Both a holistic and external focus of attention enhance the learning of a badminton short serve

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Author Accepted Version, see citation for published version below:

Abedanzadeh, R., Becker, K., & Mousavi, S. M. R. (2021). Both a holistic and external focus of attention enhance the learning of a badminton short serve. *Psychological Research*. https://doi.org/10.1007/s00426-021-01475-9

Abstract

Attentional focus research consistently demonstrates a benefit of an external focus relative to an internal focus. However, this dichotomous comparison may oversimplify the variety of attentional focus strategies a learner uses when acquiring a motor skill. Recent research suggests a holistic focus of attention provides a similar benefit over an internal focus in performing a standing long jump, but the generalizability of this effect is unknown. The purpose of this study was to determine how an internal (IF), external (EF), and holistic focus (HF) and control condition impact the learning of a badminton short serve. Novice participants (N=60) were randomly assigned to IF, EF, HF, or control groups. They practiced the badminton short serve for 150 trials over five days and completed retention and transfer tests 48 hours post-acquisition. Serve accuracy was analyzed in separate repeated-measures ANOVAs for acquisition and pretest/retention/transfer. All groups improved accuracy through acquisition with the HF group serving more accurately than the IF and control groups. In retention, the HF and EF group served more accurately than the control group, and in transfer the HF group was more accurate than the IF and control groups. The present findings suggest a benefit of both a holistic and external focus in the learning of an accuracy-based task.

Keywords: Holistic focus, External focus, Internal focus, Badminton, Short Serve.

Research in the area of attentional focus consistently demonstrates the benefit of an external focus of attention relative to an internal focus in both the learning and performance of motor skills (see Wulf, 2013 for a review). An internal focus has typically been defined as focusing on the movements of the body, and an external focus is defined as focusing on the effects of a movement in the environment (Wulf & Prinz, 2001). The benefit of an external focus has been reported for a variety of sport skills including golf chipping (Bell & Hardy, 2009; Wulf & Su, 2007), basketball free-throws (Zachry et. al, 2005), standing long jumps (Becker & Smith, 2015; Becker, Fairbrother, & Couvillion, 2018; Porter, Ostrowski, Nolan, & Wu, 2010; Wu, Porter, & Brown, 2012), dart throwing (Becker & Fairbrother, 2019; Lohse, Sherwood, & Healy, 2010), and volleyball serves (Wulf, McConnel, Gärtner, & Schwarz, 2002). This benefit also appears to generalize to children (Coker, 2018; Perreault & French, 2015), older adults (Chiviacowsky, Wulf, & Wally, 2010), and populations with various disabilities (Landers, Wulf, Wallmann, & Guadagnoli, 2005; McNamara, Becker, Weigel, Marcy, & Haegele, 2019).

While the literature comparing an external and internal focus presents a clear benefit of an external focus, some authors have suggested this framework oversimplifies the process of how athletes manage attention in sport performance (Fairbrother, Post, & Whalen, 2016; Toner & Moran, 2015). Attention throughout a sport performance is dynamic, with athletes self-reporting shifting their attention through a wide variety of focus points (Bernier, Trottier, Thienot, & Fournier, 2016; Fairbrother et al., 2016). Importantly, many of the focus cues reported by athletes do not fit within the dichotomous internal/external paradigm employed in research. For instance, golfers have reported focusing on the rhythm of their swing and “the sensation of release in my hands” (Bernier, Codron, Thienot, & Fournier, 2011, p. 333) and figure skaters have reported focusing on “conveying a jazzy feel” and “being fluid and smooth”

(Bernier et al., 2016, p. 260). In addition to this self-report evidence of diverse focus strategies, some researchers have suggested that certain tasks (e.g., gymnastics, dance) do not naturally lend themselves to generating meaningful external focus cues (Collins, Carson, & Toner, 2016). Experimental evidence disputes this viewpoint by showing a benefit of an external focus in gymnastics (Abdollahipour, Wulf, Psotta, Palomo Nieto, 2015) dance (Texeira da Silva, Lessa, & Chiviacowsky, 2017), and playing music (Mornell & Wulf, 2018), but generating effective external focus cues for these skills may be more difficult. For skills like a golf shot, a learner can naturally focus on the golf club, or on the planned trajectory or target of the ball. However, for a skill like completing a pirouette, there is no implement or target to focus on, so instruction often intuitively references the body. Based on these limitations, it is critical to understand if other types of attentional focus strategies can be employed to avoid the disadvantages associated with an internal focus of attention.

A limited number of studies have explored how alternative attentional focus strategies impact motor learning and performance relative to an internal and external focus. One such example is the use of a holistic focus of attention, which is defined as a focus on the general feeling or sensations associated with completing a movement (Becker, Georges, & Aiken, 2019). This concept emerged from similar work showing a benefit of setting holistic goals relative to part-practice goals in motor performance and learning (Mullen & Hardy, 2010; Mullen, Faull, Jones, & Kingston, 2015). In the performance of a standing long jump, a holistic focus of attention (i.e., focusing on feeling explosive) and an external focus of attention (focusing on jumping toward a cone) have been found to present a similar benefit over an internal focus (focusing on rapidly extending the legs; Becker et al., 2019). This type of cue is also consistent with some athlete self-reported cues in the previous paragraph (e.g., “conveying a jazzy feel” and

"being fluid and smooth") meaning it may be a useful option that resonates with the desired focus of athletes. However, the generalizability of the holistic focus benefit is unclear since recent research also shows a holistic focus while balancing on a stabilometer (focusing on feeling calm and stable) produced no performance benefit relative to an internal focus (Becker & Hung, 2020), and no prior study has tested the impact of a holistic focus in a motor learning protocol.

Theoretical accounts of attentional focus effects have varied, but the constrained action hypothesis (CAH; Wulf, McNevin, & Shea, 2001) has been the most prominently cited and best supported viewpoint. The CAH proposes that an external focus allows the organization of a movement to occur at a more automatic level by planning a movement at the level of the outcome. In contrast, an internal focus promotes more conscious control of movements that should otherwise be organized at a subconscious level. This inappropriate conscious control impairs automaticity and reduces movement efficiency (Wulf, 2013). Dual-task methodology has provided evidence for higher attentional demand when using an internal relative to an external focus (Wulf et al., 2001). In addition, multiple studies have reported improved neuromuscular efficiency (Lohse & Sherwood, 2012; Marchant, Greig, Scott, 2009) as well as metabolic efficiency (Schücker, Hagemann, Strauss, & Völker, 2009; Schücker, Anheier, Hagemann, Strauss, & Völker, 2013) when using an external relative to an internal focus.

The CAH is often presented as evidence for the benefit of using an external focus, but much of the supporting evidence focuses on the *disadvantages* of conscious control from using an internal focus. Several other authors have presented similar hypotheses and theories suggesting that consciously controlling movement disrupts performance, learning, and can lead to choking under pressure (Baumeister, 1984; Hardy, Mullen, & Jones, 1996; Masters, 1992). The CAH presents an external focus as a solution to this problem, but it is important to know if

other strategies can also achieve that goal. A holistic focus does not focus on the effects of a movement in the environment, but it could be argued that this type of focus allows for focusing on effects of a movement that occur *within* the body (e.g., sensation of feeling explosive), thus potentially presenting a similar advantage of an external focus of attention.

Initial evidence suggests that a holistic focus of attention can provide an advantage over an internal focus for the performance of tasks requiring maximal force production, but it is unclear if that advantage generalizes to tasks requiring accuracy. Furthermore, no study to date has tested the impact of a holistic focus on motor learning. The purpose of this study was to determine how an internal focus, external focus, holistic focus, and no directed focus (i.e., control condition) impact the learning of a motor task with an accuracy demand (badminton short serve). Based on the results of Becker et al. (2019), we hypothesized that learners using an external or holistic focus would complete the badminton short serve more accurately than those in the internal focus or control groups in acquisition, retention, and transfer phases of the experiment.

Method

Participants

In the current study, 60 right-handed males studying physical education volunteered to participate in the study and were randomly assigned to internal focus (M_{age} = 19.53, SD = 0.64), external focus (M_{age} = 19.47, SD = 0.83), holistic focus (M_{age} = 20.27, SD = 1.58), and control groups (M_{age} = 19.00, SD = 0.85). Sample size was selected based on a review of previous investigations with similar designs. All participants were novices in the performance of the

experimental task. Study procedures were approved by the university's institutional review board, and all participants provided written informed consent.

Task and Setting

Participants in the study were asked to learn the badminton short serve. During all phases of the study except transfer, participants stood in the right side of a standard badminton court and served diagonally toward the opposite side of the court (see Figure 1). The French Badminton Short Serve Test (French & Statler, 1949) was used as a measure of performance throughout the study. This test involves placing a rope 50.80cm above the net so that the participant must hit the shuttlecock between the top of the net and the rope. This rope was present for all phases of the experiment. The goal of the short serve is to hit the shuttlecock so that it lands as close to the front corner of the service area as possible. Concentric arcs were drawn with the first being 55.88cm from the corner, and each successive arc being an additional 20.32cm away. Point values were scored by a research team member based on the proximity to the corner and ranged from 5 (most accurate) to 0 (missing the rectangular service area altogether; see Figure 1). Participants used a standard badminton racquet and shuttlecock, and scores for each trial were determined based on the landing location of the tip of the shuttlecock. In instances where the shuttlecock landed on a line, the larger of the two scores was awarded. Hits that failed to pass between the rope and the top of the net were scored as a zero, but if the shuttlecock hit the rope or net and then dropped into the scoring zone the trial was repeated.

Procedure

Upon arrival to the laboratory, participants were introduced to the badminton short serve task that would be learned. They received basic instructions regarding the rules and scoring of the task, and viewed a demonstration of the task by a researcher. No specific focus instructions

were included in this introduction. Next, they completed a pre-test consisting of 10 trials of the task to assess baseline performance levels. Following the pre-test, participants in the experimental groups were instructed that they would be practicing the task while focusing on a specific instruction (i.e., the prescribed attentional focus cue). The internal focus group was told to "focus on the movement of your arm during the serve." The external focus group was told to "focus on the movement of the racquet during the serve." The holistic focus group was told to "focus on feeling smooth and fluid when completing the serve." The control group was given no focus cue to use during acquisition.

The acquisition phase consisted of five days of practice with approximately 48 hours separating each session. Each session consisted of three blocks of 10 trials (150 total acquisition trials). During the acquisition phase, for the three experimental groups the focus cue was repeated to the participant prior to every block, and after each block participants were asked to indicate on a 1-5 scale how often they were focused on the cue during practice with 1 indicating none of the time and 5 indicating all of the time. Approximately 48 hours after the completion of acquisition, participants returned to the lab for a 10-trial retention test. Retention conditions were identical to the pretest and acquisition with the exception that no attentional focus cues were given. Thirty minutes after the completion of the retention test, participants completed a 10-trial transfer test that involved serving from the opposite side of the court (i.e., standing on the left side of the court and serving diagonally toward a target on the right side of the court). During all phases of the experiment, a research team member scored the accuracy of each trial from 0-5 based on the scoring system of the French Badminton Short Serve Test (French & Statler, 1949).

Data Analysis

The primary dependent variable of interest was the accuracy score of the serve. Scores for trials in each block were averaged for analysis. All data was screened for normality using Q-Q plots, and it was determined parametric tests were appropriate. Acquisition data was analyzed in a 4 (Group) x 15 (Block) repeated-measures ANOVA with repeated measures on block. Pretest, retention and transfer data were analyzed in a 4 (Group) x 3 (Test) repeated-measures ANOVA with repeated measures on test. A secondary dependent variable measured was adherence scores to the focus cues for each block. Adherence scores were analyzed in a 3 (Group) x 15 (Block) repeated-measures ANOVA with repeated measures on block. For all analyses, significant main effects and interactions were followed up with Sidak post-hoc procedures to determine the nature of group differences. Greenhouse-Geisser adjustments are reported where violations of sphericity occurred. Partial eta squared is reported as an effect size, and the alpha level was set at .05.

Results

Acquisition

Table 1 presents the results of each group during all phases of the study. During acquisition, participants in all groups improved across blocks. This was supported by a significant main effect of block, F (7.91,443.05) = 33.97, $p < .001$, $\eta_p^2 = .38$, with accuracy scores increasing across blocks. The main effect of group was also significant, F (3,56) = 6.53, $p = .001$, $\eta_p^2 = .26$. Participants in the holistic focus group were significantly more accurate than those in the internal focus group ($p = .006$), and the control group ($p = .003$) across acquisition. Participants in the external focus group did not significantly differ from either the holistic or internal focus group (p's > .050), but were marginally more accurate than the control group (p =

.069). Participants in the internal focus and control groups did not significantly differ from each other ($p > .050$). The block x group interaction was not significant, F (23.74,443.05) = 1.14, p = .292, η_p^2 = .06.

Pretest, Retention, and Transfer

To examine the impact of attentional focus on motor learning, a repeated measures ANOVA was performed across the pretest, retention, and transfer phases. The main effect of group across the three testing phases was significant, F (3,56) = 5.18, p = .003, η_p^2 = .22, as was the main effect of test, F (1.59,88.82) = 68.65, $p < .001$, η_p^2 = .55. However, these main effects were superseded by a significant test x group interaction, F (4.76,88.82) = 4.44, p = .001, η_p^2 = .19, suggesting that the group effect varied across test conditions. Follow-up tests indicated that at pretest no significant group differences in accuracy were observed (p's > .050). In the retention test, the holistic focus group and the external focus group served significantly more accurately than the control group (p = .008 and .034 respectively), but did not significantly differ from each other nor the internal focus group (p's > .050). The internal focus and control groups also did not significantly differ from each other ($p > .050$). In transfer, the holistic group served significantly more accurately than the control group ($p < .001$) and internal focus group (p = .002), but did not significantly differ from the external focus group ($p > .050$). The external focus, internal focus, and control groups did not significantly differ from each other during the transfer test (p's > .050).

(Insert Table 1 about here)

Attentional Focus Adherence

Adherence scores across the acquisition phase can be found in Table 2. Groups did not differ in their self-reported adherence with using the attentional focus cues during acquisition, F

(2,42) = 0.88, $p = .884$, $\eta_p^2 < .01$. A significant block effect was detected, F (8.42,353.74) = 5.29, $p < .001$, $\eta_p^2 = .11$, with participants generally reporting higher adherence as practice progressed. The block x group effect was also non-significant, F (16.85,353.74) = 1.24, $p = .153$, $\eta_p^2 = .06$.

(Insert Table 2 about here)

Discussion

The purpose of this study was to determine if the benefit of a holistic focus of attention generalizes to a task with an accuracy demand in a motor learning protocol. The previous two studies testing this concept found differing results, and both focused strictly on motor performance. Based on the results of Becker et al. (2020), we predicted that both a holistic focus and an external focus would lead to improved performance and learning of a badminton short serve relative to an internal focus and control group.

The most important finding of this study was that a holistic focus of attention provided a performance benefit relative to the control group during acquisition, and a learning benefit over the internal focus and control group during the transfer phase. This finding extends the holistic focus literature in two important ways. First, this study shows a benefit of using a holistic cue in a task that does not require maximal force production. Previously, Becker et al. (2020) demonstrated a benefit of a holistic focus (focusing on feeling explosive) during the performance of a standing long jump. However, a later study found no benefit of a holistic focus (focusing on feeling calm and stable) when balancing on a stabilometer (Becker & Hung, 2020). The authors of the latter study speculated that the cue selected in that study had poor compatibility with the actual feelings participants experienced. Since they were novices to the task, their performance tended not to be very stable, and feeling calm while bouncing back and forth on the platform was likely difficult. In the present study, participants were required to perform a task with precision

as opposed to maximal force and the focus cue "focus on feeling smooth and fluid when completing the serve" appears to have been effective for learners. This finding demonstrates a benefit of a holistic focus of attention with a different type of task, and suggests another possible attentional focus strategy that could be used in addition to an external focus.

This study is also the first to demonstrate a benefit of a holistic focus in a motor learning protocol. A related area of research demonstrated that utilizing holistic goals as opposed to part-practice goals provided an advantage for motor learning (Mullen et al., 2015). The holistic goals condition in that paradigm shares some similarities with a protocol promoting the use a holistic focus of attention. However, the part-practice condition fails to distinguish between internally and externally focused goals. Instead, it promotes attending to specific task elements to be performed correctly that may involve both internally and externally focused elements. The present results suggested an advantage over those in a control group with no directed focus in retention, and an advantage over the control and internal focus groups in transfer when they were required to switch to hit toward the opposite court. The transfer results are particularly interesting since previous researchers have suggested that transfer tests that measure the generalizability of the skill may be the most important indicator of successful learning (Schmidt & Bjork, 1992). There are also important practical implications since in the sport of badminton players must serve from both sides of the court.

The external focus group in this study experienced a learning benefit over the control condition in retention, and a marginal benefit over control during acquisition. The lack of a benefit of an external over an internal focus is surprising given the extensive reporting of an external focus advantage in a wide variety of skills (see Wulf, 2013 for a review). In analyzing the results visually, the external focus group appears to have higher accuracy scores than the

internal focus group on most blocks, but these differences are not significant. One potential contributor to the lack of differences seen between those groups could be limitations with the sensitivity of the measure of the dependent variable used to measure accuracy. Some researchers have called for the use of bivariate measures of accuracy and variability in tasks with two-dimensional error (Hancock, Butler, & Fischman, 1995). In this study, accuracy was measured with a score ranging from 0-5 for each trial based on the proximity to the closest corner of the service area. This measure was selected to maximize efficiency of data collection and preserve ecological validity. In the badminton short serve, the primary goal is to land the birdie as close as possible to the front corner of the service area. When a short serve is interspersed unexpectedly with long-serves, this makes it difficult for opponents to anticipate the correct movement needed to return the serve. The French Badminton Short Serve Test (French & Statler, 1949), is a widely used skills tests in the sport of badminton, and represents the task demand well while allowing for much quicker recording of scores relative to two-dimensional error measurements. Future work should consider replicating this design to determine if more precise measures such as mean radial error or bivariate variable error would improve the sensitivity enough to allow for an observable difference between internal and external focus groups.

Theoretical interpretations of attentional focus effects to date have largely focused on explaining differences between an internal and external focus of attention. The CAH, explains the benefit of an external focus as providing a means of avoiding conscious control of systems that should be automated by focusing on the intended outcome of the movement (Wulf & Prinz, 2001). This viewpoint is extended upon in the OPTIMAL theory of motor learning (Wulf & Lewthwaite, 2016) where the authors suggest improved “goal-action coupling” as a mechanism of why an external focus is advantageous. What both of these proposals fail to explore is whether

the goal of avoiding conscious control can be achieved with other types of focus strategies. Previous literature with skilled participants has proposed that simply distracting learners with a dual-task paradigm can provide an advantage over consciously attending to the execution of the skill (Beilock, Carr, McMahon, & Stokes, 2002). However, in the same study novices experienced the opposite effect with the skill focus improving performance relative to the dual-task condition. Thus, it appears that simply distracting with a dual-task is not a viable focus strategy for early motor learning. The present results suggest that a holistic focus is a strategy that can present benefits similar to those observed with an external focus of attention. By focusing on the feelings or sensations generated when performing the task, participants can avoid the detrimental conscious control of an internal focus without needing to direct attention away from the body. Thus, we propose that the constrained action hypothesis be expanded to consider the possibility that focus strategies other than an external focus might also provide the advantages associated with avoiding conscious control of body movements.

The results of the adherence questionnaire in this study suggested that adherence with the focus cues was consistent with previous investigations, and importantly did not differ between groups practicing with different focus cues. It was interesting to note that scores did increase across practice blocks. Adherence scores were somewhat low in early blocks with averages at or just below the midpoint score of the Likert scale. Since these learners were novices, these scores may reflect learners in the cognitive stage struggling to devote their attention to the prescribed focus cue. Cognitive stage learners are attempting to understand *what* to do in the task (Fitts & Possner, 1967), and the attentional demand in performing the task may be great enough that it is difficult to maintain a consistent focus on the prescribed focus cue. Importantly, as learners

progressed through acquisition, adherence scores increased and were relatively high during later acquisition (see Table 2).

The findings of this study provide an important extension of the literature related to a holistic focus, but the study is not without limitations. As mentioned previously, it is possible that the system used for measuring accuracy may be limited relative to other strategies accounting for the two-dimensional nature of error possibilities. However, with the applied nature of this task we felt that the method chosen provided strong ecological validity. A second limitation that can be recognized with all attentional focus literature is that it is impossible to truly control a human participant's selected attentional focus. As recommended by previous researchers (Mullen, 2007), post-experiment questionnaires can be a valuable tool in interpreting adherence with focus cues, but they are still limited in describing the complexities of how individuals manage their attention throughout a study. While adherence results may have limits, overall across our study we saw acceptable self-reported adherence with focus cues which increased across practice. Finally, since an *a priori* power analysis was not conducted, it is possible that this study was underpowered. However, the number of participants per group exceeds the vast majority of studies employing similar designs and a post-hoc power analysis indicates adequate power.

In conclusion, this study provides further evidence for the benefit of a holistic focus of attention. Specifically, this study is the first to demonstrate a holistic focus benefit in a task with an accuracy demand. It is also the first to demonstrate a holistic focus benefit in a motor learning protocol. These results are encouraging in suggesting that there may be alternatives to using an external focus of attention when it is not desirable or practical. Several studies suggest that coaches and athletes do not regularly utilize external focus cues in training or competition

(Diekfuss & Raisbeck, 2017; Fairbrother et al., 2016; Porter, Wu, & Partridge, 2010), so offering alternatives such as using a holistic focus may be a welcomed option.

Author Statement

Rasool Abedanzadeh: Conceptualization, Methodology, Investigation, Writing - Review & Editing, Resources, Formal analysis, Project administration, Supervision, Visualization. **Kevin A. Becker**: Methodology, Formal analysis, Writing- Original draft preparation, Validation. **Seyyed Mohammad Reza Mousavi**: Investigation, Resources.

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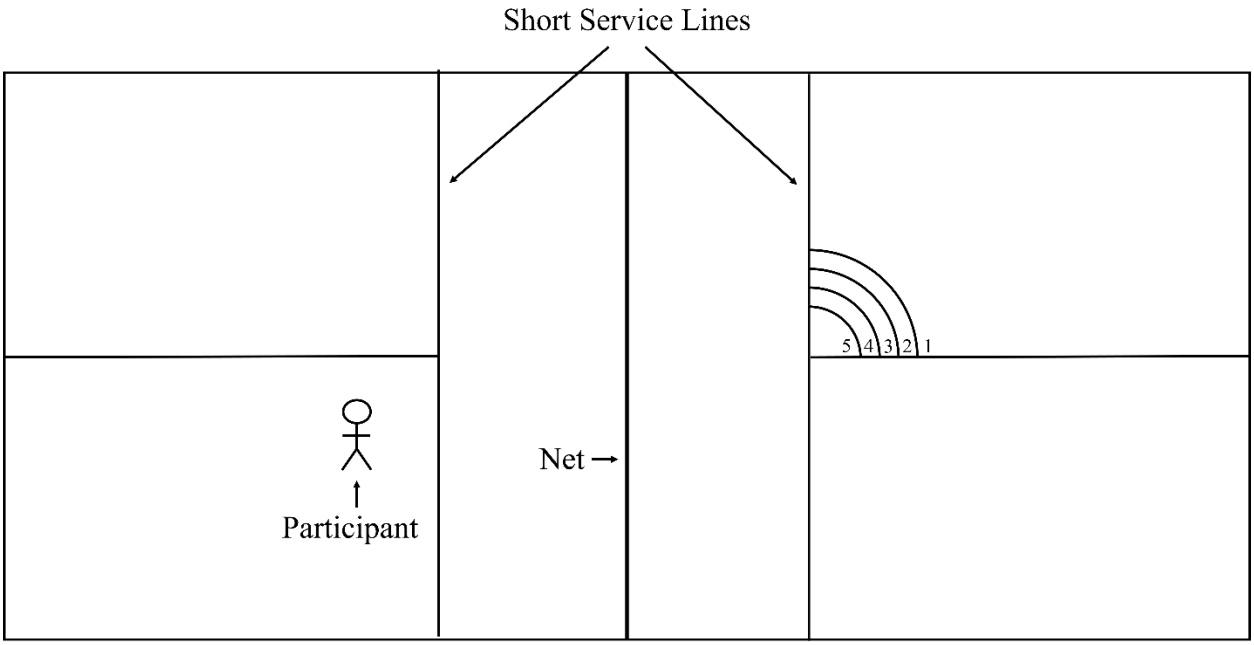

Figure 1: Court configuration for badminton short serve task. The participant and target were shifted to opposite courts for the transfer test.

Table 1

Means and standard deviations of accuracy scores during all study phases

Group	Pre	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Block 9	Block 10	Block 11	Block 12	Block 13	Block 14	Block 15	Ret	Trans
IF	1.52 (0.49)	1.54 (0.45)	2.02 (0.63)	1.83 (0.71)	1.85 (0.42)	2.13 (0.47)	2.41 (0.52)	2.15 (0.76)	2.17 (0.42)	2.33 (0.43)	2.28 (0.49)	2.52 (0.78)	2.35 (0.55)	2.52 (0.71)	2.65 (0.72)	3.01 (0.76)	2.05 (0.73)	1.85 (0.72)
EF	1.35 (0.49)	1.87 (0.59)	1.83 (0.44)	1.89 (0.33)	2.24 (0.77)	2.27 (0.41)	2.43 (0.29)	2.56 (0.57)	2.61 (0.73)	2.65 (0.64)	2.78 (0.69)	2.75 (0.45)	2.91 (0.57)	2.99 (0.60)	3.04 (0.57)	3.22 (0.55)	2.38 (0.46)	2.10 (0.40)
HF	1.59 (0.56)	1.98 (0.69)	2.06 (0.47)	2.24 (0.64)	2.16 (0.43)	2.61 (0.55)	2.79 (0.58)	2.46 (0.40)	2.73 (0.75)	3.05 (0.57)	2.87 (0.69)	2.85 (0.73)	3.13 (0.65)	2.86 (0.88)	2.86 (0.73)	3.28 (0.81)	2.47 (0.35)	2.57 (0.59)
CON	1.41 (0.45)	1.67 (0.32)	1.75 (0.57)	1.95 (0.61)	1.99 (0.33)	2.19 (0.43)	2.20 (0.33)	2.23 (0.44)	2.23 (0.37)	2.37 (0.44)	2.19 (0.29)	2.34 (0.42)	2.47 (0.31)	2.55 (0.43)	2.65 (0.37)	2.65 (0.48)	1.87 (0.30)	1.67 (0.16)

Abbreviations: IF = Internal Focus, EF = External Focus, HF = Holistic Focus, CON = Control Condition

Table 2

Means and standard deviations of attentional focus adherence scores during all study phases

Group	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Block 9	Block 10	Block 11	Block 12	Block 13	Block 14	Block 15
IF	2.73 (1.16)	2.93 (1.22)	2.80 (1.47)	2.87 (1.13)	3.13 (1.13)	3.47 (1.06)	3.67 (0.98)	3.13 (1.13)	3.13 (0.92)	3.20 (0.86)	3.47 (0.92)	3.40 (0.99)	3.67 (0.98)	3.47 (1.25)	4.13 (0.92)
EF	2.67 (1.11)	3.00 (0.85)	2.80 (0.94)	2.73 (1.16)	2.80 (0.94)	2.73 (1.22)	3.13 (1.13)	3.13 (1.30)	2.93 (0.96)	3.53 (1.13)	3.80 (0.94)	3.87 (0.92)	3.60 (1.06)	4.00 (0.76)	3.87 (0.64)
HF	2.73 (1.10)	2.47 (0.99)	2.80 (1.08)	3.27 (1.03)	3.07 (0.96)	3.33 (1.11)	2.53 (1.13)	3.33 (1.23)	3.60 (1.24)	3.73 (1.10)	3.27 (1.28)	3.27 (1.28)	3.53 (1.30)	3.53 (1.19)	3.33 (1.45)

Abbreviations: IF = Internal Focus, EF = External Focus, HF = Holistic Focus