

☐ Indignazione

The concluding part asks respondents to identify the specific section of the questionnaire that triggered the highest level of engagement. The survey then closes with the collection of demographic data, namely gender and age, with the inclusion criteria for the latter intentionally restricted to individuals who have reached the age of majority.

Conclusione

57. Qual è stata la sezione che più ti ha coinvolto/a? *

⌵ Dropdown

Contrassegna solo un ovale.

- ☐ Sezione 1 (Vittoria dei Mondiali maschile - Vittoria contro la Norvegia femminile)
- ☐ Sezione 2 (Rigori Europeo maschile - Rigori U17 femminile)
- ☐ Sezione 3 (Sconfitta Europeo femminile - Sconfitta Mondiali maschile)

Dati etnografici

58. Seleziona il tuo genere *

Contrassegna solo un ovale.

- ☐ Donna
- ☐ Uomo
- ☐ Preferisco non dire

59. Quando sei nato? *

⌵ Dropdown

Contrassegna solo un ovale.

- ☐ 2007
- ☐ 2006
- ☐ 2005

As previously outlined in Chapter 3 (Methodology), the videos were made accessible via specific links embedded directly within the questionnaire. While the majority of the clips were hosted on YouTube, two of the six videos were uploaded to an alternative platform, Google Drive. The direct links providing access to these video stimuli are presented below.

For the YouTube channel:

- Section 1, Video A: <http://youtube.com/watch?v=YUmRccgwi9k>
- Section 2, Video A: <http://youtube.com/watch?v=EwGKxBkcpqU>
- Section 2, Video B: <http://youtube.com/watch?v=ZkHXQpRe6Ko>
- Section 3, Video A: <http://youtube.com/watch?v=FZF2MI53fVk>

For Google Drive:

- Section 1, Video B: <https://drive.google.com/file/d/1m8nsjJTupC6J9-2bvaVW1dLOhB0-xlvt/view?usp=sharing>
- Section 3, Video B: <https://drive.google.com/file/d/1a6KcVTBPnZ2qnHedlbz9k5nChaNGYUAN/view?usp=sharing>

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