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**Time Allocation of Sales Activities in Professional Sport
Organizations**

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Abstract

The sale of tickets, premium seating, and sponsorship is fundamental to the financial viability of professional sport organizations. With ticket sales as the most important source of local revenue for most sport organizations and the sale of premium suites and sponsorships unshared amongst other franchises (Smith & Roy, 2011; Howard & Crompton, 2004), recruiting, training, and retaining high quality salespeople is an important managerial function of professional sport franchises (Irwin, Sutton, & McCarthy, 2008; Pierce, Petersen, Clavio, & Meadows, in press). Although researchers have examined sales activities in many industries, little research exists on how salespeople utilize their time in the sport industry. Sport salespeople have a variety of responsibilities, from cold calling to working on game day (Pierce et al., in press). However, sales activities might differ based on salesperson characteristics such as gender and experience, or by organization based on level of competition or what is being sold. The purpose of this study was to determine how much time sport sales personnel spend on a variety of sales tasks, examine differences between types of sales employees, and determine if time spent on sales tasks predicts job performance or satisfaction.

Literature Review

Frederick Taylor's pioneering essay of 1911, *The Principles of Scientific Management*, formed the foundation of time and motion study as a gateway to the improvement of worker practices (Bell, 2011). Three key concepts encapsulated the approach of scientific management including: the study and analysis of work in order to discover the best way and proper time to perform a job, a scientific process for selecting and training the workforce, and disciplined work performance by labor coupled with analysis and control by management (Covell et al., 2007). The application of the tenants of Taylor's scientific management to the area of sales was quickly established by Charles Hoyt who published his text *Scientific Sales Management* in 1912 (LaLonde & Morrison, 1967). Despite the early and expanding work related to the application of scientific management concepts to the sales process, there has been no documented study of the time allocation of sales tasks and activities specific to the sport industry setting.

Salespeople have a number of job duties and responsibilities, and several prior studies have sought to identify and classify these tasks. Moncrief (1986) created the first comprehensive inventory of sales activities that was applied in the setting of selling industrial products. Additional research by Moncrief, Marshall, and Lask (2006) updated this inventory and conducted a factor analysis that identified twelve dimensions of selling, including relationship selling, promotional activities and sales service, entertaining, prospecting, computer, travel, training/recruiting, delivery, product support, educational activities, office, and channel support. Beck and Knutson (2006) used a similar methodology, but applied it to the hotel industry, and Authors (in review) performed an exploratory and confirmatory factor analysis of sport sales activities.

Sales activities within the sport industry have been examined primarily through content analysis of sport sales position announcements. Pierce et al. (2012) performed a content analysis of 335 ticket sales and service position announcements over a six-month time frame. Six of the eighteen job responsibilities, which included cold calling, customer service, prospecting, database

management, game day duties, and presenting, were identified in at least half of the job announcements.

Bae and Miller (2011) examined 209 sport marketing job announcements over a six-month time frame. While the sampling frame was broader than in the Pierce et al. (in press) study, the top job duties in sport marketing positions were sales related. The following three duties were identified in over forty percent of the announcements: 1) overseeing sales and services for individual, group, premium seating, club seats, and suites; 2) developing new sales strategies and packages for customers; and 3) meeting established sales objectives via cold calling and in-person sales.

How salespeople allocate their time has been examined in the business literature with a focus on sales performance. Kerber and Campbell (1987) found little association between the proportion of time devoted to various work activities and sales performance. Similarly, Weeks and Kahle (1990) found no relationship between time spent calling on existing accounts or potential accounts and sales performance. Beck (2006) and Beck and Knutson (2006) examined the sales time allocation for hotel sales managers, who spent the greatest amount of time in face-to-face selling, followed by prospecting, account servicing, preparing requests for proposals, and completing paperwork. Beck (2006) examined differences between full and limited service hotel sales managers. Limited service hotel sales managers reported spending more time in face-to-face selling and training others, while full service hotel sales managers reported spending more time preparing requests for proposals.

Similar to Beck (2006), this present study examined group differences, but also included measures of performance. Specifically, this study examined differences in sales time allocations based on gender (male/female), title (director/non-director), organizational level (minor league/major league), and type of sales (season tickets/groups and businesses). The relationship between market size and years of sales experience is also explored. The rationale for these comparisons is presented next.

First, gender differences within sales processes have been examined in prior research. One important trend in sales is the

movement away from the transaction-based sales model to relationship-focused sales (Weitz, Castleberry, & Tanner, 2009). Studies have found that females are more interested and better at developing and maintaining sales relationships than males (Beetles & Crane, 2005; Groysberg, 2008; Sigauw & Honeycutt, 1995). Males and females approach the sales relationship from different perspectives (McQuiston & Morris, 2009). Women are more relational and attempt to build relationships prior to achieving goals, while men tend to focus on goal achievement prior to relationship building (Heaston, 2005). Males and females also differ on verbal and non-verbal communication (McQuiston & Morris). Despite the noted differences in sales approaches and styles, no prior research has examined time allocation of sales tasks by gender.

Second, differences have previously been found between directors and non-director sales position in sport organizations. In their content analysis of sport ticket sales position announcements, Pierce et al. (2012) found that directors were nearly seven times more likely to perform financial management activities and seven times more likely to supervise other salespeople. Third, differences in sport sales roles based upon leagues levels have also been studied in the past. Petersen, Pierce, and Judge (2011) examined difference between minor league and major league organizations in sales position announcements using content analysis methodology. With regard to job responsibilities, major league positions were more likely to identify game day duties, renewals, facility tours, and upselling. In terms of transferrable skills, major league organizations were more likely to identify long hours, organizational skills, interpersonal relation, and bilingualism than minor league franchises. This study offers a unique contribution compared to the previous studies by virtue of the survey methodology employed.

Fourth, sport sales can be categorized by the type of product sold or the target market of the sales effort. Professional sports is sold to four distinct stakeholder groups, including fans, television and other media, communities, and corporations (Mason, 1999). Individual fans purchase season and individual tickets; pay for concessions, parking, and licensed goods; and attend games to be

entertained by the unknown outcome of the game or other product extensions that are entertaining (Mason). Organizations and businesses purchase group seats, premium seats to entertain clients and employees, and sponsorship to associate with the sport organization and achieve marketing objectives. The task and activities of a salesperson could be different based on whether they are selling to individual fans or corporations.

Fifth, the relationship between market size and sales activities has not been examined previously. However, it is possible that the activities of sport sales personnel could be different if they were located in a small town compared to a large urban area. For example, Pierce and Petersen (2011) examined sponsorship sales in Indiana high schools and found that non-rural schools were nearly three times more likely than rural schools to activate sponsorship through on-site promotions.

Finally, the level of experience in sales or length of tenure within the sport organization can also play a role in the nature of one's job responsibilities. There are four career stages in sales as outlined by Irwin, Sutton, and McCarthy (2008) based on the work of Cron (1984). In the exploration phase, sales professionals are searching for support, challenges, a career path, and the situation that best fits their needs. In the establishment phase, young professionals put in long hours of hard work to establish their reputation and credentials. If successful, sports ticket sales representatives often have options to move into sponsorship sales, premium sales, or management. In the maintenance stage, salespeople rely on their experience and network of contacts to achieve high levels of sales without working as hard as those in the establishment stage. Finally, in the disengagement phase, veteran salespeople tend to not be as competitive and prioritize other areas of their life ahead of their career. These individuals can become difficult to motivate and incentivize. Sport sales related research has identified differences between entry-level and non-entry-level positions (Pierce et al., 2012). Entry-level positions were four times more likely to require cold calling and receipt of inbound calls, while non-entry-level

positions were nearly five times more likely to seek employees who would supervise other salespeople.

Because empirical examination of the nature of sport sales positions remains relatively limited, the results of this study provide additional insights into the nature of sport sales. While Pierce et al. (2012) and Bae and Miller (2011) were able to identify the percentage of job descriptions that identified required job functions, the content analysis methodology used in both studies was unable to differentiate the amount of time spent on the variety of sales tasks and job responsibilities. There are numerous implications from this research for multiple stakeholders including sport management students considering a career in sales, sport management faculty preparing curricula to prepare students for a career in the sport industry, and sport organizations who need to train productive salespeople to generate revenue.

In order to provide a structural framework for this investigation, the following research questions guided this study:

- 1) How many hours per week do sport sales personnel spend on various sales tasks?
- 2) What differences exist on how much time is spent on various sales tasks based on gender (male/female), title (director/non-director), organizational level (minor league/major league), or type of sales (season tickets/groups and businesses)?
- 3) What is the relationship between market size (population) and time spent on sales activities?
- 4) What is the relationship between years of experience in sport sales and time spent on sales activities?
- 5) Does the amount of time spent on various sales activities predict sales performance, satisfaction, or persistence in sport sales?

Methods

Participants

A database of 4,677 sport salespeople at the professional level was compiled from team websites from the National Football League, Major League Baseball, National Basketball Association, Women's National Basketball Association, Major League Soccer,

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the National Hockey League, East Coast Hockey League, American Hockey League, Minor League Baseball (MiLB) International League, MiLB Midwest League, and MiLB Southern League.

The majority of respondents were male (73.8%), and females accounted for 26.2% of the sample. Account Executives accounted for 67.7% of the respondents, while 13.1% described themselves as a Director, 14.7% were Managers, and 4.5% were Vice Presidents. The sports of baseball (36.1%), hockey (26.6%), and basketball (23.6%) were the sports most represented in the survey, followed by football (8.4%), and soccer (5.2%). A large majority worked at the Major League level (71.1%) while 28.9% worked at the Minor League level. Over half of the respondents were responsible for group ticket sales (58.1%) and season ticket sales (57.0%), while 33.1% were responsible for premium sales, 23.5% described themselves as responsible for inside sales, and 21.9% handled Sponsorship. On average, the respondents had five years of experience working in sport sales ($M = 4.99$, $SD = 4.31$).

Survey

A 78-item questionnaire, divided into four sections, was developed through an extensive literature review (Beck & Knutson, 2006; Moncrief, 1986; Moncrief, Marshall, & Lassk, 2006; Pierce et al., in press). Initial drafts of the surveys were distributed to ten academic and industry experts in sport sales in order to establish face and content validity. Section 1 contained the following demographic questions: title (account executive, director, manager, vice president); gender; years of experience in sport sales; employer; primary job responsibility (group sales, inside sales, season ticket sales, sponsorship sales, premium sales); and percentage of annual sales goal achieved last year.

Section 2 contained 56 items using the following question stem on a 7-point Likert scale: "Please rate the relative importance of the following sales tasks toward your success as a salesperson." Section 3 contained ten items regarding how much time (hours per week) salespeople spend on the following sales activities: prospecting, sales call planning, face-to-face selling, selling over the

phone, preparing requests for proposals, traveling to meet with clients, servicing accounts, professional development, organizational tasks, and sales force management. Section 4 contained the following four Likert-scale questions: I am satisfied with my job; I want to continue working in sport sales; I can achieve success in sport sales; and I am one of the top sales people in my office ($\alpha = .730$). This article focuses on the results to Section 3 and 4 and uses demographic questions from section 1 to compare differences between groups. Approval was sought and obtained by the Institutional Review Board at the lead author's institution.

Procedure

Participants were recruited to complete the questionnaire by direct mail via the United States Postal Service. Participants were given the option to complete the hard copy questionnaire inside the direct mailing, or to complete an online survey placed on the website www.sportsales.info, which was created specifically to host the online survey. Sixty-six mailings were returned to sender due to an invalid mailing address, and 4,611 surveys reached the intended destination. A total of 529 participants returned the survey (141 online, 388 paper) yielding an 11.5% response rate. A total of 457 respondents completed sections 3 and 4 of the survey instrument, which are the sections examined in this paper.

Data analysis

Non-parametric statistical procedures were utilized because the measurement variables did not meet the normality assumption. As a result, the Mann-Whitney U-test was utilized to compare group differences in gender, title (account executive vs. director), level (major league vs. minor league), and season tickets (individual season tickets vs. selling to groups and businesses) because each nominal variable was dichotomous. Because four analyses were being performed for the same variables, the Bonferroni inequality adjustment was utilized to control for Type I error, creating a new significance value at $p = .0125$ (i.e., $.05/4$; Hair, Black, Babin, &

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Anderson, 2010). The data was analyzed using the SPSS Version 19.0.

Results

Table 1 identifies the overall descriptive statistics for each sales activity. Sport sales personnel reported spending 14.6 hours per week selling on the phone, accounting for 27.3% of their work week. However, the standard deviation for selling on the phone was 11.5, indicating that there was quite a bit of variability between groups, which will be examined in more detail. Assuming the ten tasks represented in the survey accounted for all of a salesperson's time, they reported working on average 53.4 hours per week, but the standard deviation was 20.22, indicating that many sales personnel work more or less than 53 hours per week.

Table 1
Hours per Week Spent on Sales Tasks

Task	<i>M</i>	<i>SD</i>	<i>Pct.</i>	<i>N</i>
Selling on phone	14.6	11.5	27.3%	457
Servicing	8.6	8.8	16.1%	457
Organizational tasks	7.3	6.4	13.7%	457
Prospecting	5.5	5.8	10.3%	457
Sales force management	4.1	8.6	7.7%	457
Presenting	3.5	3.2	6.5%	457
Planning	3.1	2.8	5.8%	457
Preparing bids	2.4	3.0	4.5%	457
Traveling	2.2	3.1	4.1%	457
Professional development	2.1	2.3	3.9%	457
Total	53.4	20.2	100%	457

Table 2 displays the *z* value for the Mann-Whitney U tests. First, gender differences were detected on servicing ($U = 12766$, $z = 4.30$, $p = .001$, $r = .20$) and organizational tasks ($U = 14002$, $z = 3.32$, $p = .001$, $r = .16$). Females spent more time on servicing accounts and organizational tasks than males.

Second, job title differences were detected on prospecting ($U = 18748.5, z = 2.58, p = .010, r = .12$), selling on the phone ($U = 12659, z = 7.33, p = .001, r = .34$), professional development ($U = 16052, z = 4.75, p = .001, r = .22$), and sales force management ($U = 6624.5, z = 12.41, p = .001, r = .58$). Account executives spent more time on prospecting and selling on the phone than directors. In contrast, directors spent more time on engaging in professional development and sales force management than account executives.

Third, no differences were detected between sales personnel at the major league and minor league level. Finally, significant differences were detected between those charged with selling season tickets and those charged with selling group tickets, premium seats and sponsorships to groups and businesses. Salespeople assigned to selling to groups and businesses spent more time than those selling season tickets on prospecting ($U = 19027, z = 4.03, p = .001, r = .19$), planning ($U = 20533, z = 2.93, p = .003, r = .14$), presenting ($U = 18008.5, z = 4.78, p = .001, r = .22$), preparing bids ($U = 18266.5, z = 4.53, p = .001, r = .21$), and traveling ($U = 17563, z = 5.17, p = .001, r = .24$). Salespeople focused on selling season tickets spent more time selling on the phone than those selling groups, premium seats, and sponsorships to a corporate audience ($U = 19043, z = 4.0, p = .001, r = .19$).

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Table 2

Mann Whitney U Test Z-values Comparing Differences between Gender, Title, and League Level and Product Sold

Task	Gender	Title	League Level	Product Sold
Prospecting	2.36	2.58*	.30	4.03*
Planning	.45	.31	1.15	2.93*
Presenting	1.27	2.41	1.47	4.78*
Selling on phone	.01	7.33*	.99	4.00*
Preparing bids	2.32	1.91	.87	4.53*
Traveling	.38	.08	.67	5.17*
Servicing	4.30*	.18	.87	.27
Professional development	.81	4.76*	.68	.72
Organizational tasks	3.32*	2.39	.43	1.25
Sales force management	.84	12.41*	1.90	.49

Note. *Significant difference at .0125 level using Bonferroni inequality adjustment (Hair et al., 2010).

Research Question 4 sought to examine if years of experience in sport sales had an effect on the time spent on certain sales tasks. Prospecting ($r = -.10$) and selling on the phone ($r = -.18$) were negatively correlated with years of experience, while professional development ($r = .10$), and sales force management ($r = .23$) were all positively correlated with years of experience in sport sales. However, only selling on the phone ($\beta = -.046$) and sales force management ($\beta = .101$) were significant predictors of one's years of experience in sport sales, $F(10, 453) = 4.448$, $p = .001$, adjusted $R^2 = .071$.

The size of the market in which the sport organization resided was also examined, operationalized by the population of the city in which the team resided. The regression result was insignificant, but a significant positive correlation was identified between population and prospecting ($r = .10$).

The amount of time spent on various sales activities did not predict job satisfaction, the extent to which the sales person believed they could achieve success in sport sales, the extent to which the sales person believed they were one of the top salespeople in the office, or sales productivity as measured by the percentage of sales goals achieved in the last year. However, time spent on sales activities did predict wanting to continue working in sport sales. Professional development ($\beta = .039$) and sales force management ($\beta = .016$) were significant predictors of one's wanting to continue working in sport sales, $F(10, 448) = 2.59, p = .005$, adjusted $R^2 = .034$. Lastly, total hours per week worked was not significantly correlated to any of these variables.

Discussion

The sport sales personnel surveyed in this study spent the greatest amount of time selling on the phone, which accounted for over one-fourth of the work week. Selling on the phone is an activity fundamental to selling. Pierce et al. (2012) found cold calling was the most commonly identified sales task in sport sales position announcements. However, not all sales positions are created the same. Account executives and sales personnel focusing on sale of season tickets focus a majority of their efforts on selling over the phone, which explains the large standard deviation in hours per week spent selling on the phone. Because these positions are readily available for those seeking entry-level employment in the sport industry, sport management programs offering sales courses should include selling over the phone as an experiential learning component of any sales class to appropriately prepare students for the nature of sport sales positions (Pierce & Petersen, 2010; Pierce, Petersen, & Meadows, 2011).

Servicing accounts was second behind selling on the phone with 8.4 hours per week. It is important to note that "customer service" representatives were not surveyed in this study, meaning account servicing is an activity for which salespeople allocate significant time. Some organizations, including many minor league organizations, may not have personnel allocated specifically to

customer service, but this result clearly indicates that salespeople also need to have a skill set conducive to servicing accounts. Sport organizations should ensure that training efforts focus on how to service accounts in addition to time spent training on sales technique.

Salespeople in this survey spent the third greatest amount of time on organizational tasks, which confirms the results of Pierce et al. (2012) that found organizational skills were identified in over half of all sport sales job announcements. While most jobs require organizational skills, the fact that salespeople reported spending more than seven hours per week on organizational tasks speaks to the importance of skills like time management and scheduling. Sales personnel reported spending only 5.5 hours per week prospecting, which is significantly less than the 20 hours per week recommended by the Phoenix Coyotes in their sales training manual (Phoenix Coyotes, n.d.). It was surprising that more time per week was not allocated toward prospecting. It could be that customer relationship management database systems have become so efficient that a few clicks of a computer button can provide what many hours of prospecting could provide in the past.

With respect to the second research question, the results indicated that females spent more time on servicing accounts and organizational tasks than males. While this study could not determine whether females were better than males at servicing accounts, it did determine that they spend significantly more time on account servicing than males. This result falls in line with other research examining gender differences in salespeople outside the sport industry. Competence in sustaining relationships after the sale is an important component for sales professionals (Palmer & Bejou, 1995). For example, Lane, Cravens, and Piercy (2000) found a great incidence of women exhibiting relational skills in sales compared to male counterparts. With the increasing importance of relationship marketing and relationship selling (Siguaw & Honeycutt, 1995), the fact that women may be more capable of developing and maintaining sales relationships should be examined by organizations (Lane & Crane, 2002). While sales personnel should not be tracked into

specific types of positions based on gender, it is important for sales managers to ensure that employees with the right skill set are handling servicing efforts.

Time spent on sales tasks also varied by role within the organization. Account executives spent more time on prospecting and selling on the phone than directors, while directors spent more time on professional development and sales force management than account executives. This result is consistent with the finding of Pierce et al. (2012) where directors were more likely to engage in sales force management. The division of labor in a sales office is confirmed with the results of this research where entry-level personnel prospect for new customers and make sales calls, while directors engage in supervisory activities. In a similar result from this study, selling on phone was negatively correlated with years of experience while sales force management was positive correlated with years of experience. The transition between entry-level salesperson focused on selling on the phone to experienced salesperson selling a wide variety of products appears to occur at the end of the establishment career stage where salespeople have the opportunity to pursue a career track in sales force management. Because losing a productive sales person can result in a loss of sales productivity and replacement costs, sales managers must recognize when entry-level sales personnel have reached the end of the establishment career phase and are looking for career growth opportunities.

While Petersen et al. (2011) identified differences between major league and minor league sales position announcements, the results of this study indicated no significant differences between these two groups. This might be explained by the nature of what was being measured in the two studies. The current study measured hours per week, while the content analysis could only examine the presence of a statement in a job description, not a measure of how much time would be spent on the particular task.

How salespeople spend their time is fundamentally different depending on whether they are selling to groups and businesses or individual customers. Salespeople assigned to selling to groups and

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business (group tickets, premium seats, sponsorship) spent more time on prospecting, planning, presenting, preparing bids, and traveling. In contrast, salespeople assigned to selling season tickets (inside sales) spent more time selling on the phone. Inside sales positions are primarily focused on selling season ticket packages to individual customers over the phone. Leads are typically generated by management lists generated from the customer relationship database management system and are distributed to the inside sales staff. In contrast, selling to groups and businesses requires time spent in several areas. The use of various prospecting methods to identify new leads is important in order to keep new leads in the pipeline that cannot be culled from the existing database system. More time is needed for planning because of the uniqueness of each sales call along with the typically greater total value of the sale. Using a consultative sales approach, sales people will spend time qualifying the prospect and determining which group or sponsorship package would fulfill the clients' needs. More time is spent traveling and presenting since the presentation of a solution is unlikely to occur over the telephone. While the initial relationship may begin with a cold call on the phone, the development of the relationship occurs in person. Lastly, the preparation of bids is unique to selling to businesses, particularly when developing sponsorship proposals. Sport organizations should take into account that a one-size fits all approach to sales training may not yield the best results. Entry-level sales personnel focused on selling season tickets over the phone should have sales training efforts focused in specific areas such as needs analysis, overcoming objections, and closing; while more experienced sales personnel selling corporate packages may need focused training in prospecting, developing bids, and building long-term relationships.

From a management perspective, sales managers want to understand how time spent on various sales activities predicts job satisfaction, perceived ability to be successful in sales, sales performance, and persistence in sport sales. Similar to the previous research, however, there is little predictive ability in examining how much time salespeople spend on certain tasks. The number of hours

worked per week was also not correlated with any of these dependent measures. From this result, it appears that working smart is more important than working hard. The only significant result was that time spent on sales force management and professional development were significant predictors of wanting to continue working sport sales. Those who have already achieved a position in sales force management are experienced and have passed the career exploration stage, and as in any industry those spending time to get better at their job (professional development) are more interested in staying in that field.

Limitations

It is important to note two limitations to the study. First, only 11.5% of the 4,611 survey recipients completed the survey. A higher response rate could have provided more robust results that could have improved the generalizability of the findings. Second, cost constraints prevented additional follow-up mailings to remind participants to complete the survey. Because only 10% of the sport salespeople possessed an email address available on the sport organization's website, participants were contacted via a direct mailing from the US Postal Service. This method was significantly more costly than distributing the survey via email, but greatly expanded the potential subject pool.

Future Research

Future research in this area could utilize objective measures of sales performance such as actual sales data from the sport organization or the sales managers' perceptions of the salespersons' performance, instead of utilizing self-reported sales performance data. Future research could seek to more clearly define the four career stages and determine if sales production is impacted by career stage and changes in how salespeople allocate their time. Finally, future research could assist in determining how salespeople can more efficiently spend their time on the types of sales activities examined in this study.

Conclusion

As scholarly attention to the sales function within sport organizations continues to grow, it is important to examine and identify how salespeople spend their time. This study examined how sport salespeople spend their time on a variety of sales tasks and identified differences between types of sport sales jobs and salespeople. There is a clear demarcation of responsibilities between director and non-director positions, and between those with experience and those starting out in the career exploration stage. Significant differences were also identified between males and females that may have implications for sales managers attempting to identify those workers who can succeed in a relationship selling sales culture. However, there was little ability to predict sales performance and job satisfaction from how many hours per week salespeople spend on certain tasks.

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Analyzing the Prospects of the Unrelated Business Income Tax and
§501(c)(3) on Division I Athletic Activities

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Abstract

The National Collegiate Athletic Association (NCAA) member schools are generally exempt from paying any income tax on profits made from athletics each year because their missions primarily focus on charitable goals such as education and sportsmanship. However, recent activity from several schools has begun to blur the lines between a for-profit company and that which justifies a tax-exemption as an educational institution. Some critics argue for-profit and profit-making athletic departments should be taxed using the Unrelated Business Income Tax (UBIT), which examines if certain business activities are related to the purpose of an exempt organization or more in-line with a for-profit company. With this concept in mind, we look to see if some of the latest business activities and ventures implemented by intercollegiate athletic departments are protected or subject to the UBIT.

Intercollegiate athletics have reached an unprecedented level of economic growth that none could have predicted at the beginning of the 20th century when the National Collegiate Athletic Association (NCAA) was first formed. In terms of revenue, the expansion of television, sponsorships, and other contract agreements highlight the growing revenue generation initiative of the NCAA and its member institutions (Berkowitz, 2009; National Collegiate Athletic Association, 2010; Seifried & King, 2012). Take for example the NCAA Division I men's basketball tournament; between 2011 and 2025 the NCAA will obtain \$11 billion from a negotiated deal with the Columbia Broadcasting System, Inc. (CBS) and Turner Sports to broadcast the event over four networks [i.e., CBS, TNT, TBS, and TruTV] (O'Toole, 2010). For the NCAA's Division I Football Bowl Subdivision (FBS) institutions, the Bowl Championship Series (BCS) was negotiated for \$125 million per year for four years starting in 2011 with the Entertainment and Sports Programming Network (ESPN) to televise major college football postseason bowl games such as: a) the Allstate Sugar Bowl; b) Discover Orange Bowl; c) Tostitos Fiesta Bowl; and d) The BCS National Championship game ("ESPN's BCS deal will mark", 2008).

The result of this activity has allowed football programs like the University of Texas and The Pennsylvania State University to generate over \$65 million and \$50 million respectively in revenue for their athletic departments to help them become a profit-making entity (Smith, 2010). In conjunction with these broadcast deals and other sport specific earnings (e.g., ticket sales, parking, concessions, sponsorships, program sales, etc.) the total median revenue for all of the 120 Division I FBS institutions rose in 2010 to \$48.3 million, an increase of 5.7% from 2009, with an institutional high \$143.6 million (Fulks, 2011).

To capitalize on high consumer interest and to prompt even greater demand, universities and athletic departments began to seek out how to expand and possibly create new revenue sources. Some elements that have been considered include the expansion of current broadcast contracts (Solomon, 2008), the creation of conference/institution broadcast networks ("ESPN and University of

Texas”, 2011), and the expansion and realignment of conferences. Athletic departments have also sought additional corporate sponsorship opportunities for regular season contests. While the actions from athletic departments and other related parties appear useful to help meet departmental financial obligations, it is possible that these actions and partnerships contradict the educational mission of the institution and athletic departments. This is an important factor to consider due to the athletic department’s status as a non-profit organization.

According to the Internal Revenue Code (IRC) Section (§) 501(c)(3), institutions of higher learning are classified as a non-profit organization for tax purposes. This classification allows universities to be exempt from paying any federal income taxes on income generated within their fiscal year. The Congressional Budget Office (2009) noted that colleges and universities qualify for this preferential treatment because of the educational benefits provided to *all* individuals who choose to enroll in the school. These educational benefits supposedly should create a skillful workforce, increased economic growth, and greater social mobility for all students, not just student-athletes (Haveman & Smeeding, 2006; Hanushek & Woessman, 2009). Athletic departments share the school’s exemption and this creates a very beneficial situation for the NCAA member schools as they can apply capital to expand expenditures on arguably profit-oriented business ventures, projects, and expenses.

Also identified as the arms race, Orszag and Orszag (2005) suggested this phenomenon erupted among colleges to produce new revenue and to accommodate wildly growing expenses which Fulks (2011) showed grew to over 5% of the average institutional budget. This occurrence has come to regularly dominate some athletic department budget decisions and possibly at the expense of the university’s mission and the concept of fair competition with fellow Division I members. The arms race can occur through attempts to build new state-of-the-art facilities, renovating existing structures, or retiring construction debts for their various athletic teams. According to Fulks (2011), facility related items account for roughly 14% of athletic department budgets. The arms race may also include the

payment of incredible salaries to coaches and athletic administrators. Both of these may also be out of line with university missions. The items below provide a brief illustration of this point.

At the Louisiana State University, an \$85 million upgrade to expand Tiger Stadium's south end zone will be completed by 2014 (Kleinpeter, 2012). The renovations will feature new luxury suites and club seating and geared toward generating revenue to the controlled by the athletic department. Other institutions such as The Ohio State University, Florida State University, the University of Alabama, Notre Dame University, and the University of Michigan also completed similar multi-million dollar renovation and/or expansion projects during the 2000s with similar agendas (Williams & Seifried, 2012). Dan Fulks' reports on the revenues and expenses of NCAA intercollegiate athletics also famously show increasing coaching and administrative salaries as the other major component of the arms race. Specifically, Fulks (2011) shows fiscal years 2004-2010 coaching and administrative salaries commanding approximately 33% of the departmental budget. The highest salaries are incurred with "football, men's basketball, women's basketball, and men's ice hockey in that order" (Fulks, 2011, p. 13).

Collectively, facility and salary expenses feed one another without real respect to the academic mission of institutions (Orszag & Orszag, 2005). In the case of Oklahoma State University, few academic components were included to promote the educational priorities of the university when T. Boone Pickens Stadium was renovated for \$285 million. The only resource dedicated to this principle was the OSU Athletics Center, a \$55 million project that also includes additional seating for Boone Pickens Stadium ("OSU Athletics Center", 2011). While there were some educational benefits offered for the student-athletes, the regular student body is unable and prohibited from sharing these resources. Again, these construction activities were designed to substantially add important revenues to their athletic departments and not necessarily to provide revenue to the institution or improve the common academic or physical fitness good for the local or campus community. The incredible rise in coaching salaries is a result of each department

competing for the best or more proven coaches who they feel can help them fill their growing venues and luxury seats. Overall, many Division I FBS facilities are more like professional venues and off limits to the public and regular student population. Furthermore, their coaches are hired professionals located at the edge of campus with less and less real connection to the academic goals of the university.

To reduce the likelihood of organizations taking advantage of their tax exempt status, the United States Congress levied a tax to manage non-profit organizations from participating in activities that alienate themselves from their core business. Known as the Unrelated Business Income Tax (UBIT), non-profit entities as defined under §501(c)(3) can pay income taxes on any regularly performed trades or businesses that are drastically different from the organization's mission. The *Volunteers of America* files such a Form 990-T each year to report unrelated business income on profits received from agreements with for-profit businesses. For instance, in their 2010 fiscal year, the Volunteers of America reported \$5,598 pass-thru income from unrelated business income (Department of the Treasury, 2010). Due to a net operating loss, however, the company did not have any tax liability in the 2010 fiscal year. This fact excuses most NCAA Division I FBS institutions from further review of the UBIT, but not the 22 institutions Fulks (2011) reported in 2010 as creating an average profit of \$7.4 million.

With the UBIT in mind, a review of general athletic department practices is necessary to see not only if UBIT is applicable to profitable departments but if a potential forfeiture of the §501(c)(3) status is necessary. This review is essential as most universities and athletic departments maintain an educational mission to qualify for the §501(c)(3) tax exemption. If unrelated business activities appear to exist, potential taxation could follow. Furthermore, should these unrelated profit-oriented ventures continue to occur, all universities risk losing donation funding as individuals would lose the benefit of deducting charitable contributions provided to universities for their own personal tax liabilities. Take for example the LSU *Statement of Financial*

Position; within that document the Tiger Athletic Foundation (TAF) is recognized as providing \$23.5 million in contributions from alumni and other local business owners (“Tiger Athletic Foundation,” 2012). Contributions are significant toward helping that athletic department stay profitable and maintain their ability to conduct and operate other profit-oriented activities (e.g., maintain high coaching and administrative salaries and facility construction). A removal of the charitable deduction could cause a significant decrease in athletic department funding to where TAF could possibly not support LSU athletics” various expenditures.

While studied in various tax journals (e.g. Kaplan, 1980; Appleby, 2010; Colombo, 2010; Wight, 2012), research focused on UBIT and intercollegiate athletics is rather limited. Specifically, Colombo (2010) researched the tax-exempt status of the NCAA organization and its member institutions. He noted under the current laws, it would be nearly impossible for the IRS to withdraw the NCAA’s exemption despite outside pressure from Congress. However, utilization of UBIT may be a more feasible alternative (Columbo, 2010). With this concept, Williams and Seifried (2012) reviewed the potential effects of UBIT on bowl committee organizations. In that work, they suggested many bowl games appear to engage in activities that do not match the mission they identified on their tax forms or that of similarly sized non-profit organizations. These activities include inflated executive salaries, elaborate corporate benefits, lobbying and political contributions, and game development.

In comparison to these contributions, this research will expand upon their study to review the UBIT and the importance of non-profit classification for NCAA member institutions. A review of the recent questionable or profit-oriented behavior practiced by universities and athletic departments appears within to highlight potential tax implications that may depart from their core mission. Below is a brief review of the mission most institutions of higher education share to contextualize the analysis. A more thorough review of the history of §501(c)(3) is also provided to connect the components of this work.

The Story of §501(c)(3) and the Connection to NCAA Member Institutions

Kaplan (1980) noted that many American universities have been known to participate in entrepreneurial efforts but direct participation with local organizations was very foreign until the mid-1900s when academic institutions began to acquire and create individual businesses. Kaplan (1980) reported the range of enterprises managed by universities was extensive and included automobile parts, cotton gins, food products, oil wells, theatres, and even airports. Since profits from these businesses would eventually be passed to the colleges, a question arose to whether a university's 501(c)(3) exemption shielded these commercial activities from federal income tax because they were not the result of educational opportunities. Additional thoughts addressed whether or not their business occurred at the detriment of local business firms or common good.

Without fear of income taxation, the growth of university owned enterprises became prevalent and prompted concerns from for-profit firms and tax collectors about the potential competitive advantages universities enjoy at the potential expense of others. In 1950, President Harry S. Truman addressed the idea of unrelated business income activity with Congress believing that the original exemption has been misused by universities and other nonprofit organizations to gain competitive advantages over private enterprises and for self-serving purposes unrelated to their core mission (Kaplan, 1980). It was also noted that the tax-exempt paid zero taxes on profits for activities that were either related or unrelated to their tax exempt purpose (Sansing, 2001). Thus, the U.S. government would enjoy substantially less cash flow due to missing income taxes. Although this favorable treatment is long standing and exists to foster activities that serve some type of common good (Smith, 2010), shared perspectives within the United States Congress prompted hearings to determine the scope of this situation and to refine the exemption qualifications for colleges (Kaplan, 1980).

Indignation toward the colleges for „abusing“ their privileged status as tax-exempt institutions was quite pervasive (Kaplan, 1980).

As an example, with knowledge of New York University's ownership of a macaroni company, Representative John Dingell expressed concerns shared by many Congressmen through saying that all the noodles produced in the United States could be theoretically made by companies held by universities and that the country would receive no revenue from their profit (Kaplan, 1980). Against this backdrop, Congress began to establish a tax law that would penetrate the tax-exempt veil of non-profit organizations. Better known as the Unrelated Business Income Tax (1950), the Internal Revenue Service (IRS) can subject §501(c)(3) organizations to federal income taxes on all earned income that is unrelated to routine activities of a §501(c)(3) organization. Examples of §501(c)(3) organizations include entities operated exclusively for religious, charitable, scientific, literary, or educational purposes. In particular, charitable exemption status is important to universities and athletic departments because charitable organizations are permitted to receive tax-deductible contributions under §170. An example of this advantage is briefly identified above with the Tiger Athletic Foundation at LSU.

In order for an entity to be classified as exempt under § 501(c)(3), an organization must meet two broad requirements (Colombo, 2010). Treasury Regulation § 1.501(c)(3)-1(a) (2008) states that the first requirement, known as the organizational test, is met if an entity's articles of incorporation limit: 1) the purposes of such organization to one or more exempt purposes; and 2) do not expressly empower the organization to engage in activities which in themselves are not in furtherance of one or more exempt purposes. A better explanation of these requirements is that a § 501(c)(3) organization must be: a) organized as a state-law nonprofit organization (i.e., nonprofit corporation or charitable trust); b) must limit its organizational activities to those with a charitable purpose; and c) must have a provision in its articles of organization that all assets will be transferred to another charitable organization or to the government should it cease operations (Colombo, 2010). Both the NCAA and all member universities meet these requirements as they appear to have a *prima facie* charitable purpose and comply with

several distinct operational limitations in order to maintain their exempt status.

The second general requirement is defined as the operational test. This test requires that the entity in question actually engage in charitable activities as their primary goal (Colombo, 2010). Charitable activities include items that pertain to religious, scientific, or educational purposes. In order for an entity to pass the operations test, the entity must have the four following elements that were identified through the court case *The Church of Scientology v. Commissioner* (1987). The operational test is applied using a facts and circumstances analysis to make certain that the resources and activities are devoted to furthering an organization's exempt purposes (Smith, 2010). Within the analysis, the organization must engage in activities which accomplish one or more of the exempt purposes specified in §501(c)(3). Second, the entity's net income cannot be utilized for the benefit of private shareholders or individuals (Smith, 2010). Treasury Regulation § 1.501(c)(3)-1 (1982) defines a private shareholder or individual as an individual with a personal and private interest in the activities of the organization. This differs from the members of the public with whom the organization interacts in carrying out its exempt functions. Third, the organization must not expend a substantial part of its resources attempting to influence legislation or political campaigns. Finally, courts have mandated that organizations seeking exemption from taxes must serve a purpose and confer a public benefit (Smith, 2010).

Application of UBIT

In 1960, IRC §511(a) was established to further refine the implementation of UBIT penalties resulting from activities that deviate from the core purpose of the organization. The three factors identified that must join the UBIT consideration involve: 1) an organization conducting a trade or business; 2) the trade or business being conducted on a regular basis; and 3) the trade or businesses being substantially unrelated to the entity's exempt purpose. Any activity can be considered to be a trade or business if income has

been generated from the sale of goods or performance of a service (Smith, 2010). However, the IRS does not consider students paying tuition to their university each school year the result of a profit motive.

The second main factor states that the UBIT can only be imposed if a trade or business occurs on a regular basis and if they are conducted in a similar manner as profit generating organizations (Smith, 2010). In order to determine this, the IRS and Treasury Regulations require consideration for frequency and continuity with the activities conducted and the manner or combination in which they are pursued (Plunkett & Christianson, 2004). If an exempt organization's activities are carried on generally and similar to comparable commercial activities of for profit businesses, the IRS will deem these procedures as regularly carried on activities. Yet, if an activity is only performed for a few weeks out of the year, the IRS generally would not consider this a regularly carried on activity (Plunkett & Christianson, 2004).

The final and most critically important factor has been subject to much interpretation since the inception of the UBIT. A nonprofit entity will have to pay the UBIT only if it is regularly conducting business that is substantially different from the purpose of the exempt organization (Plunkett & Christianson, 2004). Should the conduct of the trade or business in question emerge substantially unrelated to the exempt purposes of the organization, then the trade or business will lose its exempt status. While all exempt organizations tend to believe that all of their activities are substantially related to their core purpose, the IRS takes a different approach. For the trade or business to be substantially related to the exempt organization's purposes, the production or distribution of the goods or the performance of the services must contribute importantly to the accomplishment of those purposes (Plunkett & Christianson, 2004). The IRS has the authority to decide, on a case-by-case basis, whether activities performed by exempt organizations are substantially related or not (Craig & Weisman, 1994; Plunkett & Christianson, 2004). Their authority considers size and extent of

activities or combination of behaviors in relation to the nature and extent of the exempt function they purport to serve.

Interestingly, a trade or business that is performed for the convenience of organizational stakeholders is not subject to UBIT (“Unrelated business income,” 2011). For instance, a university bookstore that sells books and other materials for students and faculty of a college does not have to pay any taxes on profits earned from sales. Activities that involve the sale of donated items, thrift stores, and some auctions also do not have to worry about UBIT. Many other activities practiced within university athletic departments also try to take advantage of this legal position. For instance, activities that are conducted with substantial individuals who are willing to work without compensation are not taxed (Pena & Reid, 2001; “Unrelated business income,” 2011). A Private Letter 971103 ruling highlighted such a position when it stated that income generated from the operation of bingo and other work within charitable organizations are not subject to UBIT if a substantial amount of work was carried out by unpaid volunteers (Pena & Reid, 2001). With these rules and exceptions in mind, we can now direct attention back to the current landscape of college athletics to examine any potential tax implications.

Division I Athletic Department Activity

As the potential for higher revenue generation exists, many schools have sought out new resources and tactics in order to capture more of the market share in the collegiate arms race. Interestingly, some of the latest ventures can be considered to violate the charitable missions that allow these organizations to enjoy §501(c)(3) tax benefits. Specifically, NCAA member institutions may appear to be in violation of certain limitations of § 501(c)(3) through various activities (i.e., private inurement, private benefit, and commercial pursuits). Below, a list of these potential profit-oriented or connected items are further analyzed.

Coaching and Administrator Salaries

Charitable organizations have several restrictions that must be followed if the business hopes to maintain its § 501(c)(3) status. Specifically, § 501(c)(3) cannot utilize any part of net earnings to inure to the benefit of any private shareholder or institution (Colombo, 2010). While there are different interpretations due to the language of this restriction, it has been well-defined over years of IRS and court interpretations as prohibiting a siphoning off of the assets of an exempt organization to an insider or a small number of employees (Hill & Mancino, 2009). This usually takes the form of the charity paying more than fair market value for property owned or services provided by an individual. A classic example of this practice is to pay an unreasonable salary to any one individual in excess of what the services are worth (Colombo, 2010).

In college athletics, it is not uncommon to see escalating salaries for the top Division I football and basketball coaches along with administrators (tables 1). For instance, the University of Alabama and Nick Saban recently signed an extension for him to remain the head coach of the Crimson Tide through January 31, 2020 (“Nick Saban gets raise, extension”, 2012). Saban will earn nearly \$45 million over the next eight years, receiving \$5.62 million in 2012. Similarly, the University of Kentucky signed an extension with their men’s basketball coach John Calipari to provide him a base salary of \$5.2 million until 2019 (“John Calipari’s salary boosted”, 2012).

Analyzing the Prospects of the UBIT

*Table 1**Sample College Football and Basketball Head Coach and Athletic Director Salaries for 2011*

Coach/AD	University	Sport	Salary
Mack Brown	Texas	FB	\$5,193,500
Nick Saban	Alabama	FB	\$4,833,333
Bob Stoops	Oklahoma	FB	\$4,075,000
Urban Meyer	Ohio State	FB	\$4,000,000
John Calipari	Kentucky	MBB	\$4,000,000
Les Miles	Louisiana State	FB	\$3,856,417
Kirk Ferentz	Iowa	FB	\$3,785,000
Bobby Petrino	Arkansas	FB	\$3,638,000
Gene Chizik	Auburn	FB	\$3,500,000
Tom Izzo	Michigan State	MBB	\$3,500,000
Billy Donovan	Florida	MBB	\$3,500,000
Brady Hoke	Michigan	FB	\$3,254,000
Will Muschamp	Florida	FB	\$3,221,000
Bill Self	Kansas	MBB	\$3,000,000
Mark Richt	Georgia	FB	\$2,939,800
Steve Spurrier	South Carolina	FB	\$2,828,000
Chip Kelly	Oregon	FB	\$2,800,000
Bo Pelini	Nebraska	FB	\$2,775,000
Houston Nutt	Mississippi	FB	\$2,771,750
Jimbo Fisher	Florida State	FB	\$2,750,000
Gary Pinkel	Missouri	FB	\$2,700,000
Bret Bielema	Wisconsin	FB	\$2,598,186
David Williams	Vanderbilt	N/A	\$2,560,505
Dan Mullen	Mississippi State	FB	\$2,500,000
Rick Pitino	Louisville	MBB	\$2,500,000
Thad Matta	Ohio State	MBB	\$2,500,000

Table 1 (continued)

Rick Barnes	Texas	MBB	\$2,400,000
Mike Krzyzewski	Duke	MBB	\$2,400,000
Paul Johnson	Georgia Tech	FB	\$2,369,000
Jim Calhoun	Connecticut	MBB	\$2,300,000
Sean Miller	Arizona	MBB	\$2,300,000
Jeremy Foley	Florida	N/A	\$1,545,250
Tom Jurich	Louisville	N/A	\$1,427,704
DeLoss Dodds	Texas	N/A	\$1,095,756
Gene Smith	Ohio State	N/A	\$1,074,546
Barry Alvarez	Wisconsin	N/A	\$1,040,800
Joe Castiglione	Oklahoma	N/A	\$975,000
Jack Swarbrick	Notre Dame	N/A	\$932,232
Kevin White	Duke	N/A	\$908,659

Note: Salaries of head coaches and athletic departments are not reflective of any contract activity after the 2011 season. Retrieved from “The 20 Highest Paid Coaches in College Football”, by C. Gaines. (2011, November 30), *Business Insider*; “The Highest Paid College Basketball Coaches”, by T.V. Riper (2012, March 05), *Forbes*; “Athletic Director Salary Database for 2011”, by S. Berkowitz and J. Upton (2011, October 06), *USA Today*.

Critics of college athletics establish that many of the salaries for head coaches and administrators of Division I schools are far beyond the highest salaries of the most experienced faculty and highest levels of university administration (Colombo, 2010). As an example, David Williams of Vanderbilt University makes \$2.6 million a year while the second highest paid Athletic Director, Jeremy Foley of the University of Florida, earns \$1.5 million (Berkowitz & Upton, 2011). While these salaries are high for university officials, they are significant compared to the subordinates that they hire and manage and the full professors at their respective

schools. This fact has prompted discomfort by many media outlets and respective blogs (Colombo, 2010).

In relation to other nonprofit entities, the Department of the Treasury began intermediate sanctions in 1996 that would use excise taxes to punish inurement transactions (Colombo, 2010). Specifically, IRC § 4958 states that inurement transactions are almost exclusively dealt with via excise taxes as opposed to a full withdrawal of exemption that may occur with rogue units. While this law does rectify some illegitimate practices, the angst related to coaching and administrator compensation may be difficult to resolve. § 4958 (1996) states that reasonable compensation is determined based on an employee's entire compensation package and the reasonableness of compensation is measured by the market value for services in both the nonprofit and for-profit market. In other words, the exorbitant salaries earned by Saban, Calipari, Williams, and others are determined to be reasonable by the market for other coaches and administrators in Division I sports as well as the professional leagues. Again, Table 1 shows that the salaries for Saban and Calipari are not unreasonable as several other coaches in Division I make similar salaries. In addition, coaches and executives in the National Football League (NFL) and National Basketball Association (NBA) also make comparable compensation. In the end, the law does not appear to support arguments that escalating salaries are *by themselves* an activity which could prompt the issuance of the UBIT.

Television Contracts and Networks

In September 2006, through a joint venture between the Comcast Corporation and the CBS College Sports Network, the Mountain West Sports Network was created in order to promote a specific NCAA Division I Conference – the Mountain West Conference – and its member schools (“About the Mtn.,” 2011). Also known as The Mtn., the television network airs MWC over 200 sporting events each year including football, men's and women's basketball, and men's and women's track and field events. The Mtn. also produces a growing number of original sports programming that

provides analysis and commentary on the events within the MWC, which inspired many other conferences to look into the idea of a conference themed network.

In August 2007, the Big Ten Network was the first conference-owned television network devoted to the promotion of the academic and athletic activities of each of its 12 member schools (“Company Profile,” 2011). The Big Ten Network is on the air 24 hours a day, 365 days a year and annually televises more than 350 live events and streams over 300 events online (“Big Ten Network Programming,” 2011). In addition to live events, the network also airs classic games and shows dedicated to the coaches and student-athletes of the Big Ten. Each campus also has the ability to produce original campus programming which highlights the various aspects of each university’s campus life and the qualities that make each university unique.

Created with the help of Fox Sports, the Big Ten Network has provided the Big Ten Conference and its member schools with more national exposure sports while enhancing its existing television agreements with its other television partners (“Why the Network was Created,” 2011). The conference also had other goals to achieve upon its creation including the desire to control the advertising environment in which its events were aired, to increase exposure for women’s sports and other NCAA sports that had not previously been widely televised, and improve distribution for football and men’s basketball games that were previously available only on a local or regional basis (“Why the Network was Created,” 2011). The success of the Big Ten Network provided guaranteed payments of \$22.6 million from the conference’s revenue sharing plan (“Big Ten Conference to Give,” 2011). According to the Big Ten, each school received \$7.9 million in revenue alone from the Big Ten Network, a number up 21% from 2009.

The success the Big Ten Network created has led to other conferences attempting to renegotiate or establish new television deals. For example, the Southeastern Conference (SEC) and ESPN signed a 15-year deal to broadcast sporting events, including football and men’s and women’s basketball, for more than \$2 billion

(Solomon, 2008). The University of Texas at Austin also successfully created their own network (i.e., Longhorn Network) in August 2011, which will provide cable and satellite outlets on a variety of content that is focused on the institution. Partnered with ESPN, the Longhorn Network will be highlighted by more than 200 exclusive events annually from 20 sports, historical programming, and academic and cultural happenings (“ESPN and University of Texas,” 2011).

As more schools and conferences begin to pursue these new methods of television income, there may be several implications that can occur. One of the Big Ten Network’s reasons for existence was to have more control over the advertising aspect and promotion of their member institutions. This is a strong distinction from the SEC and ESPN commercial partnership which squarely focused on promoting football and generating revenue for each. In addition to broadcasting the major sports of the Big Ten Conference, the Big Ten Network also aired less commercially attractive sports such as field hockey and men’s soccer as well as promoting the academic programs for each of the member schools of the conference (“Shows,” 2011). The SEC deal again only focused on the traditional revenue sports with a „token“ academic commercial promoting the scholastic efforts of their member institutions. The emphasis on control, noted above, may have major implications when it comes to private benefits and may extend to university-owned television and radio networks which essentially turn universities into both supplier and provider of a product that generates substantial private benefits. Thus, any income generated may be subject to UBIT since a profit motive is present (*Iowa State University v. Commissioner*, 1974; Vari, 1992; Plunkett & Christianson, 2004; Colombo, 2010; Smith, 2010).

Interestingly, the IRS has established that a nonprofit organization can lose its exemption if, as a result of serving its charitable class, it provides an excessive benefit (usually, but not necessarily, a financial benefit) on parties outside of the charitable class (Colombo, 2010). This differs from private inurement as the private benefit doctrine applies to transactions with independent

parties who have no influence with the organization. Essentially, it is necessary for nonprofit organizations to establish that it is not organized or operated for the benefit of private interests such as designated individuals or stakeholders of the organization or other profit-oriented organizations (Colombo, 2006). Should a §501(c)(3) organization conduct business to the benefit of private parties, the organization could lose its tax exempt status. On the other hand, if the organization conducts activities for private benefits on an incidental basis, the entity will not lose its exemption. Private benefits are considered incidental in both a qualitative and a quantitative sense (Colombo, 2010). In order to be incidental in a qualitative sense, the benefit must be a necessary component of the activity that will benefit the general public at large even though it is for specific private individuals. To be incidental in a quantitative sense, the private benefit must not be substantial after considering the overall public benefit.

Based on this, the private benefit doctrine could be potentially utilized to strip some profit-making universities of their exempt status. Division I athletic departments provide excessive private benefits to television networks and sponsors in comparison to the educational benefits that these entities are required to return. Television networks that broadcast athletic contests receive substantial benefits through increased profit potential. Funds received from the sale of television and radio rights to collegiate sporting events are considered to be related to the university's exempt purpose because athletic events have been used to promote the general welfare of the institution (Craig & Weisman, 1994). However, this exemption does not exist if the university does not receive a substantial return like that produced by the Big Ten Network.

Conference Movement

Texas A&M University, one of the founding members of the Big XII Conference, announced its intentions to leave the conference in 2011 ("Report: Texas A&M leaving Big 12", 2011). One of their major reasons for departure was the creation of the Longhorn

Network. Texas A&M potentially foresaw what the network was really intended for: to disadvantage other revenue generating schools. Specifically, Texas A&M president R. Bowen Loftin believed that the Longhorn Network's plans to televise Big XII and high school football games created a great deal of financial uncertainty for the Aggies and the Big XII Conference overall (Staples, 2011). Loftin fears stemmed from a potential competitive imbalance he foresaw amongst the schools in the Big XII prompted by the new network.

Texas A&M's desire to leave the Big XII also sparked the interests of additional members. The University of Oklahoma considered making a move into the Pac-12 Conference in order to secure the long-term stability of the school's athletic interests they thought the Longhorn Network may jeopardize (Katz, 2011). This decision occurred fairly simultaneously with Texas A&M's intentions to leave the Big XII and the University of Missouri's conference movement to the SEC which was also approved in order to achieve a better opportunity (i.e., certain revenue stream) for the institution. Again, like A&M, Missouri reasoned movement to the SEC would allow them to earn additional guaranteed revenue through their generous television contracts. The recent contract agreed upon by the SEC and ESPN makes each share work about \$154 million and will be re-worked in order to provide each with a significantly larger share than the Big XII could provide (Solomon, 2008). Little discussion emerged on the academic consequences related to the movement or about the prospective academic benefits.

The Big Ten board of presidents and chancellors also accepted the University of Nebraska to the conference in 2011 ("Nebraska approved to the Big Ten," 2010). Nebraska's reasoning for the move from the Big XII to the Big Ten was similarly related to a level of financial stability that the Big XII failed to offer. Specifically, Nebraska President J.B. Milliken stated, "The University of Nebraska would have new opportunities with membership in the Big Ten – and I believe the Big Ten would be a stronger conference as well" ("Nebraska approved to the Big Ten," 2010, para. 10). The University of Colorado also chose to leave the

Big XII for the Pac-12. Colorado President Bruce D. Benson advocated his school and the Pac-12 was a „perfect match“ alluding to both the athletic and financial opportunities they could potentially earn in the new conference (“Colorado leaves Big 12 for Pac-10”, 2010).

In addition to these BCS institutions, many non-BCS schools also announced their intentions to leave their conference home (see Table 2). As an example, the University of Utah was invited leave the Mountain West Conference (MWC) and to become the twelfth member of the Pac-12 Conference (“Pac-10 invites Utah as 12th Member,” 2010). Utah officials were frustrated for a very long time regarding their inability to play for a football national championship while in the MWC and their ability to collect the significant revenues the BCS bowls presented. Utah went undefeated in both 2004 and 2008 but did not play for the championship nor did they obtain an equal share of money compared to their charter-member BCS peers (Seifried & King, 2012; Seifried & Smith, 2011). Another MWC peer also accepted an invitation to join a BCS conference in Summer 2011. Texas Christian University (TCU) accepted an invitation to join the Big XII Conference following a previous 2010 agreement to join the Big East Conference (McMurphy, 2011). Initially, TCU had agreed to move to the Big East but decided to leave when Syracuse University and the University of Pittsburgh agreed to join the Atlantic Coast Conference in 2011. Like Utah, TCU wanted a guaranteed payday and more prestige to reward and capitalize on their highly successful football program that had been snubbed by the BCS on several occasions (McMurphy, 2011). The Big XII could guarantee a placement in the BCS that the MWC was not entitled to under the BCS postseason agreement.

Table 2
Division I FBS Conference Switching from January 2, 2010 to
January 2, 2012

School	Old Conference	New Conference
Brigham Young University	Mountain West	Independent
Boise State University	Western Athletic/Mountain West	Big East
California State University, Fresno	Western Athletic	Mountain West
San Diego State University	Mountain West	Big East
Southern Methodist University	Conference USA	Big East
Syracuse University	Big East	Atlantic Coast
Texas A&M University	Big XII	Southeastern
Texas Christian University	Mountain West/Big East	Big XII
West Virginia University	Big East	Big XII
University of Central Florida	Conference USA	Big East
University of Colorado	Big XII	Pacific-12
University of Hawai'i at Manoa	Western Athletic	Mountain West
University of Houston	Conference USA	Big East
University of Missouri	Big XII	Southeastern
University of Nebraska	Big XII	Big Ten
University of Nevada, Reno	Western Athletic	Mountain West
University of Pittsburgh	Big East	Atlantic Coast
University of Texas at Arlington	Southland	Western Athletic
University of Texas at San Antonio	Southland	Western Athletic
University of Utah	Mountain West	Pacific-12

Overall, all types of NCAA schools appear to be engaging in „conference shopping“ to guarantee their financial stability without offering the public a rationale about the movement benefits student-athletes and the institutional mission. Both TCU's and Utah's departure from the Mountain West Conference could be argued as deviating from their university's core mission and reasoning for their exempt status. TCU's initial move to the Big East was certainly questionable as its closest competitor would have been the University of Louisville, roughly 900 miles away. Although TCU opted to join the Big XII, the Big East continued their efforts to attract new members outside of the Northeast U.S. Despite potential logistic issues, the Big East has now evolved to a national association that possesses members in each respective region of the United States. Specifically, the Big East now includes schools in the

Southern U.S. (University of Central Florida, University of Memphis, the University of Houston, and Southern Methodist University) and Western U.S. (Boise State University and San Diego State University) to associate with the Northern schools in the conference (“Source: Big East set to add,” 2011).

On the surface, one could argue that many of these schools changed conferences for larger financial gains opposed to the promotion of academics or concerns about the academic welfare of their student-athletes and regular student body. Therefore, the courts would likely be asked to measure the substantive aspect of these new sources of revenue by examining expenditures; the number of employees involved and the importance of the items in question to the good of the total organization and not just the athletic department or revenue sports (Colombo, 2010). When reviewing the conference shuffling, the transfer itself can be viewed as a substantial business activity because many of the conference moves were made in order to improve their current positioning in the college athletic landscape and not the functioning or education of the student body.

Corporate Sponsors

Many large corporations have been willing to provide large amounts of money in an exchange process (e.g., products for \$, \$ for services, services for products) because of the potential benefits. For the corporation, a marketing campaign can take place as the company can expose potential new clients to the name and products of the corporation. This establishes brand and name recognition for the business. One prominent example of this is the level of exposure FedEx received during the 2009 Orange Bowl and BCS National Championship games. Joyce Julius & Associates, a research firm dedicated to sponsorship impact measurement, reported that FedEx received nearly four hours of television exposure during the broadcasts of these games (Talalay, 2009). The value of this exposure was estimated to be \$383 million. Roughly \$256 million was derived from the 2009 BCS National Championship game and an additional \$126.8 million from the 2009 Orange Bowl. The research firm also noted FedEx averaged 55 mentions and close to

two hours of screen time during both the championship game and the Orange Bowl game (Talalay, 2009).

The money received by the event can also help secure better teams to create a highly competitive game and commercial product (Seifried & King, 2012). It is this area where potential taxation could occur very frequently. Past cases and rulings have shown that the IRS has not been kind to income received from corporate sponsors. In 1991, the IRS passed Technical Advice Memorandum (TAM) 91-47-007 applying UBIT to organizers of corporate-sponsored bowl games (Vari, 1992). This rule was issued in response to the Cotton Bowl Athletic Association (CBAA) and their major sponsor at the time (i.e., Mobil Corporation). The bowl games during this year received nearly \$64 million in corporate sponsorship revenue, and the IRS wished to collect nearly \$20 million in taxes through the UBIT. The CBAA alone received \$1.5 million from Mobil, roughly 25% of their \$8 million budget at the time.

Today, many new revenue streams have attempted to capitalize on the „bowl game“ phenomenon by creating more festive commercial atmospheres through high profile regular season games. Recent developments that have emerged include the Cowboys Classic in Dallas, Texas and the Chick-fil-A Kickoff Game in Atlanta, Georgia. These season-opening games occur on neutral sites. For example, in 2011, LSU played the University of Oregon in the Cowboys Classic (Gardner, 2010). The preparation for these contests rivals what is needed to provide a postseason bowl game and thus a high number of volunteers were recruited for these events. The schools that choose to participate in these contests are also often highly compensated. LSU Athletic Director Joe Alleva (personal communication, October 2010) recently explained that the school was offered \$750,000 to move what was originally a home-and-home series with Oregon to the neutral site of Cowboys Stadium. Alleva also stated that he negotiated with ESPN/ABC (the producer for the Cowboys Classic) for any LSU football games not chosen through the SEC deal with CBS to be aired at no earlier than 7:00 p.m. eastern time to accommodate LSU traditions at night and the pursuit of revenue over the course of a longer day.

In addition to season openers, many high profile rivalries such as the Red River Rivalry between the University of Texas and the University of Oklahoma and the University of Florida/University of Georgia Football Classic have adapted to create additional revenue. Florida's Executive Associate Athletic Director stated that each school in the Florida-Georgia rivalry now earns \$1.7 million from their game in Jacksonville, Florida and \$3.4 million over a two-year cycle primarily from their 17 corporate sponsors and gate receipts (Verney, 2009). Moving this game from a home-and-home series to a neutral site allows each school to make more money than the home-home alternative which would provide approximately \$2.2 million over that same two-year time period (Verney, 2009). Similarly, playing in the 90,000-seat Cotton Bowl of Dallas, Texas, Oklahoma and Texas significantly increased their revenue from shared gate receipts, an additional \$700,000 subsidy from the City of Dallas, and the various naming rights agreements established for the contest with SBC and AT&T over the years. Again, part of the reason these schools can earn this much money has to do with the strength of the game sponsors.

The sponsor's prominence in terms of logos and other visibility may have a prolific bearing. For example, it should be noted that the common good of local businesses may be damaged by the movement of home games to these bowl-like neutral sites. In essence, community businesses lost one additional home game that could have provided a significant economic impact. Next, the Internet and mobile technology has become a very prominent tool for communication and marketing. Game sponsorship deals are often announced and those special regular season games have websites that are maintained throughout the year bearing the corporation's name. Thus, universities find themselves exposed to the UBIT since one could argue that the excessive promotion and movement to a neutral site for a regular season game is substantially unrelated to the core mission. Furthermore, there also exists a potential violation of the operational test as a facts and circumstances test may have difficulty establishing a link between these measures and furthering the organizational mission of each university. With these items in

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mind, this research now provides a practical example of the potential ramifications UBIT may have on universities.

A UBIT Example

Based on financial statements obtained from the Louisiana Legislative Auditor (2012), LSU is one of the 22 athletic departments that recorded a profit in the 2010 fiscal year (Fulks, 2011). Specifically, the LSU Athletic Department reported approximately \$10.9 million in profit for the year ended June 30, 2011 (Louisiana Legislative Auditor, 2012). In the past three years, LSU has agreed to new contracts with their respective coaches in football, men's basketball, women's basketball, and men's baseball as well as administrative positions. Table 3 shows the respective salaries for all these individuals.

Table 3

LSU Coaches and Athletic Director salaries in 2012

Coach/AD	Sport	Salary
Les Miles	FB	\$3,750,000
Johnny Jones	MBB	\$1,100,000
Nikki Caldwell	WBB	\$900,000
John Chavis	FB	\$900,000
Joe Alleva	N/A	\$725,000
Paul Mainieri	BB	\$625,000
Frank Wilson	FB	\$550,000
Greg Studrawa	FB	\$500,000
Steve Kragthorpe	FB	\$400,000
Andrea "Brick" Haley	FB	\$400,000
Corey Raymond	FB	\$300,000
Adam Henry	FB	\$300,000
Thomas McGaughey	FB	\$290,000
Robert Kirby	MBB	\$240,000
Steve Ensminger	FB	\$230,000
Charles Leonard	MBB	\$130,000

Table 3 (Continued)

Note: Salaries of head coaches and athletic departments are not reflective of bonuses earned in 2011 seasons. Retrieved from “LSU approves \$1 million in raises for Les Miles, assistants”, by G. Guilbeau. (2012, June 11), *USA Today*; “Athletic Director Salary Database for 2011”, by S. Berkowitz and J. Upton (2011, October 06), *USA Today*; “Former UCLA women's basketball Coach Nikki Caldwell set to triple salary at Louisiana State”, by B. Bolch. (2011, April 3), *Los Angeles Times*; “LSU baseball coach Paul Mainieri gets raise, extension”, by L. Lyons. (2010, January 29), *NOLA.com*.

LSU has also authorized the construction or rehabilitation of many of its sports facilities. Along with the \$85 million expansion to Tiger Stadium (Kleinpeter, 2012), the LSU Board of Trustees have approved new facilities for baseball (Alex Box Stadium, \$37.8 million cost; “Alex Box Stadium”, 2012), basketball (LSU Basketball Practice Facility, \$15.5 million cost; Martin, 2012) as well as renovations for the habitat dedicated to housing LSU’s live tiger mascot (\$2.5 million cost; “Mike the Tiger Habitat”, 2012) and to their track and field facilities (\$5 million cost; “LSU Track & Field Facilities”, 2012). Many of these facility projects have been funded through private donations from various alumni and LSU supporters. Yet these contributions also carry the benefit for the donator to receive a tax deduction on their personal income tax returns.

In addition to their spending habits, LSU also maintains high revenue streams due to their association with the SEC. Due to the strong financial standing of the SEC, LSU has little incentive to relocate to another conference. This allows LSU to receive a significant portion of the revenue earned from the new broadcasting contract with ESPN (Solomon, 2008), which is dedicated toward the facilitation of football games only. Simultaneously, LSU Athletic Director Joe Alleva has negotiated with the television networks to move specific games to neutral sites as well as guaranteeing game times for certain home games (personal communication, October 2010). Based on this activity, a potential violation of §501(c)(3) could be available, either through the implementation of the UBIT or forfeiture of the exemption all together.

To determine this, LSU's recent activity must be compared to the mission statements provided by the athletic department. The mission statement for the LSU Athletic Department states:

LSU seeks to inspire academic and athletic excellence in student-athletes by challenging them to achieve the highest level of intellectual and personal development...to create an environment conducive to the development of student-athletes with strong core values and personal integrity that will contribute to success throughout their lives and to provide the resources necessary to pursue championships, to graduate and to become productive citizens. ("LSU Office of Compliance", 2011, para. 1).

LSU is committed to maintain[ing] strong fiscal responsibility as a self-sustaining auxiliary of the University by making responsible financial decisions, maximizing fundraising opportunities and capitalizing on sponsorship assets. ("LSU Office of Compliance", 2011, para. 5).

Overall, the mission for the athletic department is centered on promoting educational values to its student-athletes through sound governance and historical traditions. Thus, any activity that appears to substantially deviate from this mission and is regularly carried out could have the UBIT implemented.

In regards to coaching salary and facility construction, these are activities that are normally not routine. Facility construction and renovation projects are much further apart and also cannot be considered a regularly carried out activity but their maintenance could. On the other hand, the solicitation of corporate sponsorships for athletic contests can be considered a trade that is routinely conducted by the athletic department. Many of the contests as well as the department itself have prominent displays of companies both known within the local community and on a global level. Some of these corporations include Capital One Bank, Coca-Cola, McDonald's, Taco Bell, and the Louisiana Lottery ("LSU Sports

Properties”, 2010). While sponsorship agreements can be conducted between companies and universities without scrutiny, the key component is the degree of relation to the entity that is being sponsored.

This becomes a substantial issue as the LSU Athletic Department has reached agreements with their broadcast partners to showcase their athletic contests in time slots that historically attract a large quantity of viewers. As an example, the 2011 football contest between LSU and Oregon originally was to be played in Tiger Stadium was moved to Cowboys Stadium in Dallas, Texas and broadcasted nationally on ABC (Gardner, 2010). Again, what was originally a season-opening contest metamorphosed into a bowl-game like event that attracted more viewers and potentially additional corporate sponsorships. When this move and the other activities of the athletic department are compared to the mission of the LSU Athletic Department, there does appear to be some deviation from the core principles LSU promotes. One important note to emphasize is that only the potential appearance of unrelated activities is necessary to implement the UBIT. Thus, one can reasonably argue that the movement of athletic contests in order to acquire additional corporate sponsorships to pay coaches and build bigger more complex sport facilities that few can enjoy outside of the game day can be considered to be a substantially unrelated activity that is regularly carried out by the athletic department.

Importantly, *The United States v. American College of Physicians* (1986) also ruled activities of an exempt organization may be fragmented to determine if the income-producing activities are substantially related to the organization's exempt purposes (Vari, 1992). Therefore, should the LSU Athletic Department be subject to UBIT, they would be taxed on the revenue and expenses generated from both their broadcasting agreements and corporate sponsorships opposed to their total revenues and expenses. According to the LSU Athletic Department’s financial statements (Louisiana Legislative Auditor, 2012), broadcasting rights revenue were approximately \$6.8 million and sponsorship revenue was \$2.3 million, combining for a total of \$9.1 million.

Based on the operating expense categories provided in the LSU financial statements, the related costs for these items totaled to \$956,000 (marketing and promotion). Next, after a \$1,000 deduction allowed for administrative convenience (Internal Revenue Service, 2010), the potential income subject to the UBIT would be \$8.143 million. The UBIT would then be assessed based on the regular corporate tax rates according to the Tax Rate Schedule (Internal Revenue Service, 2010). Thus, the \$8.143 million in taxable income would generate UBIT of \$2.769 million for the LSU Athletic Department, reducing their total profit from \$10.9 million to \$8.13 million. With this example in mind and utilizing information from the Fulks (2011) report, the UBIT could have produced roughly \$57 million in tax revenue for the United States in 2010 from those 22 institutions making a profit. Should this activity continue to linger in college athletics, it is possible the IRS could remove the §501(c)(3) exemption from university athletic departments.

From another perspective, the LSU Athletic Department would have no issue passing the organizational test as classified with the State of Louisiana. However, LSU may face scrutiny when the operational test is analyzed under the facts and circumstances test that IRS has implemented (Colombo, 2010). Specifically, the LSU Athletic Department faces issues in regards to the private benefit of individuals and conferring a public benefit. First, the acquisition of corporate sponsorships and the movement of athletic contests do not appear to have substantial public benefits. While broadcasting a contest at a time where more people can access it is good for the general public, the detailed methods for some of these adjustments only appear to benefit the television networks and the university and not necessarily the public. Next, high salaries for coaches and athletic administrators do not violate the private inurement principle as salaries can be compared with other individuals in both college and professional sports. However, as these salaries continue to rise substantially, the issue shifts toward a private benefit problem since a public benefit cannot be fully established. Finally, as noted earlier, the LSU Board of Trustees has approved several construction projects that will enhance the sport facilities at LSU. While these

buildings are utilized properly during game day events, they are inaccessible to the general public at any other time and funding or administrative support may be lent at the expense of other campus projects. Thus, the LSU Athletic Department would violate the operational test and forfeit its §501(c)(3) exemption. Furthermore, with the removal of the tax deduction awarded to individuals for donations to §501(c)(3) organizations, the LSU Athletic Department could foresee substantial losses from their contribution revenue, which totaled \$31.9 million in 2011 fiscal year (Louisiana Legislative Auditor, 2012).

Conclusion

During the past decade, the NCAA reported large revenues from their television broadcasts and merchandise sales (Berkowitz, 2009; National Collegiate Athletic Association, 2010). In addition, high television ratings have created a demand from large television networks to pay substantial dollars for the rights to broadcast athletic contests. This, in return, has allowed many universities to review their current management practices to determine if any improvements are needed to capitalize on increased consumer interest. Orszag and Orszag (2005) suggested the arms race resulted from this opportunity and dominates athletic department budget decisions.

To meet the self-imposed demands associated with the arms race, universities have engaged in a variety of activities to bring in more revenue. Some of the more recent items have included the addition of corporate sponsorships, the addition of conference-themed television networks, the re-negotiation of existing broadcast deals, and the transfer to stronger conferences. While many of these moves are essential for athletic departments to cover their rapidly increasing costs, these activities appear to be deviating from the core mission of the university. Universities are considered to be a charitable organization due to the educational benefits they provide to the general public. By extension, athletic departments are also considered charitable organizations as through the facilitation of an educational mission. This is a key characteristic to consider as

NCAA member institutions are classified as a §501(c)(3) tax exempt organization under the IRC.

While this exemption is beneficial to the universities, critics of these non-profit organizations can claim that an element of deception exists. Specifically, one can argue these schools do not deserve their exempt status because they engage in activities which possibly deviating from their core mission or purpose due to the new commercial nature that the universities have apparently adopted. Congress established the unrelated business income tax in order to limit the advantage that non-profit entities have over profit-oriented businesses. To impose the UBIT, a non-profit organization must 1) conduct a trade or business; 2) conduct the trade or business on a regular basis; and 3) have the trade or businesses substantially unrelated to the entity's exempt purpose. If activities that invite the UBIT are continued, the IRS could strip the §501(c)(3) exemption from charitable organizations.

Specifically, the IRS will determine, through the organizational test, if a charitable organization is classified as a state-law nonprofit organization; has limited its organizational activities to those with a charitable purpose; and has included plans to transfer assets if it should cease operations (Colombo, 2010). Next, the IRS will further analyze charitable organizations through the operational test, which states that an organization must engage in activities which accomplish one or more of the exempt purposes specified in §501(c)(3). These entities cannot generate income that will be used for the private benefit of individuals; cannot engage in substantial attempts to influence legislation or political campaigns; and must serve a purpose and confer a public benefit (Smith, 2010).

As schools continue to look for new ways to expand their product's reach among the masses and create higher revenues from prior years, the IRS may begin to research these activities for any potential unrelated business operations and issue income tax penalties on the university athletic departments that actually make a profit. Should the IRS consider certain activities to be unrelated, the athletic departments could be charged with a substantial expense that was not anticipated and could halt future expansion of athletic

programs and possibly impact the university overall. Specifically, university officials may have to pay for these taxes from the university's own general fund, even if the athletic department is separate from the university itself. If the tax penalty is similar to the one calculated earlier for LSU or possibly higher, university presidents may have to consider implementing employee furloughs or even layoffs for university faculty and staff. In addition, continued unrelated activity could allow the IRS to consider suspending the tax-exemption that athletic departments and universities have. This would create a substantial decrease in gift revenue and limiting resources that both athletic departments and universities depend upon to run day-to-day activities.

Therefore, it would be beneficial for both athletic administrators and university presidents to choose potential ventures carefully and confirm its utilization will be for the benefit for the greater good of education. With such a high penalty to pay for unrelated trades, athletic directors and university presidents would be wise to closely monitor any activities that stray from the purpose of the university. Items such as conference movement, television broadcast agreements, and corporate sponsorships appear to have implications that may damage the stability of athletic departments and create class warfare based on the financial standing of university departments.

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Lightning Safety: How is it conducted at NIAAA Member High Schools?

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Abstract

The purposes of this study were to explore the current scenario of interscholastic athletics in regards to the existence and enforcement of lightning safety policies applied to athletic outdoor activities, and to identify the common practices related to lightning safety currently utilized. The results showed that 87.2% of the respondents (N=804) have lightning safety policies. However, only 90.3% of the respondents who have lightning safety policies actually enforce them. It seems that during practices coaches are most commonly responsible for making the decision to stop/resume activity, and that during games athletic directors are most commonly making the call. However, almost one third of the respondents (N=804) do not have a clear designation as to who makes the decision. A less than desirable percentage of respondents reported frequent use of a lightning detection system, availability of shelters for spectators, and posted lightning policy in facilities. Only 7.8% of the respondents indicated that all athletic coaches and staff receive lightning safety training. The results also showed that more experienced administrators were more likely to have and enforce lightning safety policies, and employ lightning safety best practices. This study provides high school athletic administrators and principals with relevant information that can be used to support their decision to adopt and enforce lightning safety policies for interscholastic athletic activities

Introduction

Tens of thousands of thunderstorms and tens of millions of cloud-to-ground lightning flashes occur across the United States each year, but only a small fraction of the population is directly harmed or killed by lightning (Ashley & Gilson, 2009; Holle, Lopez & Zimmerman, 1999). After flooding, lightning is the second leading cause of weather-related death in the United States; approximately 400 injuries and 100 deaths are associated annually with lightning strikes in the United States (Holle et al., 1999; Walsh, Bennett, Cooper, Holle, Kithil & Lopez, 2000). According to Ashley and Gilson (2009), harm and fatality due to lightning are caused by an increased number of unorganized storms, human vulnerability, and less warning and mitigation activities.

Despite its occurrence, “lightning is a leading source of storm deaths in the United States” (Roeder, Holle, Cooper & Hodanish, 2012, p.1). The highest density of cloud-to-ground lightning strikes occurs in the southeastern and southern regions of the United States (Bennett, 1997; Roeder, Holle, Cooper & Hodanish, 2012). The majority of the reported lightning accidents occur in the afternoon, which is the time of the day most of the student-athletes (involved in outdoor sports at high school and college levels) usually practice and compete (Bennett, 1997; Roeder & Jensenius, 2012; Walsh et al., 2000). Thus, high schools have to be prepared to prevent lightning from harming, or worse taking the lives of teenage athletes (and their fans) who engage in outdoor interscholastic sports.

Outdoor sports are an integral part of the lives of high school students and have the potential to offer them many benefits. In addition to the well-known mental, physical, economic, and spectator benefits provided by outdoor high school sports, the possible costs or hazards related to lightning occurring during participation in outdoor interscholastic sports are always present (Lipse, 2006; Ashley & Gilson, 2009). With outdoor sports and recreation being the activities with the fastest rising lightning casualty rate today (73% of the total deaths by lightning in the U.S., from 2006 to 2011) it is important for coaches, referees, and administrators of outdoor school activities to practice recommended

lightning safety (Roeder & Jensenius, 2012). Such support is essential in facilitating this process. Therefore, schools need an effective integrated lightning safety plan.

These facts cited above justify the need for increased efforts in developing and implementing lightning safety policies. Such policies should aim to prevent lightning from harming athletes, fans, and high schools engaged in outdoor sports. With that in mind, it is important for interscholastic athletic administrators to become familiar with commonly utilized lightning policies applied to high school sports. The following studies present the currently used approaches to lightning safety.

The Lightning Safety Group (LSG), composed of lightning experts in several lightning related fields, gathered in 1998 to develop one of the initial sets of guidelines for proper lightning safety (Zimmerman, Cooper & Holle, 2002). The proposed best safety practices applied to both individuals and large groups include: (1) use of the 30-30 rule (If 30 seconds or less between lightning and thunder, seek shelter. Stay inside until 30 min after last lightning strike); (2) seek safer areas (larger grounded structures or fully enclosed metal vehicles); (3) avoid tall structures (e.g. trees, mountains, light poles, towers), open fields, open vehicles or open structures, contact with conducive materials (e.g. wires, metal, appliances), being near water; (4) develop a lightning safety plan; (5) train staff on established policies; (6) have access to reliable weather information; (7) if detection or warning systems are used, train staff in their use; (8) designate safer areas; (8) plan for evacuation; (9) display appropriate signage; (10) educate participants and spectators on the plan; (11) carry out regular lightning evacuation drills; and (12) review and modify the plan as needed (Zimmerman, Cooper & Holle, 2002).

Roeder and Vavrek (2005) add to LSG's guidelines by stating that "total lightning safety requires four tiers of activities: 1) education, so people are aware of the hazard and know what actions to take when lightning threatens, 2) weather warnings to alert people to take action, 3) protection of facilities and equipment, and 4) mitigation, for when that protection fails (p. 2)."

On the same note, Roeder (2010) defends the implementation of 5 levels of lightning safety: (1) schedule outdoor activities in a way to avoid lightning, (2) “30-30 Rule” (If 30 seconds or less between lightning and thunder, seek shelter. While sheltered, stay away from corded telephones, electrical appliances and wiring, and plumbing. Stay inside until 30 min after last lightning strike), (3) avoid dangerous locations/activities (elevated places, trees, open areas, tall isolated objects, water activities), (4) Lightning Crouch (put your feet together, squat down, tuck your head, and cover your ears), (5) First Aid: Call 9-1-1 (use CPR or rescue breathing, as appropriate).

In 2012, Roeder et al. brought some important updates to the initially proposed 5 levels of lightning safety. The first update was to use “hearing thunder” as cue to seek a safe place (replacing waiting for 30 seconds between lightning and its thunder as in now superseded „30-30 Rule,,). Another important update was to include an automatic external defibrillator (AED) to lightning first aid.

In their position statement on lightning safety for athletics and recreation, Walsh et al. (2000) recommend that proactive and comprehensive policies be formalized and implemented. The authors recommended the following policies: (1) define who makes the call when it is time to stop the activity, (2) monitor local weather forecasts, (3) designate an on-site “weather watcher” who will look for signs of threatening weather, (4) communicate lightning safety policies to fans verbally (PA system) and through signage (5) designate in-venue shelters, and (6) establish specific criteria for suspension (flash to bang count) and resumption of activities (30 minutes after the last thunder or flash of lightning).

In regards to the implementation of lightning safety policies, Roeder and Vevrek (2005) advise that: (1) management support is vital, so everyone involved acts in a coordinated effort; (2) involving coaches, referees, and leaders of other outside activities in the planning help in reducing resistance; (3) preparing handouts, posters, brochures, guidelines, etc., help expediting the implementation process; (4) resistance may occur, specially from those who mistakenly believe that lightning is not an important hazard or that

nothing can be done to reduce the risks (you must remind them that failing to take reasonable and prudent precautions will make you guilty of negligence); and (5) education of students, teachers, coaches, referees, managers, leaders of other outside activities, and other staff on lightning safety is of ultimate importance.

With today's technology advancements, inexpensive hand-held lightning detectors have become very accessible and affordable to schools. However, their performance have been questioned by anecdotal evidence showing that such devices either seem to not always locate lightning accurately, or are used improperly. Some lightning safety organizations, such as the Lightning Safety Group, also question the performance of hand-held lightning detectors.

The Lightning Safety Group (LSG) does not recommend using these hand-held detectors as a substitute for the 30-30 Rule (Roeder & Vevrek, 2005). LSG supports the use of commercially available professional grade lightning detectors, based on their good performance. However, these devices may be too expensive for most organizations. A less costly (but still high performance) alternative would be automatic lightning notification subscription services, which are more reliable than hand-held lightning detectors and much less expensive than professional grade detectors. Such service uses data from the National Lightning Detection Network (objectively and independently verified to provide good lightning detection and location), and automatically provides notification when cloud-to-ground lightning is detected within desired distances of the desired location during the desired time (Roeder & Vevrek, 2005).

In an effort to provide a safe environment, high school athletic directors must constantly ensure that the facilities, equipment, and supplies, as well as the processes associated with sport activities are safe for the participants and fans (Stier et al, 2008). To achieve such a goal, extensive planning is essential (Stier et al, 2008). Due to the nature of outdoor athletic activities, coaches and schools must be constantly prepared to respond to threatening weather. Thus, it is important that they understand that following lightning safety policies is instrumental to minimizing risks and reducing loss. The choice of either not having or not enforcing such

safety policies puts schools and their staff at risk of experiencing the anguish and pain involved in the time consuming process of defending a lawsuit (Doleschal, 2006, Walsh et al., 2000). The use of recommended lightning safety policies as part of a risk management plan do not absolutely guarantee that litigation will be avoided. However, good risk management practices can be effective aids in developing not only safer programs, but also act as an effective defense, should litigation occur (Doleschal, 2006; Walsh et al., 2000).

For high school athletic administrators, the challenge becomes providing sport programs that take lightning safety seriously. In other words, the task is to effectively ensure that: weather is monitored diligently; activities are stopped timely; athletes and fans are properly sheltered; and activities are resumed safely. “Organizations with recurring outdoor activities, including schools, need to have a lightning safety plan. This plan must be in-place, understood, and agreed to by all participants before it is needed. “Adults must be responsible for the lightning safety of the children entrusted to their care” (Roeder & Vevrek, 2005, p. 2). The National Federation of State High Schools' Association, in its Sports Medicine Handbook, provides a one-page brief and simplified set of guidelines on “handling contests during lightning disturbances” (NFHS, 2010). In such document, the NFHS covers four main points: weather monitoring, criteria for interruption and resumption of play, and periodic reviews.

Despite the existence of guidelines provided by the highest interscholastic governing body, a few questions remain to be answered when it comes to lightning safety. Do high schools across the country actually have lightning safety policies and truly enforce them? What are the most common components of these policies?

The purpose of this study was to explore the current scenario of interscholastic athletics in terms of the existence and enforcement of lightning safety policies within high school athletic departments. Another purpose was to identify the common components making up the lightning safety policies currently utilized. This study provides high school athletic administrators and principals with relevant

information that can be used to support their decision to adopt and enforce lightning safety policies applied to outdoor interscholastic athletic activities.

To achieve such purposes, the following questions must be answered:

- 1- How frequently high schools have and enforce lightning safety policies which are tailored to their athletic programs?
- 2- What are the best policies/practices used by high school athletic departments to address the inherent risks related to lightning to the outdoor athletic activities they provide?
- 3- Is there any relationship between athletic directors' years of experience and existence/enforcement of lightning safety policies?
- 4- Is there any relationship between athletic directors' education and existence/enforcement of lightning safety policies?

Methods

The purpose of this study was to examine lightning policy and practices among high school athletics. To accomplish this, an online survey was developed and distributed to high school athletic administrators who were members of the National Interscholastic Athletic Administrators Association (NIAAA). The reason for choosing the NIAAA was its membership size and its ability to reach to administrators located in all states.

Subjects

The subjects were high school athletic directors belonging to the National Interscholastic Athletic Administrators Association (NIAAA). The NIAAA granted permission to the researchers to conduct the study. At the time of the survey, the NIAAA membership totaled 5,758 (while there were few email delivery failures, the amount was negligible). The first page of the online survey presented the participants information about the study and an informed consent form. Continuing to take the survey served as the respondents' consent. The survey was available to the participants

for six consecutive weeks, and the participants received two email reminders.

Instrument

The survey used in this study was developed by modifying, with permission, an existing survey created by Spengler, Connaughton, Zhang and Gibson (2002), when studying lightning safety policies and procedures in Florida's municipal recreation and park agencies.

Eleven questions of the survey focused on lightning policy and practices and eight were demographic questions. The questions were a combination of Likert-type and open-ended. Directions for each section of the survey were included within the survey at the start of the section. Directions were also placed at any change in format. The questionnaire's content was developed using both previous literature and expert input from practitioners. Content validity was established using a panel of individuals chosen for their expertise and experience in lightning policy and procedures. Student focus groups were used to test for issues of readability.

Data Collection and Analysis

The survey was sent to the NIAAA membership using a modified Dillman (2007) method and was delivered by email. Each email consisted of a link to the survey and was accompanied by a letter explaining the purpose, an informed consent statement, anonymity statement, and contact information of the research team. Participants were issued electronically generated respondent ID numbers by the survey program. There were 5,758 surveys sent out with 962 surveys returned for a 16.7% response rate. Of the 962 surveys returned there were 804 fully completed and useable surveys. Demographic information was analyzed using descriptive analyses. A series of ANOVAs, t-tests and Chi-square tests were performed to investigate the existence of relationships between the lightning practices and administrators experience, education and sex.

Results

The schools in the survey were varied in student population. The student populations ranged from 41 students to more than 8,000 with a mean enrollment of 1,182. The schools were represented by athletic administrators who were mostly male (83.9%), well educated (77.2% held a graduate degree), and averaged over eleven years of total experience, with an average of eight years of employment at their current school.

Lighting Safety Practices

A variety of survey questions were asked relating to standard lightning safety practices. The questions were grouped into three categories: policy and procedure, equipment and facilities, and safety expectations and supervision. Policy and procedure questions included: the existence and enforcement of a lightning policy, both game and practice suspension/continuation decision-making power, and method of safe to return to play decision. The equipment and facility section included questions on detection system use, athlete and spectator shelter, and posted policies. Lastly, the safety expectation and supervision category included questions on safety training, supervised activities, and the perceived probability of and injury resulting from lightning strikes.

While most schools had (87.2%) and enforced (90.3%) lightning policy, there were discrepancies with decision-making. The vast majority of schools (73.4%) did utilize the thirty minutes after last strike guideline. However, the ADs seemed to be the choice to make a game time decision to stop or resume for lightning by a narrow margin (53.7%) while coaches were in charge of practices (53.3%). In addition, roughly a third of the schools used some combination of AD, coach, athletic trainer or other administrator to make game (32.0%) and practice (28.7%) decisions (Table 1).

The questions in the equipment and facilities category raised some potential issues related to lightning safety. Only about a third (38.7%) of schools frequently or always used a lightning detection system (the survey did not ask for any specific type of device).Of

those, only 31.1% regularly inspected their equipment. While most schools (73.4%) had safe shelter for student-athletes, less than half (43.1%) had safe areas for spectators to take shelter. A very concerning result is the lack of posted lightning policy in facilities. Only 2.7% always posted policies. Thirty-two percent said they did post policies sometimes (18.9%) or often (13.8%), but almost two-thirds indicated that they never (41.1%) or seldom (23.2%) posted their policies (Table 1).

In the final category of safety expectations and supervision, 95% of schools indicated that activities were supervised. With that said, only 7.8% of schools indicated that all athletic coaches and staff had received lightning safety training. Survey respondents were asked about the perceived potential of a lightning strike and resulting injury from a strike. Seventy percent believed that there was a moderate to high potential for a strike. Just over half (56.8%) also believed that there was a moderate to high probability of injury from a strike (Table 1).

Table 1
Percent of Administrators Engaging in Lightning Practices Regularly

Category	Practice	Percentage
Policy and Procedure	Existence of Lightning Policy	87.2%
	Enforcement of Lightning Policy	90.3%
	Game stop/continuation decision	
	Athletic Director	53.7%
	Coach	0.5%
	Trainer	6.4%
	Other Administrator	7.4%
	Combination	32.0%
	Practice stop/continuation decision	
	Athletic Director	4.6%
	Coach	53.3%
	Trainer	12.3%
	Other Administrator	1.2%
	Combination	28.7%
	Safe to resume method	

Table 1 (Continued)

	Flash to Bang	1.8%
	10 minutes after strike	1.5%
	30 minutes after strike	73.4%
	Coach or Admin. Decision	7.7%
	Other	6.6%
	Combination of methods	8.9%
Equipment and Facilities		
	Detection Systems frequently or always used	38.7%
	Frequent inspection of detection equipment	31.1%
	Have safe areas to shelter athletes in most venues	72.7%
	Have safe areas to shelter spectators in most venues	43.1%
	Lightning safety policies/procedures posted at all facilities	2.7%
Safety Expectations and Supervision		
	Lightning safety training provided to all coaches and staff	7.8%
	Activities are supervised by staff	95.0%
	Perceived probability of a lightning strike	
	None or Low	30.0%
	Moderate to High	70.0%
	Perceived probability of injury from a lightning strike	
	None or Low	43.2%
	Moderate to High	56.8%

Lightning Safety Practices and Administrators' Experience

To examine relationships between lightning policy/practices and administrators' experience, t-test and chi-square analyses were performed. Administrators were categorized into two groups: those with fewer than eleven years of experience and those with eleven or more years. Results indicated significant associations between experience and existence of a plan, plan enforcement, detection, and inspection.

There was a significant ($\chi^2 (1) = 15.59, p < .001$) and weak ($\Phi = -.126, p < .001$) association between the level of administrator experience and the existence of a lightning policy. Of those with no plan, 71.8% were likely to be in the 0-10 year category. Based on the odds ratio, the odds of administrators with 11 or more years of experience having a lightning policy in place was 2.44 times that of administrators with ten years or less experience. Experience also showed a significant ($\chi^2 (1) = 12.36, p < .001$) and weak ($\Phi = -.124, p < .001$) association with the enforcement of the policy. Over 72% of those with no policy enforcement were administrators with 0-10 years of experience. The odds of administrators with 11 or more years of experience enforcing a lightning policy were 2.49 times that of administrators with less experience.

T-tests indicated that there were differences between administrator experiences and use of detection technology ($t = -2.58, p < .05$), inspection of monitoring systems ($t = -2.63, p < .01$), and staff training programs ($t = -3.59, p < .05$). The more experienced administrators were more likely to employ detection technology (mean difference = $-.39$), inspect the monitoring systems (mean difference = $-.33$) and conduct staff training (mean difference = $-.36$).

No differences were found between experience and safe shelters for players, safe shelters for spectators, staff training, posted policies, supervision, believed probability of a strike, believed probability of injury from strike, the person who calls practices, calls games, or resume to practice/play policies.

Lightning Safety Practices and Administrators' Education

An ANOVA analysis indicated that there were no significant differences between education levels with regards to lightning detection technology use, inspections, player or spectator shelters, staff training, posted policies, supervised activities, probability of strike, or probability of injury due to strike.

Discussion

The first goal of this study was to determine the frequency with which high schools in America have and enforce lightning safety policies applied to their athletic programs. Regarding the existence of lightning safety policies, the results showed that 12.8% of the respondents did not have these policies. In addition, among the schools possessing lightning safety policies, 9.7 % said the policies were not enforced.

Despite appearing to be low, these figures are unexpected and very concerning. The concern is based on the fact that lightning is the second leading cause of weather-related death in the United States (Holle et al., 1999; Walsh et al., 2000). In addition to that, interscholastic athletic stakeholders" expect that schools and programs to be fully committed to the safety of athletes and fans, and the results presented here do not fully meet such expectations. Thus, it would be only reasonable to expect that schools would fully commit to the enforcement of lightning safety policies. Today, it is very common to see media reports on interscholastic athletic budget cuts and the reduction of sport programs. That could be used as justification for the lack of more modern (and costly) weather monitoring equipment, but not to justify not having/enforcing lightning safety policies. Some simple (and free) lightning monitoring techniques, such as the thirty minutes after last strike guideline, are efficient preventive measures to mitigate the lightning hazard (Bennett, 1997; Roeder & Vavrek, 2005).

The second goal of this study was to identify the best and most frequently used practices to address the inherent risks related to lightning during outdoor interscholastic athletic activities. As expected, the survey results showed that most administrators have

and enforce lightning safety policies. However, the results presented a few points of concern.

The first point of concern is in regards to who is responsible for making the decision to stop/resume activities due to lightning. The results showed us that during practices coaches are most commonly responsible for making the decision and that during games athletic directors are the ones most commonly making the call. However, it is a very concerning fact that almost one third of the respondents do not have a clear designation as to who (athletic director, coach or athletic trainer) makes the decision to stop/resume during games and practices. It appears that whoever is the highest athletic department official present (athletic director or coach) makes the call. Such situations can be extremely confusing to everyone involved, and it may seriously jeopardize a school's ability to defend itself in the case of litigation caused by lightning-related injury.

Another point of concern is the fact that only 38.7% of schools frequently or always used a lightning detection system. That can be justified based on the cost associated with having and maintaining the equipment. In addition, the lack of financial resources of many interscholastic athletic programs may put other priorities ahead of having a lightning detection system.

In addition, the results indicate a lack of safe shelter for athletes and spectators, with more than a quarter of the respondents (26.6%) lacking available shelters for athletes and 56.9% for spectators. Again, lack of funds and other budget priorities may be assigned as the culprit.

Another very concerning result is the lack of posted lightning policy in facilities. The overwhelming majority of respondents (97.3%) did not regularly post their lightning policies at their outdoor venues. Any reasonable person would expect athletes and spectators to have access to policies which would give them information about lightning hazard and guide them to safety in the event of inclement weather (Bennett, 1997; Roeder & Vavrek, 2005).

Perhaps the most alarming result is related to lightning safety training. Among all respondents, 92.2% indicated that they do not

provide athletic coaches and staff with lightning safety training. Such lack of training may render schools defenseless if facing negligence claims related to injuries/death caused by lightning (Bennett, 1997; Roeder & Vavrek, 2005). Perhaps such lack of concern with training can be justified by the respondents' perception of the potential of a lightning striking and injuring someone during outdoor activities. The results of this study showed that it seems that the respondents view lightning strikes as highly possible to occur, but with moderate probability of causing injury (70% believed that there was a moderate to high potential for a strike, and 56.8% believed that there was a moderate to high probability of injury from a strike).

The third goal of this study was to identify if there is any relationship between athletic directors' experience and existence/enforcement of lightning safety policies. A significant relationship was found between experience and the existence and enforcement of lightning safety policies. Administrators with less than 11 years of experience seem to be less likely to either have or enforce (or both) lightning safety policies than more experienced administrators. Such a result was unexpected, considering that the existence of lightning safety policies is too important in preventing injury, death and loss at any institution to depend on the athletic director's experience (Cotton & Wolohan, 2007; Doleschal, 2006). In addition, more experienced administrators were also more likely to employ detection technology, inspect the monitoring systems, and conduct staff training. The existence of such associations is not surprising. It is reasonable to expect that the experiences acquired through years on the job would lead administrators to the adoption of these best practices.

The fourth goal of this study was to identify if there is any relationship between athletic directors' experience and their level of education. There were no significant differences between education levels with regards to lightning detection technology use, inspections, player or spectator shelters, staff training, posted policies, supervised activities, probability of strike, or probability of injury due to strike. There were also no relationships between

education levels and either personnel who call off or resume playing policy/practices. Such results support the idea that perhaps experience would lead administrators to the adoption and enforcement of lightning safety best practices.

Recommendations for Future Research

The results of this study revealed that a very high percentage of high school athletic departments surveyed do not provide athletic coaches and staff with lightning safety training. It would be interesting to conduct a qualitative study among various state high school associations to learn their perspective on the situation, their perceived reasons for such lack of training. To complement the study, athletic directors could be surveyed on their perceptions of the reasons suggested by the state high school associations' leadership. After comparing the results from both groups, a list of potential actions to help increase lightning safety training development, implementation and enforcement could be composed.

Conclusion

The present study demonstrated that, overall, interscholastic outdoor activities are conducted with the support of lightning safety policies, but we cannot say that all athletes and spectators involved in high school sports are completely safe from lightning related injuries. A large majority of respondents seem to be employing lightning safety best practices consistently, but there is a less than desired level of adoption of some practices (i.e., use of lightning detection system, availability of shelters for spectators, and posted lightning policy in facilities). It is very concerning to learn that almost a third of the respondents reported unclear guidelines on who decides when it is time to stop or resume activity due to lightning. Even more concerning is the coaches and staff lack of training on lightning safety reported by the respondents. It appears that the athletic directors' years of experience plays a role in the existence and enforcement of lightning safety policies and best practices. It is the researchers' hope that the evidence presented here opens the athletic directors' minds to the importance of the adoption of

lightning safety policies as the only reliable way to minimize loss to athletes, spectators, and institutions.

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Advancing the Knowledgebase in Sport-Related Research: The Case
for Systematic Research Reviews

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Abstract

This article examines the role that systematic reviews can play in better understanding the status of knowledge in sport-related disciplines. The rationale for and procedures used in conducting various types of reviews will be discussed. Advantages and disadvantages of each approach will be presented and examples of reviews from the contemporary sport-related literature are provided throughout the article.

The need for and importance of primary research studies is undoubtedly obvious to most sport-related researchers. That is, there is a need to empirically investigate informal observations that are made of social phenomena in the discipline. However, the need for and understanding of systematic research reviews and syntheses is often less clear. Although published discussions detailing both the rationale for and importance of systematic reviews date back almost 40 years (see, for example, Chalmers, Hedges, & Cooper, 2002; Cook, 1992; Cooper & Hedges, 1994; Glass, 1976; Grant & Booth, 2009; Hedges & Olkin, 1986), many researchers unfamiliar with these discussions do not fully understand the value of systematic reviews as they relate to advancing the scholarship and knowledgebase in a discipline. As noted by Light (1984):

The need for research synthesis can only be realized when one understands that in order for the gains of scholarship to be cumulative, there must be a link between the past and future research. Often the need for a new study is not as great as the need for the assimilation of already existing studies. Thus the latter is a prerequisite for the former. (pp. 2-3)

The need for systematic research review and synthesis is even more clearly understood in light of common limitations related to single, primary research studies. The overwhelming majority of primary research studies typically lack high degrees of external validity, or generalizability, stemming from the study of specific subjects within specific contexts and settings and following a specific set of procedures (Cook, 1992; Wood, 2000). Furthermore, many primary research studies investigating the same topic, and even considering the same set of research questions, often report findings that are not consistent across the set of studies (Light, 1984; Weed, 2005). Lastly, and perhaps most significantly, these limitations tend to be further exacerbated by an important statistical limitation that appears to be inherent in many primary research studies---a lack of statistical power due to insufficient samples size (Wood, 2000).

Traditionally, researchers have attempted to clarify differences in findings by conducting more research on the same research question under different conditions (i.e., settings, designs, theoretical concepts, and subject populations). This generally results in a research process or line of inquiry that continues to explore the individual facets of a larger research question generally with little regard for how the individual facets “fit together” and generally ignores the sample size or power issues observed in primary research studies. Over thirty years ago Rosenthal (1978) proclaimed “it has become almost obligatory to end ones” articles with a clarion call for further research. Yet it seems fair to say that we are better at issuing such calls than at knowing what to do with the answers.” In his seminal review of primary and secondary analysis, Glass (1976) made a similar observation noting that “we know less than we have proven.” These statements seem to ring true even today for many research contexts.

Research reviews provide a methodological alternative to primary research studies---an alternative which allows a prospective researcher to mitigate the limitations associated with results generated from primary research studies while still contributing to the overall knowledgebase in a discipline. To date, only a dearth of these types of studies have been conducted in sport management however, a plethora exists in the medical, natural, social and sport sciences. The most common types of reviews include systematic reviews, scoping reviews, quantitative reviews, and mixed-methods reviews. The purpose of this article is to examine the role that these various types of reviews can play in better understanding the status of knowledge in sport-related research, thereby shaping the field practices as well as future scientific investigations. Examples of reviews from contemporary sport-related topics are provided throughout the article.

Systematic Reviews

Systematic reviews provide one viable option for sport-related researchers interested in synthesizing the literature related to a particular content area in the discipline. These types of reviews are

considered to be interpretational in nature. Interpretations are drawn from an accumulated set of research studies located in a systematic search intended to discover both the depth and breadth of research on a specific topic (Weed, 2005). It is not uncommon for systematic reviews to consider research studies employing a variety of methodologies (i.e., qualitative, quantitative, etc.) however, all studies included in such reviews would, in fact, be research studies. Commentaries and opinion pieces would not be considered in such reviews.

Systematic reviews are used for many purposes, including the generation of theory, the identification of emerging issues in the field, the examination of controversial or complicated topics, and the explication of “how to” strategies for practitioners. Those employing this method of review to investigate a topic often follow methodological guidelines that are similar to those followed in most other types of reviews. That is, they identify a research context in need of review, identify inclusion criteria for studies, select studies that meet inclusion criteria, conduct an analysis of the findings from the studies, and then draw conclusions (Grant & Booth, 2009; Rumrill & Fitzgerald, 2001; Weed, 2005).

Researchers in the sport-related disciplines have frequently used systematic reviews for a multitude of purposes. Koh, Cassidy, and Watkinson (2003) used a systematic review to investigate the incidence of concussions in contact various sports. Freudenberger and Bergandi (1994) completed a comprehensive review of the literature concerning the psychological factors operating within the sport of American football. More recently Moran (2009), explored the research on expertise, attention, and mental imagery in athletes from the perspective of cognitive psychology and cognitive neuroscience while Bragaru, Dekker, Geertzen, and Dijkstra (2011) reviewed the literature on individuals with limb amputations and sport participation. Table 1 includes detailed information of recent sport-related systematic reviews.

Table I. Systematic reviews conducted in sport

Authors	Title of Study	Study Topic	Study Outcome	Publication
Barker, J. B., Mellalieu, S. D., Mccarthy, P. J., Jones, M. V., & Moran, A.	A review of single-case research in sport psychology 1997–2012: Research trends and future directions.	The study examined the literature between 1997 and 2012 and located 66 studies that met inclusion criteria of assessing interventions in sport psychology.	Review summarized the body of research, outlined trends, considered the limitations of the extant literature, and identified areas that require further investigation for future single-case research.	<i>Journal of Applied Sport Psychology</i> , 25(1), 4-32. 2013.
Ismail, I., Keating, S. E., Baker, M. K., & Johnson, N. A.	A systematic review and meta-analysis of the effect of aerobic vs. resistance exercise training on visceral fat.	A systematic review and meta-analysis was performed to assess the efficacy of exercise interventions on VAT content/volume in overweight and obese adults.	Data suggested that aerobic exercise is central for exercise programmes aimed at reducing VAT, and that aerobic exercise below current recommendations for overweight/obesity management may be sufficient for beneficial VAT modification.	<i>Obesity Reviews</i> , 13(1), 68-91. 2012.
Langan, E., Blake, C., & Lonsdale, C.	Systematic review of the effectiveness of interpersonal coach education interventions on athlete outcomes.	Study aimed to: (a) describe the non-formal coach education interventions aimed at coaches" interpersonal knowledge base, (b) highlight underpinning theoretical models, (c) assess the methodological quality of articles evaluating these interventions, (d) identify participant	Overall, education interventions based on coach effectiveness training and achievement goal theory produced mixed effects on a variety of athlete outcomes, such as anxiety, self-esteem, fear of failure, and motivational orientation. Conclusions: Due to the diversity in athlete outcomes and intervention design, it	<i>Psychology of Sport & Exercise</i> , 14(1), 37-49. 2013.

		characteristics, and (e) establish the effect of these interventions on athletes' cognitive, affective, and behavioural outcomes.	is difficult to draw firm conclusions around the effectiveness of coach education interventions.	
Smith, C. J., Callister, R., & Lubans, D. R.	A systematic review of strength and conditioning programmes designed to improve fitness characteristics in golfers.	Primary aim of this systematic review was to evaluate the effectiveness of conditioning programmes on measures of golf-related fitness and golf performance.	The findings suggested that strength and conditioning programmes can have a positive effect on the golf swing and fitness characteristics of golfers. The majority of studies in this review evaluated the effects of generic conditioning programmes on fitness characteristics and club head speed.	<i>Journal of Sports Sciences Jun2011, Vol. 29 Issue 9, p933 11p. 2011.</i>

Although commonly used in most disciplines, systematic reviews are noted for several limitations. First and foremost, interpretations and findings from these types of reviews tend to be quite subjective. Often the determination of which studies to include, and the way in which studies are analyzed, evolves as the review is conducted and because of this it is not uncommon for researchers reviewing a similar set of studies to report quite different interpretations of the aggregated set of findings (Cook, 1992; Hunter & Schmidt, 1990; Rosenthal, 1991). Additionally, differences observed in the interpretation of many systematic reviews are attributed to several commonly observed design flaws including selection bias, subjective weighting of the studies chosen for the respective analyses, failure to include an explanation regarding inclusion criteria, and failure to consider the relationships between

study characteristics and study results (Grant & Booth, 2009; Rumrill & Fitzgerald, 2001; Weed, 2005; Wolf, 1986).

Scoping Reviews

Scoping reviews represent a second type of review. However, unlike the systematic review strategy, which represents an approach to synthesizing research on a particular topic that addresses both the depth and breadth of a research topic, scoping reviews tend to be somewhat less systematic in nature and tend to focus on breadth of coverage of the literature conducted on a topic rather than depth of coverage (Arksey & O'Malley, 2005; Grant & Booth, 2009). Furthermore, unlike narrative reviews and the other reviews that will be discussed later in this paper, scoping reviews tend to utilize a wide range of research and non-research material within the review (Davis et al., 2009). For example, Covell (1997, 1998 and 1999) conducted a variety of scoping reviews for *Sport Marketing Quarterly*, highlighting information on relevant articles from related sports journals and periodicals. It is not uncommon for scoping reviews to contain information from qualitative and quantitative studies and also include informal and formal commentaries from professional meetings (Rumrill, Fitzgerald, & Merchant, 2010). The most common type of scoping review is exploratory in nature (Arksey & O'Malley, 2005). This type of review examines the range and nature of a particular research area, or determines, by a review of the material on a topic, if a full systematic review is needed. Anderson et al., (2008) describes the processes involved in these exploratory scoping reviews as mapping exercises which can be categorized as literature mapping, conceptual mapping, and policy mapping reviews.

Literature mapping. According to Anderson et al., (2008) this is the most common type of scoping study. There are two main objectives of literature mapping studies--to identify the location of the literature on a particular topic and to determine the magnitude of the research on a topic. There is no preconceived plan to systematically review the literature located as part of the study itself. With this approach, a researcher might simply consider a specific

timeframe for the literature that is to be mapped, that is, what research has been conducted in the past ten years. A researcher may consider where the research is being conducted (e.g., the United States, Europe, etc.), who is conducting the research (e.g., practitioners, individual researchers, research centers), or the publishing source of the research (e.g., non-peer reviewed journals, peer reviewed journals, professional conferences, research briefs, etc.).

Conceptual mapping. Conceptual mapping seeks to determine how, and to what extent, specific terms are used in the literature. This type of study may also seek to determine who is using specific terms and for what purposes. Thus, conceptual mapping focuses on the terminology, rather than the research being conducted, on a particular topic. Conceptual mapping is very similar to the initial stages of most other systematic reviews where the researcher identifies the terms used to conduct the search for relevant studies. The value of this type of study or activity cannot be overstated. If a researcher is unfamiliar with the terms used to identify key concepts in a research domain he or she is not likely to uncover all the literature on a topic. Furthermore, when locating literature in research databases associated with different disciplines, one must be familiar with differences in the terminology used across disciplines to find all relevant research on a topic that might cross disciplines. If one were conducting a full systematic review of the literature that did not include relevant literature from another discipline, because he or she was not aware of differences in the terms used, this could call into question the validity of such a review.

Policy mapping. Anderson et al. (2008) suggest that policy mapping exercises are “scoping studies designed to identify the main documents and statements from government agencies and professional bodies that have a bearing on the nature of practice in that area.” (p. 2). These scoping studies rely much less on the research conducted on a topic and much more on the statements made or positions assumed by agencies that inform both practitioners and researchers in the discipline.

In general, Davis et al. (2009) suggest that scoping studies tend to be policy directed and tend to be used to guide more focused lines of research and development. They further noted that, for most researchers, scoping reviews are generally considered to be “preliminary investigative processes that identify the range and nature of existing evidence and help in the formulation of a research question(s) and the development of research proposals.” (p. 1390). This represents yet another major difference between scoping reviews and the other reviews discussed in this paper. Other reviews, by themselves, represent studies that answer specific research questions or would be considered studies in and of themselves. Despite the basic differences noted here, and the assumption that scoping reviews are simply a preliminary step toward a more in-depth look at a research topic, scoping reviews represent a viable methodological approach that can be employed to examine the breadth of research on a particular topic. Results from a search of several research databases lend support to this contention. Scoping reviews have been published in various sport-related journals over the years.

Minnaert (2010) used a scoping study to investigate the non-infrastructure impact of the Olympic Games on socially excluded groups from 1996 through 2008. Weed (2006) used a variation of a scoping review to study the range of activities that contemporary peer-reviewed sports tourism research has investigated, and the different aspects of the relationship between sport and tourism that have been examined. de Haan and Johnson (2010) used a scoping study to review the research produced with regards to the sport of Eventing since the 1992 Olympic Games. Although not specifically identified as a such, Mahony, Hums, Andrew, and Dittmore's (2010) review of organizational justice literature in sport management provides a good example of what would be classified as a literature mapping scoping review. Table 2 includes detailed information from recent sport-related scoping reviews.

Table II. Scoping reviews conducted in sport

Authors	Title of Study	Study Topic	Study Outcome	Publication
Allen, M. S.	A systematic review of content themes in sport attribution research: 1954–2011.	Review sought to identify all sport-based attribution research to systematically explore content themes and identify areas for future research. A literature search identified 167 empirical sport attribution papers (encompassing 202 independent samples) published between 1954 and February 2011.	Frequency calculations showed a disproportionate focus on quantitative methodologies (99.4%), outcome attributions (94.6%), and attributions for personal behavior (69.9%), with relatively few intervention studies or longitudinal designs. Findings also showed a good proportion of research conducted on youth sport participants (22.3%) and in naturally occurring competitive sport settings (69.5%). It is recommended that researchers expand their study of attribution in sport to consider those attributions made by coaches and parents, and for diverse events such as athletic injury and dropout.	<i>International Journal of Sport & Exercise Psychology</i> , 10(1), 1-8. 2012.

Heller, T., McCubbin, J. A., Drum, C., & Peterson, J.	Physical activity and nutrition health promotion interventions: What is working for people with intellectual disabilities?	Reviewed studies on physical activity and nutrition health promotion interventions for individuals with intellectual disabilities.	Results indicated some evidence for fitness and psychosocial benefits of community-based physical activity and exercise programs for adults with intellectual disabilities.	<i>Intellectual and Developmental Disabilities</i> , 49(1), 26-36. 2011.
Hoye, R., & Doherty, A.	Nonprofit sport board performance: A review and directions for future research.	A review of research pertaining to nonprofit sport board performance was conducted to identify priorities for further investigation.	Results highlighted that research on nonprofit sport board performance would benefit from the use of quantitative, qualitative, and/or mixed methods designs, and corresponding analyses, that enable investigators to examine and better understand the various correlates of board performance.	<i>Journal of Sport Management</i> , 25(3), 272- 285. 2011.
Moran, A. P., Matthews, J. J., & Kirby, K.	Whatever happened to the third paradigm? exploring mixed methods research	The purpose of this paper is to explore the nature and implications of mixed methods designs for research in sport and exercise	Results highlighted some advantages MMR offers to researchers in sport and exercise psychology. They concluded by	<i>Qualitative Research in Sport, Exercise & Health</i> , 3(3), 362-369. 2011.

	designs in sport and exercise psychology.	psychology.	identifying some barriers to progress in using MMR in this latter field.	
Park, S., Lavallee, D., & Tod, D.	Athletes' career transition out of sport: A systematic review.	The purpose of this study was to provide a systematic review of studies on athletes' career transition out of sport from 1968 until the end of 2010.	Evaluations were reported in three sections: sample characteristics, research designs and correlates of athletes' career transition adjustment. Investigators examined a wide range of competitive levels, both genders and various sports and identified that researchers have used qualitative (44%), quantitative (44%), and mixed-model (12%) designs.	<i>International Review of Sport & Exercise Psychology</i> , 6(1), 22-53. 2013.
Shilbury, D.	A bibliometric study of citations to sport management and marketing journals.	Purpose of this study was to examine the influence of seven sport management and marketing journals on sport-related research published in 20 top tier generic management and marketing journals.	Results identified citation frequency by year, first citations and time taken for the seven sport journals to record first citations, author citation frequency and field of author affiliation and its impact on citation patterns.	<i>Journal of Sport Management</i> , 25(5), 423-444. 2011.

Quantitative Reviews

Vote-Counting. One quantitative alternative to the reviews discussed in the previous sections is the “vote-counting” or “box-score” method of review. Like the aforementioned reviews, interpretations are drawn from an accumulated set of research studies located in a systematic search intended to discover both the depth and breadth of research on a specific topic. However, with these reviews it would be uncommon to include research studies employing a variety of qualitative methodologies as these reviews focus on aggregating findings from quantitative research studies. Unlike scoping reviews, commentaries and opinion pieces would not be considered relevant in such reviews.

Reviews which follow this approach generally identify a research area in need of review, set inclusion criteria for studies, select studies that meet the inclusion criteria, conduct a quantitative analysis of the aggregated findings, and draw conclusions. The quantitative analysis within this approach is simply a “tally” of the significant and non-significant results in a set of studies. The cumulative effect is reflected in the category (i.e., significant, non-significant) that is “tallied” the most.

Goodger, Gorely, Lavalley, and Harwood (2007) used a combined a vote-counting approach and mixed methods review to study the topic of burnout in sport. Quantitative studies included within the review were simply coded as having a positive, negative, or neutral effect depending on how variables related to burnout in each of the studies. These results were later combined with findings from qualitative studies to inform the overall observations. While this method of review and synthesis requires little information from the original studies, and the overall effect of a set of studies is relatively easy to determine, major limitations accompany this method of review. Those who have studied this approach have noted the simple tallying procedure tends to bias results in favor of studies with larger sample sizes, is limited in its ability to assess the effects of various study characteristics on the overall effect reported, and does not allow one to determine an overall effect for a set of studies (Davies, 2000; Fitzgerald, & Rumrill, 2005). Those interested in

more in-depth discussions of these limitations should consult Glass (1976), Hedges and Olkin (1985) and Hyde (1986).

Combined Significance Test. A related alternative to the “vote-counting” method of review is the combined significance test. While many different types of combined significance tests have been developed they are all used to determine if a relationship exists for a set of related studies and generally come to similar conclusions (Hedges & Olkin, 1985; Wolf, 1986). The procedures followed by a reviewer using this method of synthesis are the same as those for the “vote-counting” method; however, the analysis of study outcomes is somewhat different. Instead of relying solely on whether or not a study reported significant or non-significant results to determine if an overall relationship existed, this type of review combines the reported probabilities of the individual studies to determine if an overall relationship exists (Hedges & Olkin, 1985).

Although combined significance tests have been proposed as an alternative to the “vote-counting” method of review they suffer from some of the same limitations associated with the “vote-counting” method. Because combined significance tests draw conclusions based on probabilities, and these probabilities are directly related to the sample size used in the individual studies, this method of review can also misrepresent the overall effect of a relationship (Hedges & Olkin, 1985). Hedges and Olkin (1985) concluded further that because effect size estimates in the social sciences are often moderate to small, and most primary research studies often lack the power to detect these effects because of inadequate sample size, most researchers erroneously conclude that there is not a significant relationship or effect. As a result, reviews including many of these small n studies would also tend to come to the same erroneous conclusion. Lastly, as with the “vote-counting” method of review, combined significance tests do not allow reviewers to estimate the overall magnitude of an effect for a set of studies (Cook, et. al 1992). While not as popular as many of the more “sophisticated,” contemporary quantitative reviews, these types of reviews can be effective in those situations where studies have approximately equal sample sizes and when the primary research

authors have taken into consideration power and effect size measures for the relationship under investigation. However, if a reviewer is interested in determining the magnitude of a relationship, and in determining the influence of study characteristics on study outcomes, these methods would not be appropriate. In these instances reviewers may want to consider a more sophisticated review that could, in fact, effectively assess not only the magnitude of treatment effects but also the degree to which study characteristics influence the effect(s) observed in a study. This type of systematic review is commonly known as meta-analysis---first developed by Glass (1976), some forty years ago.

Meta-Analysis Reviews

Meta-Analysis has been defined by Glass (1976, p. 3) as the “statistical analysis of a large collection of analysis results from individual studies for the purpose of investigating the findings.” Similar to narrative, vote-counting, and combined significance reviews, interpretations from meta-analysis are drawn from an accumulated set of research studies located in a systematic search intended to discover both the depth and breadth of research on a specific topic. With these reviews it would not be possible to include research studies employing qualitative methodologies as these reviews focus on aggregating findings from quantitative research studies. As is the case with other quantitative reviews, commentaries and opinion pieces would not be considered relevant in such reviews.

Meta-analysis can be distinguished from other quantitative reviews on three levels. First, meta-analysis allows the reviewer to determine an effect size estimate which can provide information regarding both magnitude and direction of a relationship (Cook et al., 1992; Durlak, 2000; Glass, et. al., 1981; Wood, 2000). Furthermore, a common effect size estimate can be determined regardless of the type of statistical analysis used in the primary studies being analyzed in the meta-analysis. Second, unlike “vote-counting” reviews or reviews employing combined tests of significance, procedures used in meta-analysis allow for the

investigation of interactions that may exist between study characteristics and treatments, or relationships, under consideration in a review. Third, unlike most other quantitative methods of review, meta-analysis does not require original raw data in order to determine the overall treatment effects for a set of studies (Durlak, 2000; Glass, et. al., 1981; Wood, 2005).

Although a full discussion of meta-analytic procedures is beyond the scope of this article a brief discussion of important procedural aspects of this type of review should assist in helping readers understand the basics. Those interested in more detailed discussions on the development and use of meta-analysis as a review methodology are encouraged to consult the seminal work of Glass, et. al. (1981) or more articles from Chambers (2004), Durlak (2000), Fitzgerald and Rumrill (2003), Higgins and Green (2011), Hunt (1997), or Wood (2005). Hagger (2006) and Weed (2005) discuss meta-analysis as it relates to sport and sport management disciplines. Reviews which follow this approach will follow the same procedural steps as the other quantitative reviews in that they will identify a research area in need of review, set inclusion criteria for studies, select studies that meet the inclusion criteria, conduct a quantitative analysis of the aggregated findings, and draw conclusions). The unique aspect of meta-analysis, relative to other types of quantitative reviews, lies within the procedural step related to the quantitative analysis of study findings.

The first step in analyzing data for a meta-analysis requires the researcher to determine a common measure for expressing results across many studies---this common measure is known as an effect size. An effect size estimate provides a standardized indication of the strength of an effect or relationship between two variables and it is an estimate of an effect that is independent of the original measurement unit of the dependent variable for any study (Cohen, 1977). Basic formulas for calculating various effect size estimates can be found in introductory statistics texts, such as Hinkle, Wiersma, and Jurs (2002) or Lomax (2007), or recent articles (see, for example, Ferguson, 2009; LeCroy & Krysik, 2007). It is worth noting that results from any type of study, including quasi-

experimental, pre-experimental, correlational, and causal-comparative designs, and almost any type of statistical test, such as ANOVA, t-tests, Chi-square, and other measures of association, can be considered in a meta-analysis once the basic descriptive statistics are converted to a common metric such as Cohen's d . Those interested in reading more about how to convert various statistics generated in primary research studies to common effect size estimates should refer to Glass et al. (1981) or Wolf (1986). Once all study findings are converted to a common metric the remainder of the analysis progresses much like that of a factorial analysis of variance where study characteristics are treated as factors that are investigated for their possible moderating effects on the outcome of interest. This would be reflected in the common effect size estimate determined for each study. If the overall analysis suggests that the common effect size estimate generated when averaging all effect size estimates for every study across studies is relatively homogeneous one could reasonably conclude that the overall effect observed represents the relationship investigated. However, if the aggregated set of study effects seems to lack a high degree of homogeneity, one would then begin to investigate the potential moderating effects of the study characteristics that have been coded in the analysis.

While meta-analytic reviews generally offer more information about the aggregated effect size measure than do other types of reviews, and the effects of study characteristics can be determined, meta-analytic reviews are not without their criticisms. The literature on meta analysis is quite extensive and those interested in understanding more about the discussions surrounding limitations related to construct validity, internal validity, external validity, and statistical validity of meta-analytic reviews are encouraged to review appropriate resources detailing these discussions (see, for example, Cook, 1992; Durlak, 2000; Glass, et al., 1981; Grant & Booth, 2009; Hagger, 2006; Wood, 2000).

These types of reviews, although not as prominent in sport management literature, are quite common in the sport and health-related disciplines as well as the social sciences. For example,

Carron, Colman, Wheeler, & Stevens (2002) used meta-analysis to investigate the impact of team cohesion on team performance in several sport areas. Hudson (2001) used meta-analysis to study the use and misuse of economic impact analysis in professional sports. More recently Martin, Carron, and Burke (2009) analyzed the literature related to team building interventions in sport using a meta-analysis and Martinez, Stinson, and Minsoo-Kang (2010) applied meta-analysis to investigate the influence of intercollegiate athletics on private, individual giving to higher education institutions. Table 3 presents detailed descriptions of more recent meta-analyses used in sport-related disciplines.

Table III. Meta-analysis reviews conducted in sport

Authors	Title of Study	Study Objective	Study Outcome	Publication
Avugos, S., Köppen, J., Czienskowski, U., Raab, M., & Bar-Eli, M.	The "hot hand" reconsidered: A meta-analytic approach.	A quantitative review of the effects of requisite responses and methods of stimulus presentation for assessing decision-making expertise in sport.	Study considered 111 effect sizes in studies involving 882 expert and non-expert participants. Conclusions highlighted that future empirical work on expertise and decision-making needs to consider task representativeness in considering requisite responses of participants in simulating performance environment conditions.	<i>Psychology of Sport & Exercise</i> , 14(1), 21-27. 2013.
Hagger, M.S.	Meta-analysis in sport and exercise	Study sought to provide overview of the principles	The review examined the importance of	<i>European Journal of Sport</i>

research: Review, recent developments, and recommendations and practice of conducting quantitative psychometric analytic reviews in sport and exercise sciences highlighting the conduct and validity of meta-analytic methods. meta-analysis in sport and exercise research. The study highlighted some recent controversies and illustrated some innovative methods on how they have been resolved by researchers using meta-analysis. The study recommended that meta-analytic researchers provide an a priori rationale as to the level of inference they wish to make regarding the hypothesized effect of interest. *Science*, 6(2), 103-115. 2006.

Ismail, I., Keating, S. E., Baker, M. K., & Johnson, N. A. A systematic review and meta-analysis of the effect of aerobic vs. resistance exercise training on visceral fat. The study sought to evaluate the independent and synergistic effect of aerobic exercise and progressive resistance training. A systematic review and meta-analysis was performed to assess the efficiency of exercise interventions on VAT. Study found that there was a significant pooled size for comparison between AEx therapy and control. Data suggested that aerobic exercise is central for exercise programs aimed at reducing VAT. *Obesity Reviews*, 13(1), 68-91. 2012.

		content/volume in overweight and obese adults.		
Jamieson, J. P.	The home field advantage in athletics: A meta-analysis.	The study examined home-field advantage in athletics. The goal was to quantify the probability of home victory.	A significant advantage for home teams was observed. It was also found that length of season mediated the effect of sport such that difference between could be attributed to season length.	<i>Journal of Applied Social Psychology</i> , 40(7), 1819-1848. 2010.
Lee, H., Sullivan, S. J., & Schneiders, A. G.	The use of the dual-task paradigm in detecting gait performance deficits following a sports-related concussion: A systematic review and meta-analysis.	The purpose of this systematic review was to determine the viability of the dual-task paradigm in the evaluation of a sports-related concussion.	Results indicated that GV and ML-ROM are sensitive measures of dual-task related changes in concussed patients and should be considered as part of a comprehensive assessment for a sports-related concussion.	<i>Journal of Science & Medicine in Sport</i> , 16(1), 2-7. 2013.
Martin, L. J., & Carron, A. V.	Team attributions in sport: A meta-analysis.	The purpose of the study was to determine whether team-oriented attributions in sport are team-serving.	Results indicated (a) the presence of team serving bias, (b) no temporal change in pattern of results from studies using operational	<i>Journal of Applied Sport Psychology</i> , 24(2), 157-174. 2012.

			definitions, and (c) significant difference between the internal composite dimension and internal dimensions	
Pelletier, D. M., Lacerte, G., & Goulet, E. D. B.	Effects of Quercetin supplementation on endurance performance and maximal oxygen consumption: A meta-analysis.	A meta-analysis was performed to determine quercetin supplementation's (QS) ergogenic value on endurance performance and maximal oxygen consumption.	Results indicated that QS is unlikely to prove ergogenic for aerobic-oriented exercises in trained and untrained individuals.	<i>International Journal of Sport Nutrition & Exercise Metabolism</i> , 23(1), 73-82. 2013.

Meta-analysis represents a method for quantitatively synthesizing a large volume of related research. It is a superior method of review because it can efficiently “tie” results together in a manner that is not possible in either narrative or other quantitative literature reviews. By comparing effect sizes of different groups or conditions across a number of studies, meta-analysis provides the most compelling means for determining the overall effects of a set of interventions or stimuli. However, although meta-analytic reviews address some of the limitations of primary research studies and other types of reviews, it is important to realize that all types of research are necessary if we are to advance our scientific knowledge base in any research domain. Glass (1976), commenting on the interrelatedness of different types of research, proposed that meta-analysis be thought of as the culminating process of an exhaustive, all-inclusive, multi-faceted research study whereby three levels of descriptive assessment and evaluation evolve. These interrelated levels of assessment and evaluation include the original analysis of data in primary research studies (primary analysis), the re-analysis of

the same data using statistical methods superior to the original to test the same hypotheses or to test new hypotheses (secondary analysis), and the holistic analysis of the pattern of results that emerged from a variety of related investigations (meta-analysis).

Mixed-Methods Systematic Reviews

It is reasonable to assume that the literature base in most sport-related research areas contains studies and reports that can be qualitative, quantitative, or mixed-methods in design. As such, any systematic review of the literature in this domain should utilize methods which address the diverse nature of these studies if reasonable and accurate conclusions about the literature base are desired. Mixed-methods systematic reviews are different than their qualitative (e.g., narrative, scoping, meta-ethnographic) and quantitative (e.g., meta-analysis) counterparts in that these types of reviews allow for the synthesis and analysis of multiple types of studies (i.e., qualitative, quantitative, mixed methods studies). In general, these reviews combine the findings from different types of studies within a single systematic review to address the same, overlapping or complementary review questions (Harden, 2010). According to Harden and Thomas (2005), mixed-methods systematic reviews provide investigators an opportunity to preserve the integrity of the findings of the different types of studies, integrate „quantitative“ estimates of effects or relationships with „qualitative“ interpretations of meaning, and facilitate a critical analysis findings from the studies on a particular topic. Standard procedures for conducting mixed-methods reviews parallel those of other reviews discussed in this paper. The initial stages include the searching, screening, and mapping of the studies in the research domain. In the analysis stage separate syntheses of qualitative studies and quantitative studies are conducted and then are “blended” into a combined synthesis of both types of studies.

Synthesis of quantitative studies involves two primary steps-- data extraction or coding of data from primary research studies and the statistical meta-analysis of results or findings from those studies. As mentioned in the previous section, the statistical meta-analysis

includes several basic steps beginning with the determination of effect sizes and concluding with sub-group analysis based on study characteristics assumed to influence the overall observed effects. Synthesis of qualitative studies also includes two similar steps---data extraction from studies and the thematic synthesis of findings from those studies. According to Harden and Thomas (2005) data analysis begins once all textual data are extracted from the qualitative studies and entered into one of the commonly used qualitative data analysis software packages, such as QSR's Nvivo. Once entered, the thematic synthesis evolves in stages beginning with the "breaking down" and coding of text and development of descriptive themes from the qualitative studies (data from these studies will come from the author's descriptions of their study finding). Using the data analysis software, line-by-line coding of the data is completed and then followed by an analysis of similarities and differences among the codes in order to group them. Once grouped, analytical themes are then developed.

The final stage of mixed-methods synthesis requires the use of a constant comparative analysis whereby the themes developed in the qualitative synthesis are placed side-by-side with the quantitative findings from the meta-analysis and a constant comparative analysis is used to understand the set of studies more holistically than either a qualitative or quantitative analysis could do separately (Harden & Thomas, 2005). A complete description of how this complex phase of analysis is accomplished is beyond the scope of this article. Readers interested in learning more about this review approach are encourage to consult Harden (2010), Harden and Thomas (2005), or Oliver et. al. (2005).

While this review approach is relative new to many disciplines several good examples of such studies do exist. Goodger, Gorely, Lavalley, and Harwood (2007) combined a vote-counting approach and mixed method review to the study of burnout in sport. Babakus and Thompson (2012) used a systematic mixed-methods review to assess the levels of physical activity and sedentary time and to contextualize the behaviors for South Asian women with an immigrant background.

Conclusions

Although many different types of reviews have been advanced, both qualitative and quantitative in nature, the meta-analytic approach to synthesis appears to be the most widely used. This may be true for several reasons. First, meta-analysis allows the reviewer to determine an effect size estimate which can provide information regarding both magnitude and direction of a relationship. Second, unlike “vote-counting” reviews or reviews employing combined tests of significance, those using meta-analysis have developed statistical techniques to investigate interactions that may exist between study characteristics and treatments, or relationships, under consideration in a review. Third, unlike other types of quantitative reviews meta-analysis has few formal assumptions, low informational requirements, and does not require original raw data in order to determine the overall treatment effects for a set of studies. Table 4 provides a summary of various types of reviews that can be used in sport-related disciplines along with a brief description of the type of documents that can be included as well as the advantages and disadvantages of each approach.

This article addressed some of the promises and pitfalls of various types of reviews that have been utilized in sport-related disciplines. Although these studies do address some of the limitations of primary research, it is important to realize that both types of research are necessary if we are to advance the scientific knowledge base in any research domain. Whether previous articles are analyzed in narrative fashion or using statistical procedures, investigators must demonstrate that they have a thorough understanding of the literature in their respective fields of study. By understanding the methods by which scholars make sense of published research and writing, it is hoped that readers will function as fully informed consumers of the professional literature.

Table IV. Summary of Reviews Classifications with Range of Documents Included Advantages, and Limitations.

Review Type	Documents Included	Advantages	Limitations
<i>Systematic</i>	Primary research studies	Effectively informs if subjective evaluations kept to a minimum	Can be subjective. Cannot assess study characteristics or magnitude of effect
<i>Scoping</i>	Quantitative primary research studies and other documents	Can examine a wide range of topics in and nature of a particular research area	Generally considered as preliminary studies to more sophisticated reviews
<i>Vote Counting</i>	Quantitative primary research studies	Quick/simple process to objectively assess an effect or relationship observed	Sample size concerns. Cannot assess study characteristics or magnitude of effect
<i>Combined Significance</i>	Quantitative primary research studies.	Quick/simple process to objectively assess an effect or relationship observed	Sample size concerns. Cannot assess study characteristics or magnitude of effect
<i>Meta-Analysis</i>	Quantitative primary research studies	Objectively assesses effect or relationship observed and influence of study characteristics	Statistical independence, representativeness, inclusion criteria
<i>Mixed-Methods</i>	Quantitative and qualitative primary research studies	Provides opportunity to more fully investigate all the empirical research on a topic	Limitations in combining results of qualitative and quantitative results

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