Negative Reinforcement in Coaching Styles

The Effect on Athlete Motivation and Performance

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Abstract

Division III athletes are making up an increased percentage of college students and require intrinsic and extrinsic motivation to achieve peak performance. Athletes can be self-motivated, intrinsically and coaches can stimulate extrinsic motivation through goal setting and achievement- motivation. Without optimal performance players and coaches are at risk of unsuccessful programs and being removed from participation. The purpose of this study was to assess how negative reinforcement from coaches impacts the performance and motivation of athletes. The studied used 2 basketball teams, 1 male and 1 female totaling 18 participants and 2 coaches. The athletes were observed for baseline performance statistics and performance statistics with the presence of negative reinforcement. The results indicated an increased focus with negative reinforcement as well as an increased performance. There were observed demeanor changes that resulted from negative reinforcement that differed between the genders.

Introduction

When an individual attends college, the experience is not limited purely to academics if one has athletic ability. Collegiate athletics are a source of enjoyment, and depending on the division, a more financially affordable option. Athletes in Division III do not receive funding, but make up approximately 39% of all the NCAA divisions, (NCAA, 2017, p.1). Although financial rewards are lacking, personal enjoyment is a significant factor at the Division III level with players expecting to play and consistently improve.

Coaches' communication methods are essential to the direction and drive of their players, level of success they achieve and respect they earn. Coaches play a significant role in maintaining and creating a positive environment, and promoting personal development, autonomy, and positive relationships among their players (Mental Health Best Practices, 2016, p.14). Coaches need to provide the extrinsic motivation for their players, which may add to, or match the intrinsic motivation of the player themselves.

Athletes are a wide range of individuals with different characteristics, backgrounds and athletic ability. Student-athletes have to balance education and enjoyment and an essential element to achieving this is the feedback and motivation they receive. As Stone (1999) stated individuals need constant evaluation of strengths, weaknesses and goals to reach that for an average or below average individual may be developmental, and for those who excel should stretch their abilities (p.35).

Although many tactics are available, a frequently used motivational strategy for coaching Division III collegiate athletes is negative reinforcement by their superiors, or in this case their coaches. Negative reinforcement acts as an extrinsic motivator to promote athletes to play well in times of practice where there is not the risk or potential of losing or winning a game in that

exact moment. Negative Reinforcement in coaching acts as a source of coercive power, which enables a change in action, attitude, or behavior of individuals due to their superior's ability to distribute negative consequences (Borland, Kane, Burton, 2015). However, although negative reinforcement may be within a coach's choice for how to run their team, how well it motivates the players may differ from individual to individual, and may receive different responses.

Athletes and the success they are able to achieve is impacted by a multitude of interdependent components. To be successful both individually and collaboratively each player must have the motivation to do so, which can be internal, external or a combination of both. Coaches not only control the players' playing time, but also provide reinforcement and feedback in different forms. In addition, the ability, skill and athletic performance of the individual players on the team are the keys to success for a program or athlete.

Intrinsic and extrinsic motivation come from different sources but, both work to achieve the same goal, a want to succeed. According to McNorris (2014) the Self-Determination Theory of motivation is how motivated an individual is by himself or herself and is based on three psychology needs. These include competence, or the ability to perform, autonomy, or owning one's behavior, and relatedness, the connection with others. The presence of these components determines whether or not an individual will be intrinsically or extrinsically motivated (McNorris, 2014). In an instance such as athletics, motivation is essential to winning games and improving skills, techniques and maintaining fundamentals. As Hoffman (2015) stated performance motivation in high-pressure situations causes a need for physical and mental skills while balancing the concern for poor performance consequences, competition, and how successful one is at handling pressure (p.325). The Self- Determination Theory involves

balancing physical and mental skills in order to achieve an optimal level of performance through athletics from an internal source.

Athlete performance is dependent on their physical and cognitive skills, which is largely impacted by the input of the athletes' coaches. Although skilled players, Division III athletes lack mastery of skills that creates the desire to improve and break barriers. This leads to the use and relevance of the Achieve- Motivation theory in which setting expectations and achieving tasks creates a drive toward success (Smith, Fri, Ethington, Li, 2004). Creating the best athlete performance is immensely dependent on the level of motivation they receive from coaches, which is often stimulated by goals and objectives to reach for.

Coaching styles differ from sport to sport and between genders. According to Pratt and Eitzen (1989), there are two main leadership styles in coaching, an authoritarian style with total control and strict rules, or a democratic style with support, collaboration and a concern for individual players (p.1). Coaches may fluctuate between these two styles and may also include the use of negative reinforcement or positive reinforcement. As Borland et al. (2015) stated leaders might use rewards or negative consequences to achieve a goal and to promote athletes toward excellence (p.313). It is essential for coaches to choose the right strategies to address their team depending on the population and what they respond best to. Negative reinforcement is common and as Flora (2004) states comes in the form of threats and/or punishments (p.118). Negative reinforcement is often seen within Division III college athletics and is one of the most feasible to execute both in practice with punishment for not completing a drill effectively, or in a game with a lack of playing time. Without using an effective coaching strategy success of the team and individuals is at risk.

With a focus on athlete success in a competitive environment such as Division III, collegiate athletics, athletes must possess either Self-Determination or achievement- motivation from their coaches. Coaches must choose effective methods to stimulate a desire to succeed and a common technique is with negative reinforcement. Peak performance of athletes is the ultimate goal of athletic program and the success of programs relies heavily on the player- coach interaction and motivation level of the players.

The prevalence of collegiate athletics has increased over the years. As of 2017, there are an estimated total of 499,004 NCAA athletes with an estimated 194,196 Division III athletes, comprising 26% of students at Division III institutions (NCAA, 2017, p.1). With the growing number of student-athletes, there is an increase in competition and need for success within programs. Performance of players is strongly linked to their motivation to succeed and coaches play a first-hand role in promoting intrinsic motivation while providing extrinsic motivation. Negative reinforcement motivates Division III players to avoid punishments like less playing time or repercussions of unsuccessfully completing drills, and also provides a goal for players to strive for.

According to the Self- Determination Theory, motivation develops when an individual feels an innate and universal need to change and grow (Cherry, 2017). Athletes feel this consistently when they strive to overcome or persist past other competitors. To help athletes set a goal to strive for without undermining their independence, the NCAA created *Mind, Body & Sport*. *Mind Body & Sport* uses first-hand accounts of athletes, coaches and athletic department staff as they address personal challenges that others may also be struggling to overcome (Brown, Kroshus & Wilfert, 2015). This allows Division III athletes the understanding and reflection of

others successes and failures and promotes a desire to succeed as well although, it does not allow direct communication.

One of the man objectives of the Achievement-Motivation Theory revolves around setting goals and working to achieve them. As Stone (1999) stated, individuals need constant evaluation of their strengths and weaknesses, while also frequently setting goals, that for an average or below average individual may be developmental and for those who excel, stretch their abilities (p.35). The use of goal setting techniques is a reliable source of motivation for athletes, but only if the goals are individualized and realistic. Setting high standards is helpful to push athletes to success, but if they are unattainable can have the reverse affect.

Coaching and communication with athletes is key to developing player ability and promoting success as coaches are charged with the responsibility of creating successful programs. To help coaches more effectively communicate and problem solve the NCAA created *Mental Health Best Practices Inter-Association Consensus Document: Best Practices for Understanding and Supporting Student-Athlete Mental Health* (2016). With the attention not only on the players, but also on the feedback from coaches, the way in which coaches motivate players and the strategies they use are presented. Although, a very reliable and insightful reference for coaches, it lacks the discussion of specific frequently used methods like negative reinforcement directly and the effects it has on athletes.

Division III athletics are driven by the need to succeed and achieve more than their competitors. Athletes require motivation to excel, and with the techniques and resources provided from the NCAA through *Mind, Body & Sport* may have an easier time self-motivating. But, the lack of direct discussion may hinder how well they can maintain their motivation. Coaches can assist in achievement- motivation by creating task- oriented environments and goal

setting with players. Coaches can also provide extrinsic motivation through the strategies and styles they choose to use present within the *Mental Health Best Practices Inter-Association Consensus Document: Best Practices for Understanding and Supporting Student-Athlete Mental Health,* but there is little discussion of the exact techniques like negative reinforcement.

The purpose of this study was to use negative reinforcement in coaching strategies as motivation for Division III collegiate athletes, to assess the effect it has on athlete performance. If athletes are not effectively driven to perform at their peak performance, they may lose the opportunity to play amongst their competition as well as jeopardize the success of the programs they are apart of. As a result of the negative reinforcement in coaching strategies the collegiate basketball players, both male and female, were expected to perform at a higher level than without any reinforcement. Another goal of the study was to assess how the behavior and attitude of the players would change under each circumstance.

Research Questions

This study addressed the following questions:

-Is Negative Reinforcement within coaching an effective motivational strategy to improving player performance?

-Is negative reinforcement applicable to all players regardless of age, gender or experience?

-Are there any observable changes in behavior and attitude that athletes exhibit in response to negative reinforcement from their coaches?

The benefits both long and short term for the participants of the study can be extended to the field of athletics as a whole. The impact on the motivation of athletes in response to negative reinforcement can be referenced by coaches from other institutions, and first-year coaches in Division III programs to have preliminary knowledge on coaching strategies to use. This study

can also contribute to helping investigate the topic further in other divisions and within other sports and programs in upcoming years. The study helps to validate and build respect for athletes emphasizing the physical and mental aspects, and motivation required to succeed.

Definitions

To comprehend the study at hand, a few concepts require a comprehensive understanding:

-Motivation, as defined by the Merriam Webster Dictionary (n.d), is a driving force or influence to achieve a goal, or an incentive.

-Intrinsic motivation, According to Ryan and Deci (2000) "…refers to doing something because it is inherently interesting or enjoyable (P.54)

-Extrinsic motivation refers to doing something because it leads to a separable outcome (Deci & Ryan, 2000).

-Negative reinforcement, is a psychological enforcer that is as a result of removing an unpleasant stimulus by performing a desired action or response (Negative Reinforcement, n.d).

-Peak performance, is regarded within this study as at the highest level of athletic achievement attainable for the skill set of the player.

-The Self-Determination Theory by Deci and Ryan , is defined as the innate need humans feel to grow and gain fulfillment (Cherry, 2017)

-The Achievement- Motivation Theory, is defined as the drive for success and excellence which develops in humans over time to satisfy their needs and is driven by motivation (Rabideau, 2005)

Limitations

One flaw in the design of this study was that in an effort to be the least intrusive and create the most natural environment, the statistics from each team were collected from a typical drill session. This means for the women's team, they each took ten shots total at the same hoop,

while the men each took two shots and rotated hoops. While they both averaged the same amount of shots, the manner in which they did so was not the same, which could lead to inconsistencies. Additionally, only two basketball teams participated, so it may be challenging to generalize the study to other Division III sports. The sample size was also small due to limited time. Another component that needs to be taken into account is that the coaches dictated the instructions therefor there could have been slight differences in their dictation. And finally, the men's team required more observers so there was more attention to the research team both from the coach and players.

Ethical Considerations

As the study was assessing the athletes in their natural environment, it was treated as a naturalistic field observation. The researcher had no contact with the participants and all communication was through the coaching staff. Permission from the coaches was obtained before the experiment. Additionally, with the commitment to participating in NCAA programs a consent form to allow the institution, is this case Anna Maria College, to use their photo and release their athletic performance to media accounts is signed and released as public knowledge. To ensure athletes comfort in the observation, preceding the experiment the researcher sent out an email to all players whose data was recorded. The email detailed what the experiment was studying, that it will be anonymous, and that they can choose to remove their data from the results.

Literature Review

College athletes are a large percentage of students in higher education, with a majority being within Division III athletic programs. Division III athletes do not receive funding, so are driven by enjoyment and the desire to improve. Above the athletes are coaches, who are a main part of athlete improvement and create the environment that they compete in while providing extrinsic motivation. Choosing an effective coaching strategy is needed to propel athletes forward. Particularly at the Division III level, athletes need extensive motivation, whether it is extrinsically, from coaches, or intrinsically, from their selves, and it is essential to their success. Without motivation athletes can plateau, lose ability, lose interest or play on an unsuccessful team or be an unsuccessful player. Negative reinforcement is a coaching strategy used often to drive athletes to success, but the extent to which it is effective or ineffective needs exploration, and whether it works from athlete to athlete.

The literature review will address three areas of research pertaining to the effects of negative reinforcement from coaches on the performance and motivation of Division III athletes. The first section will address research related to how the Self- Determination Theory and intrinsic motivation of athletes impacts performance. The second section will focus on research studies pertaining to the Achievement- Motivation Theory and extrinsic motivation, how it is obtained, maintained and the most effective way to stimulate it. Finally, the third section will focus on negative reinforcement and coaching strategies used that impact athlete performance and motivation.

Intrinsic Motivation

Although athletics appears to be mainly a physical competition, mental capacity and mental toughness of individual players contributes a significant amount to success. If athletes

can be intrinsically motivated through the Self-Determination Theory they have a better chance at optimal performance. There are a number of possibilities to stimulate motivation intrinsically within athletes and may differ between players, but finding a motivator is essential.

In "Relationships among Motivation, Gender and Cohesion in a Sample of College Athletes", the affects of motivation and cohesion on learning and athletic performance are explored. The Self-Determination Theory assesses the motives and behaviors that drive individuals both extrinsically and intrinsically. If an athlete has no motivation the term amotivation is defined as the lack of purpose or control, and can remove athletes from participation in athletics. Cohesion is also seen as a major contributing factor explored through this study and is defined as the want and need to collaborate as a group in a pursuit of common goals. There are two forms of cohesion including task cohesion, working to achieve the same goal, and social cohesion, the relationships of the group and ability to get along with one another, both are crucial to athletic programs' and players' success. The relationship between cohesion and motivation types within teams is a vital part of team success and can be different between male and female teams. The purpose of the study was to assess how and if motivation types and gender were contributing factors to the perception athletes have of team cohesion (Halbrook, Blom, Hurley, Bell, Holden, n.d).

The study took place with 15 large university teams consisting of 253 students with 135 male and 118 female participants. There were 8 team sports and 7 individual sports assessed. The age range was from 18-23 with 60% freshman and sophomores and 9 different ethnicities, with 80.6% participants being Caucasian and 13% being African American. The teams were selected by asking all coaches within the Mid-West large institutions for permission to study their athletes. The athletes completed 3 surveys including a 7-item Demographic Questionnaire,

18-item 4 sub-scale Group Environment Questionnaire and Sport Motivation Scale that measures 8 motivation subgroups and 4 items within each of those groups. The intervention was used in scheduled meetings with each of the teams, during which the study was explained and the 3 surveys were completed, taking the participants less than 15 minutes to complete.

The variables measured included task and social cohesion, the 8 different motivational scales and the absence of motivation all together, amotivation. Gender was also considered as a variable determined through the Demographic Questionnaire. To assess the 8 motivational scales and amotivation, a weighted scale was used to determine one motivational style per participant through a numeric value. To measure social and task cohesion, the subgroups within each were combined to establish 1 numeric value per cohesion group. The data was analyzed for correlation using the program SPSS 17.0 and was checked for normality. To assess whether certain motivation types or genders perceive a more social cohesive environment or task cohesion environment two separate multiple regressions were done. Finally, to assess if sport participated in contributed to the perceived social and task cohesion of the team a two post-hoc hierarchal regression analysis was used.

The results of the study indicated that both task and social cohesion are associated with intrinsic motivation and integrated regulation and negatively correlate with amotivation and cohesion in general. There were no analyzed gender motivation differences. Individuals that were on collaborative teams ranked higher on social and task cohesion than those who participated in individual sports. In conclusion, intrinsically motivated athletes perceived more task and social cohesion. A consideration of this study is the scholarships from Division I funding that could have played into the motivation and motivation styles of the athletes. For

future research in the area assessing different divisions without funding such as Division III schools and smaller schools could be useful.

A limitation of the study is the use of strictly Division I athletes from large schools as well as majority underclassmen and Caucasian population. Additionally, sports are complex and there may be confounding variables that play into athlete motivation. The gap of this study could be filled with the intended study at hand using Division III athletes from a small institution. The intended study will also explore in depth one coaching strategy that affects the motivational climate of athletes as opposed to a broad understanding of all motivational concepts addressed within this literature.

In the article "Study on Optimization of Samples Motivational Level Athletes Throwing", the motivation needed to produce and sustain high caliber athletes is explored. Motivation is essential to success in professional sports, with an equal importance on mental strength training and the physical and technical aspects of the game. There are many psychological and mental strength-training techniques derived from educational processes that direct mental energy and motivation towards athletic performance. The purpose of this study was to design and implement a strategy to drive athletes' motivation to perform at their peak potential while under their typical level of competition and in their typical schedule.

The study is relatively vague about the setting merely hinting at Romania and the professional athletes from there, with no direct data presented on the population and location. The study was intended to quantify extrinsic and intrinsic motivation using a 14-item value system and to assess and quantify the motivational levels of participants. The data was collected by surveying athletes', senior athletes', and coaches' perception of the 14-item motivation scale. There is little information giving on the timing and implementation of the study. There were a

few variables measured through the survey, mainly intrinsic and extrinsic motivation. All three populations assessed each of the 14-items in the Motivational Survey for reward value, expectancy and instrumentality. It is to note that aside from superiority in age there is little distinction identified between athletes and senior athletes.

The data was analyzed using a scoring system to assign point values to each the reward value, instrumentality and expectancy to quantify the data. The 14 items were also ranked by coaches and players and compared to see if there was any major difference or correlations. The athletes' motivational profiles were assessed using descriptive data and assessed again after mental training and psychological motivation intervention. The results indicated that there is a markedly high difference in motivational perceptions of athletes, senior athletes and coaches. Athletes typically ranked they felt more motivated than coaches perceived and mental training for focus and motivational objectives yielded a higher motivational value than without it. The conclusions made are of increasing importance when assessing and working with the mental side of athletes. It was concluded that mental training increases motivation of athletes and allows them to aim for higher goals and many athletes have higher intrinsic motivation than extrinsic motivation. This study is essential in understanding the mental impact on physical sports and activities and seeing the importance of stimulating motivation.

A limitation of the study is that it was very brief making the study not able to be duplicated and often times lacked important information. The data was presented and seemed significant, but there was no sense of direction and understanding provided as to how the data was analyzed. For future studies, providing more background and context on the population and measures is needed and it would be beneficial to assess the levels below and leading up to professional levels that are still highly competitive like NCAA Division I, II, III sports.

In the article, "Reevaluating the Benefits of Performance Goals: The Relation of Goal Type to Optimal Performance for Musicians and Athletes", the impact of personal goals on performance under competition or pressure is addressed. There is discrepancy in athletics as to whether performance avoidance goals, a goal to not perform poorly, or mastery and performance approach goals produce more success. The purpose of the study was to examine whether mastery and performance goals associated with educational success can be generalized to musicians and athletes (Lacaille, Whipple & Koetsner, 2005). 112 Canadian swimmers and 86 musicians with 47 being Canadian completed the study. There were 34 male swimmers, 78 female swimmers, 36 male musicians and 50 female musicians. The youngest participant was age 14 and the oldest was 30. Each participant was in a competitive level in college, post college leagues, or national leagues averaging over 10 years of training and 20 hours of practice a week. The swimmers' data was collected at a summer national competition and the musicians, at an international music camp.

Data was collected by questionnaires pertaining to peak performances and catastrophic ones. The survey asked what the individual goals were prior to the performances and whether they had performance related anxiety. The survey was completed after consent was received and each participant was given $10 for participation. Three variable were assessed, the first being achievement and intrinsic goals measured by a 9-item scale based on a Trichotomous Achievement Goal Theory by Elliot and Thrash. Frequency and impact of performance related anxiety were measured by self-report on a scale, and anxiety experiences during the catastrophic event were measured with an 18-item Competitive State Anxiety Inventory. The data was analyzed using correlations and viewing data tables. Additionally, differences in performance-related anxiety was assessed using a 2x2 multiple analysis of variance with factors of gender,

activity and assessing three anxiety components. A similar 2x2 multiple analysis of variance was done for goal differences for peak and catastrophic performance, but with the achievement measures as the components. Four different ANOVA analyses were additionally done to assess goals in relation to performance.

The results indicated that participants set the same goals before each performance, and performance and negative performance avoidance goals were both related to successful and negative performance. Intrinsic goals tended to be mastery and performance goals rather than a goal to avoid a poor performance. The study shows that mastery and performance goals are associated with peak performance within athletes, while in musicians, performance goals were hindering and mastery goals increased performance. Musicians also performed better when intrinsic goals were enjoyment based. Further research in the field could assess the two separately as well as assess more collaborative sports or bands to assess whether this data hold true in group performance settings. This would reduce the limitation of only generalizing to individual musicians and athletes and may make the findings more significant.

The research literature indicates that the mental aspect of the game and intrinsic motivation are important to the success of athletes and athlete performance. Another consensus is that gender has little to no influence on the motivation and motivational types of athletes, but type of sport participated in plays a role. The research articles provide support for the importance and stimulation of intrinsic motivation and self- determination of athletes. The main limitation of the studies presented were the variations of populations from professional leagues or Division I athletics to high school students, skipping over the middle range of Division II, and Division III athletics.

Extrinsic Motivation

In athletic programs the coaches who mentor athletes and provide extrinsic motivation are of equal importance as the athletes themselves. Coaches embody many roles including teaching skills, maintaining successful programs, developing relationships, and motivating players to succeed. As Kim, Reeve and Bong (2016) stated learning is often goal directed and gets reinforced by feedback or mastering a skill (p.192). Coaches provide this feedback and help athletes set goals encompassing the Achievement- Motivation Theory.

Throughout many studies on athlete motivation, many focus on female athletes as in, "The Effect of Female Athletes' Perceptions of Their Coaches' Behaviors on Their Perceptions of the Motivational Climate". A focus is on task-oriented environments in athletics through the Achievement-Motivation Theory. This is achieved through athletes buying in, and assisting in definitions of goals that keep players motivated with coaches acting as motivation reinforcement for effort, improvement and teamwork. The purpose of this study was to extend an assessment of the perceptions of motivational climate and performance specifically to how coaches affect it (Smith, Fry, Ethington, Li, 2004).

The study took place within the Southern United States, with 143 female high school basketball players, that were two thirds Caucasian and one third African American or of another racial identity. The participants ranged from ages 14 to 17 and came from freshman, junior varsity and varsity teams. The players came mainly from state schools (56%) and county schools (39.9%) with a small percentage coming from city schools (3.5%). Participants filled out a survey assessing their view on the motivational climate in conjunction with their perceived view of how their coach impacted it. The surveys were completed before and after a practice within the middle of the season without the presence of a coach. There were two variables assessed for correlation. The first was feedback type they received from coaches assessed through a coaching

feedback questionnaire. And the second was the motivational climate determined through a 33-item Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2).

After intervention completion a varimax principal component factor analysis was used to assess the different coaching styles of positive feedback, punishment and ignoring mistakes. To assess the motivational component a least square multiple regression analysis was used separately for ego-oriented and task-oriented motivational climate. The results of the study indicate that a perceived task-oriented environment with positive feedback was most commonly seen. Additionally, positive feedback correlated positively with a task involving climate, while punishment and positive feedback correlated with an ego-oriented motivational climate.

Several conclusions are made with the first being the impression and impact coaches have on the performance and motivation of their athletes is very strong and holds true with the Achievement- Motivation Theory where there is a desire and need to succeed. Second, creating a task-oriented environment provides a better learning environment, and more driven athletes. Athletes are also more focused on goals and achieving them with positive feedback as opposed to negative feedback where the atmosphere seems more egocentric. But, within the study a few elements were so minuscule they were left out of the final data analysis. For example, in the regression analysis of task involved motivational climate positive feedback and ignoring mistakes were assessed, but punishment feedback was not. There were a few instances like this and exempting the small percentages could have impacted the overall conclusions of the data. For future research, studying some of the smaller components like punishment feedback may need to be assessed to see why it appeared less impactful.

There were several limitations of the study. First, it was compared to a study by Amrose and Horn from 2000, which studied Division I, and Division III college athletes. This population

is very different from high school female athletes and the Amrose and Horn study had only been used with one group. This could have led to flaws in the survey due to preliminary use that could have impacted the results. Additionally, the study focused solely on female athletes, and with a subjective survey some of the coaches' statements may have been interpreted incorrectly. If a male population was also studied there could be a general assessment of what consists of negative or positive feedback. A study involving both male and female participants and incorporating the punishment feedback component within data analysis would be helpful to bridge the gap left in the literature.

In the article "Behavioral Characteristics of 'Favorite Coaches: Implications for Coaching Education" players' preferred coaching styles was assessed. It is noted that coaches' behaviors and actions effect players' attitude and behavior. If coaches' behaviors are perceived as positive and those positive elements are identified, they can be taught and passed along to assistant and future coaches. The purpose of the study was to assess past and current athletes' perceived favorite coaching qualities to use in education programs to teach coaches how to work most effectively with athletes (Stewart & Owens, 2011).

The study used 391 college students within introductory coaching classes who had previous athletic participation. The study had 211 male, and 118 female participants that participated voluntarily and averaged playing sports for 10.2 years for females and 11.3 years for males, playing sports such as football, basketball, track and volleyball. The participants also indicated the gender of their favorite coach with both genders favoring male coaches. The data was collected by asking each participant to identify 10 characteristics of their favorite coach. The study took place over a 12 semester, or 6 year, time span and was completed during one class per semester as the students in the introductory courses changed. The variable assessed

were the ‘favorite’ behaviors of coaches. As it was an open-ended assessment, all answers were placed in a table verbatim and then assessed for themes and casual factors that may have a significant impact.

The data was analyzed by percentages of themed responses by gender. It was then assessed using comparative charts. The data indicated that the most favored coach behavior was social support and then training and instruction. Positive feedback, autocratic behavior and democratic behavior were all ranked with an importance of less then 10%. Both male and female participants responded similarly. Social support was valued nearly 50% of the time indicating how important the relationship between player and coach is. Further research could assess more in depth the main areas important to athletes including social support and training and instruction to determine what types of methods within those categories are favored by athletes. Some limitations are that it was very subjective in data collection and analysis. Although this was the best formatting to obtain preliminary data, it may have been beneficial to use the most common responses in a further quantified survey with another sample population. Also there was a lack of setting identified. Lastly, the results were generalized responses causing the specifics of coaching behaviors to need further evaluation.

In the study “Great Expectations: How do Athletes of Different Expectancies Attribute Their Perception of Personal Athletic Performance”, how athletes’ perceive their ability and how that may effect their overall performance is evaluated. The Expectancy Confirmation Model is a foundation to assess perceived causes for athlete performance. The purpose of the study was to assess the differences between high and low expectancy athletes’ perception of the causes behind their performance (Wilson & Stephens, 2005). The study involved 16 coaches to assess the expected performance of their athletes and 184 basketball players, 105 male and the rest female

between the ages of 14-18. The participants, both coaches and athletes, were from 4 schools in the Mid-West and the range of playing or coaching experience was between 2-10 years.

To collect data the coaches and athletes completed separate tasks. After consent was obtained from players, coaches, and parents, the athletes completed the Personal Athletic Performance and the Casual Dimension Scale II using a 10-point scale per question. The coaches completed the Expectancy Rating Scale with 5-items to rank the athlete on a scale of 1-5. The coaches' questionnaires took less than one minute to complete per player and each coach completed them during a predetermined date in the middle of the season. The athletes took approximately five minutes to fill out the survey about the casual factors of their performance without the presence of their coach. The variables measured were seasonal performance, assessed by the prediction of the coach in the questionnaire of high or low performance and the athletes' perceived view and causes of their performance, with the addition of four dependent variables. Those four variables were the locus of causality, stability, personal control and external control determined through athletes' responses to their survey. The data was then analyzed using a factorial MANOVA analysis and univariate testing.

The result of the study show that there were differences in the locus of causality, personal control and stability of high and low performance athletes, but not on the expectations of them. Personal control and stability had the largest effect on performance, although not evaluated significantly high. The results indicated athlete's perception of their performance overpowers coaches' exceptions in causal factors of performance. Additional research could address the significance of athletes' personal performance expectancy, and study different populations other than basketball players. The study is limited by only pertaining to one population as well as the

problem, that the coaches' time with the players ranked from 1-6 years, so there was not a consistent time span for assessment of the expectancy of the players.

The research indicates that the methods coaches use to motivate players and create positive team environments are essential to the skill development of the players. Coaches with a more positive demeanor and attitude are responded to better and more effectively provide extrinsic motivation through achievement-motivation. Additionally, there are no differences between how to motivate male and female players, but there is a consensus that women's' teams typically require more aggressive action and both genders respond well to male coaching. All studies tend to have a common theme in being very subjective and hard to duplicate.

Negative Reinforcement

Coaching is a main aspect of athletic programs and there are many methods coaches can use to create successful teams and performance. One method that is frequently used is negative reinforcement in which motivation is driven by the desire to avoid a punishment. Negative reinforcement if used effectively can promote athletes to play at their peak level of performance and help advance players' skills. Negative reinforcement can contribute largely to the successes or losses of a team depending on if it is an effective motivator and can keep coaches out of jeopardy of losing their jobs.

Within the literature an article that addresses two main coaching strategies is, "Contrasting Leadership Styles and Organizational Effectiveness; The Case of Athletic Teams". Different leadership styles produce different organizational effectiveness throughout programs. Three major elements play into the effectiveness of a coach: the population being coached, authoritarianism and to what level they display it, rigor and a lack of tolerance for insubordination. Coaches use their expertise and position to elevate their power, and the style of

leadership they choose to execute plays into how successful they will be. The purpose of this study is to assess how coaches and leadership styles impact the organizational effectiveness, or winning, of athletic programs (Pratt & Eitzen, 1989).

The study was completed with 600 high school students randomly selected from a directory of over 60,000 students from public elementary and secondary school districts. The author noted this is not representative of all the schools in the nation. The coaches were selected by sending out questionnaires to men's and women's high school basketball head coaches resulting in 511 teams, 260 male and 251 female teams. The teams completed surveys abut their coaches to identify their coaching style. It is not directly stated when the surveys were completed. To assess the team organizational effectiveness the winning percentage of the coaches were referenced. Additionally, the coaching styles and components such as rigor, authoritarianism, and rules and regulations were measured on a numeric scale survey completed by the athletes. Authoritarianism was assessed by the number of rules coaches have, and rigor was assessed on a scale of how much players perceived their coaches to expect of them.

The data was analyzed using an analysis of variance and multiple classifications for the men's and women's teams and then compared. The results of the study indicated team rigor, rules, and insubordination had no effect on male players or success of the coaches. But, for coaches of female teams less rules and more rigorous coaches were more effective with higher lifetime winning percentages. Rigor impacted female teams more than male teams for a few possible reasons. Girls may be less skilled at basketball therefore needing more rigor and practice, the need for girls to have harder programs to be valued as much as male programs, and finally female coaches from past research are more authoritarian and use rigor as a source of power and may value intense competition higher. In conclusion, gender plays a factor in how

effective different methods of coaching styles will be. For future research, assessing more competitive level sports such as college or professional may be beneficial to assess if the trend is not age or skill limited. Additionally, including more context and information about the surveys would be needed to duplicate the study. The study also only used basketball teams, so the findings may not be generalizable to other sports. There remains a gap regarding specific coaching techniques used aside from rules and rigor to increase performance of athletes.

An additional article, "An Analysis of Volleyball Coaches' Coaching Behavior in a Summer Volleyball Team Camp," assesses collegiate coaches' interactions with players. Coaches need to balance praise, practice time, instruction and feedback. The purpose of this study was to analyze a handful of behaviors demonstrated by college coaches participating in running a volleyball summer camp (Stewart & Bengier, 2001). The study used 4 college coaches, 2 male coaches age 31 and 16 and 2 female coaches age 23 and 28 that participated voluntarily and were coaching at the high school summer camp. The participants were female class A and B high school volleyball players between 10^{th} and 12^{th} grade who were grouped according to the teams they played with at their high schools.

Observation was done through videotaping the coaches during the camp. The coaches taught the same drills 4 days in a row in the same manner to different teams each day. The recorder was located out of obvious site to the athletes and a total of 16 sessions were recorded, 4 per coach. There were many variables assessed about each coach including management, or when the players were not actively engaged in a practice skill, instruction, practice, general positive feedback, such as "good job", specific positive feedback, such as "your swing has improved", and general and specific negative feedback. Additional variables assessed were corrective skill feedback, using specific names, individual questioning and group questioning.

To measure the variables an observational instrument was used with 4 phases for data collection: being introduced to how to observe, understanding the categories, how to code, and finally completing the coding. The coding system was not explicitly explained. The details pertaining to the system is using 4 individual observers who watch the sessions separately 4 times each to assess for 2 or 3 variables each time. Their scoring is then compared and if there is a similarity over 80% regarded as reliable.

The results of the study indicate that coaches with expertise allow 62% of the practice time for actual practice and drill work with the remainder of the practice time being instruction or time in between plays or drills such as water breaks and transitions. Coaches in this study also provided general positive skill feedback and corrective skill feedback around 120 times, which was significantly higher than in past studies. Negative feedback was kept at a low by the coaches. The data shows giving athletes time to answer questions, perform and learn is beneficial to performance and skill development of the athletes and success of coaches. Negative feedback without being constructive, negatively impacts athletes and the quality of the coach. For further research assessing whether the coaches would coach the same way towards their college team would be beneficial. The study is limited by the subjectivity and vagueness of the methods, and the coaches' awareness of being observed that may have impacted their behavior.

In the Study "Neural Mechanisms Underlying Motivation of Mental versus physical effort", the cognitive processes and motor skills behind performance and task achievement are explored. Incentive rewards and expected rewards play into neural processes that promote successful activities and motivation drives cognitive and motor systems. The purpose of the study was to assess if cognitive and motor skills can be driven by one common motivational

center (Schmidt, Lebreton, Clery-Melin, Daunizeau & Pessiglione, 2012). The study used participants that were assessed as "healthy", but gave little else on the setting and population.

Participants experienced an MRI while performing a task with incentive motivation, and in which cognitive and motor demands could be functioning independently. The study analyzed the variables of incentive levels, cognitive demands and motor demands through functional MRI imaging. The results were analyzed using a global ANOVA test and post hoc comparisons. There was no connection between incentive and difficulty, and motivation and cognitive and motor activities. Participants performed better when there were large monetary incentives and when a task was less physical, or motor controlled. When motor and cognitive difficulties were the same, performance was lowering than when they were both easy. In conclusion, it is harder to complete a task when efforts are sent to more than one ability and part of the brain. Physical exertions create more work to complete successfully and large instantaneous rewards are the most motivating. Further research is needed in exploring the minds of individuals who are assessed as below healthy or above it. The limitations lie in the lack of identification and explanation of complex medical terminology as well as a gap in information on the sample population. It is also up to speculation to assume what healthy means in terms of the participants.

Performance of athletes is the ultimate goal in athletics and many factors contribute to it that come from mental components as well as physical ones. Athletes need to have established goals often accessible through negative reinforcement or reinforcement as a whole, that keep athletes performing well and motivated to succeed. Although many of the studies data and results are limited to one population, or a population in which little information is provided.

Summary

To ensure that athletes perform at their peak potential it is essential to maintain and promote motivation as well as to enforce a successful plan of coaching. Current methods of motivation include stimulating both intrinsic and extrinsic motivation through self-determination and achievement- motivation. There is an importance placed on the motivational climate created both by coaches and the collective unit. Coaches are largely impactful towards athletes' motivation and performance. Coaches that assert fewer rules, but an abundance of positive feedback and reinforcement are typically more successful. There are no motivational differences between genders, but a difference in how coaches coach the genders. Athletes that aim for a goal are typically more successful, and those that perceive themselves as better athletes are also more likely to perform better. Negative reinforcement and the incentive of working to avoid a punishment can help athletes' maintain high standards and preform well. The limitations within the literature come mainly in the form of overgeneralizing from one population to the next with a limited sample size. An additional common theme was vagueness in procedural information that makes the studies difficult to duplicate.

Methods

Division III athletes are in abundance in the current higher education system. These athletes participate for enjoyment and a large part of the enjoyment and success they are able to uphold is through their coaches. Motivation is needed for athletes to succeed and coaches can stimulate this need for success with providing extrinsic motivation. Extrinsic motivation can be given in the form of feedback, in particular through reinforcement and negative reinforcement for sup-par performance.

The following research questions were addressed in this study:

-Is Negative Reinforcement within coaching an effective motivational strategy to improving player performance?

-Is negative reinforcement applicable to all players regardless of age, gender or experience?

-Are there any observable changes in behavior and attitude that athletes exhibit in response to negative reinforcement from their coaches?

This study used a naturalistic observation with a slight alteration in the practice plan of two teams discussed with their coaches prior. Both teams encountered a controlled baseline assessment for free throws and lay-ups as well as an experimental trial, to measure the change in performance pre and post intervention. The shots of the basketball players were recorded and compared both individually and collaboratively to assess the change through comparison of the data in chart form.

Setting

The study took place in a small division III college, located near Worcester with 16 athletic programs. The school is composed of 50% female and 50% male students, with around

68% students, 11% Black, 9% Hispanic, 2% Asian and the rest of the students being of other ethnicities or unknown.

The intervention was done with the basketball teams of the college following similar demographics to those stated above. The intervention was completed within the gym on campus on a voluntary basis with the option to withdraw at any point. Data was collected from a small training room on looking the gym, and from the trainers' desk to avoid observer interference. All instruction was given to coaches prior to avoid interference and a questioning of authority.

Participants

The participants were selected be using a convenience sample. The participants were restricted to those who played basketball at the institution, were not injured and were attending the practice preselected with the coach. Participants included 18 basketball players, the researcher and one other data collector for the female athletes and 6 observers for the men's practice who were students of the college.

The participants were from diverse ethical backgrounds. There were 7 female basketball players and 11 male. Two female participants were Black with the remaining 5 being Caucasian. There were 8 Caucasian, 1 Hispanic and 2 Black male athletes. Among the female athletes there were 1 freshman, 2 sophomores, 1 junior, and 3 seniors. Among the male athletes there were 2 freshmen, 1 sophomore, 3 juniors and 5 seniors. Of the Black female participants 1 was a freshman and 1 was a senior. Of the Black male participants, 1 was a senior and 1 a junior with the Hispanic individual being a senior. All of the participants were already on the team and had been for 3/4 of at least one season at the time of the intervention. The data collectors were all Caucasian with 5 females and 1 male. Amongst the female data collectors there was 1 sophomore, 1 junior and the remaining 3 were seniors with the male data collector being a junior.

All data collectors were instructed on how to record the shots of the basketball players. Two data collectors were used for the women's team and 6 were used for the men's.

Intervention

The independent variable measured by this study consisted of the negative reinforcement coaches applied when working with their athletes. The intervention was given by speaking to the coaches prior to practice and creating a plan to run the same lay up and free throw drills twice. The first time the players ran the drill there would be no negative reinforcement. The second time the drill was run the instruction prior would be that negative reinforcement would follow without a better performance. The free throw drills and lay up drills remained consistent to what structure the team would typically do to keep normalcy.

The dependent variable was the performance of the athletes. The coaches' reinforcement for low or below expected performance was intended to increase the level of performance the athletes would put forward. Additionally, the motivation of the athletes was observed in connection to their performance and demeanor to see if they felt more motivated due to changing social and behavioral cues.

Materials & Measurement Instruments

The intervention was completed using readily available equipment to the teams through their on campus facilities including gym time and space, and basketballs. The intervention merely required communication from the coaches on how to verbally communicate the instructions to the athletes.

The performance of the athletes was measured using an observational data collection system. As participants shot each one was recorded next to their names as to whether they made it or missed. Additionally, any significant observable original behaviors or changes in behavior

of the team or individuals were noted throughout the process. Verbal comments made towards the drills, data collectors or towards personal performance were noted as well. The purpose of this was to track any motivational changes in the athletes that could not be quantified.

The validity of the study was established through the data collection process of measuring quantitatively how many shots each player made and missed and recording that exact information. The reliability of the measure was done by having a multitude of individuals recording data to ensure its accuracy and that no shots were missed. The coaches themselves also kept track of missed shots as the data collection occurred to ensure reliability.

Procedure

The data was collected through observation. Players went through the free throw control group, free throw experimental group with negative reinforcement, lay up control group, and lay up experimental group with negative reinforcement for both female and male teams. Players participated in their natural practice environment and facility using the style of drill they would normally use for each skill. The researcher team was stationed at the back of the gym out of sight as much as possible from the participants in an on looking training room. The data collection took place over 2, 2-hour practice blocks, 1 for the female team and 1 for the male team.

The baseline of data was developed from the first time participants ran the drill in a controlled condition without negative reinforcement. This allowed a chance to see how many free throws and lay ups each player would make based on their own motivation and ability. After this baseline was assessed they would then encounter the intervention from the coaches. Coaches choose the reinforcement in which they felt best motivated the teams. For the males, they ran for every missed shot in the second drill, and for the females they ran for every shot they

missed in the second drill more than they missed in the first drill. The drills were run according to the normal style they would typically be run. This meant for both the men's and women's teams they each ran their lay up drills by taking shots one by one and shuffling through. For the free throws, the women each took 10 shots at one hoop and the men took 2 shots each at 5 different hoops rotating around and totally 10 shots per player. Throughout this process data was collected as to whether players made or missed the shots by a circle for a missed shot and a check mark for a make that was then calculated later for shooting percentages individually and collectively.

The data was collected and analyzed using a comparison of pre- and post-data. The data was separated by individual player as well as by team according to gender. The data was then compared for playing time, experience and age. Averaging of individual data and team data was used and charts for comparison were referenced.

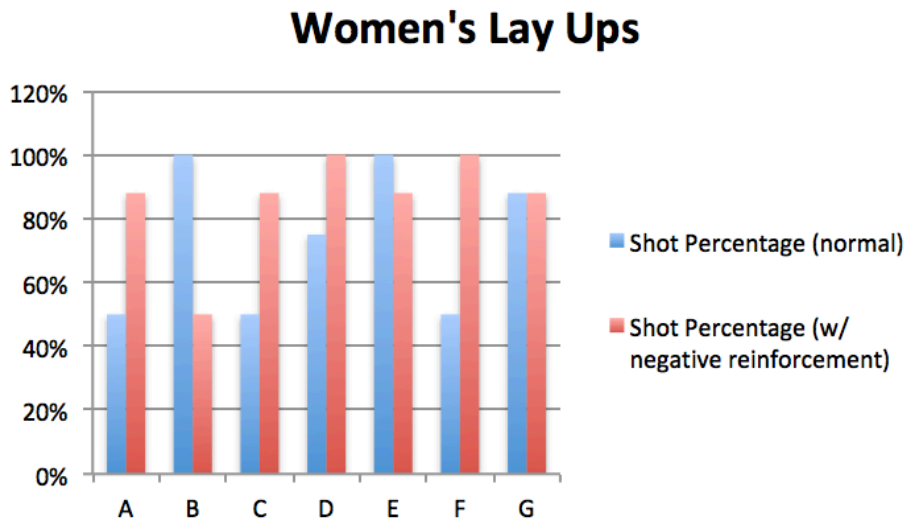
Results

In studying the effect negative reinforcement from coaches has on the motivation of athletes there are a few key components. The first is of the statistical performance of the athlete and the second is if there were any clear changes in behavior that resulted.

To study the performance of athletes the shots made and missed for each player were as follows:

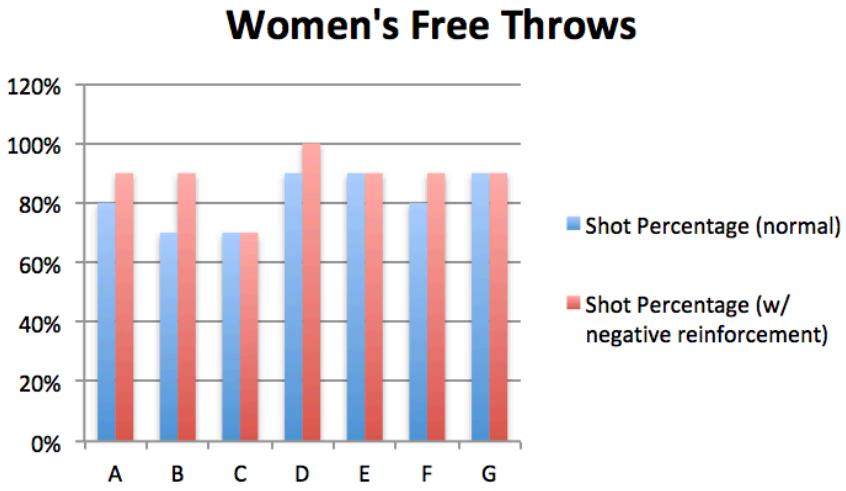
Womens Lay Ups

Player	Shot Percentage (normal)	Shot Percentage (w/ negative reinforcement)
A	50%	88%
B	100%	50%
C	50%	88%
D	75%	100%
E	100%	88%
F	50%	100%
G	88%	88%



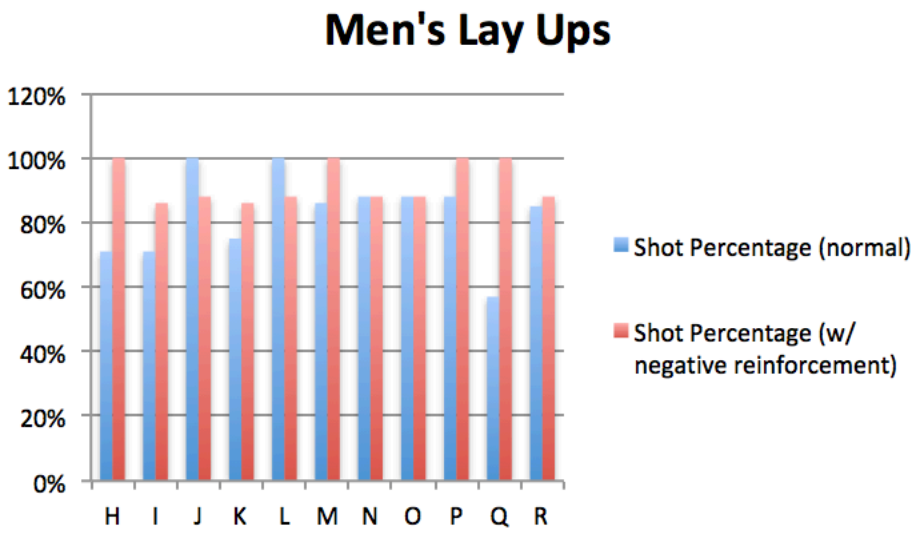
Women's Free Throws

Player	Shot Percentage (normal)	Shot Percentage (w/ negative reinforcement)
A	80%	90%
B	70%	90%
C	70%	70%
D	90%	100%
E	90%	90%
F	80%	90%
G	90%	90%



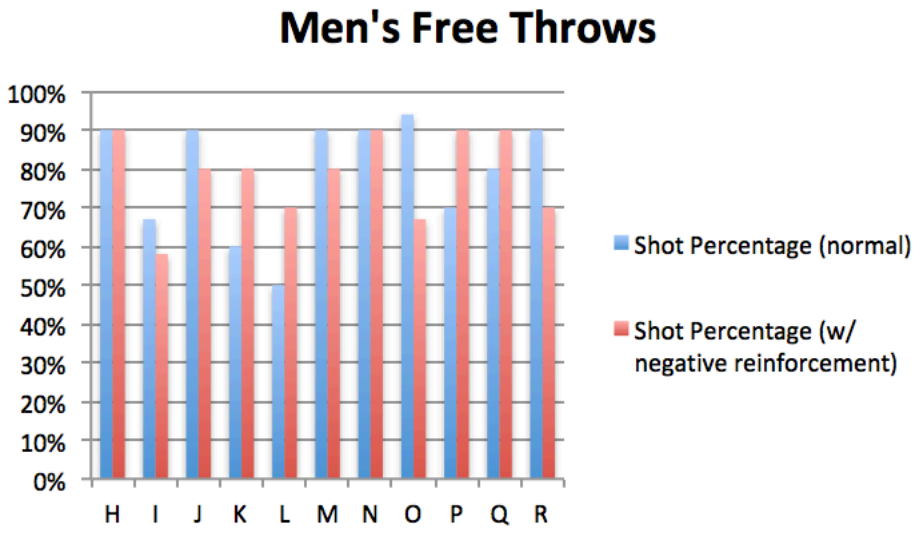
Men's Lay Ups

Player	Shot Percentage (normal)	Shot Percentage (w/ negative reinforcement)
H	71%	100%
I	71%	86%
J	100%	88%
K	75%	86%
L	100%	88%
M	100%	100%
N	86%	88%
O	88%	88%
P	88%	100%
Q	88%	100%
R	57%	88%



Men's Free Throws

Player	Shot Percentage (normal)	Shot Percentage (w/ negative reinforcement)
H	90%	90%
I	67%	58%
J	90%	80%
K	60%	80%
L	50%	70%
M	90%	80%
N	90%	90%
O	94%	67%
P	70%	90%
Q	80%	90%
R	90%	70%



Comparison Data

Women's Average Lay Ups	73%	Women's Average Lay Ups W/ Negative Reinforcement	86%
Women's Average Free Throws	82%	Women's Average Free Throws W/ Negative Reinforcement	86%
Men's Average Lay Ups	85%	Men's Average Lay Ups W/ Negative Reinforcement	92%
Men's Average Free Throws	79%	Men's Average Free Throws W/ Negative Reinforcement	78%

The data shows a nearly universal increase in performance with the addition of negative reinforcement, aside from a few individuals who maintained the same level of performance, including: 1 female during lay ups, 3 females during free throws, 2 Men during lay ups and 1 during free throws. There were also 2 women who had a decreased performance in lay ups as a result of negative reinforcement and 2 men during lay ups and 5 during free throws. These responses are low compared to the 4 women who increased during lay ups and free throws and the 8 men who increased during lay ups and the 4 men who increased during free throws.

In addition, observable behavior changes were noted throughout the experiment. During the women's experiment when negative reinforcement was introduced in drills there was more vocal support of other teammates and from the coach. Players were also more proud to tell their coach how many shots they made and the demeanor of the players seemed more focused in and tense. As for the men their behavior was slightly different. The men reacted more negatively and became frustrated with errors they made personally. But, they maintained the same level of support throughout all drills as opposed to the girls who had a markedly lower level of support without negative reinforcement. In another interesting finding two of the male players started to joke around and laugh with the addition of negative reinforcement. The men also paid more attention to the researchers observing and even communicated with them a few times.

Discussion

As the number of Division III athletes increases the push for successful programs and successful coaches increases as well. Motivation is immensely important to athlete performance and can be intrinsic or extrinsic. Self- determination when paired with achievement- motivation can be the most effective way to achieve optimal player performance, but only when initiated correctly. Negative reinforcement is a way of promoting peak performance while also setting a goal and task to achieve, but there is limited research on the benefits and drawbacks in relation to an athletic setting. The purpose of this study was to fill the literature gap between high school and Division I athletes with using a Division III population as well as to assess the effect negative reinforcement in coaching has on athletes' performance and motivation.

The data from this study goes on to show a few interesting findings. The first is amongst both the men's and women's teams in terms of the relatively consistent increase in performance. This data suggests that negative reinforcement can provide the extrinsic motivation needed to successfully stimulate performance and that a large sum of athletes may perform better in practice and game time with it. Another result to note is with the individuals who maintained the same performance and those whose performance decreased. Amongst those who maintained the same performance were the players who consistently started in games and had a large amount of playing time, typically seeing the court in every game. This may suggest that players that have more experience are more self-motivated and may hold themselves more accountable. On the other hand, the players who increased the most due to negative reinforcement tended to be the younger players or older players with less experience and court time. This result may insinuate that less experience creates more achievement- motivation driven players as they may not be able to see a goal on their own as they don't get rewarded with playing time as often.

Additionally, there tended to be a greater overall average increase in lay ups than in free throws with the women's team increasing by 11%, which may be due to the skill itself. Although both lay ups and free throws are common and repetitively practiced skills there is often more pressure to make a lay up than a free throw. This is because lay ups are from a significantly closer distance than a free throw. The men's team decreased with their free throw percentage by 1%, which may be attributed to their acknowledgement of being observed.

When it comes to the observation of the players' behaviors a few notable changes were recorded. Both teams had a perceived increase in focus with the addition of negative reinforcement apparent through different means. The men's team started to line up their shots and take more time before them and the women's team became more engaged with one another. When it comes to the verbal support of teammates the men remained the same and the women only started cheering and supporting each other when the negative reinforcement was instituted. This may insinuate a competitive nature between the female players. Additionally, the couple of men's players who were joking around may have been compensating for the pressure they felt by laughing it off.

In studying the effects of negative reinforcement within coaching styles on the motivation and athletic performance of athletes, a wealth of knowledge was obtained. For the participants and coaches within the study, they have a better understanding of how to motivate their teams and themselves. This may promote success for the season at hand and can possibly be used with future teams to promote success as well, keeping in mind that each team is different and will respond differently. Additionally, players can understand their motivation style more comprehensively depending on if they maintained the same performance, increased in performance or decreased. This can be connected to future communication between coaches and

players as well as with possible endeavors outside of sports. The participants and coaches can also see how their attitude and behavior was perceived from an outsider view during the rigor of an athletic program.

When it comes to the limitations of the study they are a few that stick out. The first is that a less noticeable location or method of observing may be helpful to reduce the chance of player notice and an unnatural environment. It would also be beneficial to have both coaches run the drills in the same way and have them start the season that way so the players don't find it odd if the style of drill changed from the norm mid-season. The study is also limited to the lack of different sport presence and the small sample population that may be hard to generalize to other groups. If the study was completed again it may increase the reliability if each team went through both drills on two separate practice dates with time in between. This would eliminate any chance of exterior factors impacting the players.

If this research were to be continued it would be beneficial to add a survey regarding intrinsic and extrinsic motivation of the players. This would lead to less inferential data and more reliable data for the correlations between motivation and performance. It may also be beneficial to assess Division II athletes, as there is also a literature gap amongst this population. And lastly, a larger sample size would be helpful.

Negative reinforcement has proven to be a helpful component in increasing the performance and motivation of athletes, particularly those of less experience. An implication of this could be to give these players a few more minutes of playing time if possible so they could be more extrinsically motivated to do well by being rewarded. Additionally, this study found that players with more experience appear to be more self-determined rather than achievement motivated. This could mean coaches could allow players of this motivation type to create their

own goals as opposed to an achievement- motivated individuals, which may want and need the extra push from a coach. And finally, female players respond to negative reinforcement with support for others while men maintain their same composure. An implication for women's coaches could be to consistently give players challenging tasks so they bond and collaborate more closer together through support of each other that could lead to further team success.

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