

Research article

The effects of interval feedback on the self-efficacy of netball umpires

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Abstract

The present study used quantitative and qualitative methods to explore the relationship between interval feedback and self-efficacy toward umpiring netball games. Grade "A" level umpires ($n = 7$) provided feedback to umpires ($n = 40$) under two conditions; 1) interval feedback given at the end of one tournament game (after 14 minutes) and again at the end of a second consecutive game (after 28 minutes), and 2) feedback at the end of the game (after 28 minutes). Umpires in both conditions completed an Umpiring Self-Efficacy Questionnaire (USEQ) which was a 14-item measure designed to assess factors relevant to netball umpire performance. Participants completed the USEQ immediately before game one, during the interval, and after a second game. Umpires also completed a feedback questionnaire which enabled them to reflect on the feedback received. A repeated measures factorial (time \times feedback condition) ANOVA indicated no significant interaction effect ($F = 0.05$, $p > .05$), and no main effect for condition ($F = 0.06$, $p > .05$) or time ($F = 1.61$, $p > .05$) for changes in self-efficacy. Although there were no significant effects, qualitative data alluded to aspects of feedback perceived to enhance umpire self-efficacy, thus identifying ways in which feedback might have a more consistent effect. Practical implications of the study in relation to verbal interval feedback are discussed.

Key words: Self-efficacy, confidence, feedback, measurement, mixed methods, interviews.

Introduction

Sports officials are subject to performance evaluation by players, spectators, peers and media, which occur before, during and post performance (Weinberg and Richardson, 1990). Officials are expected to make split second and accurate decisions, often under immense pressure, which can have far reaching effects within sport at all levels (Anshel and Weinberg, 1999). There is a dearth of research exploring those factors impacting upon the development and performance of sports officials (Anshel and Weinberg, 1999; Goldsmith and Williams, 1992; Kaissidis-Rodafinos et al., 1998), but few consider psychological factors (Mitchell et al., 1982). Rainey et al. (1987) identified a need to examine the behaviour of sports officials during competition to extend understanding of the ways in which performance could be improved. In particular, Rainey et al. (1987) stressed the importance of understanding sport officiating behaviour with reference to self-efficacy.

The use of feedback and its effect on performance has been widely researched in sport (Ilgen et al., 1979; Kluger and DeNisi, 1996; Schunk, 1995). Meta-analysis of Kluger and DeNisi (1996) suggest that two thirds of

studies that investigated the effects of feedback found that it positively affected performance. Several studies have indicated that feedback has a positive effect upon self-efficacy (Escarti and Guzmán, 1999; Fitzsimmons et al., 1991; Sinclair and Vealey, 1989; Weinberg et al., 1981). For example, Escarti and Guzmán (1999) found that performance feedback had a positive effect on self-efficacy, performance and decision-making in an athletic task. They concluded that future research should develop an understanding of the impact of feedback on the self-efficacy of sports performers. However, it should be noted that there has been no published research on the effects of feedback among sports officials.

Verbal persuasion has been identified as a powerful tool in increasing self-efficacy (Bandura, 1997). Evidence suggests that positive feedback is the most beneficial form of feedback for sports performers (Escarti and Guzmán, 1999; McAuley et al., 1991). These findings may explain why verbal instruction is the most commonly used method of providing feedback and developing knowledge of performance in sport (Mononen et al., 2003). Regarding the timing of feedback, it appears immediate feedback provides a better opportunity to improve or correct performance when compared with delayed feedback (Sinclair and Vealey, 1989; Mononen et al., 2003). It has also been suggested that immediate feedback could have a positive effect on the self-efficacy of performers, including those performers who are lacking in confidence (Sinclair and Vealey, 1989; Stewart and Corbin, 1988). For example, Feltz and Riessinger (1990) used immediate performance feedback in conjunction with imagery and found resultant increases in the self-efficacy of college athletes.

The aim of the present exploratory study; was to examine the effects of interval feedback (verbal) on netball umpires' self-efficacy during competition. Although it has been well documented that feedback can have a positive effect upon the self-efficacy of sports performers (Kluger and DeNisi, 1996), as far as the authors are aware, there has been no published research into the effects of performance feedback on sports officials.

Methods

Sports officials are subject to performance evaluation by players, spectators, peers and media, which occur before, during and post performance (Weinberg and Richardson, 1990). Officials are expected to make split second and accurate decisions, often under immense pressure, which can have far reaching effects within sport at all levels (Anshel and Weinberg, 1999). There is a dearth of

Figure 1. Diagram to illustrate study design.

	Pre-game	Game 1 1 st half	1 min interval	Game 1 2 nd half	3 min interval	Game 2 1 st half	1 min interval	Game 2 2 nd half	End of Game 2
Condition 1	Complete USEQ				<u>Receives feedback</u> Complete USEQ & UFQ				<u>Receives feedback</u> Complete USEQ & UFQ
Condition 2	Complete USEQ				<u>No feedback</u> Complete USEQ				<u>Receives feedback</u> Complete USEQ & UFQ

research exploring those factors impacting upon the development and performance of sports officials (Anshel and Weinberg, 1999; Goldsmith and Williams, 1992; Kaissidis-Rodafinos et al., 1998), but few consider psychological factors (Mitchell et al., 1982). Rainey et al. (1987) identified a need to examine the behaviour of sports officials during competition to extend understanding of the ways in which performance could be improved. In particular, Rainey et al. (1987) stressed the importance of understanding sport officiating behaviour with reference to self-efficacy.

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Results

Quantitative data collated from the umpire self-efficacy questionnaires during the tournament were analysed using a repeated measures factorial analysis of variance to determine any interaction effects between data. The analysis of variance (ANOVA) indicated no significant interaction effect for time x feedback condition ($F_{4,35} = 0.05$, $p > 0.05$), no main effect for condition ($F_{4,35} = 0.06$, $p > .05$) and time ($F_{4,35} = 1.61$, $p > .05$). Mean self-efficacy scores was given Figure 2.

Mean feedback scores indicated that positive and motivational feedback was perceived to be most commonly given by the assessors, or received by the umpires. Conversely, mean scores for negative feedback were generally low, as shown in the Figure 3.

Pearson's correlation was used to examine relationships between types of feedback for umpires' and assessors' feedback scores. Results indicated a moderate correlation between motivational feedback (FB2) and positive feedback (FB4) ($r = 0.60$, $p < 0.05$). Instructional feedback (FB1) and Negative feedback (FB3) showed no significant correlation with other types of feedback. A weak correlation between motivational feedback (AF2) and positive feedback (AF4) ($r = 0.40$, $p < 0.05$) was found.

Seventy-six percent ($n = 184$) of the possible 240 USEQ's were returned, with 24% ($n = 56$) either blank or incomplete. It was evident from umpires' comments on the UFQ's that this was primarily due to a lack of time to complete the questionnaires during intervals (e.g. "*found the feedback rushed*").

One-hundred and twenty Umpire Feedback Questionnaires were collected from umpires during the tournament (two per umpire in condition one, one per umpire in condition two), of which 79 contained qualitative comments. Qualitative data from each UFQ ($n = 79$) were collated and categorised into positive, negative or neutral comments. Positive feedback accounted for 63.3% of responses (e.g. "*Positive feedback, felt much better after*").

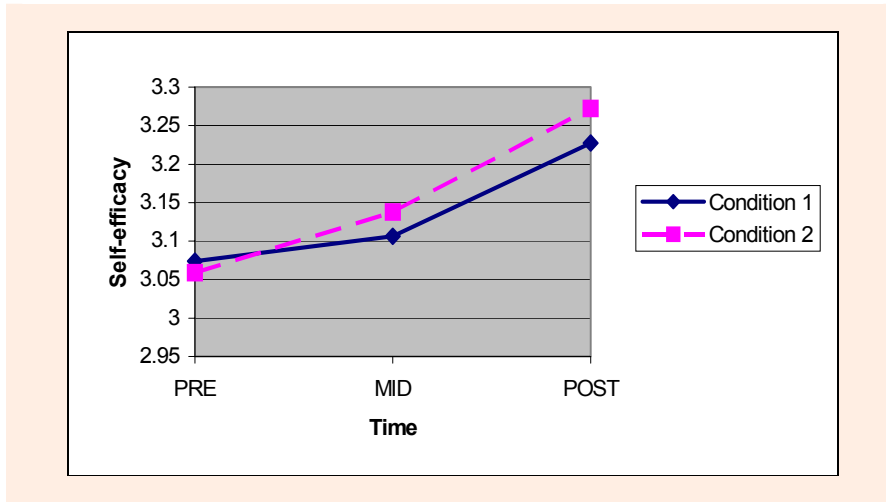


Figure 2. Illustration of changes in mean self-efficacy scores.

feedback”), 12.6% negative (e.g. “*Negative and criticism. No positive feedback*”), and 24.1% neutral (e.g. “*Positive – no new observations*”). Feedback was classified as neutral when umpires did not indicate if the feedback was perceived to be positive or negative.

Qualitative data provided by assessor’s in response to the question “*What was the predominant form of feedback that you used and what impact do you think this had on the umpire?*” were all categorised as positive (e.g. “*Positive – again excellent performance. Did as I asked – very well received*”).

Following the completion of open coding on all qualitative data, four general dimensions emerged. These were positive consequences of feedback, negative consequences of feedback, factors influencing the impact of feedback and feedback preferences. When presenting each general dimension, the corresponding first order themes are also presented, along with examples of raw data.

Table 1 presents the general dimension positive consequences of feedback along with ten first order themes and corresponding raw data.

The general dimension negative consequences of feedback comprised six first order themes. These are presented in Table 2.

Table 3 identifies eleven first order themes which comprised the general dimension factors influencing the impact of feedback.

Ten first order themes comprised the general dimension feedback preferences, and these are presented in Table 4.

Discussion

The present study examined the effects of two feedback conditions on the self-efficacy of netball umpires during an Inter-state netball tournament. Quantitative data shows considerable variation in self efficacy scores over time, and across all conditions, therefore, it should not be surprising that no significant differences emerged. However, caution is urged against assuming that data are stable. Qualitative analysis found strong views regarding the effects of feedback, including the personal and situational factors surrounding the provision of feedback.

The provision of interval feedback was described in two broad, but different, outcomes. First, although the umpires knew feedback was going to be given during the game, this was not standard procedure. Although ostensibly designed to enhance their performance, interval feedback could detract from how umpires normally process

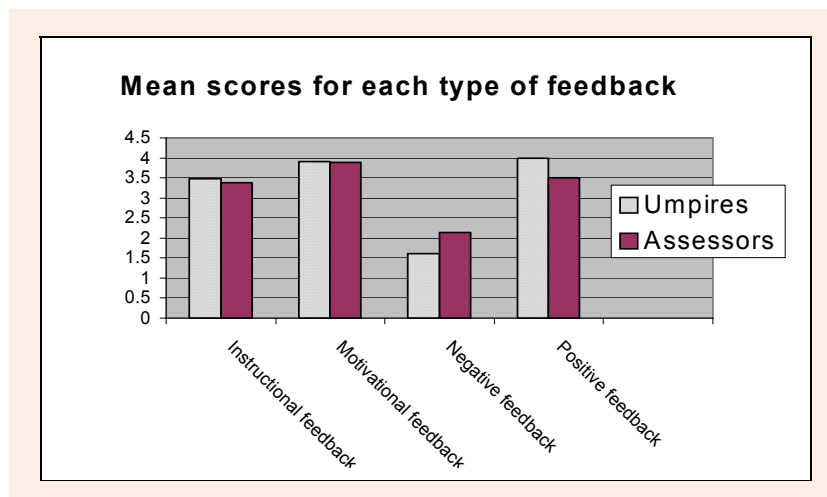


Figure 3. Illustration of mean feedback scores.

Table 1. General dimension: Positive consequences of feedback.

First order theme	Raw data	Source
Clarified situation	<i>"Instructional feedback and positive feedback was used predominantly throughout the 1:1 feedback. I found that using these methods gave clarification on the situation and built my self esteem that I could achieve what has been asked of me"</i>	UFQ
Confidence	<i>"Made me feel even more confident in my game"</i>	UFQ
Encouraging	<i>"Yeah um, well it certainly wasn't negative; they were always trying to be encouraging. There's no doubt about that, it certainly wasn't negative. So um yes they were encouraging at times and didn't try to overload you with too much information"</i>	Telephone interviews
Enhanced performance	<i>"Umpire totally took on board totally the observations made in the first half. Superior performance all round – has lifted her performance onto a different plane"</i>	UFQ (assessor)
Self-esteem	<i>"The feedback from the other person which happened earlier on in the day, um, you know that made me feel good and that made me feel good about myself"</i>	Dual interviews
Increased desire to learn more	<i>"Positive feedback and had the urge to want more info on what I could do to improve my umpiring"</i>	UFQ
Motivation	<i>"Motivational feedback was used and boosted my confidence further"</i>	UFQ
Planning/goal setting	<i>"I can accept that I might not have performed providing that the feedback they give me meets that criteria of being constructive so that I know how to, or what I'm doing, how to move on from there"</i>	Dual interviews
Reinforced good practice	<i>"Well you need it if you're going to improve. You need to know what you're doing right, what you're doing wrong, absolutely brilliant, no doubt about it"</i>	Telephone interviews
Self-efficacy	<i>"Motivational – really pleased she took on board and showed evidence of spreading vision behind backline. She said she felt better and more confident with vision"</i>	UFQ (assessor)

information. For example, one participant noted *"instructional feedback, based on positioning, too far behind. Felt a little flustered as have been told before I'm too in front"*. This could impact on confidence as noted by a second umpire, *"I was left feeling that I shouldn't be umpiring"*. Collectively umpires noted that feedback could incur performance decrements, inappropriate attentional focus, reduce self-efficacy, highlight weaknesses and create confusion (see Table 2). Given these findings, some umpires felt that acting upon the feedback during the game would not be helpful to their performance, and consequently utilised strategies designed to ignore the feedback. The following quote is elicited of this, *"I have that ability to shut out the outside influences and concentrate and focus on what I'm doing"*. This finding is supportive of previous research highlighting the ways in which individuals can develop strategies to cope with

unexpected or undesired feedback (Renner, 2004). The type of verbal feedback provided by assessors is often beyond the control of umpires, as such, applied sport psychologists working with officials should develop the ability of this population to utilise emotion focussed coping strategies advocated for use in uncontrollable situations (Aldwin, 1994; David and Suls, 1999; Holt and Dunn, 2004; Lazarus and Folkman, 1984). This includes strategies such as blocking, avoidance, venting and reappraisal (Lazarus and Folkman, 1984).

A second outcome identified by participants was that interval feedback could accrue performance enhancing effects. For example, when communicated effectively feedback established manageable goals and maintained self-efficacy. This was noted by one participant who explained *"she's told you in such a manner that you think 'how stupid!' that you didn't realise you were doing that."*

Table 2. General dimension: Negative consequences of feedback.

First order theme	Raw data	Source
Affected performance	<i>"If that feedback is good and constructive you can go into the second half thinking 'great, yeah', and it could be the other way because if it's bad and it has affected your confidence and your ability to perform then it could have the reverse effect"</i>	Dual interviews
Assessor effect	<i>"When anybody's watching me in a netball match I fall apart! (laughter)"</i>	Dual interviews
Conflicting feedback	<i>"Instructional, slightly conflicted with the first game so am a little confused now"</i>	UFQ
Focus	<i>"At the Commonwealths and Worlds I received interval feedback, and um, it's often very difficult to take it onboard when you've got a close game, you've got a big crowd and lots of noise going on and all you want to do is focus on your own preparation for the next quarter rather than someone telling you what to do"</i>	Telephone interviews
Raised awareness of/ reminded of weakness	<i>"I felt negative, as I was aware fitness played an issue and feedback didn't lift me"</i>	UFQ
Undermined confidence	<i>"I was left feeling that I shouldn't be umpiring. So you know I mean that knocked my confidence in umpiring"</i>	Dual interviews

Table 3. General dimension: Factors influencing impact of feedback.

First order theme	Raw data	Source
Communication style	<i>"She's told you in such a manner that you think 'how stupid!' that you didn't realise you were doing that. You know and it's in such a way that you think 'why wasn't I doing that?' you know"</i>	Dual interviews
Conflicting feedback	<i>"Instructional, slightly conflicted with the first game so am a little confused now"</i>	UFQ
Coping strategies	<i>"I sort of learned well this is what they're going to do so obviously I've got to learn to cope with it, um, so after that it wasn't a problem as I'd built in strategies to how to cope with it"</i>	Telephone interviews
Different assessors	<i>"It might have been nice to have had the same assessor a bit later on 'cause as I say from mine there was sort of like no continuity, um, and I don't know whether she was looking for the same things"</i>	Dual interviews
Perceived value	<i>"I hate having feedback but I recognise the value of it"</i>	Dual interviews
Timing	<i>"Well, in a tournament, if you've got a couple of minutes, and somebody who you've got respect for says to you 'try doing this' or 'this might help', you can put that into the second half of the game"</i>	Dual interviews
Respect for assessor	<i>"She was superb, totally different to the others. Very positive, very straight talking, and she delivers in such a manner that you come off there and think 'yeah, I wanna take the next game 'cause I wanna do this, this and this'"</i>	Dual interviews
Unexpected feedback	<i>"Negative and criticism. No positive feedback. Half time feedback when not expected undermined my confidence"</i>	UFQ
Misconstrued feedback	<i>"Found the feedback rushed, heard the word "basic" and completely crumbled"</i>	UFQ
Reputation of assessor	<i>"I'm not surprised the feedback was negative because I think they're quite known for...I think they have quite a reputation"</i>	Dual interviews
Time constraints	<i>"My comment would be the lack of time to meet the umpire protocols in the space of a few minutes at half time. Within a normal game you'd have a bit more time, more than enough time to be given short, sharp, positive, beneficial criticism"</i>	Dual interviews

You know and it's in such a way that you think 'why wasn't I doing that?' you know". A second participant observed *"instructional feedback and positive feedback was used predominantly throughout the one-to-one feedback. I found that using these methods gave clarification on the situation and built my self esteem so that I could achieve what has been asked of me"*. Some participants indicated that this could increase their desire *"to want more info on what I could do to improve my umpiring"*.

Collectively umpires noted a number of benefits that may be accrued by interval feedback including encouragement, clarification, clear goals, reinforcement and enhanced self-efficacy, self-esteem, performance, motivation and desire to improve (see Table 1). These findings concur with previous research identifying the potential benefits of feedback (Escarti and Guzmán, 1999; Fitzsimmons et al., 1991; Sinclair and Vealey, 1989; Weinberg et al., 1981).

Table 4. General dimension: Feedback preferences.

First order theme	Raw data	Source
Competition/Training	<i>"In terms of competition my own belief is that feedback should only occur at the end of a game whereas for example if it's a training session then in that sense that's a better opportunity to provide interval feedback for the umpires' development. They're less stressed so are more able to take the information in"</i>	Telephone interviews
Constructive	<i>"It has to be constructive, um, if it's not you just think 'well sod off' (laughter)"</i>	Dual interviews
Instructional	<i>"Instructional – clear direction was given on what I needed to work on and improve"</i>	UFQ
Motivational	<i>"Used motivational feedback which raised my confidence and self esteem"</i>	UFQ
Mixed feedback	<i>"Instructional feedback and positive feedback was used predominantly throughout the 1:1 feedback. I found that using these methods gave clarification on the situation and built my self esteem that I could achieve what has been asked of me"</i>	UFQ
Negative	<i>"It didn't matter what they would have said and how long they'd have spoken for 'cause I wouldn't listen to negative feedback anyway"</i>	Dual interviews
Positive	<i>"Very positive, I felt it lifted my game"</i>	UFQ
Provided by practising umpires/assessors	<i>"There are certain personnel that I have respect for and with due respect for some of the mentors, they are not actively practising and they have been out of the game for a long time"</i>	Dual interviews
Qualified to highest standard	<i>"They can test maybe at a lower level without um, and maybe, I don't know, be instructive and good and what have you, but perhaps when they're mentoring on their own level they find it hard"</i>	Dual interviews
Timing	<i>"My own personal preference is for feedback at the end of the game as when you receive feedback at intervals, quite often at that level the games are already very pressurised and the last thing you want to do is listen to someone say well you've got to do 'X, Y' and 'Z'"</i>	Telephone interviews

All participants concurred that personal and situational factors interacted to determine the outcome of feedback. The suggestion was that any feedback provided should be tailored for the needs of the individual and take into account situational factors, to enhance the possibility of accruing positive outcomes. For example, one umpire who received interval feedback at the commonwealth games, and world championships, felt the situation was not conducive to interval feedback. This international umpire recalled *“at the Commonwealths and Worlds I received interval feedback, and um, it’s often very difficult to take it onboard when you’ve got a close game, you’ve got a big crowd and lots of noise going on, and all you want to do is focus on your own preparation for the next quarter rather than someone telling you what to do”*. In this instance, interval feedback was perceived as being an unwelcome distraction under a high-pressure situation. This participant suggested that feedback changed their focus of attention inappropriately, a finding which has received support from previous research (Kluger and DeNisi, 1996).

In addition to those situational factors perceived as influencing the type and timing of feedback, a number of participants also indicated that personal preferences determined their perceptions of interval and end of game feedback. When determining the impact of verbal feedback, the present study concurs with previous research in that the recipient must have confidence in the person providing feedback (Bandura, 1997; Schinke and Tabakman, 2001). The umpire assessors utilised in the present study were all qualified to “A” award or above, and possessed more experience than umpires officiating at the Inter-state tournament. Qualitative data suggests that umpires were aware of the experience and qualifications of the individuals they received feedback from, and questioned or ignored feedback if they were not perceived as suitably experienced or qualified. For example, one participant noted *“there are certain personnel that I have respect for and with due respect for some of the mentors, they are not actively practising and they have been out of the game for a long time”*.

Within the present study, assessors were not given guidance concerning the types of feedback to use. Findings suggest that positive, negative, motivational and instructional feedback were all used; sometimes at the same time. Participants were able to clearly articulate the types of feedback they perceived to be desirable and undesirable. The use of negative feedback and an absence of motivational feedback was identified as reducing self-efficacy. For example, one umpire was advised to improve her fitness and noted, *“I felt negative, as I was aware that fitness played an issue and feedback didn’t lift me”*. As Bandura (1997) suggests and studies support, positive feedback is the most beneficial form of feedback to be giving sports performers (Escarti and Guzmán, 1999; McAuley et al., 1991).

A number of participants noted that they could accept negative feedback if it was presented constructively, and balanced with positive feedback. For example, one umpire suggested *“I can accept that I might not have performed providing that the feedback they give me meets*

that criteria of being constructive so that I know how to, or what I’m doing, and how to move on from there”. A second participant noted *“I know when it’s not done properly and it doesn’t matter how bad somebody is, there’s always something that you can find that is positive to start the discussion and that didn’t happen with the first mentor”*. When individuals are provided with clear and concise information, they should be provided with direction as to how to achieve competence (Schinke and Tabakman, 2001). The specificity of feedback and goal setting are paramount to the performance outcome (Hall et al., 1987) and it is imperative for umpire assessors to provide numerous positive, measurable, and specific examples of feedback to umpires (Schinke and Tabakman, 2001). The combined use of goal-setting and performance feedback has been identified by Bandura and Cervone (1983) as having a powerful positive effect upon performance. This was evidenced in the present study when examining the content of feedback provided by umpire assessors. In situations where feedback was not perceived to be constructive, participants demonstrated the tendency to ignore it, *“I have every respect for what she knows and what she’s done for netball but she doesn’t know how to give constructive criticism and um, you know, so I ignored it basically. I’m sure she was right in what she said but I still ignored it!”*

With appropriate training and practice, giving and receiving feedback are skills that can be developed (Smith et al., 1979). Bandura (1997, p106) suggests, *“persuasive mentors must be good diagnosticians of strengths and weaknesses and knowledgeable about how to tailor activities to turn potentiality into actuality”*. Given these suggestions, findings from the present study allude to how feedback can be provided. Feedback should be a primary consideration in the long-term development of umpires from novice to International level. Umpire assessors should endeavour to provide feedback in a constructive manner, and assist with goal setting for future performances. As Escarti and Guzmán (1999, p93) suggest, *“positive perceptions of personal capacity can help the individual persist in the often long and arduous process of developing sporting skills”*. Participants noted that the ability to provide feedback effectively should feature as part of the development of umpire assessors *“what England Netball needs to do is if they want people to progress, they need to get people who are perhaps qualified to give feedback, who you know, have gone through a training course to do it”*.

The applied nature of this study led to difficulties establishing appropriate control conditions. Identifying these limitations and seeking to address emergent issues should be the focus of future research efforts. Due to umpires experiencing both conditions it is possible that there may have been a carry-over effect. Therefore the results may not be generalised to the effects of only one condition. Using a control group in future studies would alleviate this problem. The nature of tournament matches and the conditions of this study meant that new teams were coming onto court at the 14-minute interval. Therefore, some umpires receiving interval feedback in condition one might not have been able to put this into practise

in the second match. This in turn could have affected the results. Similarly, as umpires moved from condition one to condition two or vice versa, the assessors also changed. Future research should ensure that no team changes occur and that umpires are allocated the same assessor across matches.

It was also evident that time to complete the questionnaires were limited. Rather than a tournament setting, future studies could be staged during regular netball matches. Additional measures of video recording the feedback, followed up with post-match analysis, could offer an additional approach to data collection in future research.

Conclusion

The present study worked with a national organisation to assess a strategy proposed to enhance umpire performance. One of England Netball's current objectives is to develop a strategic approach to improving the quality and quantify their umpires (England Netball, 2004). Self-efficacy was used as the theoretical variable on which to explore these effects. Quantitative results indicate that there was no significant effect of introducing interval feedback, qualitative results indicate large intra-individuals responses. The present study is arguably unique in the sense that it is a useful first step in the examination of feedback upon self-efficacy of netball umpires in a competitive environment.

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Key points

- Interval feedback may detract from umpires processing of information during a game.
- Interval feedback can enhance self-efficacy.
- Findings show that personal and situational factors interacted to determine the outcome of feedback.
- Feedback should be tailored for the needs of the individual and take into account situational factors, to enhance the possibility of accruing positive outcomes.

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