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Shared identity content between leader and follower influences intentional mobilization and challenge and threat states

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Abstract

Objectives: Researchers have examined how leaders' representation of shared identity content allows them to mobilize group members towards success in competitive tasks. However, research is yet to determine the psychological and physiological implications of shared identity content with a leader when approaching competitive tasks. The present research addresses this gap within a two-phase experimental study, examining the effect of shared identity content on follower intentional mobilization, self-efficacy, perceived control, approach and avoidance goals, cardiovascular challenge and threat and motor performance within a competitive task.

Design: A 2 X 2 between-participants two-phase experimental design, with two shared and two non-shared conditions.

Method: Within phase one, 220 sport and exercise undergraduate students imagined themselves in one of four scenarios and responded to measures of mobilization (e.g., willingness to invest time on a task). Then, a pre-screening questionnaire was used to evidence the students' authentic identity content when competing in sport, which informed condition within phase two. Of those who consented to phase two, a laboratory experiment with 120 undergraduate sport and exercise students was used. Within this experiment, the sharedness of identity content between leader and follower was manipulated through the students' authentic pre-screening questionnaire responses. Within phase two, competition related self-efficacy, perceived control, approach and avoidance goals, cardiovascular challenge and threat and motor performance was assessed.

Results: Phase one results indicated that when identity content is shared (vs. non-shared) between leader and follower, group members' willingness to invest time on a task is increased within a hypothetical scenario. In phase two, it was evidenced that when identity

content is shared (vs. non-shared) between leader and follower, followers reported greater intentional mobilization, self-efficacy and perceived control when approaching a competitive task. Shared identity content with a leader did not predict cardiovascular challenge states nor greater motor performance (relative to non-shared identity content).

Conclusion: The present research provides evidence that a leaders' capacity to mobilize effort of group members and enhance psychological appraisal of competitive events is dependent on their ability to build shared identity content.

Keywords: Leadership; Social Identity Content; Appraisal; Stress; Performance

Highlights:

- Shared identity content increases intentional mobilization

- Shared identity content promotes positive appraisals of competitive events

- Shared identity content does not influence cardiovascular responses

- Shared identity content does not influence competitive motor performance

Leadership is a construct that is in abundance within everyday society, impacting would be followers' performance both within business and sport (Day et al., 2014; Slater et al., 2019). Given this influence, there has been significant investment in leadership development (Avolio et al., 2010). Recent theorizing into the influential processes between leaders and followers has placed importance on a leader representing and promoting a group in which a leader and followers share (Haslam et al., 2011). By this, the social identity approach to leadership (Haslam et al., 2011) asserts that in a variety of social contexts, people see themselves as characteristic of an ingroup, seeing themselves not just as "I" but as one of "us". This identification allows for leaders and would be followers to share ideas and viewpoints openly (Turner, 1991). When followers see themselves as characteristic of an ingroup, follower cognition and behaviours align with that of the group's interests, norms, and ideals (Livingstone & Haslam, 2008). The groups interests, norms and ideals form a shared social identity content (Turner et al., 1987). By this, social identity content refers to the specific meaningful reason(s) why individuals identify with a group (Postmes & Spears, 1998). To use a sporting example, this can include the proud history of a team, or the way a particular team competes (Slater et al., 2015). These beliefs associated with shared identity need to be understood and managed by a leader in order to stimulate unity in members of a group (Haslam et al., 2011).

It has been suggested that shared identity content is likely to play an important role in a leaders' ability to inspire group members (Haslam et al., 2011; Slater et al., 2014). In an integrative review, Stam and colleagues (2014) propose that a collective vision can be internalised as part of a group members' self-concept. Hence, the perceived sharedness of a vision can influence members' behaviours and actions. That is to say that motivation towards achieving a shared goal is dependent on the congruence of a collective vision. It is only until recently that the suggestion of congruent values and visions have been empirically

investigated. Research by Stevens and colleagues (2019) has evidenced that the creation of shared values has significant implications for follower effort and performance. Specifically, shared identity content between leader and follower significantly improved effort and performance within cycling trials in comparison to leaders who do not enact shared values. In support of these findings, Slater et al. (2019) evidenced that when a group is salient to an individual, shared identity content influences effort and task performance. Specifically, authors identified that shared identity content (vs. non-shared) induced greater intentional (i.e., willingness to spend time on a task) and behavioural mobilization (i.e., actual time spent on a task) in followers when they identified with the group. Said researchers also evidenced that the mechanism through which shared identity content positively influenced task performance was through greater behavioural mobilization. Evidently, effort and performance within competitive tasks can be improved as a result of shared identity content between leaders and followers (Slater et al., 2019; Stevens et al., 2019), and it is through greater mobilization that performance improves (Slater et al., 2019). However, other mechanisms through which shared identity content influences performance is yet to be examined.

A potential mechanism through which shared identity content can influence performance is psychophysiological stress. Häusser et al. (2012) found that identification with a group (a consequence of shared identity content; Slater et al., 2018) buffers against negative stress levels (i.e., cortisol), improving ability to cope with the demands of a stressor. Equally, Haslam et al. (2009; 2019) theorizes that a salient social identity informs positive psychological and physiological health. Here it is theorized that being part of a group that provides purpose, belonging and meaning makes us feel distinctive, efficacious, and successful. This improves a members' mobilization to support their peers, putting the group in a better position to cope with negative consequences such as stress (Haslam et al., 2009;

2019). Within experimental research, Scheepers (2009) identified that intergroup differences that are stable (i.e., a clear, unchanging difference between the in-group and competing outgroup) is conducive to adaptive responses to competitive scenarios (i.e., a challenge state). Conversely, when a group perceives limited intergroup differences that are stable (i.e., limited difference between the in-group and out-group that is unchanging), this is conducive to maladaptive stress responses (i.e., a threat state; Scheepers, 2009). As such, the dynamic of a group, and the groups relationship with the out-group, holds implications for psychophysiological stress within competition.

Given that the dynamics of a group are influenced by a leader (Haslam et al., 2011; Slater et al., 2014), research has since aimed to understand whether leadership can influence psychophysiological stress. Slater et al. (2018) found that perceived identification with a leader positively influences psychological appraisals of, and performance within competitive scenarios. On the other hand, a lack of identification led to maladaptive physiological responses to competitive scenarios (Slater et al., 2018). As such, given the association between identification and psychophysiological stress in previous research, it is advantageous to understand whether the sharedness of identity content between leader and follow can influence psychophysiological stress and motor performance.

The Theory of Challenge and Threat States in Athletes (TCTSA; Jones et al., 2009; Meijen et al., 2020) was the theoretical position used by Slater et al. (2018) in understanding the influence of identification with a leader on psychophysiological stress and performance. In the TCTSA (Jones et al., 2009; Meijen et al., 2020), scholars have proposed that a follower can draw on support from an individual of whom they identify with (e.g., a coach) in order to use opportunities for support in anticipation of an imminent motivated performance situation. With this additional support from a leader of whom a follower identifies with, psychophysiological challenge responses and performance is likely to be bolstered (Meijen et

al., 2020). In partial support of this, Miller et al. (2020) found that perceived support from a leader (i.e., coach) of whom they identify with, predicts greater performance satisfaction across an athletic season. Extending on the aforementioned research, by manipulating sharedness of identity content (e.g. Slater et al., 2019), psychophysiological and performance consequences can be understood.

The TCTSA (Jones et al., 2009; Meijen et al., 2020) posits that two psychophysiological states (i.e., challenge and threat) are pivotal in influencing motor performance. A challenge state is an adaptive response to a stressor, leading to better performance and well-being (Behnke & Kaczmarek, 2018). This occurs when resource appraisals (e.g., self-efficacy) meet or exceed perceived situational demands (e.g., effort required). Conversely, a threat state is maladaptive and leads to poorer performance, occurring when personal resources do not meet perceived situational demands (Jones et al., 2009). The TCTSA emphasises that perception of required effort, uncertainty of the situation, and potential for danger (i.e. perceived situational demands) are salient for motivated performance. In order to cope with these situational demands, an individual's secondary appraisal (i.e., resource appraisals; Jones et al., 2009) involves perceptions of self-efficacy (i.e., judgments of what can be accomplished), perceived control (i.e., actual and perceived control available over actions) and achievement goals (i.e., approach, aiming to show competence; avoidance, aiming to avoid showing incompetence).

As a result of cognitive appraisals (i.e. situational demands and resources), theory (Blascovich & Mendes, 2000) and research (Turner et al., 2013) draw on physiological indices of challenge and threat. Hemodynamic CV markers identify whether an individual perceives a stressor as adaptive (i.e., a challenge) or maladaptive (i.e., threat). Irrespective of whether a stressor has been appraised as adaptive (i.e., a challenge) or maladaptive (i.e., threat), an increase in Sympathetic Adreno-Medullary (SAM) activity and catecholamine

release (epinephrine and norepinephrine) occurs, elevating heart rate (HR; heart beats per minute [bpm]). Differentiating challenge and threat states, challenge states encourage efficient energy usage though increases in blood glucose, free fatty acids and volume of blood to the brain and muscles (e.g. Dienstbier, 1989). To achieve this, SAM activation and catecholamine release increases cardiac output (CO; litres of blood pumped from the heart per minute [l/min]), and decreases total peripheral resistance (TPR; sum of the resistance of all peripheral vasculature in the systemic circulation [dyn.s.cm-5]). However, what characterises a threat state is Pituitary Adreno-Cortical (PAC) activation and the release of cortisol. Being conducive to less efficient energy usage and limited blood flow to the brain and muscles (e.g., Dienstbier, 1989), PAC activation and cortisol release discard positive effects of SAM activation, reducing CO change and increasing TPR (relative to a challenge state).

Research has supported the assertion that cardiovascular states influence performance in competitive tasks (Turner et al., 2013). By this, challenge states are conducive to greater performance, whilst threat states are conducive to poor performance (Turner et al., 2013). Given that a) theory has proposed that identification with a leader can influence psychophysiological responses to imminent competitive scenarios (Meijen et al., 2020; Slater et al., 2018), b) that shared identity content has been found to positively influence performance (Slater et al., 2019), and c) and that identification with a leader can influence appraisals of a competitive event (Miller et al., 2020; Slater et al., 2018), we examine to what extent shared identity content affects group members' intentional mobilization, appraisal, physiological challenge and threat and motor performance in a two-phase experiment.

The current research

Involving a two-phase experimental design, we test the assertion that a leader's ability to mobilize group members is influenced by the degree to which a leader's beliefs about

group membership are shared with a group. In phase one we examine the degree to which shared (vs. non-shared) identity content affects group members' intentional mobilization using a 'paper people' experimental approach (Aguinis & Bradley, 2014). In phase two we examine the degree to which shared (vs. non-shared) identity content affects resource appraisals, cardiovascular challenge and threat responses and motor performance in a between subject's experimental design. In proper, we test the following hypotheses:

H1: Shared (vs. non-shared) identity content between leader and followers will result in greater intentional mobilization in group members on approach to a hypothetical speech task (phase one).

H2: Shared (vs. non-shared) identity content between leader and followers will result in greater intentional mobilization and challenge state (adaptive appraisal and CV reactivity) in group members on approach to a pressurized motor task (phase two).

H3: Shared (vs. non-shared) identity content between leader and followers will result in better motor performance in group members compared to baseline (phase two).

Phase one

Participants and design

We used a 'paper people study' approach in phase one (Aguinis & Bradley, 2014). Although Aguinis and Bradley (2014) recommend within-participants designs when using this approach, we used a between subject's design that has been extensively used within comparable research (Slater et al., 2018; Slater et al., 2019) when analysis of variance is used. Regarding the identity contents chosen, only three studies, to our knowledge, have examined identity content in sport (Barker et al., 2014; Evans et al., 2013; Slater et al., 2019). The demonstrated contents within these pieces of research are prevalent contents that individuals associate with their competitive sport teams, being friendship, results and enjoyment identity

content. In phase one we used friendship and results identity contents to create shared and non-shared conditions between leader and followers.

Given the paradigms and design adopted, only one study was located that closely aligns with the current research (Slater et al., 2019). A priori power analysis with G*Power (v 3.1.6; α error probability = 0.05, $1 - \beta$ error probability = 0.95) based on comparable research (Slater et al., 2019; $\eta^2_p \geq 0.09$, $f \geq 0.31$) was conducted, evidencing the need for a minimum of 178 participants (an anticipated minimum effect size of $\eta^2_p \geq 0.09$, $f \geq 0.31$, being medium). Because our sample size estimates are based on a single article, this calculation should be considered a vague approximation. 220 student-athletes (M_{age} = 21.21, ± 4.27; 139 males) took part in one of four conditions. Specifically, 55 students took part in the leader/group shared-results content [LR/GR] condition (M_{age} = 21.36, ± 5.44; 30 males), leader/group shared-friendships content [LF/GF]) condition (M_{age} = 20.49, ± 3.33; 39 males), leader results/group friendships [LR/GF] condition (M_{age} = 20.64, ± 3.88; 34 males) and leader friendships/group results [LF/GR] condition (M_{age} = 22.35, ± 4.01; 36 males).

Procedure

Following institutional ethical approval, using convenience and snowball sampling, participant's gave informed consent for phase one, and had the option to consent to phase two separately. Students (who were actively competing in sport) then read a hypothetical scenario (one of four) in which the individual would deliver a speech before a competitive fixture (see supplementary file). Using convenience and snowball sampling, participants then completed self-report measures based on the hypothetical scenario. Manipulation checks and questions on intentional mobilization towards the hypothetical task were then completed.

Measures

Manipulation checks

As used by Evans et al. (2013), four one-item measures were used to check the identity content manipulation. Specifically, these asked whether "results (or friendships) are of most importance for the coach (or group)". This was a 7-point Likert scale from 1 (*do not agree at all*) to 7 (*completely agree*). A further check on whether the athletes immersed themselves in the scenario, a 3-item questionnaire was used to identify how strongly the participant identifies with the team (cf., Slater et al., 2018), with one item being reverse scored. Specifically, the items were, '*I feel a strong connection with the team*', '*I identify strongly with the team*', and '*I feel no connection with the team*', on a Likert scale from 1 (*do not agree at all*), to 7 (*completely agree*). Slater and colleagues (2019) found that identification can be manipulated as a result of an acute hypothetical experiment. As such, the identity content and identification measures were used to ensure that the hypothetical scenario had a) manipulated individuals into internalizing the groups as part of their self-concept (i.e., team identification), and b) whether identity content had been manipulated. If the identity content had been manipulated, but the group was not embedded as part of their self-concept, mobilization is not likely to be manipulated. Simply, an individual must identify with a group for the content (i.e., results vs friendship) to become salient. Acceptable internal consistency was identified (α = .71). Further, a single item was used to identify whether the athletes immersed themselves in the hypothetical scenario, reading "*Were you able to imagine yourself in the situation within the excerpt*?". 3-point Likert points included '*not at all*', '*somewhat*' and '*completely*'.

Intentional mobilization

The measure used was slightly edited from Slater and colleagues' (2019) research. A five-item scale was used to measure intentional mobilization. These included: (1) "*I am strongly motivated to deliver this speech for the coach*"; (2) "*the team talk on friendships (or results) will be very effective*"; (3) "*I will exert very high levels of effort for the team talk*"; (4)

"*I want to deliver an excellent team talk to impress the coach*"; (5) "*I am passionate and enthusiastic about the team talk*". Both were indicated on a 7-point Likert scale from 1 (*do not agree at all*) to 7 (*completely agree*). The scale demonstrated good internal consistency (α = .84).

Analytic Strategy

Prior to main analyses, Shapiro Wilks tests were performed. If outliers were identified, then *Z*-scores for significant outliers were identified (Mendes et al., 2003). *Z*-scores greater than two were windzorized (Smith, 2011). Primary analyses were 2 (shared vs. non-shared) X 2 (results vs. friendship) univariate analysis of variance tests (ANOVA). All normality and outlier checks met the assumptions necessary for all data analysis.

Results

Manipulation checks

Identity Content. Factorial ANOVA's were conducted on leader (i.e., results and friendships) and group (i.e., results and friendships) perceived identity contents (LR; Leader-results, GR; Group-results, LF; Leader-friendships, GF; Group-friendships) to confirm manipulations. As anticipated there was a significant effect for leader-results content, $F(1, 216) = 154.45$, $p <$ .001, $\eta^2_p = 0.42$, with higher responses in both leader-results conditions (LR/GR: $M = 5.81 \pm 1.14$ and LR/GF: $M = 5.32 \pm 1.49$) than the leader-friendship conditions (LF/GF: $M = 3.02 \pm 1.30$ and LF/GR: $M = 3.35 \pm 1.71$). Similarly, a separate ANOVA identified a significant effect for leader friendship-content, $F(1, 216) = 301.59$, $p < .001$, $\eta^2_p = 0.58$. Specifically, higher responses were reported in both leader-friendships conditions (LF/GF: M = 5.85 ± .95 and LF/GR: M = 5.67 ± 1.04) than in the leader-results conditions (LR/GR: M = 2.78 ± 1.64 and LR/GF: M = 2.83 ± 1.30).

A third ANOVA identified a significant effect for group-results content, $F(1, 216) = 27.49$, $p < .001$, $\eta^2_p = 0.11$, with higher responses in both group-results conditions (LR/GR: $M = 5.49 \pm 1.46$ and LF/GR: $M = 5.83 \pm 1.20$) than in the group-friendships conditions (LF/GF: $M = 4.05 \pm 1.55$ and LR/GF: $M = 4.53 \pm 1.89$). Similarly, a separate ANOVA identified a significant effect for leader friendship-content, $F(1, 216) = 130.19$, $p < .001$, $\eta^2_p = 0.38$. Specifically, higher responses were reported in both group-friendships conditions (LF/GF: $M = 5.55 \pm 1.02$ and LR/GF: $M = 5.55 \pm 1.23$) than in the group-results conditions (LR/GR: $M = 3.31 \pm 1.85$ and LF/GR: $M = 3.16 \pm 1.74$).

Group identification. 2 (Sharedness: shared vs. non-shared) X 2 (identity content: results vs. friendships) ANOVA revealed that group identification did not significantly vary as a function of sharedness (shared vs. non-shared), $F(1, 216) = .06$, $p = .808$, $\eta^2_p < .001$. There was a non-significant difference in group identification as a function of identity content (results vs. friendships), $F(1, 116) = .63$, $p = .427$, $\eta^2_p < .001$.

Imagine themselves in the scenario. Further, paired samples *t*-test identified that the participants' ability to imagine themselves in the scenario was significantly different from 1 ('*not at all*'), $t(219) = -47.05$, $p < .001$, $M = 2.57 \pm .50$. No-one reported a value of 1 and thus no one was removed from analyses. ANOVA revealed that participants' ability to imagine themselves in the scenario did not significantly vary as a function of sharedness (shared vs. non-shared), $F(1, 216) = .00$, $p = 1$, $\eta^2_p < .001$, nor identity content (results vs. friendships), $F(1, 216) = 1.85$, $p = .175$, $\eta^2_p = .008$. There was a non-significant interaction effect of sharedness (shared vs. non-shared) and identity content (results vs. friendships) on image ability, $F(1, 216) = 1.18$, $p = .278$, $\eta^2_p = .005$.

Main Analyses

2 (Sharedness: shared vs. non-shared) X 2 (identity content: results vs. friendships) ANOVA revealed that intentional mobilization significantly varied as a function of sharedness (shared vs. non-shared), $F(1, 216) = 63.43$, $p < .001$, $\eta^2_p = .23$. Follow up comparisons indicated that intentional mobilization was significantly greater in the shared-conditions ($M = 5.59 \pm .69$) than the non-shared conditions ($M = 4.70 \pm .94$), $p < .001$. Intentional mobilization did not significantly vary as a function of identity content (results vs. friendships), $F(1, 216) = 2.27$, $p = .133$, $\eta^2_p = .01$. There was a non-significant interaction effect between sharedness and identity content on intentional mobilization, $F(1, 216) = .73$, $p = .40$, $\eta^2_p = .003$.

Discussion

Phase one showed support for H1 in that individuals reported greater intention to mobilize effort in the hypothetical speech task when salient social identity content between leader and group is shared (vs. not). By this, a leader's ability to mobilize group members is influenced by the degree to which a leader's beliefs about group membership are shared with a group. Whilst this phase provides support for shared identity content and mobilization, this is evidently hypothetical. It has yet been investigated as to whether authentic shared identity content between leader and follower can influence psychological and physiological reactions to upcoming competitive scenarios. By this, in phase two we tested whether shared identity content between leader and follower can positively influence psychological appraisals of an event, consequent physiological reactivity and motor performance.

Phase two

Participants and design

With phase two measuring different variables to phase one, another a priori power analysis was necessary. G*Power (v 3.1.6) ANCOVA calculations (α error probability = 0.05, 1 – β error probability = 0.95) based on comparable research (Slater et al., 2018; 2019;

$\eta^2_p \geq 0.13, f \geq 0.39$, medium effect) were conducted, evidencing a need for a minimum of 119 participants. Slater et al. (2018; 2019), to our knowledge, are the only papers that have measured comparable constructs to the present research. 120 undergraduate students (M_{age} = 22.22, ± 5.05; 73 males) that completed phase one, and consented to phase two, took part in one of four conditions. Specifically, 30 participants each took part in the shared-results [LR/GR] condition (M_{age} = 22.80, ± 6.45; 20 males), shared-enjoyment [LE/GE] condition (M_{age} = 21.63 ± 3.75; 16 males), non-shared LR/GE condition (M_{age} = 21.90, ± 4.26; 18 males) and non-shared LE/GR condition (M_{age} = 22.53, ± 5.73; 19 males).

Participants were assigned to one of four conditions in a 2 (sharedness: shared vs. non-shared) X 2 (identity content: results vs. enjoyment) between-participants researcher blinded experimental design. Participants were assigned based on the pre-screening questionnaire that identified their true preference for identity content that was filled at least 7 days prior to data collection in phase one (enjoyment vs. results; see supplementary file; Slater et al., 2019). In measuring a breadth of laudable identity contents (Barker et al., 2014; Evans et al., 2013; Slater et al., 2019), and aligning contents to phase two's experimental design, enjoyment and results identity contents formed phase two conditions. Hence, we use these contents to create shared and non-shared conditions between leader and followers. Because there was an unequal distribution of males and females in each condition, sex-based differences in cardiovascular stress reactivity was controlled for in the analyses.

Procedure

In phase one, at least a week prior to phase two (to minimize carry over effects; Keren, 2014), participants were asked of their true preference towards enjoyment or results within their own sports (a preference was identified via the layout of the questionnaire; see supplementary file). The identity content changed from friendship and results in the vignette (phase one), to enjoyment and results in phase two. This was done to a) minimize the

influence of filling the vignette in phase one on responses in phase two at least a week later, b) measure a breadth of laudable identity contents that individuals value (Barker et al., 2014; Evans et al., 2013), and c) to ensure the identity-contents matched the experimental context. The participants' true preference for enjoyment or results in competition stated in phase one is essential in formulating authentic shared and non-shared identity content conditions in phase two.

At least 7 days after completion of the pre-screening questionnaire in phase one, participants were connected to a Finometer Pro on their non-dominant arm and hand, being prepared following relevant guidelines (Sherwood & Turner, 1993). Once connected, the participants: took part in a practice performance phase to minimize carry over effects (see Keren, 2014; Turner et al., 2012); performed in a baseline performance phase, calling each throw; sat for 2 minutes to lower heart rate whilst the Finometer Pro was switched on; listened to a relaxation script for 5 minutes; participated in one of four audio conditions; sat for a further 2 minutes post condition; completed self-report measures; performed in the final performance trial, calling each throw; and then debriefed and thanked for their participation. A full breakdown of the procedure from phase one to completion of phase two can be found in the supplementary file.

Within the four conditions the leader emphasised the sharedness (or not) of followers' preferences, echoing Slater and colleagues' procedure (2019). Like Slater et al. (2019), the leader emphasised that they are the one that represents the group, and group identification was emphasised by stating that the leader was from the same university. From this, the leader emphasized whether they endorsed the values the participant endorses (via audios). In both emphasising group identification, and the varying degrees of sharedness of authentic identity content (as reported by the participant), it can be identified whether the sharedness of identity content alone can influence psychological, physiological and performance related variables.

The conditions included sentences noting the sharedness (or not) of identity content (e.g. Slater et al., 2019) based on what the participant reported the previous week, portraying the individual as a leader of the team that the participants are a member of (see supplementary file for all instructions). Then, in-line with previous studies (e.g., Turner et al., 2013), ego-threatening instructions (i.e. comparing performance scores with everyone else) were used to elicit a stress response. The research team are experts on identity content and created these manipulations. All audios were the same length to ensure consistency. Additionally, the conditions were delivered with a neutral tone to avoid any motivational inferences (e.g. Weinstein et al., 2018)

To ensure the researcher was blinded to condition, the first author sent the four audio conditions (see supplementary file) to the second author, who then returned 1) the scripts named A, B, C and D, and 2) two counterbalanced order sheets. The first author was then told that A and B conditions were the results conditions (LR/GF and LR/GR), and that C and D were the enjoyment conditions (LE/GR and LE/GE), unknowing of the sharedness of identity content (i.e., shared vs non-shared). The first counterbalanced sheet noted the order of participation for those who reported a lean towards results identity content, and the second sheet noted the order for those who reported a lean towards enjoyment identity content. This procedure blinds the researcher from the sharedness of conditions. That said, it was completely possible for the participants to evidence that results identity content was of most importance multiple times in a row without a single participant noting that enjoyment identity content was most important (i.e., all 120 respondents could have noted a preference for results). To counteract this problem, participants who expressed interest in taking part in the study, and were part of the content condition that had already been completed (30 participants per condition), they were thanked for their interest and told that the study had met capacity.

Measures

Manipulation checks

As used by Evans and colleagues (2013), four one-item measures were used to check the identity content manipulation (the same as phase one, though with friendship identity content replaced with enjoyment identity content). Further, the same 3-item questionnaire was used to identify how strongly the participant identifies with the team (cf., Slater et al., 2018). Good internal consistency was identified ($\alpha = .89$). In phase two, the word "coach" was changed to "leader". As used within previous challenge and threat research (Slater et al., 2018; Turner et al., 2013), a single item identified whether the upcoming task was important to the participants, retaining a Likert scale from 1 (not at all) to 5 (very much so). If an event is not important to an individual, a stress response is unlikely, nullifying their appraisal of an event (see Jones et al., 2009; Blascovich et al., 2003).

Main variables

Intentional mobilization. Measuring intentional mobilization, like in phase one, four of the five items used were edited. Specifically, items included: (1) I am strongly motivated to perform well for Jayne (the leader); (2) I will exert very high levels of effort in the throwing task; (3) I want to perform well to impress Jayne; (4) I am passionate and enthusiastic about performing well. The fifth item; "the final training session will be very effective" used by Slater and colleagues (2019) was deemed inapplicable to this study. Again, this was indicated on a 7-point Likert scale from 1 (do not agree at all) to 7 (completely agree), preceded by a stem stating, "To what extent do you agree that…". The scale demonstrated good internal consistency ($\alpha = .83$).

Self-Efficacy. The Self-efficacy scale was formulated using Bandura's (2006) guidelines, with two items measuring how confident the participant feels in performing well in the upcoming task, being a valid and reliable measure of resource appraisals (Turner et al., 2013).

Specifically, the questionnaire asked; '*In the following ring toss task, to what extent do you feel confident that you can perform well?*' and '*In the following ring toss task, to what extent do you feel confident that you fulfil your potential?*'. Participants reported on a Likert scale from 1 (*Not at all*), to 5 (*Very much so*). Internal consistency was good across conditions (α = .87).

Perceived control. Adapted from the Academic Control Scale (Perry et al., 2001; Turner et al., 2013), and extensively used within challenge and threat research, a single item was used to identify perceived control over their upcoming performance. The item was recorded on a typically used 5-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). The participants were asked to what extent they agree with the statement; '*The more effort I put into the task, the better I will do?*', being valid for use in measuring resource appraisals (Turner et al., 2013).

Achievement Goals. The Achievement Goal Questionnaire (AGQ: Conroy et al., 2003; Turner et al., 2013) was used to identify the participants' motivational disposition towards performance. This questionnaire measures mastery approach goals (MAp), mastery avoidance goals (MAv), performance approach goals (PAp) and performance avoidance goals (PAv). This was condensed to a 4-item measure for brevity, with a single item for each subscale. The scale in this capacity has been individually validated and used extensively in previous research (Conroy et al., 2003; Turner et al., 2013).

CV reactivity. A Finometer Pro was used to measure CV responses aligned with challenge and threat theory (Blascovich & Mendes, 2000, Jones et al., 2009) and research (e.g., Turner et al., 2013); HR (bpm), CO (l/min), and TPR (dyn·s·cm^{-5}). CO is calculated from stroke volume (SV) and HR (CO = SV $\times$ HR). To calculate TPR, mean arterial pressure (MAP; average blood pressure) must be calculated. MAP is calculated from systolic and diastolic

blood pressure (Systolic BP + [Diastolic BP × 2] / 3). So, TPR is calculated from MAP and CO (TPR = [MAP/CO] × 80). Typical of challenge and threat research, TPR and CO was converted into a single interrelated challenge and threat index latent variable (CTI). This was done by converting them into *Z*-scores and summing them. CO was weighted +1, while TPR was weighted -1. Thus, a positive value indicated challenge reactivity and a negative value indicated threat. In-line with research convention (e.g., Blascovich et al., 2004), as with task importance, HR was used as a prerequisite of challenge and threat states, acting as a further manipulation check to identify task engagement.

Motor performance. Objective markers were used to identify performance scores. Participants took 10 throws with their dominant hand towards 5 separate targets starting from 1 meter away from the seated throwing position (see figure 1). The first target was worth 2 points, with the second worth 4, then 6, 8, then 10 points. Zero points were scored if a participant misses a pole. Higher scores indicated better performance, with a possible maximum total score of 100 and minimum of 0. We took performance intention scores (via calls per shot both at baseline and performance trials) to identify whether any changes can be attributable to identity content conditions. Further, we assess the time taken from start to finish of the 10 throws for both baseline and performance trials to identify any differences as a result of condition. Performance, intention and time change scores were created (from baseline to performance). A diagram elucidating the parameters of the performance marker can be found below.
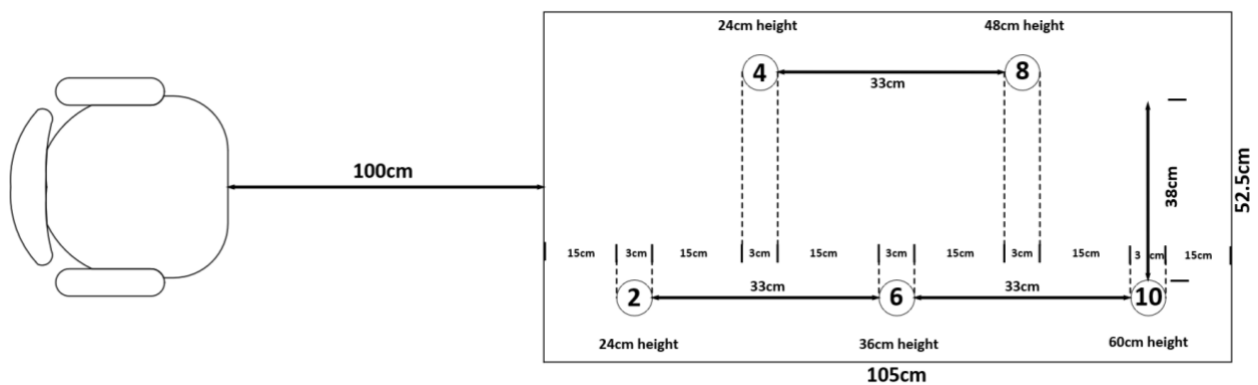
Analytic Strategy

Shapiro wilks tests were performed. *Z*-scores for significant outliers were identified (Mendes et al., 2003). *Z*-scores greater than two within each condition were winsorized (Smith, 2011). Primary analyses were both 2 (sharedness: shared vs non-shared) X 2 (identity content: results vs friendship) ANOVA's and ANCOVA's. For challenge and threat physiological variables, because there was an unequal split of males and females in each condition (Mendes et al., 2003), sex was used as a covariate. Pearson's correlation coefficients identified the association between shared identity content, psychological and physiological components of the TCTSA and performance within the four conditions. All assumptions were met for all data analysis.

Results

Manipulation checks

Heart rate. Identifying task engagement (Chalabaev et al., 2009), paired samples *t*-test evidenced a significant increase in heart rate from baseline to post instructions, $t(119) = -22.15$, $p < .001$; $M_{bpm} = 5.57 \pm 13.29$. ANOVA identified a non-significant main effect of condition on heart rate change, $F(3, 116) = .36$, $p = .785$, $M_{LR\text{-}GR} = 5.35 \pm 2.58$; $M_{LE\text{-}GE} = 5.90 \pm 2.68$; $M_{LR\text{-}GE} = 5.29 \pm 2.32$; $M_{LE\text{-}GR} = 5.77 \pm 3.42$.

Group identification. A 2 (Sharedness: shared vs. non-shared) X 2 (identity content: results vs. friendships) ANOVA revealed a non-significant difference in group identification as a function of sharedness (shared vs. non-shared), $F(1, 116) = 2.15$, $p = .145$, $\eta^2_p = .018$. Further, there was a non-significant difference in group identification as a function of content (results vs. friendships), $F(1, 116) = .117$, $p = .732$, $\eta^2_p = .001$. There was a non-significant interaction of sharedness (shared vs. non-shared) and content (results vs enjoyment) on identification with the team, $F(1, 116) = .537$, $p = .465$, $\eta^2_p = .005$.

Identity content. Factorial ANOVAs were conducted on leader and group (i.e., results and friendships) identity contents (LR; Leader-results, GR; Group-results, LE; Leader-enjoyment, GE; Group-enjoyment). Leader-results content identified a significant effect for leader content, $F(1, 116) = 7.32$, $p = .008$, $\eta^2_p = 0.59$, with higher responses in both leader-results conditions (LR/GR: $M = 6.47 \pm .94$ and LR/GE: $M = 5.90 \pm 1.60$) than the leader-enjoyment conditions (LE/GE: $M = 2.80 \pm 1.49$ and LE/GR: $M = 2.07 \pm 1.11$). Similarly, a separate ANOVA on leader-enjoyment content identified a significant effect for leader content, $F(1, 116) = 188.50$, $p < .001$, $\eta^2_p = 0.62$. Specifically, higher responses were reported in both leader-enjoyment conditions (LE/GE: $M = 5.73 \pm 1.14$ and LE/GR: $M = 6.13 \pm 1.28$) than in the leader-results conditions (LR/GR: $M = 2.67 \pm 1.65$ and LR/GE: $M = 2.27 \pm 1.41$).

ANOVA on group-results content identified a significant effect for group content, $F(1, 116) = 104.06$, $p < .001$, $\eta^2_p = 0.47$, with higher responses in both group-results conditions (LR/GR: $M = 5.83 \pm 1.23$ and LE/GR: $M = 5.87 \pm .86$) than in the group-enjoyment conditions (LE/GE: $M = 3.13 \pm 1.57$ and LR/GE: $M = 3.37 \pm 1.75$). Similarly, a separate ANOVA on group-enjoyment content identified a significant effect for group content, $F(1, 116) = 104.53$, $p < .001$, $\eta^2_p = 0.30$. Specifically, higher responses were reported in both group-enjoyment conditions (LE/GE: $M = 5.87 \pm 1.04$ and LR/GE: $M = 5.77 \pm 1.13$) than in the group-results conditions (LR/GR: $M = 4.00 \pm 1.74$ and LE/GR: $M = 4.83 \pm 1.74$).

Task importance. A paired samples *t*-test identified that task importance was significantly different from 0, $t(119) = 57.622$, $p < .01$; $M = 4.17 \pm .79$. ANOVA identified that this difference did not vary as a function of condition, $F(3, 116) = 2.00$, $p = .118$, $M_{\text{shared-results}} = 4.37 \pm .76$; $M_{\text{shared-enjoyment}} = 4.27 \pm .78$; $M_{\text{non-shared-results}} = 4.13 \pm .78$; $M_{\text{non-shared-enjoyment}} = 3.90 \pm .80$.

Main Analyses

Intentional Mobilization. ANOVA revealed that intentional mobilization significantly varied as a function of sharedness (shared vs. non-shared), $F(1, 116) = 30.59$, $p < .001$, $\eta^2_p = .21$. Follow up comparisons indicated that intentional mobilization was significantly greater in the shared conditions ($M = 5.73 \pm .90$) than the non-shared conditions ($M = 4.76 \pm 1.01$), $p < .001$. Intentional mobilization did not significantly vary as a function of identity content (results vs. enjoyment), $F(1, 116) = .04$, $p = .849$, $\eta^2_p > .001$. There was a non-significant interaction effect between sharedness and identity content on intentional mobilization, $F(1, 116) = .82$, $p = .367$, $\eta^2_p = .007$.

Achievement goals. MANOVA identified that there was a non-significant main effect of sharedness (shared vs. non-shared) on MAp, MAv, PAp and PAv, Wilks' $\Lambda = .97$, $F(4, 113) = .99$, $p = .417$, $\eta^2_p = .034$. MANOVA identified a non-significant main effect of content (results vs. enjoyment) on MAp, MAv, PAp and PAv, Wilks' $\Lambda = .96$, $F(4, 113) = 1.29$, $p = .28$, $\eta^2_p = .04$. There was a non-significant interaction of sharedness (shared vs. non-shared) and content (results vs. enjoyment) on MAp, MAv, PAp and PAv, Wilks' $\Lambda = .97$, $F(4, 113) = .75$, $p = .56$, $\eta^2_p = .03$.

Self-efficacy and control. ANOVA identified that self-efficacy significantly varied as a function of sharedness (shared vs. non-shared), $F(1, 116) = 11.53$, $p = .001$, $\eta^2_p = .09$. Follow up comparisons indicated that self-efficacy was significantly greater in the shared conditions

($M = 3.83 \pm .83$) than the non-shared conditions ($M = 3.35 \pm .74$), $p = .001$. ANOVA identified that self-efficacy did not significantly vary as a function of content (results vs. enjoyment), $F(1, 116) = 1.37$, $p = .244$, $\eta^2_p = .01$, nor was there an interaction effect, $F(1, 116) = 2.69$, $p = .10$, $\eta^2_p = .02$.

ANOVA found that perceptions of control significantly varied as a function of sharedness (shared vs. non-shared), $F(1, 116) = 7.24$, $p = .008$, $\eta^2_p = .06$. Pairwise comparisons identified that perceived control was significantly greater in the shared conditions ($M = 4.15 \pm .95$) than the non-shared conditions ($M = 3.68 \pm .97$), $p = .008$. ANOVA identified that perceived control did not significantly vary as a function of content (results vs. enjoyment), $F(1, 116) = 2.7$, $p = .09$, $\eta^2_p = .01$, nor was there an interaction effect, $F(1, 116) = 1.33$, $p = .25$, $\eta^2_p = .01$.

CV reactivity. ANCOVA indicated that challenge and threat index did not significantly vary as a function of sharedness (shared vs. non-shared), $F(1, 116) = 2.62$, $p = .11$, $\eta^2_p = .02$, content (results vs. enjoyment), $F(1, 116) = .85$, $p = .36$, $\eta^2_p = .01$, nor was there an interaction effect, $F(1, 116) = .1.60$, $p = .21$, $\eta^2_p = .01$.

Motor performance. ANOVA revealed that performance score did not vary according to sharedness (shared vs. non-shared) from baseline to performance trial, $F(1, 116) = 1.73$, $p = .19$, $\eta^2_p = .02$. Further, ANOVA identified that performance change did not significantly vary as a function of content (results vs. enjoyment), $F(1, 116) = .34$, $p = .56$, $\eta^2_p = .00$, nor was there an interaction effect, $F(1, 116) = 1$, $p = .32$, $\eta^2_p = .01$.

ANOVA revealed that change in performance intention according to sharedness (shared vs. non-shared) from baseline to performance trial was non-significant, $F(1, 116) = 1.04$, $p = .31$, $\eta^2_p = .01$. ANOVA also identified that change in performance intention change

did not significantly vary as a function of content (results vs. enjoyment), $F(1, 116) = .08$, $p = .774$, $\eta^2_p = .00$, nor was there an interaction effect, $F(1, 116) = .11$, $p = .75$, $\eta^2_p = .00$.

ANOVA revealed that performance time did not significantly vary according to sharedness (shared vs. non-shared) from baseline to performance trial, $F(1, 116) = .09$, $p = .77$, $\eta^2_p = .00$. ANOVA revealed that performance time did not significantly vary according to content (results vs. enjoyment) from baseline to performance trial, $F(1, 116) = .61$, $p = .44$, $\eta^2_p = .01$. There was no significant interaction effect between sharedness (shared vs. non-shared) and content (results vs. enjoyment), $F(1, 116) = .38$, $p = .54$, $\eta^2_p = .00$. All means and standard deviations of all main analysis variables can be found in table 1, with a correlation matrix of said variables in tables 2 and 3.

CTI was coded 1 (Challenged) and 0 (Threatened). From this, independent samples t-tests, irrespective of condition, revealed that those who were physiologically challenged ($n = 59$) performed better after baseline than those who were physiologically threatened, $M = 1.54$ vs 6.08, $p = .004$, $n = 61$. In measuring whether thoughts had changed during performance, we coded whether the participant got their first shot on the intended pole ($n = 73$) or missed the first intended pole ($n = 47$). We then noted how many times the individual hit the remaining 9 intended targets (e.g. participant 51 scored 36, with 6 shots going on the poles). A three-way ANCOVA was used for analysis, controlling for all appraisals (self-efficacy, perceived control, approach and avoidant focus) and cardiovascular challenge and threat. A main effect was found for the first shot (hit vs. miss), but not for sharedness (shared vs. non-shared) or content (results vs. enjoyment) on total target hit-rate, $p \geq .37$. Specifically, those who missed their first shot hit significantly less poles in the following 9 throws ($M = 2.75 \pm 1.61$) than those who hit the target on the first shot ($M = 3.87 \pm 1.76$), $F(1, 117) = 13.20$, $p < .001$, $\eta^2_p = .11$. No interaction effects were identified. It was found that irrespective of an individual's appraisal and physiology going into competition, if an individual missed the first

shot, they were more likely to go ahead and continue to miss. These findings evidence that

thoughts and feelings in the moment have implications for performance, irrespective of

identity content, appraisal and physiological reactivity prior to performance.

Table 1. Means and standard deviations of all phase two main variables across the four conditions.

	LR/GR	LF/GF	LF/GR	LR/GF
Mastery Approach	5.93 ± 1.05	5.93 ± 1.17	5.70 ± 1.06	5.37 ± 1.16
Mastery Avoidance	4.30 ± 1.49	4.40 ± 1.52	4.00 ± 1.36	4.33 ± 1.45
Performance Approach	5.40 ± 1.19	5.00 ± 1.60	5.23 ± 1.30	4.70 ± 1.32
Performance Avoidance	4.27 ± 1.66	4.60 ± 1.48	4.33 ± 1.84	4.27 ± 1.39
Self-efficacy	3.80 ± .77	3.87 ± .89	3.55 ± .83	3.15 ± .59
Control	4.20 ± 1.00	4.10 ± .92	3.93 ± 1.01	3.43 ± .86
Challenge-threat index	.15 ± 1.09	.62 ± 1.34	.08 ± 1.12	.00 ± 1.16
Performance score change	3.57 ± 8.17	6.07 ± 9.03	3.07 ± 9.11	2.40 ± 8.34
Performance intention change	4.20 ± 9.39	4.27 ± 10.54	3.00 ± 9.24	1.93 ± 8.78
Performance time change	-.02 ± 2.42	.05 ± 2.47	-.15 ± 2.20	.43 ± 2.06

Table 2. Pearson's correlations coefficients (*r*) between the variables across *shared* conditions at phase two (LR/GR, LE/GE)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Intentional Mobilization	-	.65**	.32	.34	.34	.22	.28	.10	-.07	.01	-.15	-.07
2. Group Identification	.50**	-	.49**	.45*	.39*	.14	.21	.17	.01	.18	.08	-.01
3. Self-efficacy	.54**	.52**	-	.65**	.50**	.07	.44*	.14	.16	.08	.21	.32
4. Control	.59**	.24	.66*	-	.74**	.24	.52**	.16	.28	.21	.35	.06
5. MAp	.39*	.51**	.54*	.57*	-	.21	.33	.14	.20	.12	.14	.06
6. MAv	-.08	.25	.11	.07	.08	-	.40*	.66**	.37*	.07	-.17	-.02
7. PAp	.29	.34	.41*	.40*	.57**	.18	-	.54**	.19	.12	.25	.11
8. PAv	-.03	.09	.12	.15	.07	.69**	.29	-	.25	-.12	.12	.09
9. CTI	-.09	-.30	-.24	-.11	-.24	.16	-.07	.33	-	.31	.10	.003
10. Score	-.25	.02	-.20	-.34	-.12	.45*	.13	.16	.37*	-	.27	-.18
11. Intention	-.06	-.51**	-.07	.24	.07	-.08	-.03	-.08	.25	.10	-	-.14
12. Time	.30	.38*	.31	.16	.24	.20	.002	.12	-.17	-.01	-.22	-

Note: LR/GR correlations are below the diagonal, and LE/GE correlations are above the diagonal. $p \leq .05^*$, $p < .01^{**}$

Table 3. Pearson's correlations coefficients (*r*) between the variables across *non-shared* conditions at phase two (LE/GR, LR/GE)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Intentional Mobilization	-	.39*	.18	.49**	.53**	.32	.46*	.07	-.38*	-.15	.002	.11
2. Group Identification	.45*	-	.27	.37*	.45*	.37*	-.06	.27	.19	.20	-.02	.12
3. Self-efficacy	.35	.20	-	.28	.27	-.02	.06	-.26	-.03	.01	-.08	.03
4. Control	.48**	.20	.57**	-	.39*	.44*	.42*	.10	-.16	-.02	-.11	.02
5. MAp	.54**	.29	.39*	.59**	-	.17	.32	-.08	-.03	-.30	.24	-.19
6. MAv	-.15	-.31	-.20	-.03	.24	-	.36*	.76**	-.23	-.07	-.12	-.16
7. PAp	.08	.07	.32	.09	.38*	-.02	-	.31	-.27	-.33	.15	-.09
8. PAv	-.06	-.13	-.35	-.01	.04	.63**	-.29	-	-.04	.01	-.30	-.05
9. CTI	.22	.04	.35	.17	-.08	-.08	-.05	.002	-	.25	.06	-.12
10. Score	.05	.17	-.27	.06	.11	.16	-.15	.34	.14	-	.09	-.30
11. Intention	-.08	.04	.21	-.30	.004	.28	.12	.08	.09	.16	-	-.27
12. Time	.15	.30	-.19	-.30	.06	-.05	.24	.11	-.09	.20	.32	-

Note: LE/GR correlations are below the diagonal, and LR/GE correlations are above the diagonal. $p \leq .05$*, $p < .01$**

1   **Discussion**

2   In phase two we examined whether authentic shared identity content between leader

3   and follower influences a followers' intentional mobilization, resource appraisals,

4   cardiovascular reactivity to, and performance within, a motor task. Overall, self-report,

5   cardiovascular and performance measures evidenced varied support for hypotheses.

6   Supporting H2, shared social identity content (vs. non-shared) positively influenced

7   individuals' intentional mobilization, perceptions of self-efficacy and control when

8   approaching a competitive task. That said, shared social identity content did not positively

9   influence approach nor avoidance goals in followers. Although shared identity content

10   between leader and follower influenced psychological appraisals, cardiovascular reactivity

11   did not differ between content conditions. Similarly, shared identity content did not result in

12   greater motor performance (relative to non-shared conditions; H3). Additional findings

13   evidence that irrespective of prior appraisal and cardiovascular reactivity, iterative appraisals

14   (Blascovich & Mendes, 2000) influenced performance.

15   **General Discussion**

16   Across phase one and two, we evidence that sharedness of identity content, regardless

17   of the content itself (results, friendship, and enjoyment), positively influences intentional

18   mobilizational in both hypothetical and experimental performance settings. This evidence

19   supports previous research which has evidenced that salient shared identity content between a

20   leader and group influenced intentional mobilization towards a task. Slater et al. (2019)

21   identified that intentional and behavioural mobilization is dictated not by content itself

22   (results and enjoyment), but the sharedness of that content. The present research identified

23   that group identification did not significantly differ between shared and non-shared

24   conditions (in phase one and phase two). Hence, across phases, the current research

25   demonstrates that it is the sharedness of the salient identity content that dictates mobilization

26   of efforts and resource appraisals, not the identification itself. Building on previous research

27   (Slater et al., 2019), we evidence that shared identity content between leader and follower

28   positively influences team members' mobilization (phase one and two), self-efficacy and

29   perceived control (phase two) when approaching competitive events. However, in phase two,

30   there were no significant differences in cardiovascular states between shared identity content

31   conditions. With a theoretical link between resource appraisals and cardiovascular states

32   (Jones et al., 2009; Meijen et al., 2020), the resource appraisals found within the shared-

33   identity content conditions should lead to anticipated cardiovascular states. With this not

34   being the case, future research should consider Lazarusian appraisals of motivational

35   relevance (i.e., the intensity of the competitive stress response) and goal congruence (i.e., the

36   pursuit of goals that align with goals that the group intend to achieve; Lazarus & Folkman,

37   1984; Meijen et al., 2020) to address these inconsistencies. Iterative appraisals were also at

38   play within phase two (Blascovich & Mendes, 2000). Specifically, when an individual missed

39   the first shot, they were more likely to continue to miss (in comparison to those who

40   successfully hit their first shot). It is plausible to suggest that thoughts and feelings in the

41   moment had implications for performance, irrespective of identity content, appraisal, and

42   physiological reactivity prior to performance. From this reappraisal, challenge states could

43   have been reverted, and threat states counteracted. Although reappraisal was likely in phase

44   two, shared identity content (vs. non-shared) positively influenced intentional mobilization,

45   self-efficacy and perceived control when approaching the competitive event.

46   Overall, the current research evidences (a) that the sharedness of identity content

47   positively influences mobilization of efforts, (b) and resource appraisals (namely self-efficacy

48   and control), and (c) that the theoretical link between appraisal, cardiovascular states and

49   performance as found in this study is weak (see Turner et al., 2013). Previous research has

50   proposed that leadership-based variables such as identification should be incorporated as part

51   of the stress process (Slater et al., 2018), being a recent theoretical proposition (Meijen et al.,

52   2020). Though, the present study also evidences the need for the TCTSA to not just

53   incorporate identification (Meijen et al., 2020), but the sharedness of identity content in

54   influencing challenge and threat appraisal. However, shared identity content only influenced

55   appraisal, not cardiovascular and performance indices. Future research would benefit from

56   understanding why sharedness of identity content positively influenced psychological, but not

57   physiological stress markers (namely TPR and CO as per the TCTSA; Jones et al., 2009;

58   Meijen et al., 2020).

59   Aside from the TCTSA (Jones et al., 2009; Meijen et al., 2020), other approaches to

60   stress have emphasised the need for social antecedents (e.g., the social cure; Haslam et al.,

61   2018), being that of a social resource (i.e. friends, family) attenuating stressful situations

62   (Billings & Moos, 1981). Recent propositions have evidenced that social factors influence

63   psychological and biological parameters (sociopsychobio model; Haslam et al., 2019). Based

64   on the sociopsychobio model, an individual's appraisal of a competitive event is a product of

65   their perceptions in the moment, which is influenced by those in the social world, including

66   the leader. Broadly, our programme of research adds weight to this position in that shared

67   identity content between leader and follower bolsters an individuals' psychological responses

68   to upcoming competitive events (i.e., mobilization of efforts, self-efficacy, and perceived

69   control).

70   **Practical implications**

71   The present research enhances understanding on how leaders can enhance effort and

72   positive appraisals of would-be followers when approaching competitive situations. A leader

73   who can create a shared team identity based on shared identity contents is one that is likely to

74   induce greater effort and positive appraisals of competitive events from their followers. To

75   this tune, it would be useful for leaders to understand the diverse contents that group

76   members associate with their identity, to then work on establishing a consensus amongst

77   leader and followers. In utilizing interventions such as personal-disclosure mutual sharing

78   (Barker et al., 2014; Evans et al., 2013), values associated with the group at large can be

79   generated, understanding each other's identity content and vision for the team. To embed a

80   shared identity, the 3R's (Haslam et al., 2011) would be used. Leaders should: (1) Reflect

81   (i.e., identify importance of shared social identity); (2) Represent (i.e., clarify group goals and

82   aspirations associated with group membership); and (3) Realize (i.e., develop strategies to

83   achieve group goals and aspirations) to develop a shared sense of collective identity based on

84   shared identity content.

85   **Limitations and future research directions**

86   We combined scenario-based (phase one) and experimental designs (phase two),

87   yielding high internal validity. As well as this, the task in phase two mimicked a competitive

88   scenario that requires a decision on how best to score points, enhancing likeness to a real-

89   world scenario. That said, even with following Aguinis and Bradley's (2014)

90   recommendations, some external validity is reduced. As such, there is scope to examine how

91   shared identity content influences intentional mobilization, resource appraisals and

92   physiological reactivity to competitive scenarios within competing sports teams. It is also

93   worth noting that a) the leader was female (i.e., Jayne), and b) the faces of the leader and

94   team was not shown. Perceptions of a leader can be influenced by their gender (Crites et al.,

95   2015). In minimizing this influence, improving the validity of the current findings, the leader

96   and team was presented using an audio, avoiding implicit biases and perceptions of both

97   (Willis & Todorov, 2006). Lastly, whilst the pre-screening questionnaire at phase one

98   informed condition at least a 7 days later, the individuals could not value both results and

99   enjoyment identity content. Simply, identity contents may not be mutually exclusive.

100   Though, the current study aimed to emphasise preference and commonality (and intentionally

101   reduce it), which the present study did (as the manipulation checks identified).

102   **Conclusion**

103   This programme of research aimed to identify whether and to what extent shared

104   social identity content between leader and follower influenced followers' intentional

105   mobilization, psychophysiological stress reactivity and motor performance in a two-phase

106   experiment. Broadly, we found that a salient shared social identity between leader and

107   follower increases intentional mobilization and psychological appraisals of imminent

108   competitive events. Those in a position to influence would be followers should aim to create

109   a shared team identity based on shared identity contents, in turn positively influencing

110   followers' intentional mobilization, self-efficacy and perceived control when approaching a

111   competitive event. In sum, leaders should be aware of the utility in shared beliefs about what

112   it means to be a group member in mobilizing a group towards a vision.

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260 **Supplementary File**

261 *Phase one: Vignette conditions*

262 Shared results [LR/GR]

263 You are part of a sports team where you feel a great sense of belonging. Your team has a strong connection and
264 bond with your coach. Your team and the coach feel that results are of most importance. Your team has a match
265 in the next hour and your coach has asked you to deliver the team talk. Because your coach values results, they
266 want you to talk about the team's strategy in order to win the match.

267 Shared friendship [LF/GF]

268 You are part of a sports team where you feel a great sense of belonging. Your team has a strong connection and
269 bond with your coach. Your team and the coach feel that friendships within the team are of most importance.
270 Your team has a match in the next hour and your coach has asked you to deliver the team talk. Because your
271 coach values friendships, they want you to talk about remaining united during the match with no falling outs.

272 Non-shared results [LR/GF]

273 You are part of a sports team where you feel a great sense of belonging. Your team has a strong connection and
274 bond with your coach. Your coach feels that results are of most importance; however, what your team value the
275 most are the friendships within the team. Your team has a match in the next hour and your coach has asked you
276 to deliver the team talk. Because your coach values results, they want you to talk about the team's strategy in
277 order to win the match.

278 Non-shared friendship [LF/GR]

279 You are part of a sports team where you feel a great sense of belonging. Your team has a strong connection and
280 bond with your coach. Your coach feels that friendships are of most importance; however, what your team value
281 the most are the team's results. Your team has a match in the next hour and your coach has asked you to deliver
282 the team talk. Because your coach values friendships, they want you to talk about remaining united during the
283 match with no falling outs.

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292 *Example Vignette Phase one*

293

294 Name: _____

295 Date of birth (dd/mm/yy): _____ Sex (M/F/Other): _____ Age: _____

296 Do you currently compete in sport (please circle): Yes / No

297 If so, what sport do you play? _____

298 At what level do you play (please circle): Experience: Recreational / Regional / National / International

299

300 **Please read the following excerpt and complete the questionnaires overleaf based on said text**

301 You are part of a sports team where you feel a great sense of belonging. Your team has a strong

302 connection and bond with your coach. Your team and the coach feel that friendships within the team

303 are of most importance. Your team has a match in the next hour and your coach has asked you to

304 deliver the team talk. Because your coach values friendships, they want you to talk about remaining

305 united during the match with no falling outs.

306

307 **Instructions:** The following questions refer to the *coach* and *your team*. Please circle your response to each
308 item from 1 (not at all) to 7 (very true):

1. I am strongly motivated to deliver this speech for the coach	1	2	3	4	5	6	7
2. The team talk on friendships will be very effective	1	2	3	4	5	6	7
3. I will exert very high levels of effort for the team talk	1	2	3	4	5	6	7
4. I want to deliver an excellent team talk to impress the coach	1	2	3	4	5	6	7
5. I am passionate and enthusiastic about the team talk	1	2	3	4	5	6	7
6. I feel a strong connection with my team	1	2	3	4	5	6	7
7. I identify strongly with my team	1	2	3	4	5	6	7
8. I feel no connection with my team	1	2	3	4	5	6	7
9. The most important thing to me is the friendships within my team	1	2	3	4	5	6	7
10. The most important thing to me is the results of my team	1	2	3	4	5	6	7
11. The most important thing to the coach is the friendships within the team	1	2	3	4	5	6	7
12. The most important thing to the coach is the results of the team	1	2	3	4	5	6	7

309

310

311 Were you able to imagine yourself in the situation within the excerpt? (please circle)

312 Not at all   Somewhat   Completely

313

314

315

316   *Pre-screening questionnaire informing phase two condition*

317

318   Name: _____

319   Date of birth (dd/mm/yy): _____ Sex (M/F/Other): _____ Age: _____

320   Do you currently compete in sport (please circle): Yes / No

321   If so, what sport do you play? _____

322   At what level do you play (please circle): Experience: Recreational / Regional / National / International

323

324   The following question asks about your **TRUE** preference when you are competing. Please answer
325   the below as honestly as you can.

326   **Imagine yourself within a sports team, what would your preference be towards**? Please **CIRCLE**

327   (-5 is a strong preference for enjoyment, 5 is a strong preference for results)

328   **Note: You cannot circle 0**

329   **Enjoyment**   **Results**

330 |---|---|

        -5   -4   -3   -2   -1   0   1   2   3   4   5

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346   *Phase two experiment conditions*

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348   LR/GR: Hello. My name is Jayne. I will be your leader for this task, and you are in my team. I am
349   also a member of Staffordshire University. I also know that we both believe that winning is of most
350   importance. As a team, we will be taking part in the following task. Facing the targets in front of you,
351   you must throw the ring onto the targets 10 times. The further away the target, the higher you will
352   score. The maximum you can score is 100 points. The task will be video recorded and will be done in-
353   front of the researcher. Our team's score on the task, along with other team's scores, will generate a
354   league table from best teams to the worst teams. This will be emailed to all participants at the
355   conclusion of the study. Because everyone will see your score it is important for you to do well in this
356   difficult throwing task. Like I said, I know we both believe that results matter, so let's go for a good
357   score. Please wait for further instructions.

358   LE/GE: Hello. My name is Jayne. I will be your leader for this task, and you are in my team. I am also
359   a member of Staffordshire University. I also know that we both believe that enjoyment is of most
360   importance. As a team, we will be taking part in the following task. Facing the targets in front of you,
361   you must throw the ring onto the targets 10 times. The further away the target, the higher you will
362   score. The maximum you can score is 100 points. The task will be video recorded and will be done in-
363   front of the researcher. Our team's score on the task, along with other team's scores, will generate a
364   league table from best teams to the worst teams. This will be emailed to all participants at the
365   conclusion of the study. Because everyone will see your score it is important for you to do well in this
366   difficult throwing task. Like I said, I know we both believe that it is enjoyment that matters, so the
367   main thing is to enjoy yourself. Please wait for further instructions.

368   LE/GR: Hello. My name is Jayne. I will be your leader for this task, and you are in my team. I am
369   also a member of Staffordshire University. However, I know that you believe that winning is of most
370   importance. I believe it's about enjoyment, and nothing to do with the end result. As a team, we will
371   be taking part in the following task. Facing the targets in front of you, you must throw the ring onto
372   the targets 10 times. The further away the target, the higher you will score. The maximum you can
373   score is 100 points. The task will be video recorded and will be done in-front of the researcher. Our
374   team's score on the task, along with other team's scores, will generate a league table from best teams
375   to the worst teams. This will be emailed to all participants at the conclusion of the study. Because
376   everyone will see your score it is important for you to do well in this difficult throwing task.
377   However, like I said, I do not agree that winning is what matters, I believe it's about enjoying it.
378   Please wait for further instructions.

379   LR/GE: Hello. My name is Jayne. I will be your leader for this task, and you are in my team. I am
380   also a member of Staffordshire University. However, I know that you believe that enjoyment is of
381   most importance. I believe it's about winning, and nothing to do with enjoyment. As a team, we will
382   be taking part in the following task. Facing the targets in front of you, you must throw the ring onto
383   the targets 10 times. The further away the target, the higher you will score. The maximum you can
384   score is 100 points. The task will be video recorded and will be done in-front of the researcher. Our
385   team's score on the task, along with other team's scores, will generate a league table from best teams
386   to the worst teams. This will be emailed to all participants at the conclusion of the study. Because
387   everyone will see your score it is important for you to do well in this difficult throwing task.
388   However, like I said, I do not agree that enjoyment is what matters, it's about winning at all costs.
389   Please wait for further instructions.

390

391

392   *Breakdown of procedure from phase one to phase two*

393   *Phase one, in order*

394   • Informed consent for phase one, and phase two (consent provided separately).
395   • Read a hypothetical scenario (one of four conditions)
396   • Completion of self-report measures based on the hypothetical scenario.
397   • Completion of an unrelated, pre-screening questionnaire that informed condition in phase two

398   *Phase two, in order*

399   • Participant connected to Finometer Pro
400   • Practice performance phase of 40 throws, seated 1 metre away from the first pole
401   • Baseline performance phase of 10 throws, seated 1 metre away from the first pole, calling
402   where they were aiming for each throw
403   • Seated upright for 2 minutes, remaining as still as possible, keeping their arm rested on a
404   support set at heart level, keeping their feet at a ninety-degree angle facing forward.
405   • 5-minute relaxation script via headphones
406   • Participation in one of four conditions
407   • CV responses were recorded for a further 2 minutes post condition.
408   • Directly after the 2 minutes, participants completed self-report measures.
409   • Final performance phase of 10 throws, seated 1 metre away from the first pole, calling where
410   they were aiming for each throw
411   • Participants debriefed on the deceptive nature of the ego-threatening instructions (i.e., no
412   comparison of scores with others).

413