Middle East Journal of
Positive Psychology

مجلة الشرق الأوسط
لعلم النفس الإيجابي

Positive And Negative Self-Talk:
How Do They Impact Self-Efficacy and Task Performance?

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Citation: Tomaraei, S. N. (2025). Positive and negative self-talk: How do they impact self-efficacy and task performance? *Middle East Journal of Positive Psychology, 11*, 33-46.

Abstract: This study examines how self-talk influences self-efficacy and task performance across both motor and cognitive domains. Few studies have directly compared these effects within a single experimental framework. Forty-five participants were randomly assigned to positive, negative, or unrelated self-talk conditions, then completed a motor task (dart throwing) and a cognitive task (Raven's Progressive Matrices). Preliminary results, without adjusting for self-efficacy, show that negative self-talk improved motor task performance, while positive self-talk enhanced cognitive task performance. These findings suggest self-talk can be tailored to boost specific types of performance and underscore its potential as a positive psychology intervention, helping individuals shape thoughts to enhance wellbeing, build strengths, and improve quality of life, including their performance.

هذه الدراسة تبحث في كيفية تأثير الحديث الذاتي على الكفاءة الذاتية وأداء المهام في كلٍّ من المجالات الحركية والمعرفية. قلة من الدراسات قامت بمقارنة هذه التأثيرات بشكل مباشر ضمن إطار تجريبي واحد. تم توزيع خمسة وأربعين مشاركًا عشوائيًا على ثلاث مجموعات: حديث ذاتي إيجابي، حديث ذاتي سلبي، أو حديث ذاتي غير ذي صلة، ثم قاموا بأداء مهمة حركية (رمي السهام) ومهمة معرفية (مصفوفات ريفن التقدمية). أظهرت النتائج الأولية، دون ضبط تأثير الكفاءة الذاتية، أن الحديث الذاتي السلبي حسَّن أداء المهمة الحركية، بينما حسَّن الحديث الذاتي الإيجابي أداء المهمة المعرفية. تشير هذه النتائج إلى أن الحديث الذاتي يمكن تخصيصه لتعزيز أنواع محددة من الأداء، وتؤكد على إمكاناته كأحد تدخلات علم النفس الإيجابي، مما يساعد الأفراد على توجيه أفكارهم لتحسين الرفاهية، وبناء نقاط القوة، وتحسين جودة الحياة، بما في ذلك أداؤهم.

Keywords: self-talk; self-efficacy; cognitive-motor interaction; positive psychology

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Disclosure Statement: This manuscript is based in part on research previously submitted to the Canadian University Dubai in partial fulfillment of the requirements for the Bachelor of Arts in Psychology degree in 2024. This version has been revised and updated for publication.

Talking to ourselves is a distinctly human behavior, with many people engaging in self-talk more often than speaking with others (Brinthaupt, 2019). Despite its prevalence and influence, research on self-talk remains limited. In sport and performance psychology, self-talk encompasses both overt and covert forms of self-directed communication and is linked not only to performance enhancement but also to perceptions of ability, or self-efficacy (Walter et al., 2019). These two elements have often been examined together in motor and cognitive tasks, where they influence outcomes in parallel (Chang et al., 2012; Harter, 2016; Tod et al., 2011). However, few studies have compared their effects across both physical and cognitive domains, a gap this study seeks to address.

Within positive psychology, the focus is on strengthening individual resources rather than solely addressing deficits (Seligman, 2002). Positive Psychology Interventions (PPIs) aim to cultivate strengths such as resilience, wellbeing, and optimal functioning, thereby enhancing life satisfaction and performance (Ng & Ong, 2022). Multiple studies support the efficacy of PPIs (i.e., Bolier et al., 2013; Carr et al., 2021; Koydemir et al., 2021; White et al., 2019). Self-talk is such an intervention, often leading to healthier emotions and behaviors (Marciniak et al., 2024). While typically taught in therapeutic settings, self-talk can be practiced every day (Latinjak, 2025) and can also be personalized according to one's personality and needs potentially increasing its effectiveness even further (Heintzelman et al., 2023). Offering a flexible, real-time way to challenge negative internal dialogue, self-talk is a simple, practical tool for boosting well-being, building strengths, and supporting adaptive thinking and coping towards performance needs (Brinthaupt & Morin, 2023). Despite this potential, it remains underexplored as a PPI.

As positive psychology continues to seek effective, accessible interventions for improving performance and emotional self-regulation, self-talk stands out for its versatility. Beyond sport, it has been linked to enhanced academic performance (Uhrich et al., 2023), improved emotional control (Brinthaupt et al., 2009), and behavior change in rehabilitation and addiction recovery (Glassman et al., 2016). These outcomes align with positive psychology's focus on building capacities such as self-efficacy and grit, positioning self-talk as a valuable tool for improving how people think, feel, and perform across contexts.

Self-Talk

Based on Vygotsky's view of speech internalization, self-talk (ST) is a form of private speech (John-Steiner, 2007; Vygotsky, 1962) and understanding how it develops is key to knowing how it shapes behavior and performance. In early childhood, overt ST is often expressed out loud, especially during play, and helps guide behavior (Hardy, 2006; Nasiri et al., 2018). As children age, these patterns shift inward, with covert ST becoming more common during tasks that involve planning or problem-solving (Brinthaupt & Dove, 2012). Recently, the integration of ST and mental imagery has gained traction, particularly in sport psychology, where techniques are employed to enhance performance outcomes (Hidayat et al., 2023). An example includes athletes verbalizing internally generated speech aloud as part of performance routines (Perrone-Bertolotti et al., 2014; Van Raalte & Vincent, 2017).

Self-efficacy has also emerged as a mediating mechanism (Hardy, 2006). Defined by Bandura (1977) as an individual's belief in their capacity to carry out a specific task, self-efficacy is influenced by ST (Neck & Manz, 1992). Higher levels of self-efficacy are associated with persistence in the face of failure and improved performance across academics (Yokoyama, 2019), sports (Koçak, 2020), and occupational settings (Na-Nan & Sanamthong, 2019) as examples. The relationship between ST and self-efficacy has been supported through intervention-based research, where changes in self-efficacy have accompanied improvements in task performance (Hatzigeorgiadis et al., 2008). Much of the ST literature has focused on its effectiveness in enhancing skill execution and task performance, particularly within experimental and sport-based contexts (Chang et al., 2014; Galanis et al., 2022; Zourbanos, 2013).

Existing literature categorizes ST into several types: positive, negative (i.e., self-criticism), instructional and motivational (Hardy, 2006). When examining the valence of ST in task performance domains, findings remain mixed regarding whether positive ST (PST) is more effective than negative ST (NST) (Afsanepurak et al., 2012). While laboratory-based studies support PST in enhancing cognitive regulation and promoting positive emotional states (Bruehlman-Senecal et al., 2014), field-based research suggests that NST can contribute to performance enhancement, particularly in sport-specific physical tasks (Hardy, 2006). Behavioral data also shows a positive association between self-criticism and cognitive task performance, suggesting that the effectiveness of ST may depend on the context in which it is applied (Kim et al., 2021).

Theoretical Framework

Hardy (2006) outlines four dimensions that define the nature of ST: frequency and manner of use (overt or covert), valence (positive, negative, instructional, or motivational), motivational interpretation (how individuals perceive the content as motivating or demotivating), and functional purpose (such as self-instruction or self-motivation). PST comprises motivational phrases such as "I can do this" or "Yes!" which are used to foster encouragement, increase confidence, and facilitate success during task execution (Zourbanos, 2013). In contrast, NST or self-criticism (Hardy, 2020), includes statements like "I can't do this" or "This is too difficult," associated with negative emotional states i.e., frustration, anxiety, lower persistence (Zourbanos, 2013). Instructional ST, which emphasizes task-relevant cues aimed at directing an individual's focus and concentration, include phrases like "Focus on the ball" serve to enhance attentional control (Latinjak & Hatzigeorgiadis, 2022).

Studies have also explored the underlying function of ST by examining its influence on individuals' performance. For instance, PST may contribute to improved task engagement by reinforcing individuals' belief in their ability to successfully complete a task, an aspect closely aligned with self-efficacy (Afsanepurak et al., 2012). Here, PST enhances performance and supports motivational states by bolstering confidence in one's capabilities, while NST has been associated with detrimental effects, like negative self-beliefs, reduced perceived competence, and disengagement. Rifai Sarraj et al. (2022) argue that PST may facilitate adaptive self-regulatory mechanisms, while NST may disrupt them via greater self-doubt. In contrast, Hardy (2020) proposes that in some contexts, NST may paradoxically support performance by preparing individuals for challenges or enhancing alertness, suggesting that ST is not uniformly beneficial or detrimental, but context dependent.

Attention is also a potential mechanism through which ST may also exert its effects. For instance, Landin (1994) found that PST enhanced attentional focus, which in turn improved motor task execution. Yet, other findings suggest that ST can lead to distraction or ego depletion (Hatzigeorgiadis & Galanis, 2017). These contrasting outcomes underscore the role of attentional control in moderating the impact of ST on performance. Instructional ST has shown the ability to reduce distracting thoughts and improve focus, as evidenced in studies involving basketball (Galanis et al., 2022). This supports the idea that the effectiveness of ST strategies may partly depend on their capacity to guide attention toward relevant task cues, a factor especially relevant in the context of both motor and cognitive performance.

The Present Study

This study examined the effects of ST valence on task performance and self-efficacy, testing the proposed hypotheses.

H1a (alternative hypothesis 1): Participants in the Positive Self-Talk (PST) group will demonstrate significantly different task performance compared to those in the Unrelated Self-Talk (UST) group.

H1b (alternative hypothesis 2): Participants in the (NST) group will demonstrate significantly different task performance compared to those in the UST (UST) group.

H1c (alternative hypothesis 3): Participants in the PST group will exhibit higher self-efficacy levels compared to those in the NST and UST groups.

H0 (Null hypothesis): There will be no significant differences in task performance or self-efficacy across the three ST conditions.

Participants

A total of 45 individuals participated after providing informed consent via electronic invitation. The sample included 29 females (64.4%) and 16 males (35.6%), with ages ranging from 17 to 29 years (M = 21.4, SD = 2.66). Descriptive analyses revealed no significant differences in age distribution across three ST conditions. Ethics approval was granted by the author's university.

Measures and Materials

Dart throwing was selected as the motor task. Using a standard wall-mounted dartboard, each participant used six darts per round across the trial and experimental phases. A bullseye was worth 10 points and points decreased by one at each successive outer ring. Any dart landing outside the board received a score of 0. Participants completed a total of 20 throws. The first 10 served as a familiarization or trial round, allowing participants to acclimate. The cumulative score of the final 10 throws was used as the participant's motor task performance score.

The Raven's 2: Raven's Progressive Matrices, Clinical Edition (RPM) assessed cognitive performance. The RPM is a widely recognized nonverbal assessment of general cognitive ability (McLeod & McCrimmon, 2020). The version used was a revised and integrated test battery that combined previous iterations, including the Coloured Progressive Matrices (CPM), Standard Progressive Matrices (SPM) (Raven, 1936; Raven, 2012), and Advanced Progressive Matrices (APM) (Smirni, 2020). The RPM measures fluid intelligence, especially when evaluating the impact of ST and other psychological variables on performance (Kim et al., 2021). To measure task-specific self-efficacy levels, self-efficacy was separately assessed for motor (SEM) and cognitive (SEC) tasks.

Task-specific measures allowed participants to report their perceived capability in relation to the demands of each task and expected level of performance. To assess participants perceived confidence in their ability, a task-specific self-efficacy scale was developed. Grounded in Bandura's

(2006) framework and drawing from sport psychology (Zourbanos, 2013), this scale included five performance ranges representing possible scores in the second set of 10 dart throws: (a) 0–20 points, (b) 21–40 points, (c) 41–60 points, (d) 61–80 points, and (e) 81–100 points. Participants rated their confidence on a 0–100 scale, where 0 indicated "cannot do at all" and 100, "highly certain can do."

A task-specific self-efficacy scale was also constructed to evaluate participants' confidence in completing the RPM cognitive task. The SEC included 10 items reflecting increasing levels of task completion, from 10% to 100% accuracy. For each, participants reported their degree of confidence using the same 0–100 rating. Mean scores were calculated for each participant across both the motor and cognitive self-efficacy scales to obtain an overall measure of task-specific efficacy.

Finally, to ensure adherence to the ST instructions, participants verbally repeated the assigned cue words before each dart throw and before each item in the RPM cognitive task. After both, they were asked, (1) "Did you use the self-talk technique prior to each throw/question?", (2) "Did you find the self-talk technique useful?", and (3), "Aside from the allocated cue words, did you say anything else to yourself? If yes, describe what it entailed."

Method

Participants were randomly assigned to one of three conditions: positive (PST), negative (NST), or unrelated (UST). The cue words and ST techniques were introduced and demonstrated at the start of the session. For the PST condition, phrases included: "I can do this," "I am capable," and "I will try again." In the NST group, phrases such as "I can't do this," "This is too hard," and "I can't focus" were used (adapted from Chang et al., 2014). The UST condition involved task-irrelevant structured verbalizations designed to minimize attentional distraction while maintaining verbal engagement. For the motor task, this involved stating the color of the dart prior to each throw; for the cognitive task, participants verbalized the page number before solving each item (e.g., "E12"). Participants were also randomly allocated to one of two sequences (i.e., motor or cognitive task first) to mitigate fatigue effects.

Results

All statistical analyses were performed using IBM SPSS Statistics. Descriptive statistics, including means, SDs, skewness, and kurtosis, were calculated to summarize central tendency, variability, and distributional characteristics of each variable, providing an overview of performance across all conditions and outcome measures.

Normality was assessed using Kolmogorov-Smirnov and Shapiro-Wilk tests. A p-value greater than 0.05 indicated that the null hypothesis of normality could not be rejected. Most variables met this criterion; however, Self-Efficacy Motor (SEM) and Self-Efficacy Cognitive (SEC) scores did not and were analyzed using non-parametric tests.

Levene's Test for Equality of Variances was used to confirm homogeneity of variance across groups. Where violated, adjustments were applied. The effect of ST condition (PST, NST, UST) on task performance was examined with a Multivariate Analysis of Variance (MANOVA), followed by one-way ANOVAs for motor and cognitive performance scores. As SEM and SEC did not meet ANOVA assumptions, they were analyzed separately. Post-hoc comparisons were conducted using

Tukey's Honest Significant Difference (HSD) test to identify the direction and significance of group differences.

Table 1 presents descriptive statistics and performance trends: NST yielded the highest motor task scores, PST the highest cognitive scores, and UST the lowest across both tasks.

Table 1.

Descriptive Statistics for Self-Efficacy and Task Performance by Condition

Measure	Positive (PST)	Negative (NST)	Unrelated (UST)
Self-Efficacy (Motor)	M = 51.00, SD = 17.02	M = 50.98, SD = 21.24	M = 52.44, SD = 28.55
Self-Efficacy (Cognitive)	M = 72.28, SD = 16.37	M = 64.68, SD = 22.09	M = 72.65, SD = 19.38
Motor Task (Darts)	M = 21.13, SD = 2.03	M = 44.33, SD = 11.22	M = 39.23, SD = 4.08
Cognitive Task (RPM)	M = 100.47, SD = 13.120	M = 97.97, SD = 9.687	M =85.33, SD = 9.499

Note. Each condition included n = 15 participants. Motor and cognitive self-efficacy scores were generally comparable across conditions, with a slight decrease in cognitive self-efficacy in the NST condition. For task performance, NST showed the highest motor task scores, whereas the PST produced the highest cognitive task scores.

Normality was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. For both, the null hypothesis (H0) posits normally distributed data. A p-value < 0.05 indicates significant deviation from normality, leading to rejection of H0; a p-value > 0.05 suggests no significant deviation, and H0 cannot be rejected.

Given the study's sample size (n = 45), the Shapiro-Wilk test was prioritized for its higher statistical power with smaller samples. Results showed that certain variables and ST groups had p-values below 0.05, indicating non-normal distributions. Accordingly, both parametric and non-parametric methods were used in subsequent analyses, depending on variable normality.

Table 2 presents the Multivariate Analysis of Variance (MANOVA) results. Wilks' Lambda was used given the smaller sample size. MANOVA examined group differences across correlated dependent variables (Self-Efficacy Motor, SEC, Motor task–darts, and Cognitive task–RPM score). Results showed highly significant effects (p < .001) for both intercept and group effects, indicating that at least one dependent variable differed significantly across groups.

Table 2.

Multivariate Tests (MANOVA)

Effect	Test Statistic	Value	F	Hypothesis df	Error df	p-value
Intercept	Wilks' Lambda	.008	1199.323	4.000	39.000	< .001
Group	Wilks' Lambda	.358	6.553	8.000	78.000	< .001

Note. Wilks' Lambda values are reported for multivariate effects. Both the intercept and group effect were statistically significant at p < .001.

Levene's Test for Equality of Error Variances was used to assess homogeneity of variances across groups. The null hypothesis (H0) assumes equal variances; p-values < 0.05 indicate violation of this assumption. For the motor and cognitive tasks, p-values fell below this threshold, leading to rejection of H0 and requiring statistical methods robust to unequal variances in subsequent analyses.

Table 3 presents the one-way ANOVA results examining the effects of ST condition on motor and cognitive task performance and self-efficacy measures. Significant differences among ST groups were found for both motor (p < .001) and cognitive tasks (p < .001), indicating that ST type influenced task performance. Partial eta-squared values were .489 and .455, respectively, reflecting large effect sizes and substantial practical significance.

In contrast, self-efficacy measures for both tasks showed no significant differences across ST groups (p > .05), suggesting that ST type did not influence self-efficacy beliefs. Given the significant ANOVA results for performance measures, post-hoc analyses were conducted to identify specific group differences.

Table 3.

ANOVA Results

Measure	Source	SS	df	MS	F	p-value
Self-Efficacy (Motor)	Between Groups	21.27	2	10.63	0.20	.980
	Within Groups	21804.30	42	519.15		
Self-Efficacy (Cognitive)	Between Groups	606.60	2	303.30	0.80	.454
	Within Groups	15840.49	42	377.15		
Motor Task (Darts)	Between Groups	4437.91	2	2218.96	20.13	< .001
	Within Groups	4630.00	42	110.24		
Cognitive Task (RPM)	Between Groups	1964.311	2	982.156	8.272	< .001
	Within Groups	4986.800	42	118.733		

Note. Each condition included n = 15 participants. One-way ANOVAs indicated no significant group differences for motor self-efficacy or cognitive self-efficacy. Yet, there were significant effects of group on motor task performance, F(2, 42) = 20.13, p < .001, and cognitive task performance (Raven's Progressive Matrices), F(2, 42) = 8.27, p < .001.

Table 4 presents the Tukey HSD post-hoc results comparing ST groups across all dependent variables. For self-efficacy measures (Self-Efficacy Motor, Self-Efficacy Cognitive), no statistically significant differences emerged, indicating that ST type did not affect self-efficacy outcomes. In contrast, significant differences were found for the Motor Task (Dart) variable: participants in the NST group outperformed those in the PST group, while the UST group did not differ significantly from either. Table 4 also reports mean differences, standard errors, p-values, and 95% confidence intervals, indicating the range within which the true population mean difference is likely to fall.

Table 4.

Post Hoc Tukey HSD Comparisons for Motor and Cognitive Tasks

Comparison	Mean Difference	p-value
Motor Task PST vs NST	-23.20	< .001
Motor Task PST vs UST	-18.10	< .01
Motor Task NST vs UST	-5.10	n.s.
Cognitive Task PST vs NST	2.50	n.s.
Cognitive Task PST vs UST	15.14	< .01
Cognitive Task NST vs UST	12.64	< .05

Note. Self-efficacy for motor and cognitive tasks, motor task performance (MtD) and cognitive task performance (Ct-RPM) met the assumption of normality as assessed by the Shapiro-Wilk test, supporting the appropriateness of parametric analysis. A multivariate analysis of variance (MANOVA) revealed a statistically significant multivariate effect of ST condition on task outcomes, Wilks' Lambda = .358, F(8, 78) = 6.55, p < .001, indicating that group assignment significantly influenced at least one of the dependent variables.

Levene's Test of Equality of Error Variances showed that the homogeneity assumption was met for self-efficacy variables but violated for motor and cognitive task performance. Subsequent analyses therefore focused on MtD and Ct-RPM, where significant group differences were found.

Post hoc Tukey HSD comparisons indicated significant motor performance differences between positive and negative ST groups, and between positive and unrelated groups. The NST group achieved the highest dart-throwing scores (M = 44.33), followed by UST (M = 39.07), with PST lowest (M = 21.13). These results suggest that negative self-directed communication, contrary to its typical framing in the literature, may enhance motor performance, potentially via increased focus or task-relevant arousal.

For the cognitive task, PST (M = 100.47) and NST (M = 97.87) both significantly outperformed UST (M = 85.33), with no significant difference between the two task-relevant conditions. No significant differences were found across ST conditions for self-efficacy in either domain, indicating that performance was influenced by ST type, but perceived efficacy was not. Thus, H1c was not supported, while H1a and H1b received partial support, with NST benefiting motor performance and PST enhancing cognitive outcomes.

Discussion

These findings align with prior research suggesting that NST can benefit physically demanding tasks (DeWolfe et al., 2020; Hamilton et al., 2007) yet also contradict Van Raalte and Vincent's work (2017), which reported superior dart-throwing performance under PST. One explanation lies in the dual cognitive and physical demands of dart throwing (Tod et al., 2009). Similarly, this study's cognitive task results contrast with Kim et al. (2021), who found NST beneficial for Raven's tasks. Methodological differences, such as the use of the full RPM here versus the abbreviated version in Kim et al.'s study, may account for this discrepancy. Taken together, the findings emphasize that the effectiveness of ST strategies is context-dependent and shaped by the nature of the task.

The present findings contribute to positive psychology by illustrating the nuanced, context-dependent role of self-talk as a potential positive psychology intervention. While positive self-talk enhanced cognitive task performance, negative self-talk improved motor performance suggesting that the optimal framing of self-directed speech depends on task demands. This aligns with positive psychology's emphasis on cultivating flexible, strengths-based strategies that optimize functioning rather than prescribing a singular "positivity" approach in all circumstances. Negative self-talk, as these findings suggest, has its uses and may well be adapted further to join the chorus of existing PPIs (i.e., Bolier et al., 2013; Carr et al., 2021; Koydemir et al., 2021; White et al., 2019).

From a practical standpoint, these results support the integration of self-talk training into interventions aimed at building resilience, self-regulation, and performance readiness across domains. In line with cognitive reframing principles, practitioners could tailor self-talk strategies to match task requirements, thereby enhancing both skill execution and psychological resources such as focus, adaptability, and grit. Beyond sport, this approach holds promise for educational, occupational, and rehabilitation contexts, offering a low-cost, accessible method for fostering optimal performance and well-being.

Limitations And Future Directions

Several limitations are noted. First, the reliance on Likert scales for assessing self-efficacy and other psychological measures introduces subjectivity and potential bias. As self-reported measures, they are vulnerable to inaccuracies, particularly regarding participants' familiarity with the dart-throwing task. The small sample size ($n = 45$) limits statistical power and generalizability, as does the gender imbalance (64% female).

ST is a private cognitive process that cannot be directly observed, relying entirely on self-report. This limits confidence in the consistency of the intervention's application. Variability in participants' interpretation and execution of ST, along with possible differences in cue word effectiveness, may have influenced results. While 94% of participants found their self-chosen cue words useful and easy to implement, prior research (Cumming et al., 2006) indicates that unfamiliarity with prescribed ST phrases can hinder effectiveness.

Despite these limitations, the findings highlight ST's potential as a performance-enhancing tool and a mechanism for improving self-regulation and motivation. Future research could examine its use beyond sport, particularly in cognitive function, behavioral change, and emotional regulation, as well as in addressing negative self-beliefs, low self-efficacy, or difficulty acquiring new skills. Further work could explore ST's role in building resilience, fostering learning, and supporting mental wellbeing and consider how to test ST as a PPI across different contexts for better performance.

Conclusion

This study contributes to a growing understanding of how ST can influence performance across task domains. While it provides preliminary evidence that certain types of ST may be more effective in specific contexts, it underscores the complexity of internal dialogue and its influence on human performance. By advancing research on the nuances of ST both in structure and function, its potential as a practical tool for personal growth, cognitive development, and behavioral change may be realized.

Given prior literature in positive psychology demonstrating that ST can effectively foster resilience, enhance wellbeing, and support adaptive functioning across academic, emotional, and health-related domains, our findings support exploring ST as a targeted positive psychology intervention. By showing how both PST and NST can be harnessed to improve performance and psychological development, this study supports expanding the application of ST-based interventions beyond elite athletes to a range of settings, be they at work, school or in everyday life.

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