Advancement of the Multi-Action Plan Model

Subjects: Psychology

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The Multi-Action Plan (MAP) model presents as an action-focused, sport-specific, mixed methods intervention model. MAP research characterized four Performance Types (PTs). Each PT operates on an affective, cognitive, behavioral, and psychophysiological level—across performance contexts. The authors propose three areas on how MAP could be extended: First, researchers argue that a better understanding of the phasing/timing of transitions between mental states during performance would greatly expand the MAP framework on a conceptual and applied level. Second, the authors offer ideas on the role of socio-environmental precursors acting as cues for such transition processes. Third, the authors propose to clarify the role of effort and reward perception post-transition, particularly in relation to micro and macro timeframes.

Keywords: peak performance ; coping ; self-regulation ; biopsychosocial

1. Introduction

Over the past few decades, multiple attempts were made to conceptualize peak and non-peak performance experiences within sport psychology [1]. Peak performance can be defined as a state of superior functioning resulting in optimal human performance [2]. Most peak performance research can be characterized as either in-depth descriptive studies (e.g., [3]) or were empirical in their orientation [4]. However, broadly, the aim of the peak/non-peak research paradigm is to characterize and determine what does and does not constitute a peak experience and its associated antecedents and consequences. In contrast to these dichotomous, peak or non-peak approaches sits the Multi-Action Plan (MAP) Model. MAP is an intervention model that can be utilized to investigate and improve human performance, using various research methodologies. To date, the body of research utilizing MAP investigated the execution of self-paced skills (e.g., [5]). Mechanistic approaches such as this can offer ideas on the 'How?' and 'Why?' of human behavior in complex, high-stakes, and dynamic performance environments. They are crucial aids that facilitate effective applied practice, and enable accurate case conceptualization, assisting both clients and practitioners (cf. [6]).

Introduced by Bortoli and colleagues [1], MAP provides a conceptual structure that outlines both peak and non-peak performance; perceived emotional states; the control a performer has over their performance situation; and potential coping strategies. Therefore, although providing a psychophysiological perspective, MAP is idiosyncratic, meaning that it can be applied accurately to an individual's circumstances, as opposed to offering generic guidance.

Given that high-performance environments in sport are dynamic and unpredictable, the experiences of performers examined within the MAP framework are inherently complex, elusive to systematic study, and challenging to control [1]. Yet, to date, MAP was tested and corroborated in nine studies across multiple self-paced activities (shooting and dart throwing [1][5][7][8][9]), endurance sports (cycling [10][11]; running [12]), and in driving simulation [13].

MAP is steeped in the Multi-States Theory for Self-Regulation, which conceptualizes the idiosyncratic experience of and dynamic interaction between performer, task (process, outcome, and performance context), perceived resources, and emotion- and action-based self-regulation [14]. Furthermore, the MAP model presents a novel conceptualization of high-performance experiences, synthesizing existing research frameworks, including Individual Zones of Optimal Functioning—a framework profiling a performer's idiosyncratic experience of arousal, pleasantness, and functionality of emotion [15][16]; the Mindfulness—Acceptance—Commitment approach—a framework promoting nonjudgmental acceptance of cognitions, emotions, and sensations as part of self-regulatory strategies [17]; the Identification—Control—Correction (ICC) program—an evidence-based psycho-pedagogical approach to optimize the coaching and performance of elite athletes [16]; and flow state—a harmonious, rewarding, but elusive peak experience of performance (e.g.,[18]). Through its holistic approach, MAP proposes that tenets of these theories can apply at the same time *and* in an idiosyncratic (individual to the performer) manner.

MAP consists of four Performance Types (PTs), which have been characterised on a cognitive, emotional, behavioural, neural, and psychophysiological level by MAP literature. Types 1 and 2 signify optimal performance, whereas in Type 3 and 4, the athlete is performing sub-optimally [1]. PTs also differ in terms of the level of control perceived/exerted by the athlete: Type 1 and 4 are characterized by automatic performance, whereas Types 2 and 3 are effortful for the athlete to maintain [1]. Specifically, Type 1 performance is characterized by optimal monitoring of task [1]. Physical and mental resources are optimally available to the athlete, resulting in optimal, automatic movement execution and a positive emotional experience. In contrast, Type 2 performance is characterised by an increased need for, and level of, internal control over the task, resulting in increased effort exertion and an unpleasant emotional experience [1]. Performance is starting to deteriorate in Type 3 performance, which is characterised by heightened focus on task-irrelevant cognitions and negative-dysfunctional emotions [1]. Lastly, Type 4 performance is characterised by action withdrawal and dysfunctional, but pleasant emotions.

This entry offers three areas on how MAP could be extended. First, the authors make the case for investigating the timing of transitions between PTs. Second, the authors offer ideas on examining socio-environmental precursors to performance, with the aim of expanding MAP from a psycho-bio to a biopsychosocial concept. Third, the authors propose that investigating short- and long-term effort and reward perception will yield valuable insights into athletes' rationales behind the selection, operationalization, and experience of specific PTs.

2. Transitions between Mental States: Performance as a Multi-Phase Process

2.1. Current Understanding

Currently, studies within the MAP framework are conducted on the apparent assumption that an athlete engages in one PT per performance. This point is reinforced as participants included in experimental studies are assigned exclusively to an experimental condition that corresponds to one PT, which is subsequently confirmed by the administration of post-experimental manipulation checks [10][11][12]. While this methodological decision is well-justified in the study context and supports the purpose of examining PT characteristics for the sake of categorisation.

Within the MAP framework and representing a particular strength of the model, each PT is characterized by differences in appraisal, emotional experience, resource recruitment, attentional focus, level of control, and mental strategy, to name only some of the cognitive and emotional components that feature [1]. While these characteristics build the foundation to multi-dimensional PTs, to-date, studies adopting the MAP framework categorized MAP PTs according to research question(s), methodology, and participant expertise. Most commonly, PTs were categorized using median split techniques, involving objective performance scores and participants' ratings of perceived control [4][7][8][9][13]. This method was applied with expert shooters and drivers. In contrast, (mostly) non-elite endurance athletes were assigned to a PT—specific experimental conditions, based on corresponding categorization variables [10][11][12]. Once again, manipulation checks were administered to ensure the correct assignment of participants.

In summary, given the complexity of human performance, it is likely that a performer may have to operationalize more than one PT when performance. Therefore, the authors suggest incorporating the impact of transitions between PTs during performance into future MAP research.

2.2. Making the Case for Performance as a Multi-Phase Process

In proposing this direction, researchers suggest that a rationale for doing so is already provided by research into performance states. For example, qualitative and meta-analytic evidence indicate that athletes may perceive clutch performance on an episodic level (micro timeframe), as well as appraising entire events as a clutch performance (meso timeframe) [19][20]. Specifically, the timing of when athletes appraise performance as clutch or as a flow state may differ depending on their perceived ability to cope. This will impact upon their ability to enter, exit, and maintain a particular PT or combination thereof [21]. Clutch performance was not investigated using a MAP framework. Moreover, evidence referred to previously [19][20] suggests that clutch performance can be episodic in nature, thus increasing the likelihood that performance comprises multiple phases. Importantly, this facet appears to vary based, at least in part, on athlete perception.

Notably, however, in-performance episodes were also studied at a neural level. A further example regarding flow state indicated that when participants encountered an unexpected stressor during tightrope performance, EEG patterns were distinctly different from patterns recorded during flow state [22]. Researchers would suggest that a disruption of a Type 1 performance, viewed through the MAP paradigm, may have caused a transition to Type 2 or Type 3 within the performance episode. Findings indicate that disruption to Type 1 performance is a realistic scenario for performers and practitioners to navigate [22]. Therefore, coping and upregulation, in order to stabilize or and re-gain an optimal performance state are key psychological skill elements to maintain effective performance against variations in challenge.

2.3. Implications: Types 1–4 as Micro, Meso, and Macro Performance Episodes

Based on these observations, researchers suggest that Type 1–4 performances may all appear as episodes during one longer performance [19][20][22]. For example, a cyclist may experience five minutes of Type 1, followed by 20 min of Type 2 and 15 min of Type 3 during their 40-min ride. This would constitute three short (micro) performance episodes, across three PTs, during one longer (meso) performance event (e.g., a Tour event). However, their experience may differ over the course of a season (macro), considering that tasks and contexts will vary greatly. Consequently, it may be an oversimplification to assume that athletes operationalize only one PT per performance. This also has implications for research study design, as to-date MAP studies were “strengthened” by pre-assigning participants to PTs [10][11][12].

Of course, these possibilities do seem to have been considered. For example, first steps were made in hypothesizing the transition process from Type 3 to Type 2 as a multi-stage process involving mindful acceptance [1]. In-performance transitions are not empirically supported, however. Further research, perhaps in the form of qualitative evidence or mixed design research, is needed to investigate the intra-transition processes outlined. For example, stimulated recall through event-focused interviews, conducted soon after a performance event, may give valuable insight into how athletes characterize their performance in terms of PT phasing and strategies that were utilized in a specific performance context [21]. A second method could be think-aloud protocols to gain insight into the cognitions employed during transitions, concurrently or retrospectively; however, think aloud, by design, “only” report thoughts but lack reflective explanations as to the intention behind why they occurred [23]. This element would be an important addition to the existing protocol.

3. Pre-Transition: Socio-Environmental Precursors of Performance

Within any given performance situation, performers are required to evaluate the performance task through their internal experience and the social context in which performance occurs. This psychosocial facet has yet to be investigated in relation to MAP. The authors propose that self-efficacy and perception of control as socio-environmental precursors to performance act as crucial beliefs, underpinning performer decision-making on selection and switching between PTs.

3.1. Self-Efficacy (Yet to Be Examined in MAP)

Defined as the belief in the ability to execute a specific task effectively [24][25][26], self-efficacy was extensively researched in the sporting context over the past few decades. Within MAP research, however, self-efficacy was not examined. Of course, it could be hypothesized that performers in Type 1 or 2 states possess high levels of self-efficacy and are, therefore, more likely to perform optimally. For example, in a Type 1 state, the performer’s skills optimally match task demands [27]. Similarly, evidence suggests that self-efficacy increases when perceived task difficulty decreases [28]. Consequently, it can be speculated that an athlete’s self-efficacy level in Type 1 might be optimally calibrated in relation to perceived task difficulty. In contrast, performers in Types 3 and 4 states might experience higher levels of perceived task difficulty due to increased task demands and insufficient coping resources. Therefore, athletes operationalizing Types 3 and 4 may have lower self-efficacy beliefs. Considering the impact of performance accomplishments and self-efficacy, this may perpetuate the suboptimal state and lead to further suboptimal performance.

This dynamic posits a link between performers’ self-efficacy beliefs and the generation and maintenance of psychological momentum. While psychological momentum can be both positively geared toward optimal performance, but also sometimes, exacerbate negative suboptimal performance, self-efficacy was found to increase positive, psychological momentum [29]. Future research is needed to gain insight into the role of self-efficacy in the selection of and/or transitions between PTs, specifically in response to previous performance.

Of course, both macro and micro dynamics require investigation; as an example for a possible macro timeframe, a performance by an athlete that took place earlier in the season could be interpreted by them as Type 2. In order to better understand the link between PT appraisal and momentum, it would be instructive to determine how the perception of this experience then influences the performer’s self-efficacy profile for the remainder of the season, considering that task difficulty will vary during the course of a season [28]. In short, what factors influence psychological momentum, be it towards optimizing or stabilizing performance? What PTs do the athlete engage in, or try to employ, and how can these be characterized? Moreover, future research is required to better understand how self-efficacy impacts acutely, on a micro timeframe. Reflecting the earlier argument on conceptualizing performance as a multi-phase process, across the course of one performance, an athlete might start a performance in Type 3 PT, with lower self-efficacy beliefs, but utilize the necessary psycho-social resources to rally and improve. However, are such changes influenced a priori by self-efficacy or does this improve after the change is accomplished? Future research is required to investigate the coping strategies required for upregulation towards optimal performance and the role that self-efficacy plays.

Consequently, as self-efficacy increases, it can be hypothesised that athletes are better able to regulate their affective experience [26][30]. Future research is required to investigate the role of self-efficacy as a precursor to effectively employ coping strategies currently proposed by MAP (emotion- and action-focused self-regulation). For example, a good starting point would be to consider the overlaps between the strategies proposed to underpin PT switching in MAP and the impact of the different sources of self-efficacy.

3.2. Perception of Control (Previously Examined in MAP)

In contrast to self-efficacy, perceived control was examined in a number of MAP studies [4][7]. In its current format, perceived control is a fundamental aspect that differentiates between and characterizes the four PTs. Specifically, Bortoli and colleagues characterize Type 1 as automatic performance, requiring the athlete to supervise performance; Type 2 is characterized as optimally controlled, with an effective recruitment of resources; Type 3 as over-controlled, resulting in reinvestment; and Type 4 as under-controlled, and lacking in focus [1].

In relation to the MAP typologies, perception of control was investigated both prior and following performance. For example, in terms of pre-performance, performers' perceived control over idiosyncratic core components was examined [7][13]. Post-performance, participant self-rated levels of perceived control post-shot were gathered, before objective shooting scores were revealed to them [4][8][9]. Moreover, self-report scores of perceived control were utilized to categorize PTs for each participant [8][9][13], reflecting the 2 × 2 interaction between performance experience and level of control.

Further to assisting with the categorization of PT's, the investigation of perceived control could also provide valuable insight into when, and why, an athlete may move between PTs. Specifically, perceived control could act as a cue for the need to transition. With regard to Type 1, meta-analytic findings on controllable and uncontrollable elements of flow state corroborated previous findings [31][32]. This research concluded that skills to maintain flow were at least partially controllable; this was in contrast to disruptors of flow, which were deemed uncontrollable by participants [31]. Therefore, it could be valuable to gain qualitative insight into the role of perceived control over potential disruptors of Type 1 performance, coupled with effective coping strategies that were employed to maintain a PT.

Regarding Type 2, MAP proposes that effort is consciously exerted, although affect is negative [1][4]. This is particularly interesting against the backdrop of Wood and Wilson's findings [33]; they established that high self-ratings regarding perception of control beliefs resulted in better overall performance, less anxiety about performing well, and reduced levels of perceived uncertainty. There are clear parallels between these findings and those for Type 2 [33], except that the MAP framework associates negative affect with Type 2. Consequently, future research is required to investigate Type 2 performance more closely, specifically, the role of affect and emotion, as Type 2 could be even more multi-faceted and dynamic than currently assumed.

Regarding suboptimal performance, low perceived control, along with distraction and debilitative anxiety, may be responsible for suboptimal performance [34]. This may be specific to Type 3 performance, where it is currently proposed that conscious control of automated movement patterns through declarative knowledge disrupts performance [34][35]. This negative interaction between cognition and the attendant movement patterns highlights contrasting dimensions of control: while an athlete may experience low perceived control as a result of a stressor, one ineffective coping strategy could be to exert too much attentional resource and, therefore, over-control and underperform. This complex dynamic is exacerbated by negative affect leading to a further decrease in perceived control and the application of less effective coping behaviors (e.g., [36][37]). Future research is needed to corroborate current hypotheses on coping strategies [1], examining the role of perceived control in upregulating from suboptimal to optimal performance, as well as the efficacy of coping behaviors such as cognitive restructuring [38].

3.3. Implications: Self-Efficacy and Perceived Control as Cues for Transition Processes

Based on the review above, it becomes clear that both self-efficacy beliefs and perception of control are crucial for a better understanding of transitions between PTs. They present critical cues for the need to transition and upregulate when negotiating stressors, while acting as precursors to employing coping strategies and behaviors. Future research is needed to consider this interesting dynamic more closely. For example, could high self-efficacy compensate for low perceived control for athletes operationalizing Type 3 performance? Or, which associated coping strategies are most effective in upregulating to optimal performance? Furthermore, in the context of self-efficacy, an examination of the links between appraisal (e.g., available coping resources versus required coping efforts) and perceived control beliefs could provide valuable insight into the nature and dynamic of Type 2 performance.

In terms of specific tools used to synthesize and apply these findings, it would be instructive to investigate the potency of self-talk, specifically to help athletes transition between PTs as they are contextualized in MAP. For example, what types of self-talk are best suited for what types of transitions, and how can practitioners train athletes in their effective application to recognize specific PTs and employ potential solutions, accordingly? Future research needs to address these questions with consideration given to existing findings regarding the context-dependent nuances of self-talk in high performance, i.e., organic vs. strategic and spontaneous vs. goal-directed [39][40].

Overall, the authors suggest that MAP research, at least so far, underutilized perception of control as a variable. While useful for categorizing PTs idiosyncratically, perceived control, along with self-efficacy beliefs, could be used to better understand athletes' evaluation of their internal experience, task, and context in relation to PTs, as well as movement between them. Indeed, the current understanding of peak performance, as delivered by MAP, could be extended beyond emphasizing what happens during PTs, towards examining mechanisms of upregulation and coping in athletes.

4. Post-Transition: Effort and Reward Perception

One aspect still requiring examination within MAP is the short- and long-term impact of operationalizing a given PT on the athlete's ability to upregulate. For example, what is the reward perception, as experienced by the performer, of executing seemingly automatic Type 1 performance, in comparison to effortful Type 2 performance? Rewards exert the greatest effects in anticipation, as opposed to actual achievement, and manifest in a dopamine response [46]. Consequently, gaining insight into athletes' reward perception, especially in terms of their short- and long-term expectations, could be useful for better understanding why athletes (re)operationalize a specific PT in a corresponding, albeit idiosyncratic, performance context.

4.1. Intrinsic Motivation in Type 1 and 2

Intrinsic motivation, as conceptualized within self-determination theory (SDT), is characterized as a distinct, inherent satisfaction with task execution alone [41][42]. In research on flow states, such inherent satisfaction is termed "autotelic" [18][43]. Moreover, extrinsic, tangible rewards were found to decrease intrinsic motivation [44]. However, intrinsic motivation increases with heightened perceived control, which is, within MAP, at its optimal level in Type 1 and Type 2 performance [4][45]. Moreover, intrinsic motivation, inherent in autotelic satisfaction, was established as the reward structure behind flow experience and, therefore, Type 1 performance [43]. Indeed, during flow, performers engage in task-relevant, positive emotions, which, coupled with intrinsic motivations, makes performers want to reacquire this state [43]. Swann and colleagues extended this framework by highlighting that, following successful performance, both flow and clutch states reward the performer intrinsically [21]. Importantly, however, from the performer's perspective there are appreciably different emotional experiences resulting from flow states versus a clutch performance experience. While the performer may feel energized after a flow state experience, clutch performance usually leaves them emotionally and physically drained [21]. In the context of MAP, both Type 2, and especially Type 3 PTs leave the performer fatigued. Transferring these findings to the SDT framework, one could summarize that while Type 1 is inherently intrinsically motivating, it takes effort for the athlete to (self-)determine performance, whereas in Type 3, the athlete's performance is determined by challenges and obstacles. Future research is needed to explore this dynamic and examine sources of intrinsic motivation leading to continued engagement in performance.

4.2. Perception of Effort in the MAP Framework

Within the MAP framework, it was established that both Type 1 and Type 4 involve less effort, in contrast to Types 2 and 3, where athletes exert significant effort [1]. Effort can be categorized into initial effort mobilization and subsequent effort to maintain, enter, and exit a PT. Effort to maintain a PT was examined through measuring participants' ratings of perceived exhaustion associated with their idiosyncratic PT profiles [11]. However, the (mental and psychological) effort required to transition between PTs is yet to be investigated within MAP. For example, in Type 4, where athletes perform sub-optimally with little conscious control, effort mobilization may in part depend on a performer's intensity of motivation and positive affect in order to transition to a more favorable PT (Motivational Intensity Theory [46][47]).

Regarding Type 2, MAP's current association of negative affect with high effort presents a contrast to existing literature. Acknowledging that the performer deals with stressors in this PT, how can something that is optimally controlled and produces optimal performance result in negative affect? For example, higher levels of effort were found to correspond to an increased level of perceived value, if performance was already successful [48]. Further, individuals generally expect larger rewards when greater effort had to be exerted to perform a task [49]. Within MAP, this could mean that given the efforts involved in transitioning into and maintaining Type 2 performance, Type 2 could be, once the performance is complete, perceived as highly rewarding to the athlete.

Considering that optimal performance itself may be—if intrinsic motivation is the driving force—the reward behind Type 2 performance, these findings suggest that the social environment that corresponds to Type 2 performance requires further investigation. For example, if an athlete exerts conscious effort to produce optimal performance, but recognizes that their current experience is highly efficacious, this should provide them with a positive emotional experience that motivates them to engage and subsequently re-engage with this process. As such, perceptions of self-reward may offer an additional dimension and enable the differences highlighted across "making it happen"/Type 2 to be teased out.

4.3. Implications: Reward Perception as an Idiosyncratic Facet of Performance

As referred to previously, flow is elusive, complex to attain, and easily disrupted [43][50]. In contrast, Type 2 presents optimally controlled, effortful, superior performance [1]. This poses the question whether, once performance is completed, Type 1 performance is accompanied by the same feeling regarding accomplishment, compared to Type 2. For example, future research needs to examine which PT an athlete is more likely to re-engage with, given their perception regarding attainment, execution, and task completion? Furthermore, the reality for most elite/pre-elite performers is that they operate close to their performance ceiling, this being an important precursor of attaining and maintaining their level. Consequently, it is important to determine whether there is a difference between short-term and long-term reward perception and how this affects MAP typology. To gain insight into these questions, longitudinal research is needed to investigate biopsychosocial differences between athletes who exhibit a greater propensity to operationalize one PT over the other(s).

Moreover, regarding Type 1, flow state may require optimal, post-voluntary levels of effort, opposed to being a purely effortless state [51]. Future research is needed to investigate the precursors of flow that allow performers to enter what they would term a 'flow' state. Consequently, it is key to determine whether cognitive, emotional, and behavioral antecedents can be reproduced. In addition, research is needed to investigate the role of effort in this dynamic. Regarding Type 2, future research may examine the role of affect and emotions in Type 2, as well as their connection to situational appraisal and self-regulation. For example, is there a dimension of Type 2 performance, characterized by a challenge appraisal and positive affect? Overall, reward value depends on the goals of an individual [52]. It can be assumed, that in Types 1 and 2, an individual's aim is to maintain optimal performance, whereas Types 3 and 4 are characterized by self-regulation and coping to attain optimal performance. However, future research is needed to examine this dynamic.

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