



Research article

SOCIAL REPRESENTATION OF PSYCHOMOTRICITY IN FENCING

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Abstract

This study explores the social representation of psychomotricity within the field of fencing, grounded in Serge Moscovici's theory of social representations. Psychomotricity in fencing was examined through the shared perceptions of fencers. The research aimed to identify the central and peripheral elements of the social representation of psychomotricity in fencing, revealing how individuals conceptualize this notion beyond its scientific definition. The study involved 31 participants, fencers, who completed an online word association questionnaire. Data were analyzed using Vergès' structural approach and Havârneanu's representation indicator method. Frequencies, occurrence ranks, and importance ranks were calculated to distinguish between the central core and peripheral components of the representation. Results indicated that Agility, Coordination, and Speed form the central nucleus of the representation, reflecting the essential psychomotor capacities that underpin fencing performance. Cognitive processes occupied an intermediary position, emphasizing the integration of mental regulation with motor control. Peripheral elements—Training, Attitude, Strength, Motor Skills, and Sword—represented contextual and individual dimensions. Overall, the findings highlight psychomotricity in fencing as a multidimensional construct that unites cognitive and motor components.

Keywords: social representation, fencing, psychomotricity



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1. Introduction

Social representations are not scientific theories, but rather networks of ideas, metaphors and images, more or less interconnected, harmonized, mobile in nature and in constant change and restructuring according to the transformations of the social and natural environment (Prisecaru & Curelaru, 2013). Social representations are the "outcome of our actions and communications" (Moscovici, 1997), serving as images that mediate the tension between unfamiliar, sometimes hostile reality and the self. Their creator conceives them as systems of values, concepts, and practices tied to objects – dimensions of the social world that help individuals make sense of material reality and adapt their behavior and language to new circumstances. In essence, they are constructs that reflect reality and highlight events within groups; metaphors that bring the unknown closer and transform the abstract into something familiar (Abalazei, 2014).

Originally formulated by Serge Moscovici, social representation theory provides a foundation for understanding how collective knowledge is constructed and employed within social contexts. It posits that representations are shared frameworks through which groups interpret their experiences, combining psychological and sociological dimensions (Caravaca – Morena et al., 2015). These representations arise from the interaction



between individual cognition and collective cultural knowledge, emphasizing that both subjective and social factors shape the construction of meaning (Caravaca - Morera et al., 2015; Tsarev, 2024).

Therefore, social representations can be considered collectively elaborated modes of knowledge and at the same time, reading grids of reality or categories of knowledge with social functions, aimed at the community integration of individuals and at providing a range of possibilities for action in the social world. These are forms of social consciousness, products of groups, social classes, or cultures, collectively generated under the impact of the social context.

In attempt to provide a broader description of the universe of social representations, several theories have been formulated since 1980s. One of these, defined as the structural approach, emphasizes opinion consensus. From this perspective, a social representation consists of a central core, stable and rigid, as well as a peripheral system, context-sensitive and serving to protect the former. The central system facilitates the interpretation of reality, gives meaning to events, guides the conduct, organizes peripheral elements and preserves group identity and history (Prisecaru & Curelaru, 2013). As for our own work, in order to achieve the objectives of the first study, we have relied on this theoretical and methodological perspective.

Social representations are characterized by a hierarchical structure consisting of core and peripheral elements. The core of a representation comprises the fundamental beliefs or themes that are widely accepted within a group, while peripheral elements capture the nuances and variations that may differ among individuals or contexts (Wolter, 2018). This structural approach allows researchers to examine not only what a community collectively believes but also how these beliefs may evolve overtime or in response to changing socio-political conditions.

The individual's encounter with shared meanings emerges from the effort to make sense of an unfamiliar reality—an experience that first provokes fear through ignorance, but later transforms into a pursuit of understanding. In this way, the social representation becomes a bridge, drawing a parallel between the visible image and the deeper substance it reflects (Abalasei, 2014).

Furthermore, the methodological aspects of social representation theory often involve both qualitative and quantitative methods to analyze the content and structure of representations. Techniques such as free word association and narrative analysis are commonly employed to elicit data on how individuals and groups conceptualize specific topics. These methods enable researchers to produce rich, contextualized insights into how social representations are formed and articulated, revealing the underlying social and emotional landscapes associated with particular issues (Wang, 2020; Caravaca - Morera et al., 2015).

The epistemological implications of social representation theory extend to how knowledge is constructed and legitimized within society. Tsarev (2024) discusses how social cognition encompasses various dimensions, including epistemological and axiological elements, which affect how knowledge is produced and its implications for societal practices. This perspective emphasizes that understanding social knowledge requires a comprehensive framework that acknowledges the values and meanings attributed to different contexts, thereby reinforcing the social nature of knowledge production.

Social representations can be viewed as both cognitive and social constructs that mediate between individual experience and collective meaning. They not only serve to interpret the world but also to anchor individuals within their cultural and social contexts.

Guided by these theoretical and methodological foundations, the present study focuses on the social representation of psychomotricity within the field of fencing, a discipline in which body, mind and movement intersect in highly specific ways. Social space is built from images and associations, and social actors continuously circulate these through communication, shaping shared meanings. When individuals are asked to imagine psychomotricity in fencing, they bring forward spontaneous ideas, metaphors and images that reveal how this concept is understood outside its strictly scientific definition. This perspective enables the identification of core and peripheral components within the representation of psychomotricity in fencing, capturing both the stable, shared beliefs and the context – dependent variations that characterize this concept within the sporting community.

Our research aims to identify and analyze the first ideas that come to fencers' minds when they think of psychomotricity in fencing.



2. Material and method

This study comprised 31 subjects, fencers from Iași, Romania.

The questionnaire was applied online through their coaches. They were ensured confidentiality and they were asked to fill in the questionnaire in a personal manner.

To analyze the responses from the first two items of the questionnaire, I employed two complementary approaches: the world association method developed by Vergès (2001) and an alternative analytical model proposed by Havârneanu (2000) for identifying the structure and organization of social representations. Vergès's technique relies on two key indicators – the frequency with which a term appears and its average order of appearance – while Havârneanu's method combines frequency of occurrence with average importance rankings. In the latter case, the overall social representation indicator was calculated using the following formula:

Social Representation Indicator (RI) = Occurrence Frequency × Mean of Ranks

Data from the world association questionnaire – designed to reveal how respondents conceptualize psychomotricity in fencing by considering both the frequency and the importance of associated term – were processed using the Vergès's quadrant technique and Havârneanu's comparative method.

According to Vergès's model, the results were organized in a four-field matrix that distinguishes elements based on how often they appear and how early they are mentioned. Terms with high frequency and low average rank (below set threshold) were identified as part of the central nucleus of the representation, representing its most stable and widely shared components. Conversely, terms with lower frequency and higher average rank were interpreted as peripheral elements, reflecting more individual or contextual associations.

Havârneanu's method, on the other hand, integrates frequency values with mean importance ranks. By cross-tabulating these variables and plotting them graphically, the analysis differentiates between core and peripheral dimensions of the representation based on the magnitude of the calculated indicator.

Applying the world association procedure resulted in 67 distinct lexical occurrences, which included both synonyms and closely related expressions. These were subsequently grouped into conceptual categories (Table 1) to capture the range of perceptions surrounding psychomotricity in fencing.

Table 1. Categories of social representation of psychomotricity in fencing.

Categories	Frequency	Occurrence rank	Importance rank	Mean of ranks	Representation indicator
Cognitive processes	31	3,58	2,74	3,16	97,96
Agility	28	2,79	3,43	3,11	87,08
Speed	27	2,44	2,63	2,54	68,45
Coordination	27	2,22	2,33	2,28	61,43
Training	15	3,53	3,27	3,40	51,00
Strength	7	4,29	3,86	4,08	28,53
Attitude	7	3,57	3,29	3,43	24,01
Sword	3	3,67	5,00	4,34	13,01
Motor skills	4	1,00	2,25	1,63	6,50

3. Findings

The analysis of the word association data revealed the main components and internal organization of the social representation of psychomotricity in fencing. Following the group of lexical occurrences into conceptual categories (Table 1), a total of nine categories were identified, each reflecting a distinct facet of how the concept of psychomotricity in fencing is viewed.



Using the technique proposed by Vergès, the structure of the representation was analyzed through the joint consideration of frequency of occurrence and mean rank of occurrence. These two dimensions were cross-referenced in a four-compartment table to identify the central and peripheral zones of the representation (Table 2).

Table 2. Social representation of psychomotricity in fencing, according to P. Vergès' technique

Occurrence rank			
Frequency			
		Lower than or 3	Higher than 3
	Higher than or 16,6	Agility Coordination Speed	Cognitive processes
	Lower than 16,6	Motor skills	Training Attitude Strength Sword

According to the established thresholds (frequency ≥ 16.6 ; occurrence rank ≤ 3), the central nucleus consists of categories Agility, Coordination and Speed. The category Cognitive processes, though also characterized by high frequency, had a slightly higher mean rank, positioning it near the core-periphery interface. The first periphery included Motor skills, which represents a lower frequency and a lower mean rank as well. The second periphery comprises Training, Attitude, Strength, and Sword – all characterized by lower frequencies and higher ranks.

To further refine the analysis, the data were examined using Havârneanu's method, which combines frequency of occurrence and mean importance rank into a representation indicator. The resulting indicator values were plotted to visualize the relative salience of each category within the representation (Figure 1).

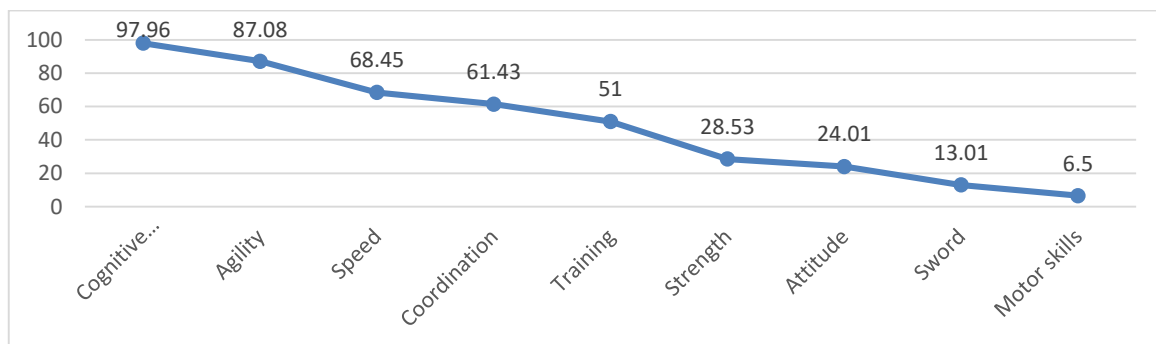


Fig. 1. Technique of social representation indicator (Havârneanu)

As shown in Figure 2, the highest representation indicators were obtained for Cognitive processes (97.96) and Agility (87.08), followed by Speed (68.45) and Coordination (61.43). Intermediate values were found for Training (51.00). The lowest indicators – Attitude (24.01), Strength (28.53), Motor skills (6.50) and Sword (13.01) – correspond to peripheral associations.

4. Discussions

The present study explored the social representation of psychomotricity in fencing through a word association analysis using Vergès' structural approach. This method allowed for an in-depth examination of how fencers conceptualize the role and meaning of psychomotricity in fencing. The analysis of frequency and mean rank of



occurrence provides a dual perspective, capturing both the salience and the hierarchical organization of elements within a social representation. Through this process, the finding revealed a structured representation made of a central nucleus and peripheral zones, each reflecting distinct directions of psychomotor understanding in fencing.

The central nucleus, consisting of Agility, Coordination and Speed, contains the most salient and consensual elements of the representation. These categories are fundamental psychomotor components that directly underpin fencing performance, aligning with the sports' dynamic demands for rapid decision-making. Their position suggests a shared and stable understanding among participants that psychomotricity in fencing is primarily expressed through these core motor capacities. This aligns with the Vergès' model, in which core elements represent the most stable and socially shared aspects of a representation (Vinogradova et al., 2021; Meter, 2017).

The proximity of Cognitive processes to the core-periphery interface highlights its recognized but slightly less central role. Although not as consistently evoked as the core elements, its high frequency indicates participants' awareness of the cognitive dimension of psychomotricity. This finding supports the notion that psychomotor skills in fencing extend beyond purely physical attributes to encompass cognitive regulation and mental adaptability, consistent with the integrative view of psychomotricity as involving both motor and cognitive coordination (Barreiro et al., 2014).

In the lower left quadrant, Motor skills emerged as an element characterized by low frequency and also low mean rank, meaning it was mentioned less often but tended to appear early in participants' responses. This suggests that while it is not universally salient, it holds personal significance for some participants, reflecting individual interpretations of general motor competence within the context of fencing.

The peripheral elements of the social representation, Training, Attitude, Strength and Sword, represents contextual and variable aspects of the representation. Their lower frequencies and higher occurrence ranks imply that they are less central but contribute to the boarder contextual understanding of psychomotricity. As Vergès' structural theory posits, peripheral elements play a crucial adaptive role, allowing the representation to accommodate situational and individual differences (Vinogradova et al., 2021). In this case, the inclusion of Training and Attitude underscores the importance of discipline, preparation and mental disposition in psychomotor development, while Strength and Sword point to the tangible, sport-specific factors shaping fencers' conceptualizations.

This distinction between core and peripheral elements revealed how fencers collectively perceive psychomotricity as a multifactored construct integrating physical agility and coordination with cognitive control and training connect. As previous studies have emphasized (Briseniou et al., 2021), such structural analyses help clarify not only the dominant components of social knowledge but also variations that reflect personal experience and situational relevance.

To complement the structural findings obtained through Vergès' approach, the data were further examined using Havârneanu's method. This technique refines the analysis of social representations by combining the frequency of occurrence with the mean of two ranking dimensions. The representation indicator this expresses both the quantitative prominence and the qualitative salience of each element within the representation offering a more integrated assessment of its importance.

As shown in Figure 2, the highest representation indicators were recorded for Cognitive processes (97,96) and Agility (87,08), followed by Speed (68,45) and Coordination (61,43). Training (51,00) occupied an intermediate position, while Attitude (24,01), Strength (28,53), Motor skills (6,50) and Sword (13,01) displayed the lowest indicator values, corresponding to peripheral elements.

The predominance of Cognitive processes as the highest indicator underscores the recognition of psychomotricity's mental dimension – highlighting processes such as attention, anticipation and tactical decision – making as integral to fencing performance. Similarly, the strong indicators for Agility, Speed and Coordination confirm the importance of fundamental psychomotor capacities, which form the technical and physical basis of fencing. Together, these elements represent the most stable and consensus core of the representation, consistent with Havârneanu's assertion that high – indicator categories correspond to the central nucleus of shared understanding.

Conversely, categories such as Attitude, Strength, Motor skills and Sword presented low RI values, reflecting their peripheral status. In line with Briseniou et al. (2020), peripheral elements allow the representation to remain flexible and context – sensitive, accommodating individual experiences, personal values, and situational variability.



The intermediate indicator of Training suggests its mediating role, bridging the technical, cognitive and motivational aspects of psychomotor performance in fencing.

Despite the insights provided by this study, certain limitations should be acknowledged. A notable constraint is that many participants may have had limited understanding of the concept of psychomotricity, potentially influencing the frequency and salience of the associations reported. Additionally, future research could expand the study to a larger sample, including fencers from different experience weapons, geographic regions, or training systems. Such an approach would enhance the generalizability of the findings and provide a more comprehensive view of how psychomotricity is socially represented in fencing.

5. Conclusions

This study examined the social representation of psychomotricity in fencing using Vergès' structural approach and Havârneanu's representation indicator method. The findings revealed a well-defined structure centered on Agility, Coordination, and Speed, which form the core elements of the representation and reflect the essential psychomotor skills underpinning fencing performance. Cognitive processes occupied an intermediary position, highlighting the integration of mental regulation and anticipatory control with motor execution. Peripheral elements—Training, Attitude, Strength, Motor skills, and Sword—illustrated the contextual and individual dimensions of psychomotricity, emphasizing its multifactorial nature.

Practically, these results suggest that fencing training should adopt integrated psychomotor approaches, combining technical, physical, and cognitive development to enhance athletes' adaptability and performance efficiency. Overall, the research highlights psychomotricity as a multidimensional construct linking cognitive and motor processes essential to fencing mastery.

6. Author contributions

Ioana – Alexandra Radu and Beatrice Aurelia Abalasei contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript. All authors have read and agreed to the published version of the manuscript.

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