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Data and Assessment Management in Collegiate Recreation

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Data and Assessment Management in Collegiate Recreation

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by

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Abstract

Collegiate recreation programs and centers typically provide traditional programming space in addition to a range of physical activity spaces and resources, as a valuable part of the student experience. The external pressures of identifying and communicating departmental value and impact on the campus community has resulted in collegiate recreation departments' use of data to communicate the effectiveness and impact of their work. The purpose of the study was to identify the data collection and assessment management practices of collegiate recreation departments, particularly focusing on the organization of data and assessment strategies as well as data collection, storage, reporting, analyzing, and data use in decision-making. The significance of the study was to assist the leaders of recreation departments in understanding how others navigate data and assessment management and how data were utilized in decision-making.

Data for the study were collected using quantitative measures through a researcher-created, web-based survey, sent via email to director-level individuals at 50 research oriented, 1862 Morrill Land Grant Act institutions with membership to the Association of Public Land Grant Universities (APLU). Data were analyzed through measures of central tendency, frequencies, percentages, and one-way ANOVA. The data indicated that many collegiate recreation departments have a formal process for data and assessment management. The data also indicated that data are used to complete departmental reports, demonstrate student success, demonstrate student development, and to provide evidence of the department's overall contribution to institutional mission and goals. Additionally, the data showed that there were significant differences in how departments utilized data to make decisions for demonstrating student success, informing decision-making and planning for continuous improvement, and

completing departmental reports between ways that departments organized their data and assessment management strategies.

The results of the study show the need for recreation departments to evaluate their current organization of data and assessment management strategies and advocate for a strategy that might help provide support for demonstrating the value and impact of their work on campus.

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Dedication

This work is dedicated to women of all ages who have ever felt inadequate or have not had a respected voice in decision-making simply because you are a female. You are strong, capable, and more than enough. Do not let your spark be quashed by others, my friends, because you were meant to set the world on fire and bring positive change. The future is most certainly female, but we still have work to do, so let's get to it.

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Chapter I. Introduction

Collegiate recreation programs and facilities, which commonly include competitive and noncompetitive programming, informal recreation, and wellness services, have held a prominent place in higher education for over a century. In 1913, the University of Michigan and Ohio State University were the first two institutions to have an appointed director of intramural departments (Colgate, 1978). The universities of Texas, Illinois, and Oregon State University followed soon after in 1916 (Mueller, 1971). From these beginnings, collegiate recreation departments have evolved dramatically, and are currently finding themselves positioned to defend their role and function on campus. Changes to their organizational structures and funding models have driven an increased level of questioning by senior administrators and the public at large about the role, function, and value of collegiate recreation.

Collegiate recreation has historically been recognized as an important part of a student's life on campus, not only as an aspect of personal health, but in other components of student wellness, such as social interaction, mental health, and student satisfaction with the college experience (Ellis, et al., 2002; Fenton, et al., 2018; Forrester, 2014; Mayers, et al., 2017). Forrester (2014) identified a feeling of overall wellbeing and positive health as the top characteristics of students who participate in collegiate recreation.

The centerpiece for many collegiate recreation programs is their recreation centers, typically thought of as "common hubs for students on college campuses where students can create and experience community" (Sanderson, DeRousie, & Guistwite, 2018, p. 41). These facilities provide traditional programming space in addition to a range of physical activity spaces and resources, such as walking and running tracks, basketball and racquetball courts, swimming

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pools, etc. Some institutions have also constructed in their recreation centers elaborate entertainment venues for students, such as lazy rivers and spas.

Perhaps driven by growing capital facility costs, increased student user fees, or a vision that entertainment-related elements of collegiate recreation are unnecessary, there has been an increased dialogue about the value, necessity, and impact of collegiate recreation on campus. A major result of this question has become the posturing of collegiate recreation to defend itself and its activities, and with working use of data to demonstrate its value and impact (Vasold, et al., 2019).

Data use and assessment in collegiate recreation extend beyond the creation of defensive arguments about the need for such programs and facilities. Data-based decision-making in collegiate recreation can provide for a better articulation between these offices and facilities and student needs, they can create better cost efficiencies, and, they can help these units link their activities with other campus resources and offices in a meaningful way that could ultimately add to the student experience on campus. Effective data and assessment management can ultimately aid collegiate recreation in being a stronger, more responsible partner in student success.

A. Statement of the Problem

Performance funding for many institutions and cries of accountability from stakeholders are factors that shape the urgency of data use and reporting in higher education (Tandberg & Hillman, 2014). State funding for higher education has not kept pace with increasing costs, resulting in rapidly growing tuition and fee dependence (Mitchell et al., 2019). One result of this funding situation is that institutions rely on user fees to maintain services and must demonstrate to stakeholders and constituents their value. Collegiate recreation facilities and programs are a significant institutional cost (Kampf et al., 2018; Lower-Hoppe et al., 2019). In an effort to

defend expenditures, individual departments, as well as collegiate recreation's national

association, NIRSA: Leaders in Collegiate Recreation (NIRSA), have worked to demonstrate the

value and impact of collegiate recreation (Ellis, et al. 2002; Fenton, et al., 2018; Forrester, 2014).

These efforts can be seen in studies that positively relate recreational programming and facility

use to a sense of belonging and community as well as higher education recruitment, retention,

satisfaction, and ultimately student success (Kampf et al., 2018; Kampf & Teske, 2013; Miller,

2011; Phipps et al., 2015; Vasold et al., 2019).

The external pressures of identifying and communicating departmental value and impact

on the campus community has resulted in collegiate recreation departments' use of data to

communicate the effectiveness and impact of their work. As a relatively new process of self-

examination, collegiate recreation offices do not have a traditional or formal structure that

typically supports data management and use. The result is that few offices employ full-time or

other supporting staff with the qualifications necessary to appropriately use, report, and analyze

data (Young, et al., 2014). As an emerging element in and responsibility of collegiate recreation,

there is a need to demonstrate what effective data management entails, a sentiment echoed by

NIRSA (NIRSA, 2020).

A stronger, more defined use of data, analytics, and assessment in reporting activities and

results of programming, facilities, and services can strengthen collegiate recreation's position on

campus (Ellis, et al., 2002; Forrester, 2014; Vasold, et al., 2019). Therefore, collegiate recreation

leaders and administrators must develop a stronger understanding of the entire data and

assessment management process, including office structures, typical reports, and processes for

information communication. The failure of collegiate recreation leaders to make effective use of

data could well lead to diminished resource allocations, a refusal by students to pay increasing fees, and even the erosion of the support of senior administration on campus.

B. Purpose of the Study

Top motivations for institutional analytics, as reported by Yanosky and Arroway (2015) included optimizing resources, demonstrating higher education effectiveness, improving retention, and reducing costs. Higher education institutions are motivated to invest in analytics and research to improve retention and demonstrate their effectiveness, and collegiate recreation departments can similarly be motivated by those same ideas.

The Association of Institutional Research (AIR) outlined and defined five duties and functions of institutional research offices that must be present for effective and efficient use of data for decision-making purposes (Swing & Ross, 2016). Those duties and functions include (a), identify information needs, (b), collect, analyze, interpret, and report data and information, (c), plan and evaluate, (d), serve as stewards of data and information, and (e), educate information producers, users, and consumers. Collegiate recreation leadership would benefit from learning where their analytics and research maturity lies in relation to the AIR functions, and with such knowledge, will be in a stronger position to defend their decisions and funding, advocate for student wellbeing, and effectively plan for the future.

Additionally, assessment provides an opportunity for professionals within student affairs, which often include collegiate recreation units, to show what they value and work toward improvement of student success and development through informed decisions. Blimling (2013) stated that co-curricular assessment demonstrates that student affairs work is meaningful and aims to improve the education experiences of students. Strong assessment can answer questions of accountability, work to improve programs, and aim to build a culture of evidence which

collegiate recreation professionals can use to demonstrate that their programs and services are effectively contributing to the missions of their institutions (Culp & Dungy, 2012).

The purpose for conducting the current study was to identify the data and assessment management practices of collegiate recreation departments, particularly focusing on the organization of data and assessment strategies, as well as data collection, storage, reporting, analyzing, and data use in decision-making in the department and on campus. Specifically, the study will make use of a national sample of Association of Public and Land Grant Universities (APLU) member institutions and a researcher-developed survey instrument.

C. Research Questions

1. How did land-grant and state university collegiate recreation departments organize their data and assessment practices for their recreation departments?

2. In public, research-oriented higher education institutions, how and by what means were user data collected and used in recreation departments?

3. What data and assessment management protocols were applied in the collection and storage of data within the targeted departments?

4. To what extent did public, research-oriented higher education recreation department leaders use data to inform their decision-making processes?

5. How did collegiate recreation leaders use data in decision-making?

6. What differences existed between data use in decision-making based on the organization of data and assessment strategies within collegiate recreation departments?

D. Assumptions

       1. The study accepted the assumption that the collegiate recreation programs at APLU institutions were cognizant and fully aware of their data management practices and uses.

       2. The study accepted the assumption that data management and assessment procedures are being used to some extent in APLU collegiate recreation programs.

       3. The study accepted the assumption that the sampling procedure was appropriate to gather generalizable, descriptive data.

       4. The study accepted that subjects fully understood the questions being asked in the survey and that they provided honest expressions of their knowledge.

E. Limitations and Delimitations

       1. The study was limited in that data was collected from research-oriented universities with APLU membership. Therefore, results of the study should either not be generalized or generalized with caution to other types of institutions.

       2. The study was limited to the self-report responses of collegiate recreation leaders. These individuals had the greatest likelihood of understanding their data use and assessment; however, caution should be given to the self-report nature of the survey data.

       3. The study was limited in the time in which data was collected. In the COVID-19 pandemic era of heightened public agency accountability, there may have been disproportionate attention directed at the use of data to make decisions. Therefore, generalizations of the findings of the study across time periods should be conducted with caution.

F. Definitions of Terms

The following terms are operationally defined for the current study:

Analytics: For the purpose of the study, analysis is defined as "the use of data, statistical analysis, and explanatory and predictive models to gain insights and act on complex issues" (Bichsel, 2012, p. 6).

Assessment: Assessment is considered a systemic process in higher education that uses empirical data on student learning to refine programs and improve student learning (Allen, 2004), and is particularly common within collegiate recreation departments.

Collegiate recreation or departmental leadership: Collegiate recreation or departmental leadership includes any full-time staff member(s) within a department, but more often refers to staff at the associate director level or higher who may have responsibilities in decision-making on a departmental level.

Data: Data can refer to any piece of evidence, intentionally collected or not, that can describe the practices, events, and phenomena that occur in collegiate recreation. Data might include, for example, counts of participants in an event or sport, average counts of building or equipment use, satisfaction survey responses, etc.

Data reporting: Data reporting generally references how data are used, both within collegiate recreation units and within the campus community. Reporting can be formalized through reports to different constituent offices or can be informally shared within units by professionals issuing brief, informal accounts of data findings.

Evaluation: Evaluation is a construct within the assessment process and is used to apply judgement to data that are gathered and interpreted through assessment (Palomba & Banta, 1999).

Institutional research: Colleges or universities compiling, analyzing, and delivering information about the institution to internal and external constituents with the purpose of fostering informed decision making, data literacy, and institutional assessment. These efforts are typically organized into a formal office of 'institutional research' or similarly titled unit. It is important to note that most federal regional accrediting agencies do have guidelines and require reporting of various campus statistics, such as the Common Data Set and the Integrated Postsecondary Education Data System (IPEDS) survey.

Research: Research involves the collection of information for the purpose of gaining knowledge, developing theory, or testing concepts and constructs (Creswell, 2014). For the purposes of this study, it is important to note some assessment initiatives may be considered research if the design of the study allows generalizability beyond the local setting.

Student success: Broadly, the concept of student success relates to satisfactory progression by a student, typically an undergraduate, through coursework to earning an academic degree. There are variations within this category that reference student satisfaction, positive self-image, positive mental health, etc.

G. Significance of the Study

The findings of the study may be beneficial to collegiate recreation leadership, students in higher education, college and university administrators, as well as the public and policy makers whose tax money supports higher education. Additionally, the findings of the study may benefit future research in collegiate recreation.

Collegiate recreation leadership may benefit the most from the study because they can use the findings to improve how their unit functions. Additionally, findings might provide support collegiate recreation leadership for providing reasoning for establishing a data and

assessment staff member, team, or committee. This study also provides information about the data and assessment management practices of other collegiate recreation departments, which may benefit collegiate recreation leadership in understanding how others are navigating data and assessment management. Young, et al. (2014) noted that collegiate recreation programs should be challenged to "refine their choices of assessment resources and mechanisms" (p. 93) and this study may aid in a better understanding of mechanisms being used for assessment in other institutions. Collegiate recreation leadership may also benefit from further comprehension of how other collegiate recreation leadership are using data to inform departmental decision-making.

Research shows that student benefits such as a perceived sense of campus community (Elkins, et al., 2011), retention (Vasold, et al., 2019), and better mental health (Fenton, et al., 2018) can all be improved from access and use of recreational facilities on campus. Through thoughtful reflection of practices and student use, collegiate recreation officials can better document and tell their story of their importance to campus leaders and other external stakeholders. Through documentation of collegiate recreation importance, students can continue to be assured of access to recreational programs.

College and university administrators will benefit from the findings of the study because research (Kampf, et al., 2018) has shown that students may make decisions to attend a certain college or university based partially on the collegiate recreation programs and facilities, meaning positive collegiate recreation equates with better recruitment success. Additionally, research (Kampf et al., 2018; Vasold et al., 2019) has shown that students who participate in recreation are more likely to be retained and make adequate academic progress. This means that the entire campus community benefits from retaining students, due to the success of recreation programs.

The study may also be significant to those who expect the university to efficiently and effectively use the resources allotted to the institution. The accountability is important to not only internal campus stakeholders, but to the entire public community who looks upon institutions such as the APLU institutions in this study for responsible use of public funds at the institution. This in turn impacts both support and the financing of institutions at large, and collegiate recreation specifically.

Lastly, the research could be significant for those wishing to engage in future research on collegiate recreation. Results from a study completed by Young, et al. (2014) showed collegiate recreation leaders rely on "professional literature and professional development" (p. 91) to support their assessment activity. The study adds to the current literature base regarding data management practices and serve as a future resource for collegiate professionals looking to develop this area of practice. The study may also provide an opportunity to engage collegiate recreation professionals in professional development by presenting the findings at collegiate recreation focused conferences and workshops or working with the NIRSA Research and Assessment Committee.

H. Conceptual Framework

The study was grounded in the concept of the assessment cycle or assessment "loop". The assessment cycle concept has been adapted into an illustrated model (Timm, et al., 2013) for higher education practitioners and serves as a guide for institutions and departments to integrate assessment into practice so that it becomes systematic and intentional. The illustrated model can be seen in Figure 1.

Figure 1.
The Assessment Cycle

Additionally, the Council for the Advancement of Standards in Higher Education (CAS) includes the assessment cycle as a functional area standard for collegiate recreation programs explaining that "collegiate recreation programs must design assessment plans that incorporate an ongoing cycle of assessment activities" (CAS, 2019, p. 12) and "must structure assessment initiatives using the steps of the assessment cycle" (p. 13).

The Assessment Skills and Knowledge Standards (ASK Standards) "seek to articulate the areas of content knowledge, skill and disposition that student affairs professionals need in order to perform as practitioner-scholars to assess the degree to which students are mastering the learning and development outcomes we intend as professionals" (ACPA, 2006, p. 4). Within the ASK Standards, the current usage of the term assessment "implies both data collection and the use of data for evaluation and decision-making" and the assessment cycle refers to the "full sequence of assessment activities" (Timm, et al., 2013 p. 7).

Data-driven decision-making is woven into the concept of the assessment cycle because the assessment cycle follows a process of creating and implementing outcomes, gathering and

analyzing data, and using data to make improvements. The process is cyclical in that findings are shared and used to improve processes (Banta & Palomba, 2015). Timm, et al. (2013) agreed with this idea saying, "assessment cycles create a sustainable assessment process by connecting the act of collecting data with a foundation in goals/outcomes and the process of reporting/using results" (p. 11). Upcraft and Schuh (1996) suggested assessment is important to student affairs because it provides a basis for decision-making and policy development. Banta, et al. (2009) and Middaugh (2010) echoed similar sentiments of the value of assessment being the process that produces information that can be used to make informed, strategic decisions.

Chapter II. Review of the Literature

Colleges and universities, since their inception, have kept and recorded a wide variety of data. In addition to keeping track of student progress on examinations and record of paying instructors, colleges have developed methods and procedures for keeping track of the elements of their business. For example, as technology has evolved and provided these institutions with a greater power to track their activities, data science has emerged as a major element of institutional management. One result of the ability to collect and analyze a broad array of data is that it allows institutional leaders to consider their outputs and actions, and ultimately, make observations about their efficiency and effectiveness.

As data science has emerged as a distinct area of study in higher education, its principles have been applied to many different offices and areas within the academy. Institutions track and consider grade distributions, internet searches, and even popular ratings of faculty member teaching. The current study focuses on collegiate recreation programs and how data management and assessment are used in making decisions and operating these units. Accordingly, this review of related literature provides a brief history of institutional research in higher education as well as an overview of data analytics versus data reporting and assessment. Data-driven decision-making and data use in collegiate recreation have also been covered, including an overview of collegiate recreation's role in student recruitment and retention. The last section of literature addressed in the chapter includes barriers to research in collegiate recreation, and the chapter concludes with a summary of major literature findings.

A. History of Institutional Research in Higher Education

Although organized units responsible for institutional research were first established in several major universities around 1920, the term "institutional research" was not used in higher education until the 1950's when the formal organized practice of institutional research emerged

(Saupe & Montgomery, 1970). During this emergence, higher education institutions were struggling with issues involving growing enrollments, expanding campuses, complex administrative structures, and an increasing variety of extra- and co-curricular activities. A national concern for a lack of data, as well as the need for institutional research resulted in the 1957 decision by the American Council on Education (ACE) to establish an office of statistical information and research (Peterson, 1985). Dedicated offices of institutional research were established on campuses in the late 1950s and 1960s, mostly as small groups of professionals with little training specific to institutional research, with a common function of the offices to collect data on important characteristics of the growing institution. The growth of interest in institutional research followed with ACE, the Western Interstate Commission on Higher Education (WICH), the New England Board of Higher Education (NEBHE), and the Southern Regional Education Board (SREB) sponsoring a "variety of workshops on and surveys of institutional research practices and issues" (Peterson, 1985, p. 9). Institutional research began to be more widely used and recognized among institutions.

This first period of formal institutional research resulted in the creation of the Association of Institutional Research (AIR) in 1964. AIR is the formal association representing and supporting the field of institutional research and is still currently active. Full-time positions in this association have been designed to provide support and education to campus-based professionals working in this field.

John Dale Russell, who served as a dean of applied institutional research, defined such research as having "specific responsibility for carrying on studies needed for the making of important decisions about policy and procedural and ... work[ing] toward the primary goal of finding out how to save money that can be used to better advantage" (Dyer, 1966, p. 453-454).

Sanford (1962) had a slightly varied view of institutional research calling for "studies to be

[completed] by a research organization free from administrative needs and devoted to

theoretically-oriented, long term studies of the inner workings of educational institutions" (p.

109). The following definition of institutional research was offered by Dressel (1971) and

encompasses ideas from Russell as well as Sanford:

> The basic purpose of institutional research is to probe deeply into the workings of
> an institution for evidence of weaknesses or flaws which interview with the
> attainment of its purposes or which utilize an undo amount of resources in doing
> so. (p. 23)

In 1981, Dressel added to this definition:

> Institutional research has to do with what decision makers need to know about an
> institution, its educational objectives, goals, and purposes, environmental factors,
> processes, and structures to more wisely use its resources, more successfully
> attain its objectives and goals, and to demonstrate integrity and accountability in
> doing so. (p. 237)

The field of institutional research has changed, been modified, and evolved in order to meet

changes to higher education's research needs. This example of Dressel (1981) re-working his

description and understanding of institutional research matches how higher education's need for

reflection and understanding has changed.

An increased focus on both retention and program evaluation occurred in the 1960s and

1970s, complemented by growing trends of strategic planning and budgeting efforts (Ewell,

2002). A greater call for accountability of higher education institutions fueled the development

of institutional research through the 1980s.

Schuh, et al. (2011) discussed the rising examination of the quality of public education,

beginning with primary and secondary schools and eventually extending to higher education

institutions in the 1980s. Public education was losing confidence from state governments, which

ultimately led to the creation of mandates requiring documentation of effectiveness. The modern

assessment movement began in the early 1980s (Kuh, et al., 2015) to combat this. By the 1990s, most states mandated assessment and accrediting bodies were becoming more influential and taking an interest in institutional assessment and research. *Assessment for Excellence* (Astin, 1991) was one of the earlier publications in the field of higher education assessment. The publication included an outline of the steps of the assessment cycle as well as advice for methodology and findings. By the mid-1990s, survey data reflected that 98% of institutions had established assessment programs on campus (Ewell, 2002).

At the beginning of the 21st century, there was yet another push to standardize how colleges and universities were assessed on quality and state and federal officials wanted accountability for items such as graduation rates, job attainment upon graduation, and value-added through education (Volkein, 2008). Those engaging in institutional research were taking these ideas and working to demonstrate evidence of the value of their institution. Banta, et al. (2015) noted position titles such as assessment coordinator with formal job descriptions were now more commonplace, and typically located in academic affairs offices or merged with institutional research. As these movements were taking place, offices of institutional research were beginning to develop and grow.

Volkein (2008) documented that 38% of the offices in colleges and universities used traditional words of representation for the offices of institutional research such as analysis, information, reporting, or studies. An additional 35% used words such as assessment, accountability, accreditation, evaluation, effectiveness, or performance. Offices of institutional research were also being housed in offices of strategic planning, enrollment management, or policy analysis (Volkein, 2008). The profession's primary role was to produce accurate numbers, descriptive statistics, and fact books but has evolved significantly since its beginning.

Today, the AIR does not yet specifically define what institutional research is; however, the EDUCAUSE Center for Analysis and Research (Swing & Ross, 2016) provides insight into where institutional research might be heading. With an increasing number of staff and mid-level administrators expected to use data to inform decisions, Swing and Ross (2016) suggested that the reality of institutional research has changed and "use of data for institutional research cannot be restricted to one office" (p. 5). Yanosky and Arroway (2015) reported top leadership often drives institutional research, and showed support for the adoption of analytics by incorporating it into the strategic plan and by "bringing it to bear on such high-level issues such as enrollment management and performance-based funding" (p. 13). AIR has acknowledged the future role of institutional research as "creating demand for decision-support and balancing it with the supply of information to meet that demand" (Bichsel, 2012, p. 7).

In 2008 Volkein explained the "golden triangle of institutional research" (p. 23) which included (a) institutional reporting and administrative policy analysis; (b) strategic planning, enrollment and financial management; and (c) outcomes assessment, program review, accountability, accreditation and institutional effectiveness. These are considered a part of the golden triangle because they dominate most of the practice of institutional research in the United States (Volkein, 2008). This continues to be true today. The National Higher Education Accreditation Organization (2013) lists three areas that should be required from any institution that is given accreditation, including the student learning experience, student academic performance, and post-graduation outcomes. These more recently defined areas can be seen in the golden triangle of institutional research as described by Volkein (2008).

Institutional leaders are the primary consumers of data intended to assist with decision-making on a large scale: other important constituents will benefit from effective, efficient,

institutional data analytics. Those other stakeholders include students, faculty, and staff. Students, who ultimately are significant decision drivers in their colleges or universities, benefit from research topics including how to best use time, co-curricular choices, and life decisions that might affect their collegiate success. Faculty, who are the architects of the academic environment on campus, benefit from having access to data and information to support designing curriculum, with special emphasis on student learning outcomes. Staff, who have frontline responsibilities for fostering student development beyond classrooms, may benefit from access to data and information that would help drive decisions on the implementation of student success initiatives.

As institutional research has become more common, it is important to understand the different elements that comprise its work. Critical to this understanding is a differentiation between data analytics, data reporting, and assessment.

B. Analytics, Reporting, and Assessment in Higher Education

In a report "The Analytics Landscape in Higher Education" published by the EDUCAUSE Center for Analysis and Research (Bichsel, 2012), authors reported that respondents to their survey believed analytics will become increasingly more important to higher education administrators. The report used the working definition of analytics as "the use of data, statistical analysis, and explanatory and predictive models to gain insights and act on complex issues" (p. 6). Benefits of analytics for higher education were reported to include understanding student demographics and behaviors, optimizing use of resources, recruiting and retaining students, helping students learn more effectively/graduate, creating data transparency, and demonstrating higher education's effectiveness/efficiency.

Analytics are important to institutions; however, despite the growing literature on the importance of analytics and the difference between analytics, reporting, and, assessment, data

use at many institutions is still being limited to reporting (Bichsel, 2016). In its basic form, reporting is an easier concept to master. Information, or data, is gathered and then compiled to be shared and used as the recipient deems appropriate. Reporting is often organizing data into informational summaries and often includes simple summaries such as how many students are enrolled full-time, how many credit hours have been registered for, or how much a certain program used of their budget for the fiscal year. This information is valuable and necessary for several reasons, such as fund and resource allocation, space allocation, priority setting, etc. At the core of reporting is the process of collecting and submitting information, whereas analytics takes a relational approach to information reporting, comparing data (including trends) against other types of data and over differentiated time series.

Bichsel (2016) reported that a majority of institutions involved in the study "Analytics in Higher Education" are collecting and reporting data in 17 areas but have not used the data to make predictions or take action in certain areas that are included in widespread strategic priorities. Additionally, several institutions are only using analytics in three functions: enrollment management, finance and budgeting, and student progress.

Increased competition between institutions for funding may increase the focus on institutional research and analytics. However, there are challenges to achieving success with analytics, with the top concerns reported as affordability, misuse of data, regulations requiring use of data, inaccurate data, and higher education administration not knowing how to use data to make decisions (Bichsel, 2016).

Differentiating between analytics and assessment is important in the understanding of how data are used in decision-making. Assessment has become the popular nomenclature in higher education and while it is deeply related to analytics and reporting, it is a very different

practice. Assessment can be easily confused with analytics. The word assessment is sometimes used loosely, or interchangeably with evaluation or research. However, Timm, et al. (2013) found that the most recent usage of the words focuses on two broad areas, assessment and research. The term assessment has evolved over time from one that focused solely on the collection of information to more recent definitions that include both the collection and the use of data. Assessment is considered a systemic process in higher education that uses empirical data on student learning to refine programs and improve student learning (Allen, 2004) and functions as a part of a continuous process that includes an element of feedback. The clarification of evaluation is also important. Upcraft and Shuh (1996) defined evaluation as "any effort to use assessment evidence to improve departmental, divisional, or institutional effectiveness" (p. 19). However, Palomba & Banta (1999) claim that evaluation is a construct within assessment and no longer a stand-alone component "evaluation applies judgment to data that are gathered and interpreted through assessment" (p. 4). Lastly, research differs from assessment because the information is used to discover and explain new knowledge or further understand a phenomenon (Timm, et al., 2013). However, some assessment initiatives may be considered research if the design of the study allows the information to be generalizable beyond the local setting of the assessment (Timm, et al., 2013). Collegiate recreation leadership on a day-to-day operational basis also uses the assessment process frequently. Assessment is valuable in several areas within higher education and is used in studies involving collegiate recreation (Young, et al., 2014).

Data analysis, reporting, and assessment are critically valuable to institutions broadly, particularly to administrators, but there is also value in these practices to departments while they work to make decisions that advance their programs, facilities, and services. A compiled use of

the three concepts make data-driven decision-making a reliable practice for campus departments, including collegiate recreation, to engage in (Ridgeway, 2014).

C. Data-Driven Decision-Making

Since No Child Left Behind in 2001, data-driven decision-making has become a central focus of educational policy and practice (Mandinach, et al., 2006). Using data to make decisions can have an extraordinary effect on the success of problem-solving efforts for collegiate recreation, and other departmental leadership on campus. A benefit is that leadership may be better equipped to make decisions because they are based on objective information, as opposed to opinion or speculation. Another benefit is that data may provide support for difficult decisions or if there is resistance to the decisions being made. Using data also provides a way to evaluate and assess the success or failure of decisions. Perhaps the most important benefit of using data to make decisions appropriately and accurately demonstrating the needs of a department. Data-driven decision-making provides transparency and enhances consistency, two important qualities for demonstrating the value and impact of any department on campus (Mandinach, et al., 2006).

Mandinach (2012) defined data-driven decision-making as a generic process pertaining to "the systemic collection, analysis, examination, and interpretation of data to inform practice and policy in educational settings" (p. 71). Provost and Fawcett (2013) report data-driven decision-making refers to "the practice of basing decisions on the analysis of data rather than purely on intuition" (p. 53). There have been many writings on the theoretical frameworks for data-driven decision-making and Mandinach (2012) summarized several by reporting that they all have "similar components involving a cyclical process of using data" (p. 77). Components from a commonly recognized framework of data-driven decision-making, presented by Light, Wexler, and Heinz (2004) included six cognitive skills or actions identified as crucial to the decision-

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making process in three levels: data, information, and knowledge. They describe the levels in the following way: the data level includes the collection and organization of data. The first part of the process is deciding what data needs to be collected. After data are collected, they must be organized in a systemic way so that sense can be made of the data collected. The success of data-driven decision-making for departmental leadership relies on factors such as the method used for collection and the quality of the data. The information level is comprised of analysis and summary. Data collected and organized must then be analyzed for informational purposes and then summarized in a way that allows it to be shared. In some instances, this information is shared with colleagues, upper level administrators, or other relevant stakeholders and the information and responsibility for decision making are transferred to those stakeholders. In other scenarios, the department completes the next steps or potentially collaborates with other departments or colleagues on campus to make use of the raw data or the completed analysis.

Lastly, the knowledge is prioritized, and departmental leadership decides what to do with the knowledge they have acquired from the process. Decisions about how to use this knowledge and what types of implementation and impact can be expected. Once the impact is assessed, more data may need to be collected. This creates a feedback loop to the beginning of the framework process. This three-level approach mirrors Allen's (2004) definition of assessment, although he stressed that these steps may require additional levels and intensity of collaboration.

While being presented with data may make decision making an easier process clearer, there is more to data-driven decision-making than simply looking at data and then making a decision. It starts with understanding the phenomena of data analysis, resulting in the concept of data science.

Well-studied, fundamental concepts underlying the principles of data science with both

theoretical and empirical backing are available. Data science, according to Provost and Fawcett

(2013) has been defined as a "set of fundamental principles that support and guide the principled

extraction of knowledge and information from data" (p. 52). Data science involves "principles,

processes, and techniques for understanding phenomena via the (automated) analysis of data and

the ultimate goal of data science is improving decision-making" (p. 52). Data science also

involves developing methods of recording, storing, and analyzing data. One of the most

important aspects of data science is the support of analytical thinking, which does not have to be

reserved for departmental leadership, and should be present throughout a given department,

leading to success in the data-driven decision-making process. A basic understanding of the

fundamental concepts and having frameworks of reference for data science will not only allow

collegiate recreation leadership to interact competently but will help envision opportunities for

improving data-driven decision-making within the department. An important step past data

science is data literacy.

Collegiate recreation leadership currently uses data-driven decision-making practices in

several ways, potentially without realizing it; however, in order to use data as effectively as

possible data literacy is an important skill to master. Mandinach (2012) explained that

> for administrators, knowing how to use data means examining the data to make decisions
> about programs, staffing, resource allocation, personnel, or policies. Data gain meaning
> through context and in order for this context to exist, administrators first must become
> data literate. (p.76-77)

Literature (Calzada et al., 2013; Koltay, 2014; Mandinach & Gummer, 2013) has addressed the

need to not only improve data literacy, but to improve the understanding of the definition of data

literacy. In 2013, Mandinach and Gummer reported that there was "still no agreement among

researchers, professional development providers, and practitioners about what it means to be data

literate" (p. 77) since then, there have been multiple updates to the literature on the definition and understanding of data literacy (Carlton & Johnston, 2015). The most recent accepted working definition of data literacy is "the ability to understand and use data effectively to inform decisions" (Mandinach & Gummer, 2013, p. 30) and data literacy allows educators to "transform data into information and ultimately into actionable knowledge" (p. 30). This understanding, even at a basic level, is necessary in order to engage with others on an informed basis, especially when attempting to set priorities and allocate scarce resources.

In 2015, the National Association of Student Affairs Professionals (NASPA), in collaboration with American College Personnel Association (ACPA) established a common set of professional competency areas for student affairs educators (ACPA & NASPA, 2015). Although collegiate recreation has professional association representation in NIRSA, as previously noted, these organizations are also prominently incorporated under divisions of student affairs and are represented in these associations. Each competency was outlined with "a set of discrete outcome statements categorized as foundational, intermediate, or advanced" (p. 8). Additionally, the competencies included the definition of professional development in each area. Each of the competency areas described "essential knowledge, skills, and dispositions expected of student affairs educators, regardless of functional area or specialization within the field" (p. 7). One of the competencies is 'Assessment, Evaluation, and Research' (AER). This competency:

> focuses on the ability to design, conduct, critique, and use various AER methodologies and the results obtained from them, to utilize AER processes and their results to inform practice, and to shape the political and ethical climate surrounding AER processes and uses in higher education. (p. 12)

Growth in AER is "marked by shifts from understanding to application" (p. 12). In student affairs, and collegiate recreation, this competency describes the concept of data literacy.

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Seeking out and actively participating in professional development opportunities focused on AER is a productive way to work towards mastery of the competency. Student affairs leadership, including collegiate recreation leadership, should be actively working to promote data literacy, encouraging a data and assessment conscious culture amongst staff, and using data to drive decisions (ACPA & NASPA, 2015). In addition to the professional competencies developed by ACPA and NASPA (2015), there are two additional standards in higher education that speak to the importance of developing skills related to data use, assessment, and research.

The Council for the Advancement of Standards in Higher Education (CAS) was established in 1979 and currently oversees both the development of standards for new service areas in higher education as well as review and revision of existing standards and guidelines. The standards are revised every 4-5 years (CAS, 2020).

As of 2019, there are 45 functional areas with CAS standards. A functional area is defined as a "distinct grouping of activities, programs, and services within higher education that can be differentiated by its purpose, mission, focus, policies, practices, staff, budget, and the professional interests and backgrounds of its practitioners" (CAS, 2020, ¶30). Collegiate recreation programs (CRP) is included as a functional area.

CAS includes 12 common criteria categories, referred to as general standards, which are included in every functional area. Additionally, guidelines are provided in each standard to "provide suggestions and illustrations that can assist in establishing programs and services" (¶4). The functional area standards are defined as "the set of specific standards and guidelines, with embedded general standards, that apply to one functional area, program, or service" (CAS, 2020, ¶30). The CAS general standard "Assessment" includes establishing a culture of assessment,

program goals, outcomes, and objectives, assessment plan and process, gathering evidence, review and interpret findings, reporting results and implementing improvement (CAS, 2019).

In 2006, the ACPA developed the Assessment Skills and Knowledge Standards (ASK Standards) (ACPA, 2006). The ASK Standards focus on assessment specifically, unlike the CAS standards and the professional competencies for student affairs educators (ACPA & NASPA, 2015) where assessment is one facet of the comprehensive document. Content areas within the ASK Standards include assessment methods/analysis, benchmarking, program review and evaluation, assessment ethics, effective reporting and use of results, politics of assessment, assessment education, assessment design, articulating learning and development outcomes, selection of data collection and management methods, assessment instruments, surveys used for assessment purposes, and interviews and focus groups used for assessment purposes (ACPA, 2020).

Both the CAS standards and the ASK Standards can be used in conjunction with the professional competencies developed by ACPA and NASPA (2015) to further develop the knowledge, skills, and abilities of collegiate recreation practitioners as they seek to use data in collegiate recreation to demonstrate their value and impact in higher education. Data-driven decision-making and leadership are being more frequently and prominently used in higher education. Collegiate recreation has a history of compiling data from facility and programming use and has begun to mature in using data analysis to explore relationships with student success and wellbeing. The depth and breadth of collegiate recreation data being analyzed and shared has grown, mirroring the increase in importance of demonstrating value and impact to a variety of stakeholders (Young, et al., 2014).

D. Data Use in Collegiate Recreation

Data are used in several facets of collegiate recreation today such as participant needs, participant experiences, financial assessment, program effectiveness, and in a variety of definitions predicting student success. Collegiate recreation programs have devoted a considerable amount of time in the past to participation reporting, such as how many students participated in an intramural sport or used a particular facility. This trend was predictable as collegiate recreation programs have historically been focused on meeting student needs, and because it has "always been a participation driven profession" (Milton, 2008, p. 81). Examples of this include Kuh, Kinzie, Schuh, and Whitt (2005), Pascarella (1985), Belch, Gebel, and Maas (2001) who have all documented that participation in collegiate recreation programs and/or activities have a positive impact on student satisfaction and the quality of campus life. In addition, research has found positive correlations between student involvement with collegiate recreation and a student's academic performances (Belch, et al., 2001). Research regarding student involvement in higher education suggests that quality engagement may lead to higher levels of student learning and identity development (Kilgo, et al., 2016).

Theoretical Foundations.

Student affairs research can focus on student involvement and engagement, focusing on the co-curricular experience as a method to enhance student retention and success (Astin, 1984; Pascarella & Terrenzini, 2005; Tinto, 1994). Collegiate recreation also has research roots in theoretical foundations surrounding college student development. Theories that are most attributed to collegiate recreation include Chickering's (1959) theory of identity development, Perry's (1968) cognitive process, and moral development (Gilligan, 1982: Kohlberg & Hersh, 1977).

Participation in recreational sports can help to determine the overall college satisfaction and success of a student. Downs (2002) focused on the impact of participation in recreational sports programs and activities on college campuses and found several key relationships between participation and college and personal success factors. More than 2,600 students from 16 colleges participated in this study making it the "largest, representative group of college students from multiple colleges ever studied with respect to the value of participation in recreational sports" (p. 16).

The Downs (2002) study also identified that participation in recreational sports programs and activities correlated positively with overall college satisfaction and success. Although some determinants of satisfaction and success in college were more critical than recreational sports (such as academic courses, professors, job/graduate school prospects, housing and transportation), the study was one of the first to compare collegiate recreation to other learning and lifestyle variables. A number of additional research projects have reinforced the Downs study findings, and the overarching view of campus recreation as serving as a significant variable to impact student life has been increasingly accepted (Elkins, Forrester, & Noel-Elkins, 2011; Henchy, 2013; Miller, 2011).

Recruitment.

Many factors impact a student's decision to select one institution of higher education over another, and with a decreasing national college-age going population, college leaders are increasingly concerned about how to protect their enrollment (Kampf, 2010). Research focusing on collegiate recreation's positive correlation to recruitment is both important and has taken on an increasing role with admissions offices (Woosnam, Dixon, & Brookeover, 2006). Some of the findings of Woosnam, et al.'s 2006 study revealed that more than one in three students indicated that their decision to attend the university was based in part on a positive perception of the

recreation facilities. In addition, they found that "more than half of the students influenced by recreation facilities in their decision to attend the university were shown collegiate recreation facilities during a pre-enrollment campus tour" (p. 70). Steinback (2007) also identified that university administrators are examining the quality of their campus' amenities when benchmarking their institutions against competitors. In a survey conducted at Ohio State University, 89% of the students surveyed indicated that recreational sports and facilities were an important part of their college experience (Haines, 2001). Forrester (2014) reported that 68% of the students surveyed reported that collegiate recreation facilities influenced their decision as to which institution they would attend. Findings such as these, illustrate how collegiate recreation plays an important role in how students see an institution and how their perceptions and decisions about enrollment might ultimately be influenced positively or negatively by the status of collegiate recreation.

Retention.

Public accountability of higher education currently places a tremendous emphasis on student progression in college, particularly six-year graduation rates and year-to-year retention. According to Belch, et al., (2001) recreational sport programs, particularly intramural sports, provide a powerful medium for student interaction. This interaction "may provide freshmen with the opportunity to informally develop support groups, find study partners, and seek advice from other students regarding the best classes or faculty" (Belch, Gebel, & Mass, 2001, p. 265). Dalgarn (2001) reported, "the opportunities to contribute in meaningful ways to the development of both individual and community are countless, and the subsequent rewards are tremendously satisfying" (p. 69).

Several studies correlating collegiate recreation to student involvement have been based in Astin's Theory of Involvement and Tinto's definition of integration. Astin (1984) wrote that the

"amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program" (p. 298). Tinto (1994) identified how academic social aspects of campus life creates a sense of belonging or commitment to the institution. Both of these social theories have provided foundations for collegiate recreation studies focused on student persistence and retention.

Sanderson, DeRousie, and Guistwite (2018) found that "recreation center usage was also a significant predictor of retention" (p. 41). Huesman, Brown, Lee, Kellog, and Radcliff (2009) found increasing recreation center use increased both the predicted probability of first year retention and predicted probability of five-year graduation rates. Miller (2011) reported his respondents indicated that the "student recreation center was very important in creating a social bonding experience, which increased their sense of social belonging to the student recreation center as well as to the university" (p. 124). Belch et al. (2001) also identified that having a sense of community may increase student retention.

Health and Wellness Focus.

An increased focus on health and wellness are included in collegiate recreation units. Typically, health and well-being might be associated with clinical health services, counseling services, health promotion services, and other programs. However, a merger of space, resources, and services has furthered collaboration between these functional areas in higher education, especially with an emerging pattern on campuses to join recreation and fitness centers with wellness centers and health promotion services for centers of integrated wellness (NIRSA, 2020, ¶4).

Although wellness is not defined by NIRSA, the Health and Wellbeing Commission developed the Healthy People and Communities model and suggests focusing programming efforts on the physical, spiritual, financial, psychological, social, environmental, occupational,

and intellectual (NIRSA, 2018) dimensions of wellness. Additionally, in early 2019 the NIRSA Health & Wellbeing Task Force was created to "ensure that the Association make demonstrable progress toward the strategic priority of being a 'driving force in an integrated approach to wellbeing'" (NIRSA, 2020, ¶4). Wellness related benefits for those who participated in collegiate recreation programs included feelings of well-being, overall health, fitness level, stress management, weight control, self-confidence, and concentrations (Lagally, et al., 2019; Gathman, et al., 2017; Brock, et al., 2015; Sellers, et al., 2014; Todd, et al., 2009).

E. Barriers to Research in Collegiate Recreation

Hanson (1982) studied the reasons why student services professionals [student affairs professionals, including collegiate recreation] were not assessing the effects of programs on student development. Some of the reasons included competing priorities within the institution, failure to identify possible uses for assessment data, and complexities of administering and scoring assessment instruments. Since the time of Hanson's (1982) study, few studies have explored the barriers to research in collegiate recreation. Observations in a more recent study by Haines and Farrell (2006) suggested that barriers to research might include a lack of research training, confidence, resources, mentors, time, interest, or a combination of these variables. The greatest barrier to conducting research, as reported by Haines and Farrell (2006) was the lack of time, followed by "pay increases are not dependent on conducting research" (p. 122) and the third most common cited barrier was "lack of research funding and/or money budgeted to research" (p. 122).

Sanderson, et al. (2018) pointed out that there are several limitations to research in collegiate recreation including "few studies control for demographic characteristics or pre-college characteristics" (p. 42) and that studies "frequently use inconsistent or inadequate

measures" (p. 42). They additionally noted that collegiate recreation research also frequently struggles with "imprecise methods of quantifying participation" (p. 42).

NIRSA, collegiate recreation's professional association, has been a resource for research training and use for over two decades. Bryan, Banta, and Bradly (1995) reported that NIRSA began developing assessment agendas to meet the needs of membership, and that NIRSA actively participated in expanding and applying assessment in student services as far back as 1990. Neilson (1994) wrote that "interest in assessment has grown among directors of recreational sports programs because it is now common for university officials to require justification for a program's existence (p. 22). Presently, NIRSA is an active contributor to the profession and bank of literature regarding research involving collegiate recreation. Through a dedicated Research and Assessment Committee, "established to foster a culture of research within the collegiate recreation profession" (NIRSA, 2020, ¶1) data banks, up to date research, along with research guidance and assistance are provided to members. NIRSA also works with CAS, participating in "collaborative projects that achieve our shared goal of fostering health, productive learning environments" (NIRSA, 2019, ¶2).

F. Chapter Summary

Research presented in the chapter indicated a growing and evolving approach to institutional research. This evaluation is reflected in the range of strategies that increasingly make use of technology to collect and monitor data, to changing definitions of assessment. Colleges and universities have begun to use institutional research in a more strategic manner, and some of this trend has begun to be seen in collegiate recreation programs.

Collegiate recreation programs have multiple incentives and opportunities to collect and analyze data to improve their decision-making practices. These offices and units have the benefit

of NIRSA, a professional association, and the CAS and ASK standards, to assist as they design protocols for data and assessment management and use. Collegiate recreation plays an important part in college student life, from institutional selection to retention, and collegiate recreation leaders have an opportunity to better convey their role in student life and student development through the effective use of data.

Chapter III. Methodology

The purpose of this quantitative study was to identify the data collection and assessment management practices of collegiate recreation departments, particularly focusing on the organization of data and assessment strategies, as well as data collection, storage, reporting, analyzing, and data use in decision-making in the department and on campus. The results of this study will help professionals in collegiate recreation departments gain a better understanding of how other departments manage data collection and assessment leadership in addition to current practices in the field.

This chapter includes the research questions and a brief description of the nature of the study, sample population, instrument, and reliability and validity. Research procedure and data analysis techniques are also included.

A. Research Design

A quantitative approach was used in this descriptive study. Kumar (2011) defined descriptive research as "the description of the state of affairs as it is at present" (p. 6). This non-experimental, cross-sectional study therefore aimed to explore data collection and assessment leadership and management practices within collegiate recreation departments. Data was collected and analyzed through the quantitative research process (Creswell, 2014), which was the most effective method for this study because according to Biddix (2018), "quantitative research seeks to identify and explain reality as it exists" (p. 50). The instrument used was a web-based survey created by the researcher.

B. Subjects

The population of this study consisted of all collegiate recreation departments in colleges and universities who have membership within the Association of Public Land Grant and State Universities (APLU). Membership in APLU is granted automatically to land-grant institutions

per the Morrill Land Grant Acts of 1862, 1890, and (APLU, 2020). Membership may also be granted to R1: doctoral universities with very high research activity and R2: doctoral universities with high research activity, as defined in the most recent edition of the Carnegie Classification of Institutions of Higher Education. There are 246 public research universities, land-grant institutions, state university systems, and affiliated organizations within the APLU. Colleges and universities that are non-four-year institutions as well as those that are non-research institutions were then removed from the list, leaving only colleges and universities that are 1862 Land-Grant institutions. There was a total of 50 colleges and universities that were contacted. A list of universities contacted can be found in Appendix A. The individuals targeted for responses were director-level individuals of the identified collegiate recreation departments. The reason for this was director-level individuals were most likely to be in an organizational position to have the most comprehensive understanding of the data collection and assessment leadership assignments and management in their departments as well as the role data takes in decision-making in the department. However, the director-level individual was given the option to designate a more appropriate full-time professional staff member to complete the survey. This approach solicited only one response per institution.

C. Instrumentation

The web-based survey intended to gather information from director-level individuals or other full-time professional staff within collegiate recreation departments about their data and assessment leadership practices, protocols, and strategies. This included information on data collection, storage, reporting, analyses, and data use in decision-making in their collegiate recreation department.

The instrument was created through a review of pertinent literature of data collection and assessment management in higher education, student affairs, and collegiate recreation. See Table 1 for a listing of item numbers, which research question the items sought to answer, and the reference to supporting literature for each item number. The instrument included a brief section gathering background information such as organizational title and role description of the individual completing the survey. The instrument had a mixture of close-ended and open-ended questions. A copy of the survey is included in Appendix B.

After initial design of the survey was complete, it was pilot tested by sending it to a limited number of senior-level professionals working in collegiate recreation departments. To ensure content validity, senior-level individuals reviewed the instrument for unclear and obscure questions. Ineffective and nonfunctioning questions were addressed and discarded. Validity was assured through modifications of the survey after the pilot test. Once a final revision of the survey was complete, the study was submitted to the Institutional Review Board at the University of Arkansas for approval. A copy of IRB Approval is included in Appendix D.

The reliability of the instrument was achieved by my being cognizant of my position as the researcher. The rationale for the study, design of the study, and who the intended subjects are was described in detail. Additionally, once the data was analyzed, a second person familiar with collegiate recreation administration verified and confirmed my analysis, interpretation, and validating conclusions.

Table 1.
Survey Items Drawn from Relevant Literature

Survey Item Number	Topic	Literature Reference
6	Formal process, data management	Institutional practice
7	Formal plan, decision-making	Institutional practice

Table 1. continued
Survey Items Drawn from Relevant Literature

Survey Item Number	Topic	Literature Reference
8	Formal committee, data collection and use advisement	Institutional practice
9	Development and training effort resources	CAS (2020); ACPA (2020); ACPA & NASPA (2015), NIRSA (2020
10	Steps of the assessment cycle	CAS (2020); Timm, et al. (2013), Banta & Palomba (2015)
11	Methods and measures	CAS (2020)
12	Methods and measures	Timm, et al. (2013)
13	Materials and resources	CAS (2020); ACPA (2020); ACPA & NASPA (2015), NIRSA (2020)
14	User data collection resources	Banta, et al. (2009)
15	Collaboration	NIRSA (2020)
16	Data management protocols	CAS (2020)
17	Data management processes	CAS (2020), Timm, et al. (2013)
18	Data management processes	CAS (2020), Timm, et al. (2013)
19	Data management processes	CAS (2020), Timm, et al. (2013)
20	Data storage resources	Institutional practice
21	Decision-making area	CAS (2020), Timm, et al. (2013)
22	Decision-making area	CAS (2020), Timm, et al. (2013)
23	Decision-making area	CAS (2020), Timm, et al. (2013)
24	Decision-making area	Young, et al. (2014)
25	Decision-making area	CAS (2020)
26	Decision-making area	CAS (2020)
27	Decision-making use	CAS (2020)
28	Decision-making use	ASK (2020)

Table 1. continued
Survey Items Drawn from Relevant Literature

Survey Item Number	Topic	Literature Reference
29	Decision making use	ASK (2020)
30	Types of decision-making	Young, et al. (2014)
31	Effects of decision-making	Young, et al. (2014)
32	Factors of decision-making	Banta, et al. (2009); Marsh, et al. (2006); Middaugh (2010)
33	Reporting	Timm, et al. (2013)
34	Reporting	Institutional practice

D. Collection of Data

The appropriate colleges and universities were first identified through a public list of APLU members through the official APLU website. Contact information in the form of email address for director-level individuals of collegiate recreation departments at institutions with APLU membership was then collected from each individual department's website. An email request was drafted for each individual participant sent on September 8, 2020. The web-based survey was open for a 14-day window, with follow-up completion requests sent via email. A reminder email was sent three days later, September 11, 2020. A final email reminder was sent on September 15, 2020 and data collection was intended to end at midnight on Sunday, September 20, 2020. At that time, there were 6 responses "in progress", so it was decided to re-open the survey and send an additional email directed at individuals who may have started the survey but may not have had time to complete it. There was a total of five email requests for participation, which can be found in Appendix C. The typical response rate for web-based surveys is approximately 30% (Kittleson, 1997), so approximately 17 surveys needed to be returned.

E. Data Analysis

The preliminary data analysis included computing the response rate of the web-based survey. Second, descriptive statistics were analyzed for participants' response to each of the opening survey items.

The survey questions that were designed to answer research questions one through five were analyzed through univariate analyses, specifically frequency distributions and measures of central tendency. This included open-ended response survey questions that were coded and analyzed for recurring themes.

Research question 1

How did land-grant and state university collegiate recreation departments organize their data and assessment practices for their recreation centers and departments?

Research question 1 was answered by survey items 6-10. These survey items provided an understanding of how departments organize their data and assessment leadership strategies including the presence of formal processes, plans, and committees. Additionally, information on professional development, training, and the use of the steps of the assessment cycle were collected. Frequencies and percentages were reported. Additionally, survey item 9 included an option to write in a response in lieu of or in addition to the other selections. Any write-in answers were analyzed and included in frequency and percentage reports.

Research question 2

In public, research-oriented higher education institutions, how and by what means were user data collected and used in recreation departments?

Research question 2 was answered by survey items 11-15. Frequencies and percentages were reported for survey item 11. A Likert-type scale was used for survey item 12, which

gathered information about the frequency, methods, and measures of data collection with options that included Never, Rarely, Sometimes, Frequently, and Always. Survey item 15, which aimed to explore the extent of collaboration with external constituents, also included a Likert-type scale with options that included Not at all, To some extent, To a moderate extent, To a great extent, and To a very great extent. Measures of central tendency, as well as frequencies and percentages were reported for survey items 12-15.

Research question 3

What data and assessment management protocols were applied in the collection and storage of data within the targeted departments?

Research question 3 was answered by survey items 16-20. Frequencies and percentages were reported for all survey items and measures of central tendency were also reported for survey items 16-19. Survey items 16-19 sought to find to what extent methods have been identified for the collection of relevant data and to what extent manageable processes are in place for gathering, interpreting, and evaluating data using a Likert-type scale with options that included Not at all, To some extent, To a moderate extent, To a great extent, and To a very great extent. Survey item 20 asked for which resources departments use to store data. Additionally, survey item 20 included an option to write in a response in lieu of or in addition to the other selections. Any write-in answers were analyzed and included in frequency and percentage reports.

Research question 4

To what extent did public, research-oriented higher education recreation department leaders use data to inform their decision-making processes?

Research question 4 was answered by survey items 21-29. Participants were asked to rate the extent to which the department used data regarding student learning, student development, student success, wellbeing, contribution to mission and goals, effective and continuous improvement, reporting, and expense justification. A Likert-type scale was used with options of Not at all, To some extent, To a moderate extent, To a great extent, and To a very great extent. Frequencies and measures of central tendency were analyzed and reported.

Research question 5

How did collegiate recreation leaders use data in decision-making?

Research question 5 was answered by survey questions 30-34. Frequencies and percentages were reported. Survey items 30-32 were used to identify the types of decision-making data are being utilized for, what items have changed as an outcome of data analysis or assessment, and what factors influence data use. Additionally, survey items 30-32 included an option to write in a response in lieu of or in addition to the other selections. Any write-in answers were analyzed and included in frequency and percentage reports. Survey items 33-34 addressed if the department is required to provide reports of data analysis or assessment to others.

Research question 6

What differences existed between data use in decision-making based on the organization of data and assessment strategies within collegiate recreation departments?

The data and assessment strategies were identified for each department based on the answer to survey questions 3-5. There are five total strategies to choose from including full-time professional, embedded in more than 1 full time professional's job duties, dedicated part-time person, no dedicated person; work by committee, and no one. Respondents were able to combine any of the responses to create their own strategy. Survey questions 4 and 5 provided further

detail about each strategy with open-ended responses for survey participants to elaborate which

positions, specifically, are responsible for the collection and storage of data, respectively.

Research question 6 was analyzed through a one-way ANOVA. This test allowed the

researcher to make comparisons between data use in decision-making based on the departmental

organization of data and assessment strategies in collegiate recreation departments. Analysis of

survey questions 21-29 answered the question of how data is used in decision-making. The

independent variable of each of the identified data and assessment leadership strategies was

compared against the dependent variable, how data is used in decision-making. A tabulation was

completed to report means and compare differences between strategies. The alpha used for level

of significance was .05. A post hoc analysis was performed to uncover further differences among

strategies.

The data collected to answer each of the research questions was analyzed using Qualtrics

and Statistical Analysis Software (SAS®), both provided by the University of Arkansas.

F. Chapter Summary

This chapter outlined the research design, subjects, and data analysis procedures that will

be used to answer the six proposed research questions. The target subjects consisted of director-

level individuals at collegiate recreation departments associated with colleges or universities

with APLU membership. The data collection instrument, including development, was also

described. The procedure for collecting and analyzing the data for this study were also presented.

Chapter IV. Findings

The current study was designed to explore the data and assessment management practices in collegiate recreation. In a time of facility and department prioritization in higher education, there is value in collegiate recreation being able to tell their stories to justify their importance and their impact on campus communities. The external pressures of identifying and communicating departmental value and impact on the campus community has resulted in collegiate recreation departments' use of data to communicate the effectiveness and impact of their work. The findings of the study may be beneficial to collegiate recreation leadership, to better understand how colleagues are navigating data management within their collegiate recreation departments. Additionally, the findings provide support for establishing an assessment staff member, team, or committee.

The chapter begins with a summary of the study, and then includes findings of the study and data analysis. The summary of the study provides an overview of the rationale and purpose of the study, including the research methodology used. Additionally, the results of data collection and procedures that were used by the researcher to analyze data are also included. Data were organized and presented by research question.

A. Summary of the Study

Collegiate recreation programs have multiple incentives and opportunities to collect and analyze data to improve their decision-making practices. Colleges and universities have begun to use institutional research in a more strategic manner, and some of this trend has begun to be seen in collegiate recreation programs. Collegiate recreation plays an important part in college student life, from institutional selection to retention, and collegiate recreation leaders have an opportunity to better convey their roles in student life and student development through the

effective use of data. Through thoughtful reflection of practices and student use, collegiate

recreation professionals can better document and tell their stories of their importance to campus

leaders and other stakeholders. Through the documentation and assessment of collegiate

recreation, students can continue to be assured of access to recreational programs. The purpose

of the study was to identify the data collection and assessment management practices of

collegiate recreation departments, particularly focusing on the organization of data and

assessment strategies, as well as data collection, storage, reporting, analyzing, and data use in

decision-making in the department and on campus.

The study was comprised of six research questions designed to explore data and

assessment management in collegiate recreation. A quantitative approach was used for the study.

Data were collected through an online survey sent to director level individuals at collegiate

recreation departments of institutions identified for the study. Institutions were selected based on

membership in the Association of Public Land Grant Universities (APLU). Institutions located

outside of the United States, as well as any community colleges, were removed from the list.

Ultimately, institutions that were a part of the 1862 Morrill Land-Grant Act were selected. This

selection process led to a total of 50 institutions being included in the sample. Responses to

survey questions were analyzed and reported through descriptive statistics, frequencies and

percentages, measure of central tendency, and conducting a one-way ANOVA.

B. Data Response and Analysis

Data for the study were collected using a researcher developed, web-based survey,

distributed using the software program Qualtrics. The sampling began by collecting email

contact information for director-level individuals working for collegiate recreation departments

at the selected institutions. The collection of data took part in September 2020 through an email

sent to the identified director-level individuals which included a link to the web-based survey.

Director-level individuals had the opportunity to forward the survey to a colleague for

completion. A total of 31 surveys were returned completed. An additional 10 surveys were

returned but not completed, and subsequently, not used in the data analysis. Table 2 includes

frequencies and percentages of the position title of respondents completing the survey,

illustrating that the majority of respondents held the title of Director (n=15; 48.3% of the

respondents) or Executive Director (n=8; 25.8%).

Table 2.
Position Title of Respondents

Title	Frequency	Percentage
Executive Director	8	25.8%
Director	15	48.3
Associate Director	4	12.9
Assistant Director	1	3.2
Other:		
Chief Wellness Officer	1	3.2
Coordinator	1	3.2
Senior Director	1	3.2

As shown in Table 3, 65% of those completing usable surveys were submitted within the

first week of the survey being distributed.

Table 3.
Chronological Presentation of Survey Responses
N=31

Day	*n*	Cumulative Response Rate
1-3	15	30%
4-7	5	40
7-10	9	58
11-14	2	62

Research Question 1

How did land-grant and state university collegiate recreation departments organize their

data and assessment practices for their recreation centers and departments?

Respondents answered three questions relating specifically to this research question.

There were 24 respondents (77.4%) who indicated that they currently have a formal process for

data and assessment management within their department and 7 respondents (22.6%) who

indicated they currently do not have a formal process. There were 18 (58%) respondents who

indicated that they had a formal plan for utilizing data, and the majority of respondents indicated

they did not have a formal committee to advise on data collection and use (*n=21*; 67.7%).

The second part of the organizational structure section included what resources for

professional development and training of data and assessment efforts were being utilized by the

responding departments. As shown in Table 4, the NIRSA competencies were the most utilized

resource, followed closely by the CAS standards. There was 1 (1.09%) respondent who

identified that the institution did not use any resources or provide any professional development

or training for data and assessment management.

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Table 4.

Resources Utilized in Professional Development and Training

Resource	Frequency	Percentage
NIRSA Competencies	26	28.26%
CAS standards	25	27.17
NIRSA professional development opportunities	18	19.57
ACPA & NASPA professional competencies	14	15.22
ASK standards	2	2.17
No resources used / no training provided	1	1.09
Other:		
AORE	1	1.09
Student Affairs seminars	1	1.09
Campus trainings	1	1.09
Campus labs	1	1.09
Guidelines set by VPSA	1	1.09
University identified competencies	1	1.09

Additionally, respondents were asked which of the steps of the assessment cycle, as defined by the Council for the Advancement of Standards (CAS), they were using in their department. All steps of the assessment cycle were used by at least 19 respondents (61.29%). The most used step was the review and interpretation of findings ($n=28$; 90.32%; see Figure 2).
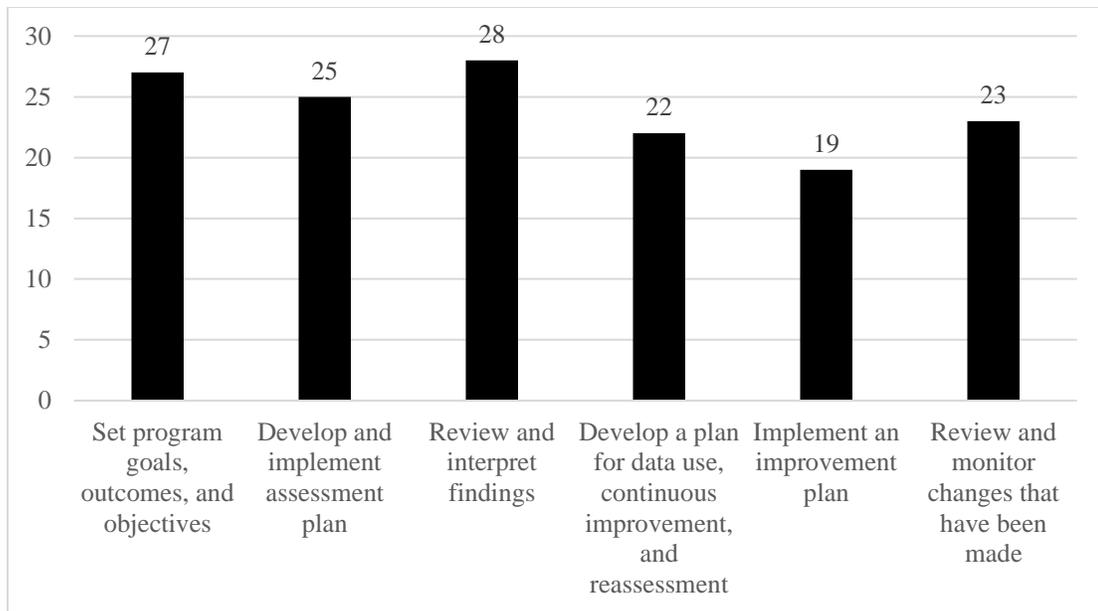
Figure 2.
Steps of the Assessment Cycle, as defined by CAS, being Actively Used

Overall, land-grant college and university's collegiate recreation departments organized their data and assessment practices most commonly with a formal process. There was some evidence of collegiate recreation departments having a formal plan for utilizing data, but departments identified they were not using a formal committee for advisement on data collection and use. Departments utilized the NIRSA competencies and the CAS standards as resources for professional development and training of data and assessment efforts. Professional development opportunities developed and provided by NIRSA were also utilized for professional development and training. All the steps of the assessment cycle, as defined by CAS, were identified by departments as a part of their data and assessment practices.

In public, research-oriented higher education institutions, how and by what means were

user data collected and used in recreation departments?

Survey question 11 asked participants if their department employed multiple methods and

measures of data collection, and 29 (96.67%) individuals responded that they did. One

respondent indicated that multiple methods were not used to collect data ($n=1$; 3.33%), and one

respondent did not complete the question.

The frequency of use of data collection methods were asked on Likert-type scale and

included the options Never, Rarely, Sometimes, Frequently, and Always. Facility entry statistics

and participant counts by area were used Always, most frequently with 19 respondents (61.29%;

$\bar{x}=4.55$) and 20 respondents (64.52%; $\bar{x}=4.61$), respectively. Surveys for evaluation were

identified by 20 respondents (64.52%; $\bar{x}=3.87$) as being used frequently. Non-participant

graduation rates as a comparison to user graduation rates was identified mostly as Never with 11

respondents (35.48%; $\bar{x}=2.48$). There was an opportunity to write in other methods and measures

used by the department, and those write-in methods and measures included, "retention,

engagement levels, first generation, ethnicity, gender, FTE status, position classification" all

written into one selection, and were identified as being used Frequently. Another write in

response included, "swipe data and annual student satisfaction survey," and both were identified

as being used Always. The last write-in response included, "first year retention," but a frequency

was not selected for this write-in option. See Table 5 for the complete list of methods and

measures along with the frequencies of selection.

Table 5.
Frequency of Methods and Measures of Data Collection

Method or Measure	$\bar{x}$	Never	Rarely	Sometimes	Frequently	Always
Focus Group	2.68	4	8	13	6	0
Surveys	3.87	0	1	6	20	4
Interviews	2.71	3	9	13	6	0
Document review	3.45	2	5	6	13	5
Shared data sets	3.29	2	3	14	8	4
Participant counts by area	4.61	0	0	1	10	20
Registration numbers	4.48	1	0	0	12	18
Student employee GPAs	2.84	7	7	6	6	5
Participant GPAs	3.06	6	4	8	8	5
Non-participant GPAs	2.77	8	5	8	6	4
Student employee graduation rates	2.65	8	6	8	7	2
Participant graduation rates	2.84	9	2	7	11	2

Table 5. continued

Frequency of Methods and Measures of Data Collection

Method or Measure	$\bar{\bar{x}}$	Never	Rarely	Sometimes	Frequently	Always
Non-participant graduation rates	2.48	11	4	8	6	2
Facility entry statistics	4.55	10	0	2	10	19
Other: retention, engagement levels, first generation, ethnicity, gender, FTE status, position classification	4.67	0	0	0	1	0
Other: swipe data and annual student satisfaction survey	5.00	0	0	0	0	1

As shown in Table 6, respondents were asked what materials and resources were used to guide data collection and assessment efforts in the department. The most common answer was CAS standards for Collegiate Recreation professionals with 23 respondents (74.19%), followed by 22 respondents (70.96%), identifying the NIRSA Research and Assessment Committee materials.

Table 6.
Materials and Resources Used to Guide Data Collection and Assessment Efforts

Material or Resource	Frequency
CAS standards for Collegiate Recreation Professionals	23
NIRSA Research and Assessment Committee	22
Other offices/departments on campus	11
Recent literature related to the field	11
Other:	
Materials and resources developed internally	1
Big Ten Conference	1
Institutional Research	1
Student Affairs Assessment Leaders	1
Division of Student Affairs standards	1
Campus Labs	1
ASK standards	2
Not applicable	0

Resources used for the collection of collegiate recreation user data were also included on the survey, and the two most common responses were operations software (Fusion, CSI,

RecTrac, Connect2, etc.) and open participant comments, each with 28 responses (90.32%).

Web-based survey service, provided by the institution and manual participation counts were both

indicated by 25 respondents (80.65%) and 22 respondents (70.97%), respectively (see Table 7).

Table 7.
Resources for Collection of User Data

Resource	Frequency
Operations software (Fusion, CSI, RecTrac, Connect2, etc.)	28
Open participant comments	28
Web-based survey service, provided by institution	25
Manual participation counts	22
Other departments on campus	16
Web-based survey service, not provided by institution	14
Other: Social Media	1
Not applicable	0

Participants were also asked to identify to what extent their collegiate recreation

department collaborates with external (to the department) constituents to collect and analyze

data. Three respondents indicated that they collaborated to a Very Great Extent (9.68%), 2 To a

Great Extent (6.45%), 13 collaborated To a Moderate Extent (41.94%), 11 indicated they

collaborated To Some Extent (35.58%), and 2 Not At All (6.45%).

Most departments employed multiple methods and measures of data collection. Of those

methods and measures, surveys and document review were the most common methods of data

collection in collegiate recreation departments, supplemented by focus groups and interviews. A

majority of departments collect data from facility entry statistics and participant counts by area

and frequently collect data with registration numbers. Collegiate recreation departments

identified operations software, such as Fusion, CSI, RecTrac, Connect2, and others, as what was

used for the collection of data. Open participant counts were utilized by a majority of

departments, as well as web-based survey services and manual participation counts. Guiding

their data collection and assessment efforts in the department were the CAS standards for

Collegiate Recreation Professionals and the NIRSA Research and Assessment Committee

materials or contacts. In terms of collaboration with external (to the department) constituents to

collect and analyze data, many collegiate recreation departments reported they are collaborating

with those external to their department only to a moderate extent or less. Collaboration at a more

frequent level was less common.

Research Question 3

What data and assessment management protocols were applied in the collection and

storage of data within the targeted departments?

Participants were asked to identify to what extent, on a 1-to-5 Likert-type scale from Not

at All (1) to A Very Great Extent (5), their collegiate recreation department identified methods to

allow for the collection of relevant data. The overall mean score was 3.52, representing a

response of To a Moderate Extent. The range of responses include To A Great Extent (n=13), To

Some Extent (n=7), To A Moderate Extent (n=6) and To A Very Great Extent (n=5; see Table

8).

Table 8.
Extent that Methods Will Allow for Collection of Relevant Data

$\bar{x}$	Not At All	To Some Extent	To A Moderate Extent	To A Great Extent	To A Very Great Extent
3.52	0	7	6	13	5

Participants were asked to identify to what extent their collegiate recreation department had processes in place for gathering data, interpreting data, and evaluating data. Figure 3 shows that more than half of all participants perceived that their collegiate recreation departments had manageable data management processes in place To a Great Extent or To a Very Great Extent in each category of gathering data (*n*=19; 62.29%), interpreting data (*n*=17; 54.84%), and evaluating data (*n*=16; 51.61%). A total of 5 respondents (16.13%) indicated that processes were Not At All in place for gathering data, interpreting data, and evaluating data.
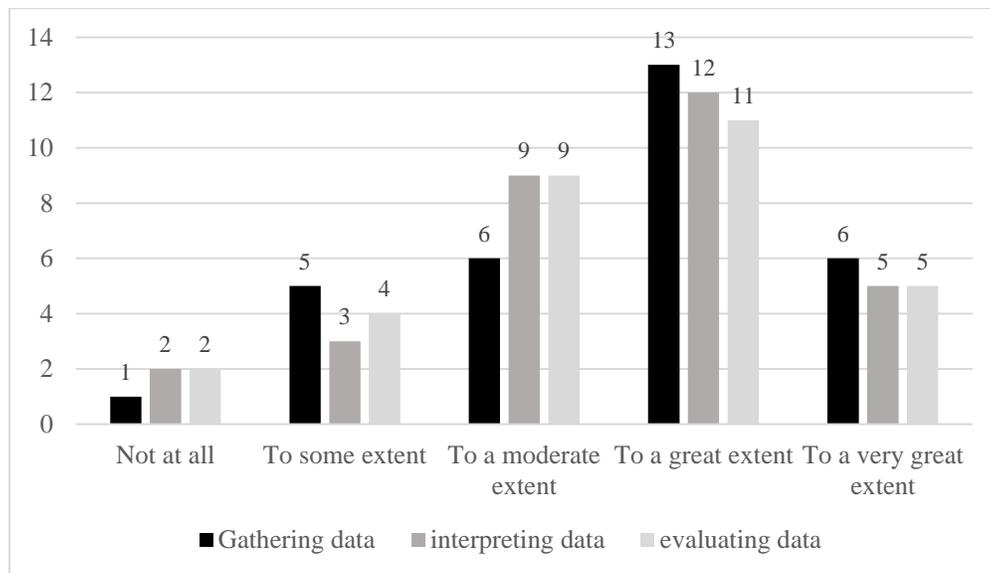
Figure 3.
Manageable Data Processes

When asked about the resources that are utilized by their departments to store data, the most frequent reply was University Managed Cloud Systems, (such as Box, OneDrive, Dropbox, local shared drive, etc.) for 90.32% of all respondents (n=28). Respondents were able to select more than one option and the next most frequent answer (n=25; 80.65%) was Operations software (Fusion, CSI, RecTrac, Connect2, etc.). Personal, private computer storage or device was identified by 12 respondents (38.71%) and one respondent completed the write-in text option to include Banner as the method for data storage.

Collegiate recreation departments felt their departments had methods in place to allow for the collection of relevant data, an important part of the protocol for the collection and storage of data. In addition to the collection of relevant data, the processes of gathering data, interpreting data, and evaluating data are equally important. With more than half of the participants identifying these protocols in place to a great extent or more, these protocols were identified as applied to the majority of collegiate recreation departments surveyed. The storage of data was overwhelmingly handled with University Managed Cloud Systems such as Box, OneDrive, Dropbox, local shared drive, etc. and the same Operations software utilized in the collection of data was also used to store data.

Research Question 4

To what extent did public, research-oriented higher education collegiate recreation department leaders use data to inform their decision-making processes?

There were seven specific areas examined regarding to what extent the collegiate recreation department leaders used data to inform their decision-making. Complete departmental (including but not limited to annual) reports was selected as being used to the greatest extent (45.16%; $\bar{x}$=4.13) followed by Provide evidence of department's contribution to overall institutional mission and goals (32.35%; $\bar{x}$=3.9) and Demonstrate student success (22.58%; $\bar{x}$=3.68). The items used to the least extent, or not at all, were to Justify expenses (12.90%; $\bar{x}$=3.23) and to Demonstrate student learning (6.45%; $\bar{x}$=3.10; see Table 9).

Table 9.

Mean, Median, Mode, Range, and Standard Deviation Extent Data Were Utilized

Data Utilization For	$\bar{x}$	Median	Mode	Range	SD
Demonstrate student learning	3.10	3	3, 4	1-5	0.96
Demonstrate student development	3.68	4	4	1-5	1.03
Demonstrate student success	3.65	4	4	1-5	1.03
Explore relationships with wellbeing	3.47	4	4	1-5	1.18
Provide evidence of the department's contribution to overall institutional mission and goals	3.90	4	4	1-5	1.06
Demonstrate effectiveness and continuous improvement from the use of data	3.26	3	3	1-5	1.11
Inform decision-making and planning for continuous improvement	3.65	4	4	1-5	1.00
Complete departmental (including but not limited to) annual reports	4.13	4	5	1-5	1.04
Justify expenses	3.23	4	4	1-5	1.26

Collegiate recreation departments utilized data in several areas of operation to a great extent. Completing departmental reports was where data was identified as being used to the greatest extent across recreation departments. Also being utilized, on average, to a moderate extent or more was providing evidence of the department's contribution to overall institutional mission and goals, followed closely by the demonstration of student development, the demonstration of student success, and informing decision-making and planning for continuous improvement.

<u>Research Question 5</u>

How did collegiate recreation leaders use data in decision-making?

There were four identified types of decision-making that could be informed by data in collegiate recreation departments. The most frequent type of decision-making were program offerings and facility use/needs (n=30; 96.77%). The next most frequent type of data use for decision-making was for funding matters (n=22; 70.97%) followed by personnel changes (n=20; 64.52%). Participants were able to write-in text responses in the Other category, and 3 did, including the responses of hiring of graduate assistants, physical location of activities and offices, and for retention, graduation, academic performance, and staff development.

Participants were then asked to identify items that have changed as an outcome of data analysis or assessment. Programmatic offerings (n=28; 90.32%) and facility use/needs (n=27; 87.09%) were the most frequently identified. Use of funding (n=17; 54.84%) and personnel decisions (n=16; 51.61%) were the next most identified. Two respondents completed write-in responses that included improved credibility on campus, more collaboration, and student development.

Factors that influenced the utilization of data in decision-making included professional standards (CAS, ASK, NIRSA, ACPA, NASPA, etc.), senior administration on campus, other department's needs, and others that might be identified by respondents. The most common response was senior administration on campus ($n=27$; 87.09%) followed by reliance on professional standards ($n=19$; 61.29%; see Table 10).

Table 10.
Factors that Influenced Utilization of Data in Decision-Making

Factor	Frequency	Percentage
Senior administration on campus	27	87.09%
Professional Standards (CAS, ASK, NIRSA, ACPA, NASPA, etc.)	19	61.29
Other department's needs	4	12.90
Other: unit's self-interest	1	3.23
Other: director	1	3.23
Other: mission of the university	1	3.23
Other: self-desire	1	3.23

When asked if their collegiate recreation department was required to provide results of data analysis or assessment to senior administration on campus just over 50% ($n=17$; 54.85%) indicated that was the case, while the remaining 45.16% ($n=16$) of respondents indicated that they were not required to do so. Participants were then asked if their collegiate recreation department was required to provide reports of results to external (on-campus) constituents, and the majority of respondents indicated that they were not ($n=23$; 74.19%).

Collegiate recreation leaders use data in decision-making for programmatic offerings and facility use/needs, most commonly. Funding matters were also relevant to the use of data in decision-making for recreation leaders, but not as strongly identified as the first two. Personnel changes were identified by over half of the respondents as a type of a decision where data were used. Both areas that used data in decision-making, programmatic needs and facility use/needs, were also identified as having changed as an outcome of data evaluation or assessment. The use of funding and personnel changes also changed due to the evaluation of data. Senior administration on-campus was the factor most identified as an influence in the utilization of data in decision-making. Professional standards also influenced decisions about collecting data and using data in decision-making. About half of collegiate recreation departments reported being required to provide information from data analysis and assessment to senior leadership on campus and fewer reported providing results to other constituents on campus.

Research Question 6

What differences existed between data use in decision-making based on the organization of data and assessment strategies within collegiate recreation departments?

Strategies were identified through question 3 in the survey that asked participants how their collegiate recreation departments were structured to handle data collection, use, management, and analysis. Options included Embedded in More than One Full-Time Professional's Job Duties, Full-Time Professional, No Dedicated Person; Work by Committee, No One, or Other. All strategies that did not fall in one of the given options were grouped into Other. Table 11 provides data on all strategies that were identified through survey question 3, including which strategies specifically made up the Other category. Additional information,

specifically identifying which position(s) were responsible for the collection and storage of data

in their collegiate recreation department was also asked.

Table 11.
Identified Strategies for Data and Assessment Management
N=31

Strategy	Frequency
Strategy 1 - Embedded in More than One Full-Time Professional's Job Duties	11
Strategy 2 - Full-Time Professional	5
Strategy 3 - No Dedicated Person; Work by Committee	4
Strategy 4 - No one	1
Strategy 5 - Other:	
Small part of a full-time professional's job duties	1
Graduate Assistant	1
Both full-time professional and part of full-time professional's job duties	1
Both embedded in more than one full-time professional's position and full-time position	3
Both embedded in more than one full-time professional's position and advisory committee	1
Both full-time professional and undergraduate data science majors	1
Both embedded in more than one full-time professional's position and graduate assistant	1
Both embedded in more than one full-time professional's position and work by committee	1

The mean for each area of data utilization, identified specifically for each strategy, are listed in Table 12. Each of these means were then used to complete a one way ANOVA to compare means and determine if a statistical difference existed between each area's extent to which they are being used and each strategy for data and assessment management (see Table 13).

Table 12.

Means of Data Utilization by Data and Assessment Organization Strategy

Data Utilization For	Embedded in more than one full-time professional's job duties n=11	Full-time professional n=5	No dedicated person; work by committee n=4	No one n=1	Other n=10
Demonstrate student learning	3.09	3.20	2.75	1.00	3.40
Demonstrate student development	3.45	4.00	4.00	1.00	3.90
Demonstrate student success	3.55	4.20	3.25	1.00	3.90
Explore relationships with wellbeing	3.40	2.80	3.75	1.00	4.00
Provide evidence of the department's contribution to overall institutional mission and goals	4.18	3.80	4.00	1.00	3.90
Demonstrate effectiveness and continuous improvement from the use of data	3.36	2.80	3.50	1.00	3.50
Inform decision-making and planning for continuous improvement	3.90	2.80	3.75	1.00	4.00
Complete departmental (including but not limited to) annual reports	4.27	4.00	5.00	1.00	4.00
Justify expenses	2.72	2.60	3.50	2.00	4.10

Of the nine identified areas where data are utilized, there was a significant difference identified in three areas of data utilization; Demonstrate student success (f=2.78; p=.048), Inform decision-making and planning for continuous improvement (f=4.45; p=.007), and Complete departmental (including, but not limited to annual) reports (f=4.28; p=.008; see Table 14).

Table 13.
ANOVA for Differences in Data Use in Decision-Making and Organization of Data and Assessment Management

Data Utilization For	f	Sig.
Demonstrate student learning	2.03	0.119
Demonstrate student development	2.52	0.066
Demonstrate student success	2.78	0.048*
Explore relationships with wellbeing	2.40	0.077
Provide evidence of the department's contribution to overall institutional mission and goals	2.40	0.075
Demonstrate effectiveness and continuous improvement from the use of data	1.49	0.233
Inform decision-making and planning for continuous improvement	4.45	0.007*
Complete departmental (including but not limited to) annual reports	4.28	0.008*
Justify expenses	2.46	0.070

* - significant at p < .05

As there were multiple group mean scores, a Tukey post hoc test of pair-wise differences was then conducted to identify between which groups the significant differences existed.

Demonstrate student success

There was a perceived difference between data and assessment management strategies in the area of data utilization for demonstrating student success, f=2.78, p=.048. The Tukey post hoc analysis showed differences between Strategy 2, Full-Time Professional and Strategy 4, No one. The overall mean for Strategy 1 was $\bar{x}$=4.00, compared to the overall mean of $\bar{x}$=1.00. A difference between Strategy 4, No one, with an overall mean of $\bar{x}$=1.00 and Strategy 5, Other, with an overall mean of $\bar{x}$=3.90, was also identified.

Inform decision-making and planning for continuous improvement

There was a statistical difference between data and assessment management strategies in using data to inform decision-making and planning for continuous improvement, f=4.45, p=.0.007. The Tukey post hoc analysis showed there was a difference between Strategy 1, Embedded in More than One Full-Time Professional's Job Duties ($\bar{x}$=3.90) and Strategy 4, No one ($\bar{x}$=1.00). A difference was also identified between Strategy 4, No one, with an overall mean of $\bar{x}$=1.00 and Strategy 5, Other, with an overall mean of $\bar{x}$=4.00.

Complete departmental (including but not limited to annual) reports

This area of data utilization identified the most statistical differences between data and assessment management strategies, f=4.28, p=.008. The result of the Tukey post-hoc analysis indicated there was a significant difference between Strategy 1, Embedded in More than One Full-Time Professional's Job Duties ($\bar{x}$=4.27) and Strategy 4, No one ($\bar{x}$=1.00). Another difference was identified between Strategy 2, Full-Time Professional ($\bar{x}$=4.00) and Strategy 4, No one ($\bar{x}$=1.00). Strategy 3, No One Dedicated Person; Work by Committee ($\bar{x}$=5.00) was significantly different than Strategy 4, No one ($\bar{x}$=1.00). The other significant difference identified in this area was between Strategy 5, Other ($\bar{x}$=4.10) and Strategy 4, No one ($\bar{x}$=1.00).

There were several significant differences identified between data use in decision-making based on the organization of data and assessment strategies in the surveyed recreation departments. Of the nine areas where data were being utilized, three of those areas were statistically different based on the organizational structure of the department. Specifically, departments that organized their data and assessment management with Strategy 1, Embedded in More than One Full-Time Professional's Job Duties utilized data to demonstrate student success less than departments organizing data and assessment management with Strategy 2, Full-Time Professional or Strategy 4, No one. Additionally, department's organized with Strategy 1 or Strategy 5 utilized data more to inform decision-making and planning for continuous improvement than departments organized by Strategy 4, No one. All department's with data and assessment management organized in a strategy other than Strategy 4, No one, utilized data to complete departmental (including but not limited to annual) reports more frequently.

C. Chapter Summary

The chapter presented the results and analysis of the researcher created web-based survey that was emailed to director-level individuals at 50 identified universities and achieved a 62% usable response rate. The analysis of the survey utilized both descriptive and inferential statistics. The chapter reported frequencies and percentages, measures of central tendency, and one way ANOVA including post hoc Tukey tests. Each research question was answered using the previously mentioned analysis techniques and presented by research question.

V. Conclusions and Recommendations

College recreation departments have access to a wide variety of data, and how they collect, organize, and use these data was the topic of the study. The current chapter includes a general summary of the study, including its purpose, design, and results. The chapter also includes conclusions developed from the analysis of responses to the survey. Recommendations for future research as well as for current practitioners are presented, followed by a discussion of the findings.

A. Summary of the Study

Collegiate recreation departments need to validate their value, and this has resulted in the use of data to communicate the effectiveness and impact of their work. The purpose for conducting the study was to identify the data collection and assessment management practices of collegiate recreation departments, particularly focusing on data and assessment leadership assignments, as well as data collection, storage, reporting, analyzing, and data use in decision-making in the department and on campus. Data were collected through a researcher-created, web-based survey, that was emailed to director level individuals at 50 college and university collegiate recreation departments. There was a total of 31 returned usable surveys, which was a response rate of 62%. There were six research questions guiding the study, summarized with data collected from the survey below.

Research Question 1

How did land-grant state and university collegiate recreation departments organize their data and assessment practices for their recreation departments?

There were 77.4% of respondents who indicated their recreation department had a formal process in place for data and assessment management. A majority of respondents also indicated

they do not have a formal committee to advise on data collection and use. Resources for professional development and training efforts for data and assessment management were identified most commonly as the NIRSA competencies and CAS standards. All steps of the assessment cycle, as defined by CAS, were used by at least 19 respondents. The most utilized step was the review and interpretation of findings (90.32%).

Research Question 2

In public, research-oriented higher education institutions, how and by what means were user data collected and used in recreation departments?

There were 96.67% of all respondents who indicated that their department employs multiple methods and measures of data collection. Facility entry statistics, registration numbers, and participant counts by area were used Always, most frequently. Surveys were identified as being used Frequently. The most common materials and resources used to guide data collection were CAS standards and the NIRSA Research and Assessment Committee. Resources utilized for data collection were most commonly Operations software, open participant comments, and web-based survey services. Collaboration efforts to collect and analyze user data were identified by most respondents as To a Moderate Extent or less.

Research Question 3

What data and assessment management protocols were applied in the collection and storage of data within the targeted departments?

The data indicated that more than half of respondents identified their department had methods in place for the collection of relevant data to a moderate extent or more. Over half of all respondents also indicated their recreation departments had data management processes in place To a Great Extent or To A Very Great Extent in each gathering data, interpreting data, and

evaluating data. Data storage was most commonly identified as using University Cloud

Management Systems and Operations software.

Research Question 4

To what extent did public, research-oriented higher education recreation department

leaders use data to inform their decision-making processes?

Collegiate recreation departments indicated they utilized data in several areas of

operation to a great extent. Completing departmental reports was selected as being used to the

greatest extent. Providing evidence of department's contribution to overall institutional mission

and goals was also identified as being used commonly to a great extent. Demonstrating student

success, demonstrating student development, and informing decision-making and planning for

continuous improvement were all indicated by respondents as being used more than to a

moderate extent.

Research Question 5

How did collegiate recreation leaders use data in decision-making?

The data showed recreation leaders are using data to make decisions about program

offerings and facility use/needs most frequently. Funding matters and personnel changes were

also identified as frequently being decisions made using data. The data also indicated that areas

that have changed as an outcome of data use included program offerings and facility use most

commonly. Funding matters and personnel changes were indicated as having changed as well,

but not as commonly. Senior administration on campus was shown as the most common

influence for the utilization of data in decision-making, followed by Professional Standards

(NIRSA, CAS, ASK, ACPA, NASPA, etc.). About half of respondents indicated they are

required to share results of data and assessment reports with senior administration on campus and

74.19% of respondents indicated they are not required to provide results of data and assessment practices to external (to the department) constituents.

Research Question 6

What differences existed between data use in decision-making based on the organization of data and assessment strategies within collegiate recreation departments?

Research Question 6 was addressed using survey items 3-5, to identify strategies used for the organization of data and assessment management within the department. Those strategies were compared to survey items 21-29 using a one-way ANOVA to determine if there were any differences. A Tukey post hoc test was also conducted to uncover further differences.

The one-way ANOVA determined there were statistically significant differences between data and assessment management strategies and using data to demonstrate student success, inform decision-making and planning for continuous improvement, and to complete departmental reports. The Tukey post hoc test identified the differences between specific strategies. The differences in using data to demonstrate student success were between Strategy 2, Full-Time Professional and Strategy 4, No one. There was also a difference between Strategy 5, Other and Strategy 4, No one. Differences in using data to inform decision-making and planning for continuous improvement were between Strategy 1, Embedded in More than One Full-Time Professional's Job Duties and Strategy 4, No one as well as between Strategy 5, Other and Strategy 4, No one. There were several differences identified between strategies in using data to complete departmental reports. The differences were between Strategy 1, Embedded in More than One Full-Time Professional's Job Duties and Strategy 4, No one, and between Strategy 2, Full-Time Professional and Strategy 4, No one. There was also a difference between Strategy 3, No one Dedicated Person; Work by Committee and Strategy 4, No one.

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B. Conclusions

1. Leaders in collegiate recreation are using data to inform decision-making in several key areas. These leaders and their units have formal processes for data and assessment management in place, but they are not typically advised by specific committees dedicated to the formal process. The steps of the assessment cycle, as defined by the Council on the Advancement of Standards (CAS) are recognized and used by most collegiate recreation departments and the resources from NIRSA and CAS for professional development and training are heavily utilized.

2. There are multiple ways of data collection being utilized by collegiate recreation departments and there is a wide variety of data being gathered and utilized. These practices are commonly guided by the NIRSA competencies on the practice of data collection and analysis, and the CAS standards for the data collection strategies.

3. Recreation departments indicated there was very little collaboration happening with other department's on campus. External constituents are not commonly being used as a resource to guide the collection of data and not collecting or analyzing data in collaboration with others.

4. Most recreation departments identified that they have methods in place to collect relevant data, as well as processes in place for gathering, interpreting, and evaluating data. The storage of data is mostly handled in a Cloud format or in Operations software, but there were a number of departments who identified personal devices being used for data storage.

5. Data were being used to a great extent to provide evidence of the departments' contribution to the overall institutional mission and goals, demonstrate student development, and to demonstrate student success. The ways data were being used to demonstrate organizational value matched current trends in higher education, as offices and units attempt to demonstrate

their value in student development. This included exploring relationships with overall individual wellbeing and not just physical fitness.

6. The most popular strategies for the organization of data and assessment management were combinations of full-time professionals, including by work by committee. There were few departments that identified that they had a dedicated full-time professional, specifically for data and assessment management. The study showed it might not necessarily matter how the strategy is organized, but it does appear having no one to work on data collection and management made a big impact on the individual areas data were being used outside of program offerings, facility needs, funding matters, and personnel changes.

C. Recommendations

Research Recommendations.

1. The study should be replicated to determine if there are different data and assessment management practices at institutions that were not a part of the original sample. Different organization of data and assessment management strategies should also be covered as well as what data and assessment management protocols are in place and how recreation leaders are using data to make decisions.

2. The study should be extended to determine what specific methods and measures are being used by senior administration, who require results of data and assessment reports.

3. Other studies could examine more closely the education and training of the individuals specifically tasked to perform duties related to data and assessment management. Additionally, comfort levels with managing these tasks should be explored, particularly for individuals whose job duties include data and assessment management in comparison to individuals whose full-time responsibilities are data and assessment management.

4. A future study should examine the changes in data and assessment management needs and trends from the past for a better understanding of how data and assessment management has evolved into the strategies defined in this study.

Practitioner Recommendations.

1. Collegiate recreation departments should review the information in this study and evaluate their current organizational structure with data and assessment management practice, protocols, and strategies in mind.

2. Campus recreation can use the results of this study to examine their own practices, and if appropriate, consider the variables in the study, as well as the study findings, to make decisions and provide thoughtful guidance on how data might be used to improve their operations.

3. Collegiate recreation departments should continue to actively use all the steps of the assessment cycle, as defined by CAS, for structure and support with current data and assessment management practices and protocols in their department.

4. Recreation professionals should continue to rely on sources such as NIRSA and CAS for professional development and training for data and assessment management efforts. There are several resources available from both sources that can enhance knowledge and confidence for individuals assigned tasks in data and assessment management.

5. Recreation leaders should consider more collaboration with external constituents on campus for data sharing, as well as professional development and training efforts, and the collection and analyzing of data. With several departments on campus as potential partners, collaboration can be successful using each department's strengths to aid each other.

D. Discussion

Recreation centers are typically thought of as "common hubs for students on college campuses where students can create and experience community" (Sanderson, et al., 2018, p. 41) and have been historically recognized as an important part of a student's life on campus. There has been an increased dialogue about the value, necessity, and impact of collegiate recreation on campus. Vasold, et al. (2019) noted collegiate recreation must prepare to defend itself and its activities with a working use of data to demonstrate its value and impact. Recreation leaders and NIRSA: Leaders in Collegiate Recreation (NIRSA), have worked to demonstrate this with studies that positively correlate recreational programming and facility use with student success, among other important topics in higher education today such as recruitment, retention, satisfaction, and a sense of belonging and community (Kampf et al., 2018; Kampf & Teske, 2013; Miller, 2011; Phipps et al., 2015; Vasold et al., 2019).

The findings of the study confirm that collegiate recreation leaders use the assessment process, as noted by Young, et al. (2014), who indicated that assessment is valuable in several areas in higher education and is used in studies involving collegiate recreation. The duties and functions of effective and efficient use of data for decision-making purposes include (a) identify information needs, (b), collect analyze, interpret, and report data and information, (c), plan and evaluate, (d), serve as stewards of data and information, and (e), educate information producers, users, and consumers (Swing & Ross, 2016). The conceptual framework for the study was based on the assessment cycle, or loop, adapted from Timm, et al. (2013) that includes (a), identifying outcomes, (b), determining methods, (c), planning assessment logistics, (d), gathering methods, (e), analyzing or interpreting evidence, and (f), sharing results and implementing change. The Council for the Advancement of Standards (CAS), noted that the assessment cycle is functional

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area standard for collegiate recreation programs (CAS, 2019). The findings of the study show recreation leaders are actively using the steps of the assessment cycle, as defined by CAS, with a majority of respondents (61.29%) that indicating they utilized all steps of the assessment cycle.

The findings from the study support the idea that the data-driven decision-making process is cyclical in nature (Banta & Palomba, 2015) as respondents identified utilizing data to inform decision-making and planning for continuous improvement as being used. Findings from the study also support the levels approach shared by Light, et al. (2004), and agreed on by Allen (2004) that described the levels as (a), the collecting and organization of data, (b), analysis and summary of data collected, and (c), the knowledge is prioritized and departmental leadership decides what to do with it. The study showed support for the first level from Light, et al. (2004) and Allen (2004), with 77.4% of respondents, that recreation departments have a formal process in place for data and assessment management. Additionally, findings showed recreation departments perceive their department utilized methods that allowed for the collection of relevant data To A Moderate Extent. Findings from the study also support Light, et al.'s second level, with more than half of all respondents who perceived that their collegiate recreation department had manageable data processes in place for gathering data, interpreting data, and evaluating data. Finally, the third level is also supported by findings in the study. The study identified that 54.85% of respondents provided results of data and assessment reports to senior administration on campus. Even though collaboration was indicated by only 25.81% of respondents, this indicated data are being shared with others once it is had been gathered and analyzed, to some extent.

Young, et al. (2014) challenged collegiate recreation leadership to refine assessment resources. In that study, it was noted that recreation professionals relied on relevant literature and

professional development to support assessment activity. However, the current study showed current literature as well as ACPA and NASPA competencies are not being utilized as a resource for data and assessment management to as great an extent as other options.

Current trends in research in collegiate recreation include recruitment, retention, and have a health and wellness focus. The findings from the study revealed areas such as demonstrating student development and demonstrating student success are where data was being utilized by recreation departments. Additionally, exploring relationships with wellbeing was identified as an area where data was being utilized To A Great Extent.

Some barriers to research noted in Haines and Farrell's 2006 study included lack of research training, confidence, resources, mentors, time, interest or a combination of these variables. One of the greatest barriers identified was lack of time, followed by non-existent pay increase for additional data and assessment responsibilities, and a lack of budget for a position dedicated to the topic. The current study, through the one-way ANOVA and Tukey post hoc analysis, showed there was a significant different between several of data and assessment management strategies and Strategy 4, No one. This might suggest that lack of budget for a dedicated position, and potentially lack of time and non-existent pay increases for additional responsibilities have continued to be a barrier to utilizing data by recreation leadership.

The study might have been more comprehensive if the definitions of student learning, student development, and student success were focused on to provide a more thorough understanding of what recreation departments are considering these three separate areas. Additionally, the study might have been enhanced with a focus on how specific data are being utilized in areas such as informing decision-making and planning for continuous improvement, demonstrating student success, student development, and student success as opposed to asking

what decisions were data being utilized in the areas of programming, facility needs, funding matters, and personnel changes.

Lastly, the study could have been improved by adding a section to address barriers to data and assessment management that were perceived by recreation leaders participating in the study. Additionally, it could have been improved by including a more comprehensive understanding of how each strategy were utilizing data specifically within the areas provided.

E. Chapter Summary

The chapter included a summary of the study and answers to each of the six research questions. There were six conclusions made from the study that were shared. Additionally, four recommendations for further research as well as five practitioner recommendations were outlined. A discussion citing work from the literature review in comparison to the findings of the study was also presented.

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Appendices

Appendix A: Colleges and Universities Included in Sample

Auburn University

University of Alaska Fairbanks

University of Arizona

University of Arkansas

University of California, Berkeley

University of California, Davis

University of California, Los Angeles

Colorado State University

University of Connecticut

University of Delaware

University of Florida

University of Hawai'i

University of Idaho

University of Illinois at Urbana-Champaign

Purdue University

Iowa State University

Kansas State University

University of Kentucky

Louisiana State University and Agricultural &
Mechanical College

The University of Maine

University of Maryland, College Park

University of Massachusetts Amherst

Michigan State University

University of Minnesota

Mississippi State University

University of Missouri-Columbia

Montana State University

University of Nebraska-Lincoln

University of Nevada, Reno

University of New Hampshire

Rutgers, The State University of New Jersey

Cornell University

North Carolina State University

North Dakota State University

The Ohio State University

Oklahoma State University

Oregon State University

The Pennsylvania State University

The University of Rhode Island

Clemson University

South Dakota State University

The University of Tennessee, Knoxville

Texas A&M University

Utah State University

The University of Vermont

Virginia Polytechnic Institute & State University
(Virginia Tech)

Washington State University

West Virginia University

University of Wisconsin-Madison

University of Wyoming

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Data and Assessment Management in Collegiate Recreation

Start of Block: Introduction and Purpose

Intro
Data and Assessment Management in Collegiate Recreation

The purpose for conducting this study is to describe the current data collection and assessment management practices of collegiate recreation departments. Participation is voluntary. Responses will be anonymous and only group data will be reported. The survey should take no longer than 10 minutes to complete.

If you choose to participate in this study, you can withdraw your consent and discontinue participation at any time.

If you have any questions or concerns about the study or would like a copy of the findings, please contact Jeana Carow at carow@uark.edu or Dr. Michael Miller at mtmille@uark.edu.

If you have questions or concerns about your rights as a research participant, please contact Ro Windwalker, the University's IRB Compliance Coordinator, at 479-575-2208 or irb@uark.edu.

Thank you, in advance, for your participation in this study.

I agree to participate in the research study. I understand the purpose and nature of this study and I am participating voluntarily. I understand that I can withdraw from the study at any time, without any penalty or consequences.

○ Yes

○ No

End of Block: Introduction and Purpose

Start of Block: Part I: Opening Questions

Instructions Please answer each question to the best of your ability.

Q1 What is your position in your collegiate recreation department?

○ Executive Director

○ Director

○ Associate Director

○ Assistant Director

○ Other: _____

Q2 Which campus-wide office(s) advise your collegiate recreation department on data and assessment management at your institution? Select all that apply:

☐ Institutional Research

☐ Student Affairs Assessment Area

☐ Institutional Planning

☐ Academic Affairs

☐ None

☐ Other: please specify _____

Q3 How is your collegiate recreation department structured to handle data collection, use, management, and analysis? Select all that apply:

☐ Full-time professional

☐ Embedded in more than one full-time professional's job duties

☐ Part-time staff

☐ No dedicated person; work by committee

☐ No one

☐ Other: please specify _____

Q4 What position(s), specifically, is responsible for the collection of data in your collegiate recreation department?

_____

Q5 What position(s), specifically, is responsible for the storage of data in your collegiate recreation department?

_____

Q6 Does your collegiate recreation department have a formal process for data and assessment management?

○ Yes

○ No

Q7 Does your collegiate recreation department have a formal plan for utilizing data in decision-making?

○ Yes

○ No

Q8 Does your collegiate recreation department have a formal committee to advise on data collection and use?

○ Yes

○ No

Q9 What resources are utilized by your collegiate recreation department for the professional development and training of data and assessment efforts? Select all that apply:

☐ CAS standards

☐ ASK Standards

☐ NIRSA competencies

☐ NIRSA professional development opportunities, including conferences, webinars, and print materials

☐ ACPA & NASPA professional competencies

☐ Not applicable / no resources used / no professional development or training provided

☐ Other: please specify _____

Q10 Of the steps of the assessment cycle, as defined by the CAS standards for collegiate recreation, which are actively being used by your collegiate recreation department? Select all that apply:

☐   Set program goals, outcomes, and objectives

☐   Develop and implement assessment plan

☐   Review and interpret findings

☐   Develop a plan for data use, continuous improvement, and reassessment

☐   Implement an improvement plan

☐   Review and monitor changes that have been made

End of Block: Part II

Start of Block: Part III

Q11 Does your collegiate recreation department employ multiple methods and measures of data collection?

○ Yes

○ No

Q12 Based on your experience in your collegiate recreation department, please rate what frequency the methods and measures of data collection shown below are utilized:

	Never (1)	Rarely (2)	Sometimes (3)	Frequently (4)	Always (5)
Focus groups	O	O	O	O	O
Surveys	O	O	O	O	O
Interviews	O	O	O	O	O
Document review	O	O	O	O	O
Shared data sets (example: NIRSA institutional data set)	O	O	O	O	O
Participant counts by area (gyms, fitness center, MAC courts, etc.)	O	O	O	O	O
Registration numbers	O	O	O	O	O

	Never (1)	Rarely (2)	Sometimes (3)	Frequently (4)	Always (5)
Student employee GPAs	○	○	○	○	○
Participant GPAs					
Non-participant GPAs	○	○	○	○	○
Student employee graduation rates	○	○	○	○	○
Participant graduation rates	○	○	○	○	○
Non-participant graduation rates	○	○	○	○	○
Facility entry statistics	○	○	○	○	○
Other: please specify	○	○	○	○	○
Other: please specify	○	○	○	○	○
Other: please specify	○	○	○	○	○

Q13 What materials and resources are utilized to guide data collection and assessment efforts in your collegiate recreation department? Select all that apply:

☐ CAS standards for Collegiate Recreation Professionals

☐ ASK Standards

☐ NIRSA Research and Assessment Committee

☐ ACPA & NASPA professional competencies

☐ Other offices/departments on campus

☐ Recent literature related to the field

☐ Not applicable / do not use materials or resources

☐ Other: please specify _____

☐ Other: please specify _____

Q14 What resources are utilized to collect user data in your collegiate recreation department? Select all that apply:

☐ Web-based survey service, provided by institution

☐ Web-based survey service, not provided by institution

☐ Operations software (Fusion, CSI, RecTrac, Connect2, etc.)

☐ Open participant comments

☐ Manual participation counts

☐ Other departments on campus

☐ Not applicable / do not collect user data

☐ Other: please specify _____

☐ Other: please specify

Q15 Based on your experience, to what extent are external (to your department) constituents collecting and analyzing data in collaboration with your collegiate recreation department?

○ Not at all (1)

○ To some extent (2)

○ To a moderate extent (3)

○ To a great extent (4)

○ To a very great extent (5)

End of Block: Part III

Start of Block: Part IV

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Q16 Based on your experience, to what extent has your collegiate recreation department identified methods that will allow for the collection of relevant data?

○ Not at all (1)

○ To some extent (2)

○ To a moderate extent (3)

○ To a great extent (4)

○ To a very great extent (5)

Q17-19 Based on your experience, to what extent are manageable processes in place for:

	Not at all (1)	To some extent (2)	To a moderate extent (3)	To a great extent (4)	To a very great extent (5)
gathering data	○	○	○	○	○
interpreting data	○	○	○	○	○
evaluating data	○	○	○	○	○

Q20 What resources are utilized by your collegiate recreation department to store data? Select all that apply:

☐ Cloud systems, university managed (Box, OneDrive, Dropbox, local shared drive etc.) (1)

☐ Operations software (Fusion, CSI, RecTrac, Connect2, etc.) (2)

☐ Personal, private computer or storage device (3)

☐ Not applicable / do not store data (4)

☐ Other: please specify (5)

_____

☐ Other: please specify (6)

_____

End of Block: Part IV

Start of Block: Part V

Q21-29 Based on your experience, please rate to what extent your collegiate recreation department utilizes data to:

	Not at all (1)	To some extent (2)	To a moderate extent (3)	To a great extent (4)	To a very great extent (5)
demonstrate student learning	○	○	○	○	○
demonstrate student development	○	○	○	○	○
demonstrate student success	○	○	○	○	○
explore relationships with wellbeing	○	○	○	○	○
provide evidence of the department's contribution to overall institutional mission and goals	○	○	○	○	○
demonstrate effectiveness and continuous improvement from the use of data	○	○	○	○	○
inform decision-making and planning for continuous improvement	○	○	○	○	○
complete departmental (including, but not limited to annual) reports	○	○	○	○	○
justify expenses	○	○	○	○	○

End of Block: Part V

Start of Block: Part VI

Q30 Based on your experience, what types of decision-making in your collegiate recreation department are data being utilized? Select all that apply:

☐   Funding matters

☐   Personnel changes

☐   Programmatic offerings

☐   Facility use/needs

☐   Other: please specify _____

Q31 Based on your experience, what items related to your collegiate recreation department have changed as an outcome of data analysis or assessment? Select all that apply:

☐   Use of funding

☐   Personnel

☐   Programmatic offerings

☐   Facility use

☐   Other: please specify _____

Q32 What factors influence the utilization of data in decision-making in your collegiate recreation department? Select all that apply:

☐ Professional standards (CAS, ASK, NIRSA, ACPA, NASPA, etc.)

☐ Senior administration on campus

☐ Other department's needs

☐ Other: please specify _____

Q33 Is your collegiate recreation department required to provide reports of results of data analysis or assessment to senior administration on campus?

○ Yes

○ No

Q34 Is your collegiate recreation department required to provide reports of results of data analysis or assessment to external constituents (on campus)?

○ Yes

○ No

End of Block: Part VI

Appendix C: Participant Email Drafts

Initial Email Request

Subject: Collegiate recreation data and assessment management research project

Dear (participant),

You have been selected to participate in this study of data collection and assessment management practices of collegiate recreation departments. The purpose for conducting the study is to describe the current data and assessment management practices of collegiate recreation departments. The survey will be completed online and should take no longer than 10 minutes to complete.

Participation is voluntary. If you choose to participate in this study, you can withdraw your consent and discontinue participation at any time. Personally identifiable information is not being collected. Responses will be confidential and only group data will be reported.

You can access the survey using the following link:
https://uark.qualtrics.com/jfe/form/SV_dmAKR8qUgcyjA9v

Thank you, in advance, for your participation in this study. If you have any questions or concerns about the study or would like a copy of the findings, please contact Jeana Carow by phone at ▮▮▮▮▮▮▮▮▮ or by email: ▮▮▮▮▮▮▮▮▮ or Dr. Michael Miller by phone at ▮▮▮▮▮▮ or by email: ▮▮▮▮▮▮▮▮▮. For questions or concerns about your rights as a research participant, please contact Iroshi Windwalker by phone at 479-575-2208 or by email: irb@uark.edu.

Sincerely,

Jeana Carow | Assistant Director, Facility Operations
University of Arkansas | University Recreation
Doctoral Candidate | Doctor of Education, Higher Education Administration
▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ | https://urec.uark.edu/

Second Email Request

Subject: Reminder: Collegiate recreation data and assessment management research project

Good morning,

If you have already completed the survey, thank you and you can disregard this email. If you haven't, I kindly ask you to consider taking a few minutes of your time to fill it out. Your help would be greatly appreciated.

You have been selected to participate in this study of data collection and assessment management practices of collegiate recreation departments. The purpose for conducting the current study is to describe the current data and assessment management practices of collegiate recreation departments. The survey will be completed online and should take no longer than 10 minutes to complete.

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Sincerely,

Jeana Carow | Assistant Director, Facility Operations
University of Arkansas | University Recreation
Doctoral Candidate | Doctor of Education, Higher Education Administration
▮▮▮▮▮▮▮▮▮▮▮▮▮▮ | https://urec.uark.edu/

Third Email Request

Subject: Reminder: Collegiate recreation data and assessment management research project

Good morning,

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Sincerely,

Jeana Carow | Assistant Director, Facility Operations
University of Arkansas | University Recreation
Doctoral Candidate | Doctor of Education, Higher Education Administration
████████████████████ | https://urec.uark.edu/

Fourth Email Request

Subject: Final Reminder: Collegiate recreation data and assessment management research project

Good afternoon,

If you have already completed the survey, thank you and you can disregard this email. This is serving as the last reminder. If you haven't, I kindly ask you to consider taking a few minutes of your time to fill it out. Your help would be greatly appreciated.

If you have started you survey, but not finished it, I encourage to take a moment to finish. The survey will close at 11:59pm on Sunday, September 20. If you need assistance accessing the survey, please let me know.

You have been selected to participate in this study of data collection and assessment management practices of collegiate recreation departments. The purpose for conducting the current study is to describe the current data and assessment management practices of collegiate recreation departments. The survey will be completed online and should take no longer than 10 minutes to complete.

Participation is voluntary. If you choose to participate in this study, you can withdraw your consent and discontinue participation at any time. Personally identifiable information is not being collected. Responses will be confidential and only group data will be reported.
You can access the survey using the following link:
https://uark.qualtrics.com/jfe/form/SV_dmAKR8qUgcyjA9v

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Sincerely,

Jeana Carow | Assistant Director, Facility Operations
University of Arkansas | University Recreation
Doctoral Candidate | Doctor of Education, Higher Education Administration
▮▮▮▮▮▮▮▮▮▮▮▮▮▮ | https://urec.uark.edu/

Final Email Request

Subject: Incomplete survey – opportunity to finish: College recreation data and assessment management research project

Good morning,

The survey deadline has been extended for the remainder of the day (close at 11:59pm CST on September 21) to allow for anyone who may have started the survey but did not get the opportunity to finish it.

You can access the survey using the following link: https://uark.qualtrics.com/jfe/form/SV_dmAKR8qUgcyjA9v If you need assistance accessing the survey, please reach out.

You have been selected to participate in this study of data collection and assessment management practices of collegiate recreation departments. The purpose for conducting the current study is to describe the current data and assessment management practices of collegiate recreation departments. The survey will be completed online and should take no longer than 10 minutes to complete.

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Sincerely,

Jeana Carow | Assistant Director, Facility Operations
University of Arkansas | University Recreation
Doctoral Candidate | Doctor of Education, Higher Education Administration
▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ | https://urec.uark.edu/

Appendix D: Institutional Review Board Approval

UNIVERSITY OF ARKANSAS

To:	Michael T Miller GRAD 320
From:	Douglas J Adams, Chair IRB Expedited Review
Date:	08/14/2020
Action:	**Exemption Granted**
Action Date:	08/14/2020
Protocol #:	2007271995
Study Title:	Data and Assessment Management in Collegiate Recreation

The above-referenced protocol has been determined to be exempt.

If you wish to make any modifications in the approved protocol that may affect the level of risk to your participants, you must seek approval prior to implementing those changes. All modifications must provide sufficient detail to assess the impact of the change.

If you have any questions or need any assistance from the IRB, please contact the IRB Coordinator at 109 MLKG Building, 5-2208, or irb@uark.edu.

cc: Jeana E Carow, Investigator