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Preference: Oral Presentation (15 minutes)

Thematic area: Work and Organizational Psychology, Sport Psychology

SDG: Good Health and Well-being, Quality Education, Decent Work and Economic Growth

Title:

Optimal Action in High Speed Environments. Empirical Approach to the Psychological Regulation of Action of Jet Pilots and Speed Athletes.

Introduction: This study examines the constitutive elements of optimal action through the lived experience of experts in jet aviation and speed sports. These domains, characterized by extreme velocity and risk, provide controlled “microworlds” that enable systematic investigation of cognitive, affective, and embodied regulation under acute temporal constraints.

Purpose: The objective is to identify strategies of action regulation and decision-making under high time pressure and life-threatening stakes. By analyzing how experts maintain performance in these contexts, the study aims to derive hypotheses with explanatory insights for psychological theory and applied settings.

Method: Twenty-four experts (jet and airline pilots, formula 1 drivers, motorcyclists, downhill skiers, bobsleigh and skeleton pilots) were interviewed. Their subjective theories of optimal action were reconstructed and systematized through grounded theory methodology. An iterative process of open, axial, and selective coding, supported by inductive and abductive reasoning, generated an in vivo category system. Reflexive consideration of the interpretative-constructivist paradigm, sampling criteria, and researcher involvement ensured methodological rigor.

Results: Eight hypotheses emerged, describing a tripartite regulatory cycle: preparation, realization, and interpretation. Preparation involves anticipatory visualization and affective evaluation of planned action to mobilize concentration and motivation. Realization under time pressure is dominated by automatized routines and intuitive judgments, reflecting long-term experiential consolidation and acceptance of physiological boundaries. Interpretation encompasses feedback integration, evaluation, and organismic adaptation, fostering cumulative meta-knowledge that guides future performance. This meta-knowledge constitutes an integrative model of optimal action.

Conclusions: The findings advance psychological understanding of expertise by elucidating how cognition, emotion, automatisms and embodied processes interact in extreme environments. Beyond sport and aviation, the model holds implications for training science, cognitive and developmental psychology, and organizational contexts marked by accelerated change and decision-making under pressure. Further research should examine transferability across professional and societal domains.

Key words: Optimal Action Regulation, Grounded Theory, Expert Performance, Time Pressure, Meta-Knowledge.