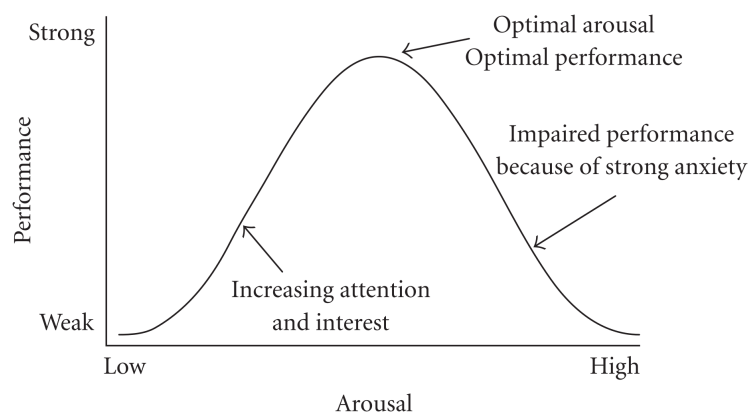


**OCR Psychology A-level**  
**Sport and Exercise**  
**Psychology**

Notes

## Part 1: Arousal and Anxiety

- The Yerkes-Dodson Law suggests that there is a positive correlation between increasing emotional arousal and the increasing level of performance, up to an optimum value, after which increasing emotional arousal results in decreasing performance. However, Oxendine (1980) notes the different levels of arousal are needed for different sports/tasks in order to achieve maximum performance.
- Situational factors also contribute towards arousal and performance, such as experience (Bergstrom, 1967). Those who often have high levels of arousal are better suited towards easier tasks, and vice versa, as suggested by Carron (1965).
- However, a serious methodological criticism which must be considered with Oxendine is that the studies which he cites are based on laboratory animals, meaning that the findings have low ecological validity because the mechanisms controlling arousal in non-human animals are far simpler in comparison to humans. Some of the terms used in his paper, such as 'complex skills', are vague and so can be said to have low predictive validity because they are unlikely to contribute towards accurate predictions about sport performance.
- Martens (1990) suggested that arousal and sport performance could be measured using the Sport Competition Anxiety Test (SCAT) and the Competitive State Anxiety Inventory-2. However, when reviewing the reliability and validity of such a measurement scale, researchers found that "results showed no concrete support for the basic propositions advanced through the model. Trait-anxiety did not significantly affect perception of threat and perception of threat had minimal effect on state-anxiety". The results stood true even when demand characteristics/social desirability bias was controlled for.
- Fazy, J. And Hardy, L. - The inverted-U hypothesis: A catastrophe for sport psychology. This theory was based on the idea that the habit-strength could be increased through the operant conditioning principles of punishment and negative reinforcement. The researchers took a novel approach towards their hypothesis, believing that stress was not always a threat to the organism (Cox, 1981) and that anxiety is simply a perception of being unable to cope with the stress and cognitive demands of the current environment (Spielberger, 1966). Consequent distinctions were made between state and trait anxiety.
- However, the main issues associated with the inverted-U hypothesis is that there was little predictive validity or real-life applications, since there were many examples of professional athletes performing to a high level in highly stressful environments. Secondly, the inverted-U hypothesis only takes into account one aspect of stress: emotional arousal. It ignores the effects of the cognitive and physiological aspects, which may be particularly susceptible to individual differences.
- Recent research has suggested several techniques which can be used to manage and cope with stress, as outlined in an article<sup>2</sup>. These include relaxation techniques, thought redirection, as well as 'facing the music' (i.e. accepting that stress is a necessary part of life and not seeing excessive stress as a failure).<sup>3</sup>This acknowledges the idea that an athlete's individual perception of stress and arousal plays a major part in the actual stress which they will experience.



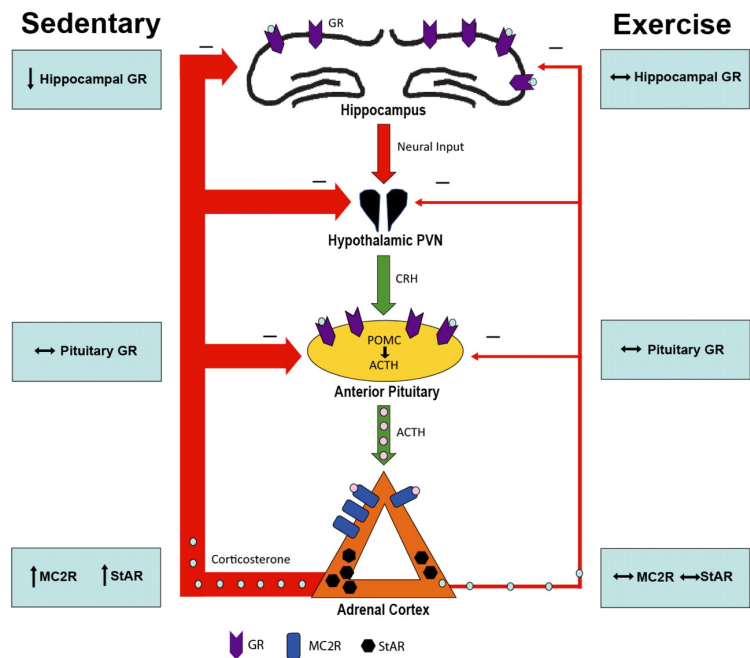
<sup>1</sup> Prapavessis, H., Cox, H. And Brooks, L, A test of Martens, Vealey and Burton's theory of competitive anxiety. *The Australian Journal of Science*, 1996, 28(1):24-9.

<sup>2</sup> <https://breakingmuscle.com/fitness/techniques-for-controlling-competition-anxiety>

<sup>3</sup> <https://www.timesofmalta.com/articles/view/20160426/health-fitness/How-anxiety-affects-sports-performance.611057>

**Part 2: Exercise and Mental Health**

- <sup>4</sup>Research has suggested that aerobic exercises such as jogging and swimming, have been proven to reduce both anxiety and depression, due to increased blood circulation and a consequent influence on the hypothalamic-pituitary-adrenal (HPA) system. The stimulation of the HPA system also results in changes in the limbic system which regulates emotional responses, and specifically the amygdala (key to the fight or flight response) and the hippocampus (key in the formation of memories).
- Exercise can also benefit mental health through providing a distraction, increasing feelings of self-efficacy and improving communication skills/social interactions. The benefits also include alleviated symptoms of social withdrawal and obesity. The major benefits include regular sleeping patterns, a higher sex drive, improved endurance in sport, reduced stress levels and an overall improvement in mood and cognitive functioning.



- The reductionist ideas described above could be evaluated in terms of the holistic-reductionist debate, as well as the influence of individual participant variables, such as the intensity of pre-existing mental health disorders and current physical health.
- Lewis, C et al - Mood changes following social dance sessions in people with Parkinson’s Disease: Exercise can create positivity and improved cognitive functioning for individuals who are healthy, as well as ill (McDonald and Hodgdon, 1991). Dance classes in particular have been thought to promote communication skills, improve mood and provide an outlet for social interactions/social support systems. The researchers used 37 participants who had all been diagnosed with Parkinson’s Disease, and who were aged between 50 and 80 years. Participants’ mood was measured using the POMS (McNair et al, 1971) and each individually filled out a demographic questionnaire, whilst data from the Mini Mental State Examination was used as a baseline assessment. After 9 weeks of 50 minute dance classes, the researchers found significant improvements in mood in both participants with and without Parkinson’s Disorder, alongside reduced fatigue coinciding with improved mood. These changes were both short-term and long-term, thus suggesting that exercise can be a viable alternative or accompaniment for drug medications.
- This study can be assessed in terms of the free will or determinism debate (free will in this case), the nature or nurture debate (both here because innate hormones interact with life experiences to produce behaviour), as well as reductionism versus holism (holistic here due to targeting the whole experience of dancing as a particular therapy for Parkinson’s Disease).
- The practical applications associated with an increased understanding of the influence of exercise on mental health may have particular implications on the treatment of physiological disorders. For example, research has shown that <sup>5</sup>“older individuals with or without chronic depression or depressive symptoms can benefit emotionally from dance based exercise participation”.

**Part 3: Motivation**

<sup>4</sup> Sharma A, Madaan V, Petty FD. Exercise for Mental Health. *Primary Care Companion to The Journal of Clinical Psychiatry*. 2006;8(2):106.

<sup>5</sup> Marks, R., Narrative Review of Dance-based Exercise and Its Specific Impact on Depressive Symptoms in Older Adults, *AIMS Medical Science*, 2016, 3(1):61-76.

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- Self-efficacy is an individual's perception of what they are capable of doing. This has strong links with sports confidence, which is an individual's perception of their sporting ability and so their willingness to partake in sports.
- General-mastery imagery intervention schemes have proven to be effective in increasing the sport confidence of participants, as demonstrated by Callow (2001). These schemes involve individuals imagining<sup>6</sup> themselves as confident, focused and in control, alongside increasing their arousal levels. This in turn can be measured objectively and quantitatively through the Motivational Imagery Ability Measure for Sport (MIAMS). This effectiveness has also been demonstrated by other researchers, such as Mellalieu et al (2009), who concluded that<sup>7</sup> "this effect is proposed to occur directly through adaptive changes in individuals' psychological response systems and indirectly via the protection mechanisms associated with enhanced efficacy expectations".
- Monroe-Chandler and Fisburne - Playing with confidence: the relationship between imagery use and self-confidence and self-efficacy in youth soccer players: There are two types of mental imagery which athletes can use to improve their performance: motivational general arousal imagery and motivational general mastery imagery. These imagery abilities depend on the cognitive, behavioural and affective outcomes which each individual has, according to Martin et al (1999).<sup>8</sup> Using the SIQ-2C and CTAI-2C to measure the use of imagery and self-confidence in a group of 125 soccer players aged between 11 and 14 years old (average of 6.11 years of experience), the researchers found positive correlations between increasing scores on the imagery sub scales and increasing scores on the confidence measures. Therefore, the researchers concluded that the use of MG-M imagery has high predictive value and validity in terms of estimating the self-efficacy and confidence of an athlete, suggesting that such research can be used to improve athlete's performances through targeted self-confidence development programmes.
- [APPLICATION] Such research can be used to support the use of motivational quotes by many successful athletes, such as<sup>9</sup> "Do it for love" and "Aim for excellence, not perfection". The associated mental imagery increases the individual's feeling of self-efficacy and self-confidence, resulting in improved performance i.e. a positive feedback cycle. Acknowledging the various forms of motivation (e.g. fear, incentives and purpose), as well as<sup>10</sup> looking towards the importance of shared responsibility, direction and gratefulness, are all key in establishing high levels of self-efficacy and improved performance.

### Part 4: Personality:

- Traits can be considered as characteristics of someone's behaviour. Therefore, trait explanations of personality suggests that each person has specific traits which determine their behaviour. Allport and Odbert suggested that there are three categories of traits which individuals can have - cardinal (which determine an individual's behaviour), central (general characteristics such as kindness and grumpiness) and secondary traits (subliminal and inconsistent traits). This forms a hierarchy of personality. Cattell, on the other hand, suggested that there are 16 factors which make up all human personality traits. These include warmth, apprehension, intelligence, consciousness, tension and vigilance. These traits are measured against a continuum/scale where a trait is not simply present or absent. Eysenck suggested that there were three dimensions of personality: extraversion vs introversion, neuroticism vs stability, and psychoticism.

<sup>6</sup> Gregg, M. And Hall, C., Measurement of Motivational Imagery Abilities in Sport, *Journal of Sports Sciences*, 24(9), 2006.

<sup>7</sup> Mellalieu, S.D., Hanton, S. And Thomas, O., The effects of a motivational general-arousal imagery intervention upon preperformance symptoms in male rugby union players, *Psychology of Sport and Exercise*, 2009, 10(1), pp.175-185.

<sup>8</sup> <http://www.ocr.org.uk/Images/335052-sport-and-exercise-psychology-key-research-guide.pdf>

<sup>9</sup> <https://www.psychologytoday.com/blog/changepower/201402/8-great-motivating-messages-guide-superstar-athletes> Published on 21.02.14, Accessed on 23.08.17

<sup>10</sup> <https://www.competitivedge.com/parentscoaches-guides-coachs-guide-winning-motivation-game> Accessed on 23.08.17

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Big 5 Trait	Definition
<i>Openness</i>	The tendency to appreciate new art, ideas, values, feelings, and behaviors.
<i>Conscientiousness</i>	The tendency to be careful, on-time for appointments, to follow rules, and to be hardworking.
<i>Extraversion</i>	The tendency to be talkative, sociable, and to enjoy others; the tendency to have a dominant style.
<i>Agreeableness</i>	The tendency to agree and go along with others rather than to assert one's own opinions and choices.
<i>Neuroticism</i>	The tendency to frequently experience negative emotions such as anger, worry, and sadness, as well as being interpersonally sensitive.

•The main issue concerning Eysenck's personality theory is the idea that there can be more than one type of personality, as suggested by Digman's Five Factor Model, where openness and conscientiousness are also vital dimensions. On the

other hand, there has been evidence to support Eysenck's idea of a criminal personality (neurotic-extravert), as demonstrated by Farrington et al (1994). The main advantage of Cattell's theory is that it is holistic through the inclusion of several factors contributing towards personality, and so is likely to be an accurate explanation of personality. However, some have argued that personality is not a stable entity (e.g. Mischel et al) and varies according to different people and situations/social interactions. Therefore, it may be inappropriate to reduce personality to a single score, and so a reductionist approach towards explaining personality may be inaccurate. Allport and Odbert took a thorough approach when investigating personality through identifying 18,000 words which describe personality. On the other hand, such an approach may be considered subjective as different words describe personality/dispositional traits for different people, and so their work may not be as comprehensive or valid as it first seemed.

- Kroll and Crenshaw, Multivariate Personality Profile Analysis of Four Athletic Groups: This research was conducted on the assumption that personality is a vital aspect of athletic importance and certain traits are essential for certain tasks/sports. The researchers used the Cattell Sixteen Personality Factor Questionnaire (i.e. a self-report measure) which was administered to 81 footballers, 141 gymnasts, 94 wrestlers and 71 karate players. Using the multiple discriminant function as a statistical analysis technique, the researchers found that wrestlers and football players had the same (homogenous) 16PF profile, suggesting that there are significant similarities between the personality traits required for these two sports. There were significant differences in the profiles produced by gymnasts and karate players, further supporting the idea that dispositional analyses can be used to explain differences in sports aptitudes.
- [APPLICATION] There are multiple real-life applications associated with an increased understanding of the role of personality in sport and athletic performance. <sup>11</sup>For example, there is a strong link between personality and the type of goals individuals set themselves, which often compensate for 'flaws' in their own personality, as suggested by Salmela-Aro et al (2012). Personality also affects the way in which athletes cope with stress and the strategies they use to achieve relief from anxiety, as suggested by Allen et al (2011). <sup>12</sup>Self-efficacy is thought to be the result of performance accomplishments, vicarious experiences, verbal persuasion and emotional arousal (according to Bandura et al), whilst the Need to Avoid Failure depends on whether an individual is ego-orientated or task-orientated. This all links in with the idea that personality has a significant impact upon an individual's overall cognitive well-being and functioning, which in turn affects their stress levels and aptitude towards sport.

**Part 5: Performing with Others**

<sup>11</sup> <http://believeperform.com/performance/personality-in-sport-everyone-is-different/> Accessed on 23.08.17

<sup>12</sup> [http://www.teachpe.com/sports\\_psychology/motivation\\_personality.php](http://www.teachpe.com/sports_psychology/motivation_personality.php) Accessed on 23.08.17

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- Tuckman's team-development model (1965)<sup>13</sup> suggests that teams develop through the process of forming, storming, norming, performing and adjourning. The model suggests that as the team develops, the leadership style also changes in order to adapt to the changing circumstances. Leaders are replaced throughout the process, where previous leaders can go on to lead a new team. Forming involves a large reliance on the leader as a source of knowledge and direction. Storming occurs when there is conflict within the group, and the leader establishes their power to resolve such conflicts between cliques and keep the group focused on their goals. Norming occurs when there is widespread agreement across the group, and leadership is not wholly held by a single individual. Performing is characterised by the team becoming increasingly aware of the pups of their goals, and so require very little (if any) guidance from their leader. The final stage of Tuckman's team-development model was added in 1970 and represents the dismantling of the group, which often coincides when the goal or task has been achieved/ completed.
- In terms of leadership theories, the<sup>14</sup> Great Man Theory suggests that leadership qualities are innate, and so great leaders are 'born great' (popular in the 1840s). Trait theory was proposed by Allport and suggests that a combination of traits/characteristics are responsible for leadership qualities and are gathered through experience. However, the samples were small (reducing reliability and ecological validity because the findings are less able to be generalise the findings to the general population) and no direct link was made between dispositional traits and leadership. This means that such a link was largely the result of subjective interpretation as opposed to objective mechanisms. Behavioural theories in the 1940s were based upon the principles of behaviourism which had been developed by B.F. Skinner and Bandura. These theories took an empiricist stance and viewed leadership abilities as being the product of experiences throughout the lifetime, thus being able to divide leaders as either task-orientated or people-orientated. These theories had the advantage of explaining the role of experience and situational factors on the development of a leader, and so taking a far more holistic stance compared to trait theory. On the other hand, it is difficult to quantify and objectively measure which experiences contribute towards the development of a leader, or even clarify what a 'leader' is! Contingency Theory (1960s) suggested that leadership styles should be adaptive and not rigid - they should change according to the challenges posed by each situation. This flexibility means that this theory can explain many real-life examples of 'adaptive leadership', but is also reductionist in the belief that some people have an innate predisposition to becoming 'natural' leaders. Transactional Leadership Theories (1970s) emphasise the importance of a mutual relationship between a leader and their followers, meaning that desirable behaviour must be rewarded frequently but selectively, as well as punishments also being used.
- Smith, Smoll and Curtis (1979) - Coach effectiveness training: a cognitive-behavioural approach to enhancing relationship skills in youth sports coaches: This theory is based upon the 'athletic triangle', which is made up of the child, parent and coach. Coach effectiveness should be responsive to the cognitive and behavioural changes which occur at a maturational rate. Coaches should selectively reward and punish certain behaviours, and so such systems should inform intervention programmes, as suggested by Edelstein and Eisler (1976). The researchers used 34 male Little League Baseball coaches who coached both at the major and the senior levels. The researchers were looking of the effectiveness of evening training sessions (lasting for 2 hours) and particularly the response of children with overall low self-esteem, who are selectively responsive to different coaching schemes. Verbal instructions were given as well as a demonstration of desirable and undesirable behaviours in response to, for example, another player losing a point. The perceptions of the players was recorded using a structured interview and a recall test, assessing 12 CBAS behaviours. The researchers found that training programmes have a significant positive influence on coaching behaviours and player-perceived behaviours, as well as giving players the opportunity to develop their self-esteem and establish a more positive climate of play. Self-esteem was seen as especially important in responsiveness to the different coaching strategies.

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<sup>13</sup> <http://www.businessballs.com/tuckmanformingstormingnormingperforming.htm> - Using information from *Bruce Tuckman 1965 original 'Forming-storming-norming-performing' concept*; Alan Chapman 2001-2003 review and code.

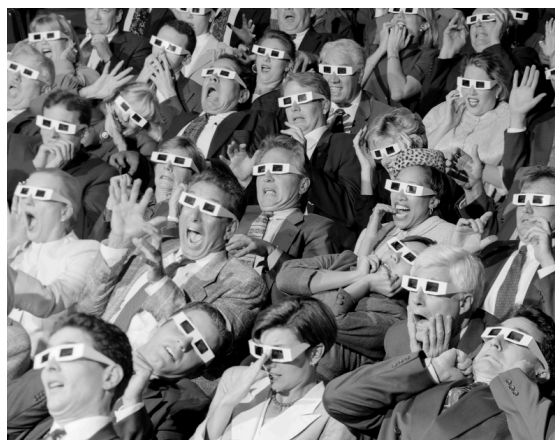
<sup>14</sup> <http://www.leadership-central.com/leadership-theories.html#ixzz4OekVZrY2> Accessed on 23.08.17

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- In terms of ensuring the effectiveness of such programmes, efforts should be made to give precise and clear instructions, as well as encouraging effort. The latter part may not always be possible, especially considering the particularly strong individual differences between players. It is also important to make sure that encouragement is not irritating, but rather motivating. This is a particularly delicate line to cross. A key advantage of this study, however, is that it takes into account the significant role of individual differences in the way that different players respond to the coaching techniques, and so is not reductionist, but takes a more holistic approach.
- A<sup>15</sup> useful application of such knowledge would be cognitive behavioural coaching. This is where the importance of effort and commitment towards sport are emphasised, as well as increasing the athlete's self-awareness through asking socratic questions as part of guided discovery. Therefore, ultimately, people become their own coaches through being able to differentiate between performance interfering thoughts and performance enhancing thoughts, and learn how to deal with these appropriately. This involves the following steps: Problem identification, goal selection, generation of alternatives, consideration of consequences, decision-making, implementation and evaluation.

### Part 6: Audience Effects

- <sup>16</sup>It has been suggested that playing at 'home' facilitates an athlete's performance. These reasons include having potentially more of their own fans cheering them on, sleeping in their own beds, traveling to the grounds independently and avoiding stressful coach journeys. However, recent research has begun to challenge this idea, such as an increased focus on the role of skill, luck and changing circumstances. This preference for home teams is nevertheless waning, as shown by a 10% decrease in the number of wins for home teams in the English Football League since their inception.
- A new stadium or home ground can be 'traumatic' for both players and supporters. Regardless, studies have shown that referees are less likely to penalise players when they hear the roar of the crowd, meaning that the preference for home teams actually translates to their improved playing on the day and more decisions being made in their favour.
- Financial gains are also at play here, and this is summarised in the 'fear factor', where professional officials must be mindful of their actions and where this puts them in terms of the favour of the championship leaders and club bosses. This shows that even using professional referees is not a perfect system, because they are not immune to the effects of a cheering or booing crowd.
- Team sports are thought to be particularly affected by the home advantage, meaning that sports like cricket are less so. However, there is the confounding variable in such team sports of having faith in your team mates and the interpersonal dynamics, reducing the validity of the 'home advantage' as a possible explanation for wins.
- Zajonc, Heingartner, and Herman - Social enhancement and impairment of performance in the cockroach: Previous research has suggested that poor performance may be associated with distractions and the presence of others, as demonstrated by Gates and Allee (1933). Behaviours which are well learned or instinctive benefit most from socially facilitated improvements in performance, as suggested by Travis (1925). The researchers used a laboratory experiment, where cockroaches had to complete a maze either alone or in pairs, or alone or in pairs with an audience, meaning that the researchers were focusing on the role of an audience and groups on performance. Using 72 adult, female cockroaches to test the idea of drive theory (of social facilitation), the researchers found that the presence of an audience increased the performance of tasks which required dominant responses, and that cockroaches in pairs appeared to



<sup>15</sup> Neenan, M. And Palmer, S. Cognitive Behavioural Coaching, accessed on 24.08.17 and through <http://www.erhvervscoach.com/dok/cognitive-coaching-neenan-garmer-CBC03.pdf>

<sup>16</sup> Home sweet home?, David Runciman, Published on 3.02.08, Accessed on 24.08.17, Accessed through <https://www.theguardian.com/sport/2008/feb/03/features.sportmonthly16>

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perform more highly on the tasks when in a group, but the pair must remain together for the entire duration of the maze in order to maximise the enhancing effects. Audiences can enhance both instinctive and well-learned behaviours, in line with social facilitation/drive theory.

- [APPLICATION] The practical application of such research is that it can be used to increase sport participation and performance. For example, according to the company <sup>17</sup>Make Sport Fun, the following techniques can be used to increase participation: empower local communities, marketing campaigns, taster sessions and classes, engagement with partner organisations, coaches, improving facilities, social marketing approaches, strong leadership, facilitating the use of peer networks and providing a suitable workplace.
- <sup>18</sup>Other research has suggested that an increased understanding of technical learning and tactical learning can result in improved tactics for teaching individuals how to gain a fair advantage over their opponents, thus emphasising the importance of sportsmanship and avoiding conflict in this way, as suggested by Evans, Horgan and James (1979).
- Examples of strategies which could be used to reduce the impact of faulty cognition/information processing includes training to ensure complete understanding of tactics, setting SMART goals, providing praise through regular feedback and areas for improvement and avoiding cliques/ social groups within the team.

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<sup>17</sup> John Ainsworth, Top 10 Ways to Increase Participation (makesportfun), Accessed on 24.08.17, Accessed through <http://www.makesportfun.com/wp-content/uploads/2011/07/Top-10-ways-to-increase-participation-report1.pdf>

<sup>18</sup> Kaya, A. Decision making by coaches and athletes in sport, *Procedia - Social and Behavioral Sciences*, 152(2014), pp.333-338