1

2

3

4

5   Attributional Consensus: The Importance of Agreement over Causes for Team Performance to

6   Interpersonal Outcomes and Performance

7

8   Ross M. Murray[1]

9   Pete Coffee[1]

10   Robert C. Eklund[2]

11   Calum A. Arthur[3]

12

13   [1]University of Stirling,

14   [2]Florida State University,

15   [3]UK Sport

16

17   Corresponding author:

18   Ross Murray, PhD,

19   University of Stirling,

20   FK9 4LA

21   T: +44 7522 727369

22   E: rmm6@stir.ac.uk

23

24   Abstract

25 *Objectives:* Investigate (a) the effects of attributional consensus on interpersonal outcomes and

26 performance, (b) the effects of attribution type (i.e., adaptive/maladaptive) on performance, and

27 (c) the interactive effects between attributional consensus and attribution type on performance.

28 *Design:* Across two studies (i.e., vignette and behavioural experiments), independent samples t-

29 tests were used to examine the main effects of attributional consensus on interpersonal outcomes.

30 A 2 (attributional consensus: high, low) x 2 (attribution type: adaptive, maladaptive) x 2 (time:

31 pre, post) ANOVA with repeated measures on the last factor was used to analyse the main and

32 interaction effects of attributional consensus and attribution type on performance.

33 *Method:* In Study 1, participants ($N = 100$) read a vignette describing a hypothetical situation in

34 which they and their partner agreed or disagreed over an adaptive or maladaptive attribution.

35 They then completed measures of conflict and cohesion. In Study 2, participants ($N = 56$)

36 completed an experiment in which they performed a dart throwing task with a partner (a

37 confederate) and were subsequently told they failed the task. After selecting an adaptive or

38 maladaptive attribution, the confederate then agreed or disagreed with the participant. Measures

39 of conflict, cohesion, social identity, and performance were then taken.

40 *Results:* High attributional consensus led to lower levels of conflict and higher levels of cohesion

41 and social identity. Further, regardless of attribution type, high attributional consensus led to

42 better performance.

43 *Conclusion:* Overall the results provide evidence for the positive effects of high attributional

44 consensus on interpersonal and performance outcomes.

45   *Keywords*: Team-referent attributions, Disagree, Adaptive, Maladaptive

46   Attributional Consensus: The Importance of Agreement over Causes for Team Performance to

47   Interpersonal Outcomes and Performance

48   Team-referent attributions are individual team members' explanations for why

49   team/group outcomes occurred (Allen, Coffee, & Greenlees, 2012). Researchers studying

50   attributions have observed associations between team-referent attributions and sport outcomes

51   (Allen, Jones, & Sheffield, 2009; Coffee, Greenlees, & Allen, 2015; Dithurbide, Sullivan, &

52   Chow, 2009). Specifically, through experimental designs, researchers have observed the causal

53   effects of attributions on cognitive, affective, and behavioural outcomes (Le Foll, Rascle, &

54   Higgins, 2008; Rascle et al., 2015; Rees et al., 2013) and these effects are believed to be

55   generalizable at the team level (Allen et al., 2012). However, within a team setting, the presence

56   of teammates' attributions might impact these relationships. In accordance with attribution

57   theory (Kelley, 1967), this might be because individuals seek consensus information during the

58   attribution process. That is, by seeking consensus information, people aim to comprehend others'

59   attributions to understand if they explained the same outcome in the same way. Therefore, while

60   attribution studies have provided a good understanding of the effects of attributions, researchers

61   have not accounted for the influence that teammates can have on the attribution process. The

62   current study was designed to examine the effect of teammates agreeing or disagreeing over

63   team-referent attributions (i.e., attributional consensus) on the attribution process. Attributional

64   consensus between teammates likely lies on a continuum between complete agreement to

65   complete disagreement; this study was designed to examine the interpersonal and behavioural

66   consequences of teammates diverging along this continuum and finding themselves at opposite

67   ends of this attributional consensus spectrum.

68   **Attributional Consensus**

69   Individuals working collectively to achieve a common goal, as is the case in sport teams,

70   are likely to agree and disagree on issues pertinent to collective performances (Jehn & Mannix,

71   2001). According to the actor-observer bias/asymmetry, actors (individuals) have a propensity to

72   attribute their own behaviour to situational characteristics, while observers (others) tend to

73   explain the same behaviour through an actor's personal disposition (Jones & Nisbett, 1971). The

74   concept underpinning this is that attributions are a product of personal perspectives, and these

75   perspectives can vary between individuals. For example, an athlete might believe his team lost

76   due to a poor effort, while a teammate could believe the same loss was due to a lack of ability.

77   These diverging perspectives exemplify how individuals within a team may derive different

78   causes to explain a collective performance (i.e., low attributional consensus). Consequently,

79   disagreement is an inevitable part of group involvement.

80   Low attributional consensus between group members can lead to negative outcomes such

81   as intra-group conflict (Mitchell, 2018). Although disagreement and conflict may often be

82   perceived as synonymous with one other, researchers in social and sport psychology suggest that

83   disagreement between team members is a precursor to intra-team conflict (Barki & Hartwick,

84   2004; Paradis, Carron, & Martin, 2014). Among sport teams, disagreement that leads to conflict

85   is generally perceived to be negative, as conflict is often associated with negative group

86   outcomes such as experiences of negative emotions and disruption of collective goals (Barki &

87   Hartwick, 2004). Disagreement between team members, however, can also be perceived as a

88   healthy and a potentially important aspect of team dynamics (Goncalo & Duguid, 2008). Thus,

89   the extent to which disagreement in the form of low attributional consensus causes conflict

90   among teammates warrants examination.

91   On the other hand, agreement between team members during the attribution process (i.e.,

92   high attributional consensus) may facilitate positive intra-group effects. For example, in coach-

93   athlete dyads, those who tend to agree more often report greater feelings of trust and friendship

94   with one another (Jackson, Dimmock, Gucciardi, & Grove, 2011), and these relationships are

95   indicative of cohesive teams (Mach, Dolan, & Tzafrir, 2010). Researchers have demonstrated a

96   positive association between agreement within teams and perceived cohesion (Carron et al.,

97   2003). Thus, team members who believe their team is cohesive, may perceive this cohesion to be

98   a product of agreement over important team processes such as team-referent attributions. This

99   relationship is akin to the process of consensualisation regarding social identity. The process of

100 consensualisation can occur when individuals who agree with one another are more likely to feel

101 a stronger sense of shared identity (Postmes, Haslam, & Swaab, 2005). That is, the process of

102 agreement facilitates a stronger sense of attachment to the group among individuals, and in turn

103 they define themselves from their connection with their group (Tajfel, 1982). In short,

104 individuals tend to feel more cohesive and share a social identity with others who agree with

105 them.

106   This is likely a reciprocal relationship as social identity often influences the decision-

107 making process within teams (Postmes et al., 2005). Therefore, the effect of agreement or

108 disagreement over attributions on social identity and cohesion is difficult to empirically examine

109 as agreement is likely influenced by existing levels of social identity and cohesion. As a starting

110 point, the current research is designed to examine these relationships in newly formed groups,

111 thereby, restricting the possibility of existing levels of social identity and cohesion impacting the

112 effect of attributional consensus on outcomes.

113 **Attribution Dimensions**

114   Traditionally, attributions are examined at the dimensional level (Rees, Ingledew, &

115   Hardy, 2005; Weiner, 1985). This means, when measuring attributions, the way in which

116   individuals appraise their attributions is of importance. For example, an individual who attributes

117   an unsuccessful performance to a lack of ability may believe this cause is something that is

118   uncontrollable and unlikely to change in the future (stable). However, this same attribution could

119   also be believed to be something that can be controlled through practice, and therefore can

120   change in the future (unstable). Through this dimensional structure, Rees and colleagues theorize

121   that attributions can be assessed on perceptions of controllability (the extent to which a cause is

122   perceived as controllable or uncontrollable), stability (the extent to which a cause is perceived as

123   stable or variable over time), globality (the extent to which a cause is perceived to affect a wide

124   or narrow range of situations), and universality (the extent to which a cause is perceived as

125   common or unique to all people/teams).

126   Generally, athletes who attribute an unsuccessful performance to causes that are

127   controllable and likely to change in the future are said to have adaptive attributions (controllable

128   and unstable), while those who attribute an unsuccessful performance to causes that are

129   uncontrollable and unlikely to change in the future are said to have maladaptive attributions

130   (Rees et al., 2005). The type of attribution (i.e., adaptive or maladaptive) an individual adopts is

131   believed to impact important sport outcomes (Rees et al., 2005). Those who adopt, when

132   possible, adaptive attributions are more likely to persist in a challenging task (Le Foll et al.,

133   2008; Rascle et al., 2015), be more confident (Coffee et al., 2015; Coffee & Rees, 2009), and

134   ultimately perform better in a subsequent sport performance task (Rees et al., 2013). However,

135   minimal research exists that has examined the influence teammates have on these attribution-

136   outcome relationships.

137   **Attributional Consensus and Performance**

138   Teammates may have a strong influence on the attributional process. For example, in

139   work groups, disagreement between teammates impaired group performance (van Woerkom &

140   Sanders, 2010), which in turn had deleterious effects on individual performance. In terms of

141   attributions in sport, the effects of disagreement with teammates may be dependent on the

142   content of the athlete's attribution. For example, confirmation bias suggests that individuals will

143   seek out information that supports their existing belief (Jonas, Schulz-Hardt, Frey, & Thelen,

144   2001). Therefore, a teammate agreeing with an adaptive or maladaptive attribution should

145   reaffirm an individual's belief, increasing or decreasing performance respectively.

Current Studies

147   Within this paper, two studies are detailed that were designed to examine the effect of

148   attributional consensus between teammates. To do this, an approach similar to that of previous

149   attribution studies (Le Foll et al., 2008; Rascle et al., 2015) was adopted, in that attributions after

150   failure were analysed on a spectrum from adaptive (i.e., controllable and unstable) to

151   maladaptive (i.e., uncontrollable and stable). High attributional consensus was operationalised as

152   convergence on one end of the spectrum (i.e., adaptive-adaptive, maladaptive-maladaptive) while

153   low attributional consensus was operationalised as a divergence toward opposite ends of the

154   spectrum (i.e., adaptive-maladaptive, maladaptive-adaptive). This approach was adopted to

155   explore if high or low attributional consensus influenced perceptions of interpersonal outcomes

156   and objective performance.

157   Although an attribution dimensional approach was adopted, unlike previous attribution

158   experiments (Le Foll et al., 2008; Rascle et al., 2015), the main purpose of these studies was to

159   explore the effects of attributional consensus on interpersonal outcomes. As such, whether

160   participants adopted an adaptive or maladaptive attribution was not expected to impact the

161   interpersonal relationship with their teammate. In other words, adaptive and maladaptive

162   attributions were used as a mechanism to facilitate unambiguous agreement or disagreement

163   between the participant and the confederate. Therefore, no specific hypotheses regarding the

164   effect of adaptive and maladaptive attributions on interpersonal outcomes were tested. However,

165   because researchers have demonstrated the effect of adaptive/maladaptive attributions on

166   subsequent performance (Rees et al., 2013), the effect of these conditions on performance were

167   tested.

168   Dyadic teams were used to investigate the effect of attributional consensus and attribution

169   type on interpersonal outcomes and performance. Moreland (2010) argues that individuals'

170   experiences in dyads are conceptually different from individuals' experiences in groups. This is

171   to some extent true, yet Williams (2010) argues that, in most cases, dyads are groups as they

172   share the same principles and processes of larger groups. Within the current studies, dyads were

173   considered to be groups as, consistent with William's argument, the dyads engaged in behaviours

174   and processes that paralleled that of larger groups. That is, dyads worked to achieve a collective

175   outcome.

176   In Study 1 a vignette design was used to explore the possible effects of attributional

177   consensus on relational outcomes of conflict and cohesion. Specifically, it was predicted that

178   those in the low attributional consensus condition would report more conflict and less cohesion

179   than those in the high attributional consensus condition (Hypothesis 1a).

180   **Study 1**

181   **Method**

182   **Participants and design.** Based on Coffee, Rees, and Haslam (2009), who used a

183   vignette study to analyse the effects of attributions, a moderate effect size was used to calculate

184   power. Power calculations revealed a 95% chance of detecting a moderate effect $d = .65$, with a

185   sample of 104 individuals.

186   After three individuals were removed for failing the screening questions, a final online

187   sample of 56 men and 44 women tennis players was used ($N = 100$, $M_{age} = 21.56$, $SD = 5.12$).

188   Tennis players were sampled as tennis is often played in a doubles format. The study adopted a 2

189   (attributional consensus: low, high) x 2 (attribution type: adaptive, maladaptive) factor design.

190   Participants were recruited through tennis clubs' web pages. To ensure participants played tennis

191   and they could fully and vividly imagine the situation after exposure to the vignette, they were

192   asked two screening questions: 1) "At what level do you play tennis?" and 2) "How well were

193   you able to imagine the scenario?" As previously mentioned, three individuals failed the

194   screening questions by answering not at all for either one or both questions and were

195   subsequently removed from the analysis. The remaining 100 individuals (25 per condition)

196   competed at various levels (recreational: $n = 21$, club: $n = 56$, national: $n = 19$, international: $n = $

197   4) and could moderately ($n = 70$) or vividly ($n = 30$) imagine the scenario.

198   **Procedure.** Approval for the study was granted through a university's research ethics

199   board. Those agreeing to participate in the study clicked a link taking them to an informed

200   consent page. Once participants provided consent, they were asked to complete brief

201   demographic items assessing participants' gender and age. They then read the following

202   vignette:

203   You are competing in a tennis doubles competition with a partner of similar ability

204   who you have never met. In this competition, you and your partner (the team)

205   perform very poorly and fail.

206   Half of participants then read a situation in which they and their partner disagreed on an adaptive

207   [or maladaptive] attribution.

208   You think the main reason the team failed is due to a poor strategy [the difficulty of

209   the task]. This is something that the team can[not] control and something that does

210   [not] change over time. However, your partner disagrees with you and thinks the

211   main reason the team failed is due to the difficulty of the task [a poor strategy]. This

212   is something that the team cannot [can] control and something that does not [does]

213   change over time.

214   The other half of participants read a situation in which they and their partner agreed on an

215   adaptive [or maladaptive] attribution.

216   You and your partner agree that the main reason the team failed is due to a poor

217   strategy [the difficulty of the task]. This is something that the team can[not] control

218   and something that does [not] change over time.

219   Participants then completed items measuring perceptions of conflict and cohesion.

220   **Measures.** Single item measures were used to assess perceptions of conflict and

221   cohesion. Due to the exploratory nature of this vignette study, and the use of single item

222   measures in previous social psychology studies (Postmes, Haslam, & Jans, 2013), these items

223   were deemed to be appropriate. Participants were asked to rate the extent they believed they and

224   their partner would likely experience conflict and cohesion. These were rated on a scale from 1

225   (*not at all*) to 5 (*completely*).

226   **Results**

227   Independent samples *t*-tests were used to analyse how agreeing (i.e., high consensus) or

228   disagreeing (i.e., low consensus) on attributions affected perceptions of conflict and cohesion.

229   There were no obvious violations of assumptions as dependent variables appeared normally

230   distributed and Levene's test for equality of variances was not significant, $ps > .38$.

231   **Conflict.** Those in the low attributional consensus condition reported significantly greater

232   levels of conflict, $M = 2.92$, $SD = 1.01$, compared to those in the high attributional consensus

233   condition, $M = 2.38$, $SD = .83$, $t_{98} = 2.93$, $p = .004$, $d = .59$.

234   **Cohesion.** Those in the low attributional consensus condition reported significantly lower

235   levels of cohesion, $M = 2.70$, $SD = .95$, compared to those in the high attributional consensus

236   condition, $M = 3.12$, $SD = .94$, $t_{98} = 2.22$, $p = .029$, $d = .45$.

237   **Study 1 Discussion**

238   These results provide initial support for the effects of attributional consensus on

239   interpersonal outcomes. Specifically, these results are consistent with previous research (e.g.,

240   Barki & Hartwick, 2004; Pescosolido & Saavedra, 2012) as disagreement appears to be

241   associated with interpersonal conflict and agreement appears to be associated with perceptions of

242   cohesion. However, the generalisability of the results are limited. First, the study only targeted

243   tennis players. This may raise questions regarding the effects of attributional consensus in other

244   settings. Second, the study examined how participants' perceptions of interpersonal outcomes are

245   influenced by a hypothetical situation. Such a design does not provide a good setting to examine

246   behavioural outcomes like performance or outcomes that emerge through behavioural interaction

247   like social identity. Therefore, the purpose of Study 2 was two-fold. First, Study 2 was designed

248   to replicate the effects found in Study 1 through a controlled behavioural experiment. Second,

249   Study 2 was designed to build on Study 1 by examining the main effects of attributional

250   consensus on social identity, as well as the main and interactive effects of attributional consensus

251   and attribution type on objective performance.

252   In Study 2 it was predicted that those in the low attributional consensus condition would

253   report weaker social identity and perform worse compared to those in the high attributional

254   consensus condition (Hypothesis 1b). Further, it was predicted that participants who adopted an

255   adaptive attribution would perform better compared to those who adopted a maladaptive

256   attribution (Hypothesis 2). Finally, an interaction effect between adaptive/maladaptive

257   attributions and attributional consensus was predicted (Hypothesis 3). Specifically, it was

258   predicted that participants would perform better when their teammate agreed with their adaptive

259   attribution compared to when their teammate agreed with their maladaptive attribution or

260   disagreed with their adaptive or maladaptive attribution.

261   **Study 2**

262   **Method**

263   **Participants.** Rascle et al. (2015) and Rees et al. (2013) observed large effect sizes when

264   examining the effects of attributions on behaviour. Power calculations revealed that to detect a

265   large effect size ($\eta_p^2 = .30$), a sample of 52 individuals was needed. Two participants did not

266   complete the study as they failed a manipulation check. This left a final sample of 24 men and 32

267   women who were students at a university in the UK ($N = 56$, $M_{age} = 23.86$, $SD = 6.42$). On a

268   scale from 1 (*no experience*) to 10 (*a lot of experience*) participants reported little dart throwing

269   experience ($M = 2.62$, $SD = 1.91$).

270   **Materials.** A regulation size dart board was mounted 1.73 meters from the bull's-eye to

271   the ground (the regulation dart throwing height) and participants threw from 2.37 meters (the

272   regulation dart throwing distance). This distance was marked out by a line on the floor. These

273   materials and distances are consistent with the materials and distances used in Rascle et al.

274   (2015). During each performance, a visual shield was in place to ensure the non-performer was

275   not able to see their teammate's score.

276   **Measures.**

277   ***Conflict and cohesion.*** The measures of conflict and cohesion used in Study 1 were also

278   used in Study 2.

279   ***Social identity.*** To examine the effect of attributional consensus on social identity,

280   participants completed the Single Item Social Identity Scale (SISI) (Postmes et al., 2013). The

281   SISI asks participants to report the extent to which they agree with the statement "I identify with

282   [target group]" on a 7-point scale ranging from 1 (*completely disagree*) to 7 (*completely agree*).

283   In this study, "target group" was replaced with "my team".

284   ***Performance.*** To measure performance, participants completed two rounds of a dart

285   throwing task (pre-manipulation and post-manipulation). The dart board was divided into 10

286   sections in concentric circles ranging from 1 (around the outside) to 10 (bull's-eye), with higher

287   scores corresponding to a better performance. Each round participants threw six darts. Higher

288   scores corresponded with those who threw their darts closer to the middle of the dartboard.

289   Participants who missed the dartboard completely were given a score of zero for that throw.

290   ***Manipulation checks.*** To ensure participants perceived their performance as a failure and

291   understood the manipulation, they were asked to circle a) whether their performance was "rather

292   like a success" or "rather like a failure" and b) which paragraph they selected and which

293   paragraph their teammate (the confederate) selected. After the experiment participants were

294   asked whether they were aware of the true purpose of the study.

295   **Procedure.** Ethical approval for the study was granted by a university's research ethics

296   board. A participant and the confederate entered the laboratory and were provided details

297   regarding the nature of the study. They then completed an informed consent form and were

298   notified that they would be completing a dart throwing task together as part of a team. They were

299   given a collective target score of 90 with 12 darts and were informed that they would each throw

300   six darts[1]. Once the participant and confederate indicated they understood the task, the researcher

301   informed them that the participant would perform first. The researcher then instructed the

302   confederate to stand behind a visual shield so the teammate's performance was visible but the

303   score (dartboard) was not visible. After the participant threw six darts and the scores were

304   recorded and the darts removed, the participant and confederate switched positions and the

305   confederate threw six darts. Subsequently, the researcher informed them that, as a team, they did

306   not reach the target score of 90 and thus had failed the task.

307   Participants were then asked to read two paragraphs describing (1) an adaptive attribution

308   and (2) a maladaptive attribution (e.g., Rascle et al., 2015) and asked to circle the paragraph they

309   believed best described the causes of their team performance. The researcher then prompted

310   participants to verbally state which attribution they selected. This self-selection procedure was

311   reinforced as the researcher reminded them that they chose an attribution that was

312   [un]controllable and [un]likely to change. To manipulate attributional consensus, when asked,

313   the confederate verbally agreed and stated the selection of the same attribution (high attributional

314   consensus, $n = 26$), or disagreed and stated the selection of the other attribution (low attributional

315   consensus, $n = 26$). To help ensure equal group sizes, a quasi-random allocation method was

316   used as participants were assigned to either the low attributional consensus condition or high

317   attributional consensus condition by the researcher before the trial. Following the attributional

318   consensus manipulation, participants were asked to complete the manipulation check and

319   measures of conflict, cohesion, and social identity. They then completed the task for a second

320   and final time. After the second and final performance, participants were informed that the study

---

[1] Pilot testing indicated that, given the option of an adaptive or maladaptive attribution, around half of participants would circle an adaptive attribution after failing to reach a target score of 90.

321 was complete and were fully debriefed.

322 **Analyses.** Akin to Study 1, the effects of attributional consensus on conflict, cohesion,

323 and social identity were analysed using *t*-tests. To analyse the main and interactive effects of

324 attribution type and attribution consensus on performance, a 2 (attribution type: adaptive,

325 maladaptive) x 2 (attribution consensus: high, low) x 2 (time: pre, post) ANOVA with repeated

326 measures on the last factor was used.

327 **Results**

328 Descriptive statistics and bivariate correlations for Study 2 variables are detailed in Table

329 1. A visual inspection revealed no violations of normality for the cohesion, social identity or

330 performance variables; however, a positive skew indicating floor effects for the conflict variable

331 was observed. Parametric tests were applied as researchers have demonstrated the robustness of

332 independent samples t-tests using small sample sizes with floor effects (Sullivan & Agostino,

333 1992). Equal variances were assumed for social identity but not assumed for conflict and

334 cohesion; therefore, the Satterthwaite (1946) adjustment was applied for analyses on conflict and

335 cohesion. For the performance variables, there were no significant differences in error variances

336 across groups, ps > .54.

337 **Manipulation checks.** Two participants circled "rather like a success" and were

338 subsequently removed from the study. All 56 participants who completed the study correctly

339 identified the attribution they selected and the attribution the confederate selected. Further, no

340 participants indicated they were aware of the true purpose of the study.

341 **Demographic variables.**

342 *Age and experience*. A 2 (attribution type: adaptive, maladaptive) x 2 (attribution

343 consensus: high, low) ANOVA revealed no significant differences in age or experience between

344 attribution type conditions and attributional consensus conditions ($ps > .37$).

345   *Gender.* *T*-tests indicated that men, $M = 3.12$, $SD = .80$, reported higher levels of

346 cohesion than women, $M = 2.56$, $SD = 1.01$, $t_{54} = 2.32$, $p = .024$. There were no gender

347 differences for conflict and social identity. Further, a 2 (gender: men, women) x 2 (time: pre,

348 post) ANOVA with repeated measures on the last factor revealed no main or interaction effects

349 for gender ($ps > .14$).

350   **Conflict.** Akin to Study 1, there was a significant effect of attributional consensus on

351 perceptions of conflict. Generally, participants reported higher levels of conflict when their

352 teammate (the confederate) disagreed and selected the other attribution, $M = 1.89$, $SD = .99$,

353 compared to conditions in which the confederate agreed with the participant, $M = 1.28$, $SD = .53$,

354 $t_{54} = 2.85$, $p = .007$, $d = .88$.

355   **Cohesion.** There was also a significant effect of attributional consensus on perceptions of

356 cohesion. Participants in conditions of high attributional consensus, in general, reported more

357 cohesion, $M = 3.07$, $SD = .57$, than participants in conditions of low attributional consensus, $M =$

358 2.54, $SD = .54$, $t_{54} = 2.15$, $p = .038$, $d = .69$.

359   **Social identity.** A significant effect of attributional consensus on social identity was also

360 observed. Participants in high attributional consensus conditions generally reported higher levels

361 of social identity, $M = 4.37$, $SD = .1.34$, compared to those in low attributional consensus

362 conditions, $M = 3.43$, $SD = 1.10$, $t_{54} = 2.83$, $p = .006$, $d = .77$.

363   **Performance.** A 2 (attribution type: adaptive, maladaptive) x 2 (attribution consensus:

364 high, low) ANOVA revealed no significant differences in pre-manipulation scores between

365 conditions ($ps > .35$). A 2 (attribution type: adaptive, maladaptive) x 2 (attribution consensus:

366 high, low) x 2 (time: pre, post) ANOVA with repeated measures on the last factor revealed an

367 interaction between attribution consensus and time, $F_{1, 52} = 4.49$, $p = .039$, $\eta_p^2 = .08$. Compared

368 to pre-manipulation baselines, participants in high attributional consensus conditions performed

369 significantly better post-manipulation ($p = .018$). There was no evidence of an effect between

370 attribution type and time on performance, $F_{1, 52} = .30$, $p = .58$, $\eta_p^2 = .01$ and there was no

371 interaction effect between attribution type and attributional consensus across time, $F_{1, 52} = .13$, p

372 $= .72$, $\eta_p^2 = .003$.

Study 2 Discussion

374 Evidence supporting the effect of attributional consensus on conflict and cohesion in real

375 groups was observed in Study 2. Generally, when the confederate disagreed rather than agreed

376 with participants' attributions, participants reported more conflict, less cohesion, and lower

377 levels social identity with the confederate. Finally, consistent with previous findings (De Dreu &

378 Weingart, 2003), the effect of agreement between the confederate and participants appeared

379 associated with improved participant performance. Importantly, this finding was observed

380 regardless of adaptive or maladaptive attributions.

General Discussion

382 These studies were designed to test if attributional consensus (i.e., high or low consensus)

383 affects interpersonal outcomes and performance (Hypotheses 1a and b), if attribution type (i.e.,

384 adaptive or maladaptive) affects performance (Hypothesis 2), and if attribution type and

385 attributional consensus interact to affect performance (Hypothesis 3). Across the two studies and

386 in line with Hypotheses 1a and 1b, high attributional consensus between teammates generally led

387 to perceptions of less conflict, more cohesion, stronger social identity, and better performance

388 compared to low attributional consensus between teammates. Hypotheses 2 and 3 were not

389 supported as, contrary to previous attribution studies, attribution type did not affect performance,

390   and there was no interaction between attributional consensus and attribution type. Instead,

391   evidence that attributional consensus between teammates might influence performance was

392   observed. In other words, agreement over the cause of an unsuccessful performance appeared

393   more influential to subsequent performance than the content of the attribution. Overall, the

394   results provide evidence for the effects of attributional consensus on interpersonal outcomes and

395   performance.

396   Attributional consensus appeared to influence interpersonal outcomes, including conflict,

397   cohesion, and social identity. Those in the low, compared to the high, attributional consensus

398   condition reported greater conflict. While some individuals and teams may handle conflict well,

399   in general, experiences of conflict are often accompanied with experiences of negative emotions

400   and perceived disruption of future goals (Barki & Hartwick, 2004). Similarly, compared to high

401   attributional consensus, those who experienced low attributional consensus reported lower levels

402   of cohesion. Cohesion among team members is known to be beneficial at the team and individual

403   level (Carron, Colman, Wheeler, & Stevens, 2002). Thus, generally, the results from these

404   studies indicate that attributional consensus might be an antecedent to important group dynamics

405   that can influence team functioning.

406   Those in the high attributional consensus condition also typically reported stronger

407   perceptions of social identity compared to those in the low attributional consensus condition.

408   Because participants had no prior relationship with the confederate, the process of agreeing on

409   attributions may have contributed to the development of social identity (Swaab, Postmes,

410   Neijens, Kiers, & Dumay, 2002). In other words, through the interaction between the group

411   members (the attributional consensus manipulation), participants' agreement or disagreement

412   with the confederate could have influenced levels of shared social identity. This can be explained

413   through the process of consensualisation (Postmes et al., 2005). According to Postmes and

414   colleagues, consensualisation occurs when agreement with group members builds social identity.

415   This might explain why participants reported higher levels of social identity when the

416   confederate agreed with them, compared to when the confederate disagreed with them.

417   A particularly novel finding is that, when it comes to performance, it appears that

418   agreeing with team-members may be of more importance than the type of attribution. Although

419   attribution researchers have previously demonstrated that performance improves when adaptive,

420   compared to maladaptive, attributions are adopted (Rees et al., 2013), the results of Study 2

421   indicate that attribution type had no effect on performance. The process of attributional

422   consensus may provide insight into this finding. Specifically, agreeing or disagreeing on

423   attributions may have reduced or negated the effects of adopting an adaptive or maladaptive

424   attribution. In other words, in a team setting, the process of agreeing or disagreeing on

425   explanations for performance might be of high importance.

426   Insight to explain this finding may be gained through Heider's (1958) Balance Theory.

427   Central to Balance Theory is the idea that one seeks harmony between themselves and the

428   situation or surrounding environment. Therefore, when a dyad experiences low attributional

429   consensus, there is a perceived imbalance. For example, when an individual learns that her

430   partner has a different attribution for a poor collective outcome, she perceives an imbalance. This

431   imbalance can then cause stress within the team members and lead to a poorer performance.

432   Indeed, Balance Theory has been used to explain negative performance effects on team motor

433   tasks (Boss & Kleinert, 2015). This may explain why participants whose team agreed on an

434   adaptive cause did not typically perform better than participants whose team agreed on a

435   maladaptive cause. In both conditions, participants may have perceived a balance between

436   themselves, their partner, and their collective performance. However, under conditions of

437   disagreement, they may have perceived an imbalance, perhaps causing stress, which resulted in

438   poorer subsequent performance.

439   No interaction effect between attributional consensus and attribution type was observed.

440   As expected, when the confederate disagreed with participants' adaptive attributions, they

441   generally reacted negatively. However, when the confederate disagreed, and communicated a

442   more adaptive attribution that contrasted participants' maladaptive attributions, participants

443   typically did not perform better. While researchers have demonstrated that adaptive attributions

444   from an in-group member can be a source of motivation (Rees et al., 2013), this did not appear to

445   be the case in the current study. This might be because the effect of disagreement between

446   teammates superseded the effect of attribution type. For example, participants may have been

447   less motivated by an adaptive attribution upon learning their teammate disagreed with them. Of

448   course, in more naturalistic conditions, teammates would be able to communicate further and

449   perhaps come to an understanding. Indeed, in field studies adaptive team-referent attributions

450   have been linked to successful performance (Carron, Shapcott, & Martin, 2014). Thus, moving

451   beyond the scope of this research, these effects might change dependent on whether teammates

452   have the opportunity to resolve the disagreement.

453   **Strengths and limitations**

454   Traditionally, in attribution studies, participants are told they have an adaptive or

455   maladaptive attribution (Le Foll et al., 2008; Rascle et al., 2015; Rees et al., 2013). This

456   approach has demonstrated the differential effects of adaptive and maladaptive attributions on

457   behavioral outcomes; however, the process in which attributions are communicated from

458   researcher to participant is inconsistent with the actual attribution process an athlete experiences.

459 In more natural settings, it is likely athletes develop their own attributions for performance, and

460 these may then be influenced by those around them. Therefore, a key strength of Study 2 was

461 that it permitted individuals to choose their attribution, thus more closely resembling the actual

462 attribution process. A caveat to this, however, is that participants were not subsequently able to

463 change their attribution after input from their teammate. Regardless, participants' attributions did

464 not appear to influence their performance and, as such, these results diverge from previous

465 attribution research (Rees et al., 2013). Building on the results of the current study, researchers

466 should explore whether athletes change their attributions after input from their teammates and

467 the extent to which this process can be generalized to more natural settings.

468   While the results of Study 2 highlight how social identity may be built through the

469 process of agreeing with group members, under non-experimental conditions existing levels of

470 social identity likely influence the propensity for agreement and the effects of agreement

471 (Postmes et al., 2005). In other words, there is likely a reciprocal relationship between

472 attributional consensus and social identity. While the current studies were limited to testing only

473 one direction of this relationship, it is likely that levels of social identity may also impact the

474 extent to which individuals experience attributional consensus.

475   Another limitation resulting from the experimental conditions concerns the extent to

476 which results are meaningful to larger intact teams. The research was completed in dyads in a

477 highly contrived situation where the interaction between the ostensible teammates was brief.

478 While this does not preclude the measurement of pertinent group processes (e.g., Tajfel, 1970), it

479 is unknown the extent to which the differences observed would disrupt or enhance psychological

480 processes in intact teams. For example, although there were significant differences between the

481 high and low consensus conditions in terms of conflict between two individuals, under non-

482   experimental conditions it is unknown whether larger intact teams would benefit from the lower

483   levels of conflict and higher levels of cohesion and social identity reported in the low

484   attributional consensus condition.

485   Finally, there are a number of methodological limitations that should be addressed. The

486   adoption of full random allocation and double-blinding in the behavioural experiment would

487   have limited the possibility of subjective bias. Another methodological limitation was that,

488   unvalidated single-item measures were used to measure levels of conflict and cohesion. Lastly,

489   regarding the effect of attribution consensus on performance, a large effect size was anticipated

490   yet a small effect size was observed. Therefore, researchers aiming to replicate these findings

491   would likely need to use a larger sample size than the one obtained within this study.

492   **Future research**

493   The aforementioned limitations should be addressed in subsequent independent

494   replication studies. Alongside replication studies, researchers might consider building upon these

495   findings by examining the situations in which might not lead to higher levels of conflict (Jehn,

496   1995). Indeed, under certain conditions, agreement may have negative effects while

497   disagreement may be advantageous. For example, agreement between team members (i.e., high

498   consensus) can foster atmospheres in which groupthink is prevalent (Hart, 1991), while sharing

499   different information among teammates (i.e., low consensus) can be beneficial to performance

500   (Goncalo & Duguid, 2008). As such, there may be times when teams will benefit from low

501   attributional consensus. If coaches and teammates observed different reasons for their team's

502   unsuccessful performance, it may be in the team's best interest to hear all potential explanations

503   to maximise their chances of amending mistakes. As such, an avenue for future research might

504   be to investigate the conditions under which low attributional consensus can facilitate

505   performance without leading to negative consequences.

506   Both conflict and cohesion were measured as unidimensional constructs, however, they

507   are often measured as multidimensional constructs (Carron, Widmeyer, & Brawley, 1985; De

508   Dreu & Weingart, 2003). Therefore, researchers could examine the effect of attribution

509   consensus on the multidimensional aspects of conflict and cohesion. That is, the constructs are

510   typically categorized into task and social conflict and task and social cohesion. As such,

511   researchers may want to examine how attributional consensus impacts perceptions of task and

512   social aspects separately. For example, because attributional consensus relates directly to

513   individuals' perceptions of a task, it is possible the detrimental effects experienced pertain more

514   to perceptions of task conflict and cohesion compared to social conflict and cohesion.

515   **Implications**

516   Assuming these results can be replicated in subsequent research, they might have practical value

517   for intact teams. Typically, maladaptive attributions were considered to be uniformly negative.

518   However, the results of the current study suggest that consensus over maladaptive attributions

519   might be beneficial. For example, when a team explains a poor performance as due to the

520   weather—something that cannot be controlled—consensus among team members that the cause

521   of their poor performance was due to the weather may actually be beneficial, even though the

522   attribution is maladaptive. In other words, teammates agreeing on the cause of events—being on

523   the same page, so to speak—may be important even if it is agreeing that we cannot control the

524   cause of a negative outcome.

525   **Conclusion**

526   The results of these studies provide valuable insight into the processes teams experience

527   after failure. Specifically, these results indicate that teams may benefit from agreement over the

528   cause of an unsuccessful performance. Direct replications are needed to confirm study findings

529   and understand how low attributional consensus within a team might cause conflict and

530   reductions in cohesion and social identity, and how low attributional consensus may be a cause

531   of poor performance. It is important how athletes individually attribute failure (Rees et al.,

532   2013); however, in a team setting, whether teammates perceive the same cause for failure may be

533   of greater significance.

534 **Formatting of funding sources**

535 This research did not receive any specific grant from funding agencies in the public, commercial,

536 or not-for-profit sectors.

537 Declarations of interest: none

References

538

539 Allen, M. S., Coffee, P., & Greenlees, I. (2012). A theoretical framework and research agenda

540   for studying team attributions in sport. *International Review of Sport and Exercise*

541   *Psychology*, *5*(2), 121–144. http://doi.org/10.1080/1750984X.2012.663400

542 Allen, M. S., Jones, M. V., & Sheffield, D. (2009). Attribution, emotion, and collective efficacy

543   in sports teams. *Group Dynamics: Theory, Research, and Practice*, *13*(3), 205–217.

544   http://doi.org/10.1037/a0015149

545 Barki, H., & Hartwick, J. (2004). Conceptualizing the concept of interpersonal conflict. *The*

546   *International Journal of Conflict Management*, *15*(3), 216–244.

547   http://doi.org/10.1108/eb022913

548 Boss, M., & Kleinert, J. (2015). Explaining social contagion in sport applying Heider's balance

549   theory: First experimental results. *Psychology of Sport and Exercise*, *16*, 160–169.

550   http://doi.org/10.1016/j.psychsport.2014.10.006

551 Carron, A. V., Brawley, L. R., Eys, M. A., Bray, S. R., Dorsch, K. D., Estabrooks, P., … Terry,

552   P. C. (2003). Do individual perceptions of group cohesion reflect shared beliefs?: An

553   empirical analysis. *Small Group Research*, *34*(4), 468–496.

554   http://doi.org/10.1177/1046496403254274

555 Carron, A. V., Colman, M., Wheeler, J., & Stevens, D. (2002). Cohesion and performance in

556   sport: A meta analysis. *Journal of Sport & Exercise Psychology*, *24*(2), 168–188.

557 Carron, A. V., Shapcott, K. M., & Martin, L. J. (2014). The relationship between team

558   explanatory style and team success. *International Journal of Sport and Exercise*

559   *Psychology*, *12*(1), 1–9. http://doi.org/10.1080/1612197X.2014.853898

560 Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to

561   assess cohesion in sport teams: The Group Environment Questionnaire. *Journal of Sport*

562   *Psychology*, *7*(3), 244–266.

563   Coffee, P., Greenlees, I., & Allen, M. S. (2015). The TRAMS: The Team-Referent Attributions

564   Measure in Sport. *Psychology of Sport and Exercise*, *16*, 150–159.

565   http://doi.org/10.1016/j.psychsport.2014.10.009

566   Coffee, P., & Rees, T. (2009). The main and interactive effects of immediate and reflective

567   attributions upon subsequent self-efficacy. *European Journal of Sport Science*, *9*(1), 41–52.

568   http://doi.org/10.1080/17461390802594227

569   Coffee, P., Rees, T., & Haslam, S. A. (2009). Bouncing back from failure: The interactive impact

570   of perceived controllability and stability on self-efficacy beliefs and future task

571   performance. *Journal of Sports Sciences*, *27*(11), 1117–1124.

572   http://doi.org/10.1080/02640410903030297

573   De Dreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team

574   performance, and team member satisfaction: A meta-analysis. *The Journal of Applied*

575   *Psychology*, *88*(4), 741–749. http://doi.org/10.5465/APBPP.2002.7516590

576   Dithurbide, L., Sullivan, P., & Chow, G. M. (2009). Examining the influence of team-referent

577   causal attributions and team performance on collective efficacy. *Small Group Research*,

578   *40*(5), 491–507. http://doi.org/10.1177/1046496409340328

579   Goncalo, J. A., & Duguid, M. M. (2008). Hidden consequences of the group-serving bias: Causal

580   attributions and the quality of group decision making. *Organizational Behavior and Human*

581   *Decision Processes*, *107*(2), 219–233. http://doi.org/10.1016/j.obhdp.2008.02.011

582   Hart, P. (1991). Irving L. Janis' victims of groupthink. *Political Psychology*, *12*(2), 247–278.

583   Retrieved from http://www.jstor.org/stable/3791464%5Cn

584   Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

585   Jackson, B., Dimmock, J. A., Gucciardi, D. F., & Grove, R. J. (2011). Personality traits and

586   relationship perceptions in coach-athlete dyads: Do opposites really attract? *Psychology of*

587   *Sport and Exercise*, *12*(3), 222–230. http://doi.org/10.1016/j.psychsport.2010.11.005

588   Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup

589   conflict. *Administrative Science Quarterly*, *40*(2), 256–282. http://doi.org/10.2307/2393638

590   Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of

591   intragroup conflict and group performance. *Academy of Management Journal*, *44*(2), 238–

592   251.

593   Jonas, E., Schulz-Hardt, S., Frey, D., & Thelen, N. (2001). Confirmation bias in sequential

594   information search after preliminary decisions: An expansion of dissonance theoretical

595   research on selective exposure to information. *Journal of Personality and Social*

596   *Psychology*, *80*(4), 557–571. http://doi.org/10.1037//0022-3514.80.4.557

597   Jones, E. E., & Nisbett, R. (1971). The actor and the observer: Divergent perceptions of the

598   causes of behavior. *Attribution: Perceiving the Causes of Behavior*.

599   http://doi.org/10.1037//0022-3514.71.2.375

600   Kelley, H. (1967). Attribution theory in social psychology. *Nebraska Symposium on Motivation*.

601   Le Foll, D., Rascle, O., & Higgins, N. C. (2008). Attributional feedback-induced changes in

602   functional and dysfunctional attributions, expectations of success, hopefulness, and short-

603   term persistence in a novel sport. *Psychology of Sport and Exercise*, *9*(2), 77–101.

604   http://doi.org/10.1016/j.psychsport.2007.01.004

605   Mach, M., Dolan, S., & Tzafrir, S. (2010). The differential effect of team members' trust on team

606   performance: The mediation role of team cohesion. *Journal of Occupational and*

Organizational Psychology, *83*(3), 771–794. http://doi.org/10.1348/096317909X473903

Mitchell, D. E. (2018). Causes of organisational conflict. In *Global Encyclopedia of Public Administration, Public Policy, and Governance* (pp. 688–691). http://doi.org/10.2307/1246994

Moreland, R. L. (2010). Are dyads really groups? *Small Group Research*, *41*(2), 251–267. http://doi.org/10.1177/1046496409358618

Paradis, K. F., Carron, A. V., & Martin, L. J. (2014). Athlete perceptions of intra-group conflict in sport teams. *Sport & Exercise Psychology Review*, *10*(13), 4–18.

Pescosolido, A. T., & Saavedra, R. (2012). Cohesion and sports teams: A review. *Small Group Research*, *43*(6), 744–758. http://doi.org/10.1177/1046496412465020

Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: reliability, validity, and utility. *The British Journal of Social Psychology / the British Psychological Society*, *52*(4), 597–617. http://doi.org/10.1111/bjso.12006

Postmes, T., Haslam, S. A., & Swaab, R. I. (2005). Social influence in small groups: An interactive model of social identity formation. *European Review of Social Psychology*, *16*, 1–42. http://doi.org/http://dx.doi.org/10.1080/10463280440000062

Rascle, O., Le Foll, D., Charrier, M., Higgins, N. C., Rees, T., & Coffee, P. (2015). Durability and generalization of attribution-based feedback following failure: Effects on expectations and behavioral persistence. *Psychology of Sport and Exercise*, *18*, 68–74. http://doi.org/10.1016/j.psychsport.2015.01.003

Rees, T., Ingledew, D. K., & Hardy, L. (2005). Attribution in sport psychology: Seeking congruence between theory, research and practice. *Psychology of Sport and Exercise*, *6*(2), 189–204. http://doi.org/10.1016/j.psychsport.2003.10.008

630   Rees, T., Salvatore, J., Coffee, P., Haslam, S. A., Sargent, A., & Dobson, T. (2013). Reversing

631   downward performance spirals. *Journal of Experimental Social Psychology*, *49*(3), 400–

632   403. http://doi.org/10.1016/j.jesp.2012.12.013

633   Satterthwaite, F. E. (1946). An approximate distribution of estimates of variance components.

634   *Biometrics Bulletin*, *2*(6), 110–114.

635   Sullivan, L. M., & Agostino, R. B. D. (1992). Robustness of the t Test Applied to Data Distorted

636   from Normality by Floor Effects. *Journal of Dental Research*, *71*(12), 1938–1943.

637   Swaab, R. I., Postmes, T., Neijens, P., Kiers, M. H., & Dumay, A. C. M. (2002). Multiparty

638   negotiation support: The role of visualization's influence on the development of shared

639   mental models. *Journal of Management Information Systems*, *19*(1), 129–150.

640   http://doi.org/10.1080/07421222.2002.11045708

641   Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, *223*(5), 96–

642   102. http://doi.org/10.1038/scientificamerican1170-96

643   Tajfel, H. (1982). Social psychology of intergroup relations. In *Annual Review of Psychology*

644   (Vol. 33, pp. 1–39). http://doi.org/http://dx.doi.org/10.1146/annurev.ps.33.020182.000245

645   van Woerkom, M., & Sanders, K. (2010). The romance of learning from disagreement. The

646   effect of cohesiveness and disagreement on knowledge sharing behavior and individual

647   performance within teams. *Journal of Business and Psychology*, *25*(1), 139–149.

648   http://doi.org/10.1007/s10869-009-9136-y

649   Weiner, B. (1985). An attributional theory of achievement motivation and emotion.

650   *Psychological Review*, *92*(4), 548–573.

651   Williams, K. D. (2010). Dyads can be groups (and often are). *Small Group Research*, *41*(2),

652   268–274. http://doi.org/10.1177/1046496409358619

653 Table 1. Study 2 Descriptive Statistics and Bivariate Correlations

Dependent Variable	Consensus	*M*	*SD*	Bivariate Correlations			
				1	2	3	4
1. Conflict	High	1.29	.53				
	Low	1.89	.99				
2. Cohesion	High	3.07	1.18	-.26			
	Low	2.54	.58				
3. Social Identity	High	4.36	1.34	-.27*	.61**		
	Low	3.43	1.10				
4. Performance 1	High/Adaptive	29.21	10.01	-.10	.22	.19	
	Low/Adaptive	32.43	7.51				
	High/Maladaptive	29.78	8.27				
	Low/Maladaptive	28.28	11.38				
5. Performance 2	High/Adaptive	32.21	9.04	-.15	.20	.24	.71**
	Low/Adaptive	30.79	9.19				
	High/Maladaptive	33.14	8.95				
	Low/Maladaptive	28.35	10.55				

654 Note. M = Mean, SD = Standard Deviation, *p < .05, **p < .01.

655

656

657