

An abstract background featuring a mix of green and yellow textures, possibly representing foliage or a natural scene. The colors are vibrant and layered, creating a sense of depth and movement.

16

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COLLEGE STUDENTS

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The Role of the School Psychologist in Postsecondary Education: An Introduction to the Special Issue

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Guest Editor

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Guest Editor

School psychology has emerged and burgeoned as a field over the past century. Currently, thousands of school psychologists serve K-12 students in schools across the U.S. and in several other countries around the world (Saigh & Oakland, 2013). Additionally, the role of the school psychologist has expanded and diversified consistent with new service delivery models, practice opportunities, and demands for psychoeducational services. However, students in college or post-secondary education are one population that can benefit significantly from the work of school psychologists and generally are underserved (Newman & Madaus, 2015a,b; Sulkowski & Joyce, 2012). Similar to K-12 students, these students display a range of academic, health, and social-emotional needs. The overarching theme of this issue is to review a variety of postsecondary initiatives for providing psychoeducational support to postsecondary students through the multi-faceted roles of school psychology. Additionally, this issue highlights the diverse roles some school psychologists currently provide in these settings.

Since the early 1990's there has been a growing trend toward increasing college enrollment for students with disabilities (National Center for Education Statistics, 2000, U. S. Department of Education, 2011). Learning disabilities followed by orthopedic, sensory, and mental health needs are the most prevalent. One of the key factors for success across all of these challenges is access for students to academic and mental health resources within colleges and universities. Given their knowledge of disability and educational law, pedagogy, academic accommodations, and mental health supports, school psychologists can have a key role in facilitating the success of post-secondary students in acquiring a college degree (Sulkowski & Joyce, 2012). In fact, we would propose that professionals with school psychology training are uniquely qualified to consult with postsecondary institu-

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tions on implementing comprehensive support frameworks for college students.

Data from the United States Government Accountability Office (USGAO, 2009) indicate that 11% of postsecondary students have a disability. However, the majority do not receive accommodations or adequate supports (Newman & Madaus, 2015a,b; USGAO, 2009). Unlike K-12 provisions, college students must self-disclose disabilities as there are no formalized screening or early warning system mechanisms inherent in most postsecondary institutions to refer at-risk students. Generally, students with disabilities also must approach professors to self-advocate for accommodations (USGAO, 2009). Newman and Madaus (2015b) found that only 35% of students with disabilities were willing to self-disclose and only 24% of students with disabilities actually receive accommodations. Additionally, consistent with rapid growth numbers of post-secondary education students over the past three decades, research suggests that the aforementioned needs are at an all-time high and often not adequately addressed (Pryor, Hurtado, DeAngelo, Palucki Blake, & Tran, 2011).

A study by Curtis, Hunley, and Grier (2002) found that only about six percent of school psychologists work in college or university settings according to National Association of School Psychologists (NASP) membership surveys and school employee listings. This percentage may actually be an underestimate because not all school psychologists are NASP members. College enrollment data from 2015 indicates 6.5 million students attended 2-year colleges, 10.5 million were enrolled in 4-year institutions and an additional 2.9 million were enrolled in graduate training programs (U. S. Department of Education [USDOE], 2017). In considering the large number of college students (i.e., approximately 20 million) and percentage estimated to have disabilities (i.e., 11%), there are an estimated 2.2 million college students with dis-

abilities who could benefit from the expertise of school psychologists working in post-secondary settings (Newman & Madaus, 2015b; USDOE, 2017).

Consistent with the aim of expanding the role of school psychology to serve all students, including college students, this special issue includes articles from a diverse number of professionals who are all involved in the practice of school psychology in post-secondary educational settings. More specifically, this special issue delineates a variety of professional roles within post-secondary education that innovative school psychologists are pioneering at various settings ranging from small colleges to large research universities. It also offers detailed descriptions of several post-secondary initiatives for students with disabilities, health concerns, and academic problems that commonly present in college students and serve as barriers to success. Many unique interventions for at-risk populations, service-delivery models, research opportunities, and training options for school psychology graduate students are covered. It is our hope that the articles in this special issue help inspire an important discussion about the emerging role of school psychology in post-secondary settings. More importantly, however, we also hope that reading these articles will galvanize school psychologists with appointments or connections to post-secondary educational institutions to replicate some of these ideas in novel ways to support college students.

In an article entitled, “Beyond K-12: School Psychological Services for Athletes at Post-Secondary Institutions” authors Muller and Robert, through a series of interviews with post-secondary service providers, provide an overview of a three-center collaboration for comprehensive on-campus service delivery for at-risk college athletes. The service-delivery framework integrates academic and mental health services including a disability center with a school psychologist as Assistant Director, an academic tutoring center, and a men-

tal health counseling center. School psychology permeates through all three centers serving in a variety of roles across the institutional infrastructure. In particular, the article discusses how university disability resource centers can offer assessments that are provided by school psychology graduate students under supervision of a licensed psychologist. The article also reviews strategies for collaborating with other university support personnel to coordinate accommodations for at-risk student athletes as well as tutoring strategies and mental health supports that can be employed to help these students and others with similar needs.

The second featured article, entitled: “School Psychologists as Facilitators of Multi-Tiered Systems of Support in Postsecondary Education” by O’Connell” reviews a multi-tiered model of campus service delivery akin to MTSS through the report of a Director and Assistant Director of a Center for Academic Success who are practicing school psychologists. Outcome data for three-years of program implementation resulted in higher pass rates for college students at their institution. Following a multi-tiered framework, Tier I screening services include having an early warning system for risk factors (e.g., low GPA, high absenteeism) that can trigger an appointment with an academic advisor for students. Additional Tier I systems-level screening monitors aggregate student achievement data across classes to identify courses with low pass rates and low grade patterns. Subsequently, Tier II services are initiated that include offering weekly supplemental instruction for students in those classes as needed and also offering a one-semester class on basic study skills as well as the acclimation process to college. Lastly, Tier III involves providing individual tutoring services to students displaying academic problems and mental health supports for students at-risk.

In the third article in this issue, Ripple and colleagues review a multi-tiered service model for supporting students with autism spectrum disorders

(ASD) in college. In their article entitled: “Considering a Multitiered Approach for College Students with Autism: Screening for Mental Health Concerns” they provide an example of how a school psychology program clinic can mutually support the training needs of school psychology graduate students and the infrastructure of the university through addressing the needs of college students with ASD. The article also discusses how students with ASD can receive a range of supports at the clinic as well as ways that the clinic can generate research to inform service-delivery within a university’s existing infrastructure.

Similar to the previous article, Viesel and colleagues discuss providing needed services to college students with ASD in their article entitled: “Supporting College Students with Autism.” This article offers important comparison of Individualized Education Plans (IEPs), the Individuals with Disability Improvement Act, transition planning, and college American Disability Act provisions. Additionally, multiple empirically-supported and data-based support strategies are discussed to assist college students with ASD such as academic coaching and individually-tailored support program for undergraduates with ASD.

The fifth included article entitled: “A Model for Facilitating an Inclusive Experience for College Students with Health-Related Conditions: Application for Students with Diabetes” by Perfect and colleagues discusses the outcome of a multidisciplinary expert panel review. The panel created a framework for guiding principles and later refined those concepts through a consensus agreement method to inform best practices in service delivery. The expert panel included school psychologists, psychologists, professionals in disability studies, and rehabilitation counselors. Additionally, consultation regarding the implementation of the principles was garnered through interview with students, their families, and pediatric endocrinologists who treat diabetes. Results delineated seven principles for post-

secondary service provision to students with a variety of health disorders. In addition, the article illustrates application of the principles through a proposed service model addressing needs of students with diabetes because this is a relatively prevalent health condition that afflicts many college students. Lastly, the article covers typical institutional barriers experienced by these students as well as ways to overcome these barriers.

The sixth included article by Hays, McCallum, and Bell entitled: “Academic Outcomes in Higher Education for Students Screened as Twice-Exceptional: Gifted with a Learning Disability in Math or Reading” argues for the use of screening to identify and support college students who are twice-exceptional or potentially gifted with a learning disability. Such screening practices are discussed as they can be conducted by a school psychologist working in post-secondary educational settings. Furthermore, suggestions for advocating for supports for students screened as twice-exceptional are included and study results illustrate mutual benefits of applied research that can be shared by students and university faculty.

Finally, the concluding article entitled: “Collaborating with Institutional Research: A Best Practice for School Psychologists in Postsecondary Settings” by Beaujean and Fearon-Drake provides an example of the benefits of system-level collaborative research between school psychologists and college administration to identify and serve student needs. This article describes conducting this type of research with a series of sequential steps and it offers a case example. Overall, the role of the school psychologist as a health care provider is stressed as school psychologists can be an indispensable member of the university community who can assist with assessment and service-delivery efforts.

Although the series of articles contained in this special edition differ from each other in meaningful ways, they collectively highlight important efforts of

school psychologists who are working in post-secondary settings. We were pleasantly surprised by the number and quality of manuscripts submitted on this topic, which might highlight increasing efforts among school psychologists to work in post-secondary educational settings and support college students. Ultimately, applying school psychology in post-secondary settings allows researchers and providers a diverse array of options to serve students in creative ways. As we march forward into the future, perhaps school psychology will fully achieve a goal of supporting all students across their educational endeavors from elementary to secondary, and then post-secondary settings.

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Beyond K-12: School Psychological Services for Athletes at Post-Secondary Institutions

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The authors examined a post-secondary support service model designed to specifically address the academic and mental health needs of at-risk student-athletes through a series of personnel interviews. Given their intensive training and travel schedules student athletes often have significant demands on their time that can disrupt study time as well as add stressors on personal life balance factors. The University of Florida utilizes a preventative and responsive service delivery model, coordinating services across three centers include a disability resource center, an academic support center, and a counseling and wellness center. These centers work collaboratively to provide comprehensive accommodations and support services to students. School psychologists as well as the school psychology program are involved through a variety of functions. Based on the function and description of each center, as well as a consideration for the populations served, it is clear that there is a vital role for school psychologists at the post-secondary level. Specific school psychology competencies identified as applicable to post-secondary service delivery include expertise in data-based decision making, assessment, and program evaluation; knowledge related to the legal, ethical, and professional practice of mental health professionals in educational settings; and substantial exposure to evidence-based interventions, instructional supports, and mental health services.

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The predominant view of school psychologists as school-based assessment specialists is largely a result of the field's history. School psychology was founded on the combined influence of Lightner Witmer's idiographic clinical psychology and G. Stanley Hall's nomothetic educational psychology (Fagan & Wise, 2007). From the idiographic perspective, school psychologists use an individualized approach to create a detailed client profile. Each client profile is then used to individualize evidence-based intervention services and accommodations. To obtain an individual profile and to make decisions regarding accommodations, school psychologists' rely heavily on norm-referenced instruments. Reliance on normative data for categorical decision-making purposes represents the nomothetic approach espoused by Hall (Fagan & Wise, 2007). Other influences during school psychology's hybrid years further solidified the assessment function ascribed to practitioners, most notably, the development of ability and achievement tests and federal legislation supporting the use of those tests for diagnostic purposes. Based on the history of the field, it is not surprising that most school psychologists continue to work in school settings and that assessment related services constitute their primary responsibility (Curtis, Castillo, & Gelley, 2012; Castillo, Curtis, & Gelley, 2012; Walcott, Charvat, McNamara, & Hyson, 2016). However, a case is made for the expansion of school psychological services in the context of postsecondary education.

Role expansion among school psychologists is not a new phenomenon but a recent study conducted by the National Association of School Psychologists (NASP) found little evidence of significant role diversification among association members (Castillo, Curtis, & Gelley, 2012). These findings are particularly worrisome in the wake of the 2002 Multisite Conference on the Future of School Psychology that championed a paradigm shift more than a decade ago. Specifi-

cally, the emergence of multi-tiered systems of support (MTSS) and the application of problem-solving models based on response-to-intervention (RTI), provides school psychologists with the opportunity to broaden their service delivery beyond psychoeducational assessment and K-12 settings. Furthermore, the *NASP Model for Comprehensive and Integrated School Psychological Services* posits that school psychologists are capable of providing comprehensive services, direct and indirect, to children, families, and schools across 10 domains: data-based decision making and accountability; consultation and collaboration (i.e., core services); interventions and instructional support to develop academic skills; intervention and mental health services to develop life skills (i.e., student-level services); school-wide practices to promote learning preventive and responsive services; family-school collaboration services (i.e., systems-level services); diversity in development and learning; research and program evaluation; and legal, ethical, and professional practice (i.e., foundational services) (NASP Practice Model, 2010). Given their unique constellation of training in pedagogy best practices, school psychologists are well-positioned to self-advocate for expanded roles among educational stakeholders (e.g., administrators, professors etc.) who may possess a narrow understanding of school psychological services (Ball, Pierson, & McIntosh, 2011).

The purpose of this paper, therefore, is to outline one possible avenue for role expansion. Specifically, it describes the University of Florida's (UF) student-athlete service-delivery model as an example of school psychological services at the post-secondary level. Student athletes represent a population of particular interest for school psychologists. Their role as both a student and an athlete is distinct from traditional students in that their attention is divided between their sport and their studies. With scholarly results indicating that rates of mental disorders among student athletes are

not necessarily different from their nonathletic peers, this population experiences "unique stressors not experienced by other college students" that includes physical injuries from playing their sport, interpersonal conflict between teammates and/or coaches, strict demands on their personal time, and potential stigma around seeking care for mental disorders (Sudano, Collins, & Miles, 2017, p. 77). Solutions for each of the student needs are within the professional scope of school psychologists and thus present an opportunity for both individual school psychologists employed through disability resources and school psychology training programs to influence postsecondary service provision. Specifically, school psychologists possess the expertise in best practices for student-level and systems-level services, collaborative decision-making, and understanding of legal and ethical parameters to enable them to enhance postsecondary educational settings.

The model reviewed in this article is housed at the University of Florida and offers an integrated systems framework (ISF), including services provided by the Disability Resource Center (DRC), the Otis Hawkins Center, and the Counseling and Wellness Center (CWC) to provide student-athletes with comprehensive support services. These centers also partner with UF's graduate psychology training programs to provide practicum opportunities and supervised experiences. Although infrastructure resources differ between postsecondary institutions, the information contained herein has the potential to generalize to other institutions.

Disability Resource Center

The DRC is a comprehensive service-delivery provider for students with disabilities, offering individualized accommodations and support services (University of Florida Dean of Students Office, 2016). The

DRC operates in accordance with legal statutes that govern accommodations and service-delivery at the post-secondary level (i.e., the Americans with Disabilities Act of 1990 [ADA]). Staff members include a school psychologist who serves as the Assistant Director, counselors, and other professionals with training in special education that are equipped to provide comprehensive support services to students with disabilities. Additionally, the DRC aims to disseminate knowledge relevant to stakeholders throughout the campus community as a means of promoting inclusion and appropriate service delivery for students with disabilities and student-athletes (University of Florida Dean of Students Office, 2016).

The DRC addresses cases on an individualized basis to ensure personalized care, beginning with a one-on-one intake appointment. During the intake, a DRC staff member reviews documentation to establish eligibility and collaborates with students to facilitate data-driven decision-making. Documentation that supports eligibility are obtained from a qualified physician or other licensed professional that (a) provides verification of a physical, learning, sensory, and/or psychological disability or other qualifying diagnosis (e.g., ADHD), (b) details functional limitations as a result of the disability and/or diagnosis in a life domain (e.g., academics), and (c) offers specific recommendations for accommodations relevant to individual students' needs (University of Florida Dean of Students Office, 2016). This is consistent with documentation guidelines espoused by the Association on Higher Education and Disability (AHEAD), which recommends standards for postsecondary evaluations (Joyce & Grapin, 2012). Psychoeducational and neuropsychological evaluations, as well as diagnostic summary letters, medical records, and/or academic records (e.g., individualized education plans [IEPs]), represent relevant documentation that may establish eligibility for services (University of Florida Dean of Students Of-

fice, 2016). It is important to note that IEPs, Section 504s, or other similar documentation (e.g., transition plans) may not be sufficient to qualify an individual for services if certain diagnostic requirements are not met (Joyce & Grapin, 2012). This discrepancy is primarily due to differences in definitional and diagnostic criteria between the Americans with Disabilities Act (ADA), which governs accommodations in postsecondary contexts, and the Individuals with Disabilities Education Improvement Act (IDEIA), which governs accommodations in primary and secondary contexts.

The DRC offers internal and external mechanisms for students seeking accommodations to obtain appropriate documentation. DRC learning specialists offer in-house evaluation services and collaborate with licensed practitioners in the College of Education, Department of Special Education, School Psychology, and Early Childhood Studies (SESPECS) to meet the needs of students with disabilities. The DRC serves upwards of 1,700 students per academic year, thus requiring a substantial number of support staff (e.g., school psychologists) to conduct evaluations. Due to the large number of assessment specialists housed within and in collaboration with the DRC, UF's athletics program relies heavily on DRC services to comprehensively assess student athletes who may be at-risk for mental health issues (Sudano, Collins, & Miles, 2017). Once eligibility is established, the intake concludes with an overview of relevant policies, procedures, and campus-based services available to students with disabilities.

There are a number of accommodations available including test modifications (e.g., extended time, low distraction environments, scribes, assistive technology, etc.), note-takers, access to course materials in alternative formats (e.g., hard copies, audio recorded lectures, interpreters, caption services, etc.), priority registration, reduced course load, course substitutions, educational assistants, and/or assistive learning devices (Joyce & Grapin, 2012).

When individual student needs surpass the capacity or expertise of DRC staff, they may receive a referral to campus-based resources that provide more intensive and specialized services. For example, individuals that require more intensive psychological supports may receive counseling from a licensed mental health professional through the CWC. Likewise, students in need of individualized academic supports may receive tutoring from an education specialist through the Otis Hawkins Center. Overall, the DRC offers comprehensive evaluations and collaborates with a number of campus-based resources to provide individualized support services to students with disabilities and student athletes.

School Psychology Within the DRC. Functioning as a comprehensive resource for students with disabilities, the DRC provides the most intuitive link between post-secondary service delivery and the practice of school psychology. To identify the school psychological competencies germane to the post-secondary setting, a licensed psychologist with training in school psychology was interviewed as a primary resource. The interview provided valuable insight regarding the DRC staff members' specific responsibilities and supports the generalization of school psychological services to the post-secondary setting.

The primary responsibility of the interviewee while employed by the DRC was comprehensive assessment for eligibility purposes. This was accomplished through both personal assessment for some students and supervision of school psychology program graduate students conducting assessments. The interviewee reported engaging in extensive multidisciplinary collaboration to meet the robust need for services and the diversity of students seeking accommodations (Anonymous, interview, January 24, 2017). School psychologists working in traditional school settings, with an average school psychologist-to-student ratio of 1:1,383 (Curtis, Castillo, & Gelley, 2012, p. 30), would be accustomed to the heavy caseload of the

DRC. Based on the interviewee's description of DRC services, it is readily apparent that school psychological skills and competencies generalize to institutions of higher education. For example, comprehensive assessment for accommodations at the post-secondary level typically consists of a history review and administration of broadband measures of cognitive ability, academic achievement and mental health factors as needed (Anonymous, interview, January 24, 2017). Additional measures may include narrowband measures of study skills, time management and motivation factors to delineate a detailed client profile (Anonymous, interview, January 24, 2017). The *Diagnostic and Statistical Manual of Mental Disorders (DSM)* was reportedly used to generate diagnoses for eligibility purposes (American Psychiatric Association, 2013). This is important to note because traditional school-based practice does not rely heavily on the DSM for eligibility purposes (Joyce & Grapin, 2012). It is also important to note that decisions regarding further testing or referrals to campus-based resources (e.g., CWC) were data-driven, for which school psychologists are particularly equipped (NASP, 2010).

Additionally, the interviewee reported engaging in a degree of collaboration similar to school-based problem-solving teams requiring collaborative decision making with other DRC professionals on appropriate student accommodations and supports (Anonymous, interview, January 24, 2017). In addition to assessments, the interviewee noted a secondary role in providing follow-up counseling for students. The interviewee also noted that there was room for role enhancement to better utilize the full range of his training as a school psychologist, specifically with regard to direct intervention.

In conclusion, employment through university disability centers represents one avenue for school psychologists seeking careers at the post-secondary level. Based on the roles and responsibilities described by

our primary source, a number of skills that school psychologists utilize on a daily basis are readily adaptable to post-secondary practice. Additional competencies demonstrated by school psychologists and espoused by the NASP Practice Model (2010) relevant to practice in higher education include an appreciation for diversity in development and learning; expertise in research and program evaluation; knowledge related to the legal, ethical, and professional practice of psychology; and substantial exposure to evidence-based interventions (EBIs), instructional supports, and mental health counseling (NASP, 2010). Overall, many of the roles and responsibilities of school psychologists generalize to the post-secondary setting and may be appealing to institutions of higher education that support inclusion and equal access.

Otis Hawkins Center

In collaboration with the UF DRC, the Otis Hawkins Center coordinates the majority of academic services for at-risk student athletes (University Athletic Association, Inc., 2017).

With services coordinated under the direction and guidance of contracted learning specialists, academic supports are segmented into two programs: content and strategy tutoring. Content tutors, as the name suggests, provides supplemental instruction on the core material of undergraduate courses. The Hawkins Center provides small group and individualized services in topics such as English, chemistry, physiology, and statistics, and allow for the discussion of homework or exam content (Otis Hawkins Center, 2017, p. 3). From the typical purview of a school psychologist, these services are congruent with Tier 2 and Tier 3 academic supports in a MTSS paradigm.

A similar service delivery format exists for the strategy program. "The Strategy Program is an individually-based program for student-athletes diag-

nosed with a disability, at-risk, and/or in need of remedial course support” that pairs them with personalized support staff (Otis Hawkins Center, 2017, p. 6). This pairing develops the student athlete’s academic abilities through a variety of structured activities that range in scope from goal setting, study strategies, helping the student self-advocate in requesting assigned academic accommodations, and general skills that foster their autonomy as students.

School Psychology Within the Otis Hawkins Center. In this service delivery paradigm and by virtue of their training, school psychologists with requisite experience have several career paths that they can pursue at similar institutions. Based on an interview with an academic support provider in the Hawkins Center, roles are divided by “in/out of house” service delivery that frequently co-occur (Anonymous, interview, February 10, 2017). Based on the model presented at UF, mental health service delivery is provided by onsite providers. These counselors, typically accredited at the master’s level, provide general and specialized psychological services (e.g., crisis intervention, substance use, etc.). While primarily covered in-house, these services can be outsourced to the university’s CWC based on referral or therapist caseload. The Hawkins Center also frequently utilizes their connections with the UF school psychology program to fill their student tutor needs (Anonymous, interview, February 10, 2017).

Counseling and Wellness Center

While the UF Athletic Association (UFAA) offers counseling and specialized mental health services nested within the Hawkins Center, student-athletes can access additional resources at the university’s CWC. The UF CWC provides a rich web of mental health services: individual and couple’s counseling; thirty-five group counseling options; community workshops on various topics; 24-hour crisis intervention; and psy-

chological assessment (Anonymous, interview, February 17, 2017). The CWC has also networked within the community to develop collaborative relationships with local practitioners including school psychologists who can provide consultative services based on caseload demands. Indeed, limited resources may preclude such provisions as universal screening and intensive mental health needs (Sudano, Collins, & Miles, 2017). Therefore, community networking is considered critical to service sustainability efforts.

School Psychology Within the CWC. An interview with a CWC service provider noted school psychologists could utilize their professional training in counseling skills to also serve as personnel in university counseling centers. The representative noted empathy, the ability to facilitate meaningful relationships with clients, self-awareness, and multicultural sensitivity as essential skills for collegiate service provision (Anonymous, interview, February 17, 2017). Given their training in these competencies, school psychologists possess the competency to fulfill the role of counselor based on their professional credentials (NASP, 2017).

Conclusion

Together, the functions of the UF’s DRC, Otis Hawkins Center, and CWC represents multiple aspects of postsecondary service delivery that may be found across campuses in the US. Each of these components afford significant opportunities for school psychologists to share their expertise in serving the educational and psychological needs of students through higher education settings. Student-athletes in particular represent a special population that may benefit from school psychological services (NASP, 2010). Furthermore, the DRC, the Hawkins Center, and the CWC represent an ISF, which is considered best practice in supporting student-athletes (Sudano, Collins, & Miles, 2017). Regardless of the setting, school psychologists

possess unique competencies that promote the academic, social, emotional, and behavioral growth of *all* students across their educational careers.

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School Psychologists as Facilitators of Multi-Tiered Systems of Support in Postsecondary Education

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One challenge facing many postsecondary institutions is the increasingly diverse student body, many of whom are identified as *at-risk* college students. According to the US Department of Education (2016), there were 17.3 million undergraduate students attending degree-granting postsecondary institutions in the fall of 2014. Additionally, a growing percentage of college students are categorized as at-risk due to a high probability of failing academically or dropping out of school especially during the first year of college. These at-risk college students often include those from impoverished backgrounds, ethnic minority students, first-generation college students, nontraditional students with family responsibilities, and/or those with a physical, mental health, or learning disability. They face a variety of barriers to learning and are often under-prepared for the rigor of college. Consequently, postsecondary institutions have increasingly struggled with ways to remediate the academic skill deficits and enhance the non-cognitive (i.e., readiness) skills of at-risk students in order to increase retention and graduation rates.

Retaining all college students, especially those at-risk, is one of the most widely studied areas in higher education with an expansive body of literature and various theoretical models depicting the complexities of factors shaping college persistence (Tinto, 1993). Additionally, college student retention has become big business with a blossoming of consulting firms, surveys of student engagement, and accreditation benchmarks aimed at

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quantifying the effectiveness of institutions based on measures of institutional retention and graduation rates. However, despite decades of research that has led to a number of retention models and numerous educational innovations, the first-year undergraduate retention rates have remained relatively unchanged over the last decade (USDOE, 2016). Nationally, only 74% of first-time undergraduates across all institutions return for a second year of study with 80% returning to four-year institutions and 61% returning to two-year colleges.

In order to maintain institutional vitality, many post-secondary institutions place a premium on student retention by engaging an enormous amount of time and resources in the development of educational programming and services designed to meet the diverse learning needs of all college learners, including at-risk college students. However, programmatic improvements are often characterized as an “odyssey” which is meandering and evolving in nature, and based on momentary, individual institutional needs (Ryan & Glenn, 2002). In contrast, Tinto (2007) argues for a model of institutional action that provides guidelines for the development of effective policies and programs that can be reasonably employed to enhance the persistence of all students. Further, he suggests that future research should focus on the exploration of the pedagogical development of faculty and classroom practices on student learning and persistence.

School psychologists are uniquely qualified educational professionals with expertise in the scientific keystones and applications of learning and behavior that are paramount to facilitating the growth and development of *all* learners. More specifically, school psychologists are trained in educational practices, such as data-based decision making, instructional consultation, academic interventions, diversity in learning and development, program evaluation, as well as legal practices

for providing services to those with disabilities (NASP, 2010). However, data from the field indicates that the vast majority of school psychologists work in public, private, or faith-based K-12 settings (92%), with only seven percent employed in postsecondary settings (Curtis, Castillo, & Gelley, 2012). Furthermore, the percentage of postsecondary school psychologists that provide direct psychological services to college-age learners and/or work to enhance the college/university educational system is undoubtedly quite small, given the vast majority of school psychologists employed in higher education settings are in faculty positions.

Notably, the call for the role of a school psychologist in postsecondary education was first elucidated three decades ago when Sandoval and Love (1977) coined the term *college psychologist* to refer to an individual working in a higher education setting with the aim of facilitating change in the pedagogical skills of individual faculty coupled with the facilitation of educational programming designed to prevent educational failure and better meet the learning needs of diverse students. At the same time, Bardon (1979) asserted that the professional practice of school psychology is much broader and encompassing than is typically understood, and can be focused on system-level work for the purpose of improving the effectiveness of higher education institutions rather than clinical treatment of individual college students. Since that time, others have continued to argue that school psychologists are distinctively positioned to serve postsecondary institutions in ways analogous to how they serve in K-12 settings (Sandoval, 1988; Sulkowski & Joyce, 2012). With training in psychoeducation and diagnostic evaluation; mental health and instructional consultation; evidence-based academic and social-emotional interventions; and system-level services, school psychologists can be particularly valuable to institutions of higher education that are facing a num-

ber of challenges in meeting retention and graduation goals.

Similar to Tinto's model (2007) of institutional action designed to enhance the persistence of college students, Sulkowski and Joyce (2012) assert that a multi-tiered framework of educational interventions in higher education institutions has the potential to positively impact the learning and persistence of college students. More specifically, they were the first to argue that university-based school psychologists can play a critical role in the development and implementation of a multi-tiered systems of support (MTSS) that is similar to the response-to-intervention model of educational service delivery in K-12 schools (Stoiber, 2014). However, to date, there has been little research evaluating the effectiveness of individual college-level remediation programs or published studies examining ways to implement MTSS models in postsecondary institutions.

A Small University's Model of MTSS

The institution is best described as a small, private, 4-year university with an undergraduate enrollment of approximately 1,800 students who are primarily traditional-age college students and are enrolled full-time (i.e., 97% under age 24). A little more than half of the student body is White (58%), with 11% Black or African American, 8% Hispanic, 2% Asian, and 20% identified in other categories (i.e., 2015 data). Additionally, a large number of students are from impoverished backgrounds as evidenced by 38% of students receiving Pell Grants which are typically awarded to undergraduate students with a family income of less than \$20,000 per year. Positively, there is a small student-to-faculty ratio of 11:1 with 67% of classes having enrollment of less than 20 students. Like many universities, student attrition has been an ongoing concern with the four- and six-year gradua-

tion rates at 45% and 62%, respectively. Consequently, there are a large number of students that present with a variety of complex factors that place them at risk of experiencing learning problems and potential academic failure. However, there are also a number of institutional characteristics, such as the small size and student-centered culture coupled with the availability of a school psychology doctoral training program, that provides unique opportunities for the application of an MTSS framework and the role of a *postsecondary school psychologist* who can facilitate educational programming to prevent failure and meet the needs of diverse learners.

At this university, personnel in key leadership positions are trained school psychologists who hold state-certification. Notably, the Director and Assistant Director of the Center for Academic Success (CAS) are certified school psychologists. The CAS office is responsible for coordinating academic support services for all at-risk college students and providing protected accommodations to students with disabilities. These key personnel actively participate on all college-level scholastic standard committees, and are intimately engaged in broad-based prevention planning and delivery of academic support services to at-risk college students and students with disabilities. Named by College Choice as one of the 50 Best Disability Friendly Colleges and Universities, all incoming freshmen are provided a registration form to the Center for Academic Success in the admissions process and are encouraged by faculty to seek support from CAS when academically struggling. In addition, the CAS office is staffed by seven specialist- or doctoral-level school psychology graduate students who are employed part-time in the role of Academic Consultant. Academic Consultants provide ongoing, individualized support and instruction related to knowledge of personal academic strengths and limitations, non-cognitive skills, self-advocacy skills, use of assis-

tive technology, and campus-based resources. As a result of having school psychologists, and school psychology trainees, involved in the coordination and implementation of academic support services for at-risk students and students with disabilities, a model of MTSS has evolved to meet the needs of diverse learners. The current MTSS model provides increasingly intense and individualized educational interventions to support struggling college students.

Tier I: Universal Academic Support and Monitoring

In a MTSS model in a K-12 setting, the essential components of Tier I include evidence-based instruction coupled with universal screening procedures to systematically monitor the academic and behavioral progress of students (Stoiber, 2014). In contrast, at the college-level, instructional content is determined by faculty and universal screening measures of academic development are generally absent. However, there are comparable ways to support the learning of all students and monitor student engagement. At this institution, *Supplemental Instruction* is used to provide additional academic support to all students in key courses and an *Early Warning System* is implemented to monitor student engagement and identify problems before they become too large.

Supplemental Instruction. Supplemental Instruction (SI) is a cooperative learning model designed to provide additional core instruction for students enrolled in certain high-risk or barrier courses. Rather than focusing on at-risk student populations, SI is implemented in *at-risk courses* or those with a history of a large number of students earning poor grades, failing, or withdrawing (DFW). All students enrolled in each SI-supported course are encouraged to attend weekly SI sessions Dawson, van der Meer, Skalicky & Cowley, 2014; Lotkowski, Robbins & Noeth, 2004; Ning & Downing, 2010). Previous research indicates a

strong relationship between participation in SI and higher course grades coupled with lower withdrawal/failure rates (Dawson, et al., 2014; Etter, Burmeister, & Elder, 2000). Further, across institutional types, disciplines, levels of student preparation, and ethnic groups, SI participants consistently outperform their peers who complete the same course without supplemental instruction (Dawson et al., 2014; Malm, Bryngfors, & Morner, 2011).

At this university, the SI program was developed and implemented by the directors of CAS. The program was piloted in the spring of 2014 based on final course grades from 2010-2013. Courses with 20% or more of grades D, F, and Withdrawal were identified and included in the SI program. Instruction in weekly SI sessions was delivered by SI Leaders who were selected from students who had previously been successful in the course. Prior to the start of instruction, SI Leaders received training in effective instructional methods. Additionally, SI Leaders attended the regular course lectures and participated as model students, including taking notes. The primary focus of SI sessions is to develop a broad understanding of the learning process with mastery of course content also important to the learning objectives. Thus, SI Leaders teach students how to integrate information from lectures, textbook readings, and other class material while incorporating explicit instruction about effective learning and study strategies (i.e., note-taking, graphic organization, questioning techniques, vocabulary acquisition, test prediction and preparation). Importantly, SI Leaders are trained to be facilitators of study sessions and are discouraged from re-lecturing, introducing new content, or providing homework assistance. In SI sessions, students assume responsibility for their own learning by creating study materials with the assistance of the SI Leader (Lotkowski, et al., 2004). Consequently, students who participate in SI develop and practice academic readiness skills such as, learning competence, self-efficacy, effort regulation, and out-

come expectations, in addition to receiving some support in course content (Lotkowski, et al., 2004; Ning & Downey, 2010). Following the 2014 pilot, the SI program enlarged to include all historically difficult courses and gained popularity by students who preferred the SI model to traditional tutoring. Notably, institutional data over the last three years demonstrated a dramatic increase in the percentage of students enrolled in SI-supported courses who attended at least one session, growing from 32% in 2014 to 64% in 2016. Additionally, data indicates that students who participated in SI had lower rates of withdrawal and failure than the students who did not participate in the SI program.

Early Warning System. While most postsecondary institutions do not have formal academic or behavioral screening or progress monitoring systems, many have adopted mechanisms for the early identification of students who may be exhibiting learning or behavioral problems. Early warning systems are designed to help campus personnel identify students' problems early, before they become insurmountable, so that appropriate interventions can be developed and implemented (Simmons, 2011). Most early warning systems use an online platform to facilitate communication between a network of campus-based professionals (e.g., faculty, CAS, counseling, student affairs, athletics, residence life, etc.) who can be deployed to offer support to a struggling student. Retention scholars advocate for the adoption of early warning systems because theories of student attrition have identified early intervention, provision of feedback to students about behavior and performance, and connecting students to academic supports as effective remedies (Tinto, 2012). Unfortunately, the literature provides little guidance about how to best implement early warning systems and use the data collected in an effective manner (Simmons, 2011).

The decision to adopt an early warning system was made collaboratively by leaders from across the university. Using the Beacon Early Alert System by Campus Labs, any campus-based personnel may submit an alert about an academic or behavioral concern for a student. The alert is immediately received by identified key personnel depending on the type of alert reported. Typical academic concerns that warrant an alert include frequent class absences, failure to complete assignments, lack of engagement in class discussions or activities, failure on a high-stakes test or assignment, and/or a low cumulative grade at midterm. When an academic alert is issued, the student is contacted by his/her faculty advisor via email and efforts are made by the faculty to connect the student with campus resources such as supplemental instruction or small-group tutoring. Additionally, a referral to CAS may be made by the faculty member for a student who is suspected of having a disability. In contrast, when behavioral or mental health alerts are issued, personnel from the Counseling Center contact the student to schedule a counseling session so that an appropriate course of action can be implemented. Finally, in cases of chronic absenteeism and/or non-responsiveness by the student, staff from Residence Life is employed to track down the student in the residence halls and connect the student to campus resources.

Tier II: Targeted Academic Support

In a MTSS model in a K-12 setting, Tier II refers to small-group, targeted instruction delivered to at-risk students outside of the core curriculum. Tier II academic services involve supplemental instruction that is intended to provide students with extra opportunities to learn and practice skills (Stoiber, 2014). For many years at this particular institution, individual peer tutoring was the main supplemental academic sup-

port offered to struggling learners; however, the system was unable to meet the growing demand for services. Therefore, to increase the efficiency of tutoring services provided by CAS, two programmatic changes were made which included the redesign of tutoring services with an emphasis on small-groups and the implementation of a *Student Success Course*. As a result of these changes, the number of individual tutoring requests dropped from 326 in the fall of 2013 to 156 in the fall of 2016.

Tutoring. Individual or small-group tutoring is available at most institutions of higher education (Maxwell, 1990). Although there is a lack of consensus in the literature regarding best practices (Topping, 1996), tutoring is considered a viable intervention for at-risk college students with positive impacts on GPA (Higgins, 2004; Hodges, 2001) and retention (Laskey & Hetzel, 2011; Rheinheimer & Mann, 2000). At this university, individual or small-group tutoring is available across most courses for students who need extra academic support to master course content, complete homework assignments, and/or prepare for exams. Small-group tutoring is intended to support students in courses that do not qualify for supplemental instruction, but have traditionally received a lot of individual tutoring requests. Tutoring takes place during regularly-scheduled time periods, and students are allowed to attend as needed. Unlike SI Leaders, tutors do not attend class sessions nor provide instruction in noncognitive or academic readiness skills. Rather, tutors commonly provide homework assistance while maintaining a small tutor-to-student ratio. Additionally, if SI or small-group tutoring are unavailable for a particular course, a student can request individual tutoring. Further, there is flexibility and fluidity among the academic support services to account for the variability in students' needs (Stoiber, 2014). For example, when a student's academic need is substantial, he/she may participate in SI and receive small-group or indi-

vidual tutoring when there are limitations in noncognitive skills coupled with large gaps in content knowledge.

Student Success Course. Many colleges are now implementing student success courses designed to increase the noncognitive (i.e., readiness) skills necessary for college success (Valentine, et al., 2011). Although the definition of noncognitive skills varies in the higher education literature, research generally conceptualizes these skills to include a blend of metacognitive factors and academic-related skills. When teasing out individual elements, noncognitive skills typically involve achievement motivation, goal-setting, academic self-efficacy, social support and involvement, financial support, as well as study skills, such as time-management and organization (Downing, 2014; Purdie & Hattie, 1999; Robbins, et al., 2004; Sparkman, Maulding, & Roberts, 2012; Valentine et al., 2011). According to Hoops, Yu, Burrige, and Wolters (2015), student success courses are “semester long interventions designed to increase college success...defined by learning outcomes such as grades, retention and graduation rates, or non-cognitive skills such as engagement” (p.124). Research on the effectiveness of student success courses varies due to inconsistencies in program design; however, in a comprehensive review of the literature, Valentine, et al., (2011) found at least modest, short-term positive effects of such programs on GPA and re-enrollment of at-risk students. Further, Bail, Zhang, and Tachiyama (2008) found that participation in student success courses has positive effects on graduation rates and cumulative GPA of academically underprepared students up to four semesters after participation.

At this institution, retention rates have been historically lower than average, especially in the first and second years of enrollment, and anecdotal data presented at academic review meetings each semester highlighted the need for an intervention targeting the

non-cognitive skills of academically underachieving students. Specifically, student progress at this university is evaluated each semester and those with a grade point average (GPA) under 2.0 are flagged as at-risk. Typically, these at-risk students are placed on academic probation until their GPA reaches 2.0 or higher. However, historically there has been limited academic supports available to these at-risk students other than small-group tutoring, and more recently SI. Therefore, the CAS postsecondary school psychologists designed and implemented a student success course intended to support second-year students on academic probation in developing the non-cognitive skills necessary for academic success. During the fall 2016 pilot, 40 second-year students on academic probation were selected to participate. Intervention effectiveness was measured using student outcome data (i.e., semester and cumulative GPA). At the end of the pilot semester, the semester and cumulative GPA's of participating students increased an average of 0.92 and 0.28, respectively. Additionally, 75% of course participants earned semester GPAs of 2.0 or higher while 48% of course participants increased their cumulative GPAs over 2.0, which resulted in reinstatement of good academic standing. Based on the initial success of this intervention, the postsecondary school psychologists plan to use the program more preventively by identifying at-risk freshman to take the course. Although initial steps have been taken to expand this targeted instruction, additional system-wide consultation and collaboration, as well as data analysis is needed to correctly identify the incoming students who may benefit from this intervention.

Referrals for Psychoeducational Evaluation.

Similar to processes within a traditional MTSS model, college students suspected of having a disability are often referred for a psychoeducational evaluation. However, this referral and identification process is far

less regulated and formalized in the postsecondary setting than in the K-12 setting.

At this institution, students suspected of having a disability are referred to CAS for consultation and evaluation. Faculty can refer individual students or students can self-refer when a learning problem is acknowledged. Upon receipt of referral, the student meets with one of the directors of CAS who is a certified school psychologist. During this meeting, the postsecondary school psychologist completes a semi-structured interview that explores the student's educational history, academic skill development, and study skills usage. This process sheds light on whether or not the student may have an underlying disability or be experiencing poor classroom performance due to limited study skills. If a disability is suspected, the student is referred for a comprehensive evaluation to the university-based mental health training clinic or to a community-based state-licensed psychologist. Notably, the university-based mental health training clinic is staffed by advanced school psychology graduate students who work under the direct supervision of state-licensed psychologists. In instances where it is clear that the student's performance is not related to a disability, such as when not attending classes, the student is informed of available academic resources including, supplemental instruction and tutoring. Positively, with the background and training of postsecondary school psychologists, CAS staff are able to more effectively recognize the roots of academic difficulty in order to make referrals and/or match students with appropriate levels of services. For example, of the ten students referred for evaluation by CAS during the 2015-2016 academic year, nine students were diagnosed with a learning or psychological disability that justified the need for more intensive supports, such as individual academic consultation, as well as testing accommodations.

Tier III: Services for Students with Disabilities

Tier III services in MTSS models in K-12 settings are differentiated from those at Tier I or II in that they are more intensive and often individualized to meet the needs of students with disabilities. Interventions are often delivered in small-group or one-on-one settings, and may be provided for an extended period of time (Stoiber, 2014). In the postsecondary setting, students with disabilities are not typically referred for services; rather, they must choose to self-identify as having a disability and formally request services through the appropriate university office. At this university, every student who self-identifies as having a disability and requests services through CAS is provided with an individual *Academic Consultant* who is available to provide direct and indirect services.

Student-Centered Academic Consultation. Under the supervision of the Director of CAS, graduate students enrolled in School Psychology program provide individual student-centered academic consultation to students with disabilities. Academic consultants meet individually on a weekly basis with students to arrange reasonable and appropriate accommodations, identify existing campus resources, encourage self-advocacy development, and teach college readiness skills (i.e., time management, study and learning skills, test-taking strategies, etc.) At times, academic consultants use their training in assessment and intervention to review and interpret psychoeducational evaluations and other documentation pertaining to the student's disability in order to enhance the student's understanding of his/her strengths and needs. Academic consultants also provide training for some of the most-commonly used assistive technology software and devices such as, text-to-speech software, word prediction software, and note taking devices (Sharpe, Johnson, Izzo, & Murray, 2005). Research suggests that postsecondary programs that train stu-

dents to use assistive technology, and support the development of self-determination and self-management skills are more likely to help students with disabilities persist in and graduate from college (Getzel, 2008; Webb, Patterson, Syverud, & Seabrooks-Blackmore, 2008).

Faculty Consultation. Academic consultants are also trained to consult with faculty to better meet the learning needs of students with disabilities. When necessary, academic consultants meet individually with faculty to discuss individual student progress, rationale for requested accommodations, and how to best structure learning activities based on student need. This process is especially important to faculty who often lack knowledge about disabilities or do not understand the legal requirements to provide testing accommodations. A survey of the existing literature reveals faculty often lack adequate understanding of their responsibilities related to students with disabilities under federal law (Sheppard-Jones, Krampe, Danner & Berdine, 2002; Dona & Edmister, 2001). Moreover, attitudes towards students with disabilities are highly correlated with disability-related knowledge (Morris, Leuenberger & Aksamit, 1987; Murray, Lombardi, Wren & Keys, 2009; Lombardi, Murray & Gerdes, 2011). In some studies, higher levels of faculty knowledge about disabilities were associated with a stronger belief in the need for accommodation and a greater likelihood of the accommodations being provided (Bourke, Strehorn & Silver, 2000). In-service training, open discussion, and support from campus disability service offices have been found to be effective in increasing faculty knowledge of disabilities (Morris, et al., 1987; Bourke, et al., 2000). Unfortunately, a national survey of disability services offices revealed that getting faculty to participate in training activities is a problem at the majority (73%) of institutions (Salzberg et al., 2002). Thus, client-centered consultation between the academic consultants and the faculty pro-

vides an alternative to the traditional in-service training and workshop formats which may encourage faculty to be engaged and open in learning about how to meet the needs of students in their classrooms.

Summary

This article described the role of postsecondary school psychologists in implementing a multi-tiered system of supports model at one university. At an institution under pressure to increase retention and graduation rates with a high number of at-risk students, postsecondary school psychologists have been instrumental in developing and implementing educational programming for at-risk students and students with disabilities while supporting the pedagogical knowledge of faculty.

Although these programmatic efforts are a major step forward in a postsecondary MTSS model of educational service delivery at this institution, there is still much work to be done. Specifically, data-based educational decisions are limited in this postsecondary MTSS model. Decisions about what qualifies a student for a specific intervention, duration of an intervention, and criteria for movement between tiers or interventions have not been formalized. Further, while outcome data is often readily available (i.e., course grades and GPA), access to formative data that would be appropriate for progress monitoring activities can be quite difficult to obtain. Similarly, it is challenging to identify discipline-specific progress monitoring benchmarks such as those available for reading or math skill development. Moreover, program evaluation of specific educational programs is difficult to complete due to lack of data that is systematically and purposefully collected.

Thus, implementing a MTSS model in any postsecondary setting will necessarily be different, with its own set of challenges, compared to implementing a MTSS model in public schools. For example, the com-

pulsory nature of public education requires that schools maintain responsibility for student success and take appropriate measures to ensure equal access to educational opportunity; however, attending college is still viewed as a privilege in the US, and it is largely considered the responsibility of the student to maintain a certain level of academic performance to remain enrolled and receive financial aid. Similarly, adult-age college students have greater autonomy than school-age children and, thus, can refuse any recommended intervention. Moreover, academe espouses a culture of “academic freedom” in which faculty have substantial autonomy with regard to the selection of course content and instructional methods which may limit the capacity of to monitor individual and classwide progress.

Nonetheless, the need for postsecondary school psychologists has never been more evident. Institutions of higher education are under increasing pressure to raise retention and graduation rates in order to maintain accreditation, attract new students, and maintain vitality. Simultaneously, the number of students who are pursuing postsecondary education is on the rise, and many of these students are academically underprepared and present with a variety of complex risk factors. Thus, postsecondary school psychologists are uniquely qualified to develop educational programming to meet the needs of diverse college-age learners, support the pedagogical skills of faculty, and develop methods of systematically making educational decision about student progress. Postsecondary school psychologists are distinctively positioned to serve higher education institutions in ways analogous to how they serve in K-12 settings (Sandoval, 1988; Sulkowski & Joyce, 2012)

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Considering a Multitiered Approach for College Students with Autism: Screening for Mental Health Concerns

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Given the increase in reported Autism Spectrum Disorders (ASD), it makes sense that a growing number of students attending college are reporting an ASD diagnosis. Previous research, suggests that individuals with ASD are more likely to present with a host of comorbid mental health concerns, which continue into adulthood. There is little to no current literature exploring the assessment of mental health concerns directly with college-aged students with ASD, this includes effective screening procedures. The goal of the current study was to demonstrate how school psychologists can screen for mental health concerns in this population in the post-secondary education setting. Twenty college-aged students with ASD were screened for mental health concerns in the Fall, Winter, and Spring of the academic year. Results provide preliminary evidence further substantiating previous literature noting the existence of comorbid mental health concerns in individuals with ASD. Implications for implementing a multi-tiered system of support using these data are discussed.

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Keywords: post-secondary, autism, multitiered systems of support, school psychological services, mental health screening

Introduction

An increasing number of students with Autism Spectrum Disorder (ASD) are attending college (Ackles, Fields, & Skinner, 2013). While the mental health concerns of college students are rising in both prevalence and severity (Hunt & Eisenberg, 2010), the effects may likely be more significant with a pre-existing diagnosis of ASD (Hillier, Fish, Siegel, & Beversdorf, 2011). This should be no surprise given that individuals with ASD often experience a number of comorbid mental health concerns, such as anxiety, depression, schizophrenia, psychosis, obsessive compulsive disorder, tic disorders, bipolar disorder, language impairment, catatonia, eating disorders, hoarding, borderline personality disorder, and oppositional defiant disorder (Matson & Goldin, 2013). Additionally, students with ASD present with life skill deficits (e.g., organization, social skills, etc.) that may make successfully completing college more difficult (Hendrickson, Carson, Woods-Groves, Mendenhall, & Scheidecker, 2013). One way to help mitigate these potential concerns is to screen college students with ASD for mental health concerns and use these data to provide students with supplemental services (e.g., counseling) within the context of the university setting. School psychologists, particularly with their training in Multi-tiered Systems of Support (MTSS), are well equipped to provide this service in post-secondary settings. This article briefly discusses comorbidity concerns in college students with ASD, provides a model for mental health screening for college students with ASD, and reviews potential avenues for service delivery in a university setting.

Autism, Comorbidity, and Life Skills

Over the last decade, some researchers have concentrated efforts on examining comorbid psychopathol-

ogy in individuals with ASD. Recently, Joshi et al. (2010) reported that 95% of individuals with ASD present with at least one additional comorbid disorder, while 74% had five or more. In a similar vein of research, Mazefsky, Anderson, Conner, and Minshew (2011) reported 77% of their sample of children with ASD had an additional psychiatric diagnosis, and 60% had two additional diagnoses. The presentation of comorbid disorders appears to be thematic across the lifespan of individuals with ASD, possibly being most problematic during late adolescence and adulthood.

Davis and colleagues (2011) reported that while individuals with ASD experience anxiety symptoms throughout their lifespan, symptoms increase during the transition from young adulthood into older adulthood. In a more comprehensive evaluation, Joshi et al. (2013) found that adults with ASD were more likely to experience anxiety, major depressive disorder, and present in general with more functional impairment when compared to adults who did not present with ASD. Additionally, the more severe the presentation of ASD symptoms the greater the likelihood multiple comorbid disorders may be present (Gadke, McKinney, & Oliveros, 2016). Taken together, the research provides ample evidence to suggest students with ASD entering college may need additional supports, particularly related to their mental health.

In addition to comorbid disorders, students with ASD are more likely to struggle with attention span and memory, time and money management, organization, self-regulation of emotions, interpreting and responding to social cues and verbal instructions, and social and interpersonal boundaries (Hendrickson et al., 2013). Furthermore, students with ASD are more likely to have roommate disagreements, socially isolate themselves, and dropout (Ackles, Fields, & Skinner, 2013). These difficulties with daily life skills likely exacerbate college difficulties.

Current Study

With the noted increase in college students with ASD, universities will need to consider how to best help this growing student population. One way to begin providing services to students with ASD is to implement a tiered support service model rooted in regular screening. In primary and secondary education, school psychologists are often leaders in the effective implementation of Multi-tiered Systems of Support (MTSS), which includes effective screening for mental health concerns (e.g., Gresham, 2014; Walker, 2010; Walker, Cheney, Stage, & Blum, 2005). Given school psychology's intimate understanding and implementation knowledge of effective screening practices at a systems level, it should be no surprise school psychologists are well-poised to use these skills in a post-secondary education setting. The MTSS model starts with universal screening procedures. The goal of the current study was to demonstrate a model of mental health screening specifically for college students with ASD.

Methods

Participants. Participants included 20 college students (17 males, 3 females), ranging in age from 18 to 27 years old ($M = 20.5$ years old). Nineteen of the participants identified as Caucasian and one as African American. All participants were receiving Disability Support Services (DSS) at a large university in the southeastern United States and had a documented diagnosis of Autism Spectrum Disorder. Of note, not all participants completed screeners at all three points across the school year.

Measures. Adult Self Report (ASR; Rescorla & Achenbach, 2004). The ASR is a 123-item self-report measure designed for individuals ages 18-59 years old and includes normed scales targeting several areas of functioning including adaptive, personal strengths, empirically based syndromes, substance use, DSM-

oriented scales, and internalizing, externalizing, and total problems. Individuals completing the ASR respond by selecting 0 (*not true*), 1 (*somewhat or sometimes true*), and 2 (*very true or often true*). Scores are described as being normal, borderline, or critical. The internalizing problems scale consists of withdrawn, somatic complaints, and anxious/depressed syndrome scales. The externalizing problems scale includes the rule-breaking behavior, aggressive behavior, and intrusive syndrome scales. Total problem scores are then calculated from the sum of individual item scores.

Social Responsiveness Scale 2nd Edition (SRS-2; Constantino, 2012). The SRS-2 is a rating scale that measures several areas of social behavior deficits associated with individuals who have a diagnosis of ASD. This rating scale consists of 65 items that ask questions pertaining to the following subscales: Social Awareness, Social Cognition, Social Communication, Social Motivation, and Restricted Interests and Repetitive Behaviors. Scales include the Restricted and Repetitive Behaviors (RRB), Social Communication Index (SCI), and the Total Score. The SCI consists of the Social Awareness, Social Cognition, Social Communication, and Social Motivation subscales. Individuals completing the SRS-2 respond by selecting 1 (*not true*), 2 (*sometimes true*), 3 (*often true*), and 4 (*almost always true*). Scores are reported as t-scores for each subscale and scale. Scores are described as being within normal limits, mild deficits, moderate deficits, and severe/clinically significant deficits.

Procedures. When students register for Disability Support Services (DSS), documentation of their disability must be provided to the DSS office. Potential participants for this study were identified by their documented diagnosis of Autism Spectrum Disorder with DSS, which was provided when seeking services. All potential participants were contacted about the opportunity to be included in the screening procedures, which may help identify additional service needs. Participants who agreed to screening, scheduled individual

appointments across the screening periods to complete the measures outlined. Participants were screened three times during the 2015-2016 academic year (i.e., fall, winter, and spring). During the individual screening period, participants completed the Adult Self Report (ASR) and the Social Responsiveness Scale - Second Edition (SRS-2). Prior to completing the measures, participants were provided with standardized instructions per the measures administration protocol/manual. Graduate level school psychology students under the supervision of a doctoral-level school psychology faculty member provided the measures. Immediately following the completion of the measures, the high-risk items (e.g., questions associated with suicidal ideation, self-harm, substance abuse) were reviewed. If any of these items were endorsed, follow-up was completed and, if need be, students were triaged to counseling services. If there were no immediate concerns, participants were dismissed and the measures were scored within the week. Based on the results, potential needs and options for service (discussed below) were reviewed and pursued with the participants.

Results

The Adult Self Report (ASR) scores were analyzed across screening periods (i.e., fall, winter, spring), and broken down across symptom scales (i.e., Anxiety/Depression, Withdrawn, Somatic, Thought Problems, Attention Problems, Aggressive Behavior, Rule Breaking, Intrusive, Internalizing, and Externalizing). According to Rescorla and Achenbach (2004), t-scores of less than or equal to 64 are considered in the normal range, between 65 and 69 are in the at-risk range, and equal to or greater than 70 are clinically significant. The average percentage of scores considered at-risk or higher were calculated for each screening period. During Fall 2015 ($n=17$), an average of 17.65%

($SD=13.30\%$; $Range=0\% - 41.00\%$) of scores were at-risk or clinically significant across all participants. In the Winter ($n=15$) and Spring ($n=13$) of 2016 an average of 18.67% ($SD=14.60\%$; $Range=0\% - 33\%$) and 16.77% ($SD=14.53\%$; $Range=0\% - 30.77\%$) scores were at-risk or clinically significant, respectively. Table 1 contains the number of scores mapping onto either normal, at-risk, or clinically significant, as well as mean scores and standard deviations, for each subscale.

As with the ASR, the SRS-2 scores were reviewed across screening periods by individual scales (i.e., awareness, cognition, communication, motivation, restrictive and repetitive behaviors, social communication, and total symptoms). Per Constantino (2012) t-scores equal to or below 59 are considered normal, while those 60 to 65 are mild, 66-75 are moderate, and 76 or above are severe. During Fall 2015 ($n=16$), an average of 54.69% ($SD=21.14\%$; $Range=56.25\% - 58.75\%$) of scores were above the normal range across all participants. In the Winter of 2016 ($n=15$) an average of 45.83% ($SD=18.09\%$; $Range=46.67\% - 60.00\%$) of scores were above normal. Finally, in Spring 2016 ($n=13$) an average of 53.85% ($SD=21.41\%$; $Range=53.85\% - 69.23\%$) of participants scores were beyond the normal range. Table 2 contains the number of scores indicative of normal, mild, moderate, or severe along with mean scores and standard deviations for each subscale.

Discussion

The primary goal of the current study was to demonstrate the need to screen for mental health concerns in college students with Autism Spectrum Disorder (ASD). The results clearly indicate the need to do so, with students being identified as at-risk or clinically significant across ASR subscales and having moderate to severe concerns on subscales of the SRS-

TABLE 1: RESPONDENT ASR SYMPTOM SCORE BREAKDOWN

ASR Syndrome Scales		Screening Period		
		Fall 2015 (n=17)	Winter 2016 (n=15)	Spring 2016 (n=13)
Anxiety Depression	Normal	13	10	9
	At-risk	3	3	3
	Clinical	1	2	1
	Mean	59.77	62.93	61.15
	SD	7.76	7.31	6.96
Withdrawn	Normal	11	10	9
	At-risk	4	4	2
	Clinical	2	1	2
	Mean	60.71	60.01	60.08
	SD	7.07	7.12	9.38
Somatic	Normal	14	11	10
	At-risk	1	2	2
	Clinical	2	2	1
	Mean	56.65	57.80	58.08
	SD	7.10	7.42	7.50
Thought Problems	Normal	10	10	10
	At-risk	2	1	1
	Clinical	5	4	2
	Mean	63.29	61.13	57.00
	SD	9.53	8.05	9.27
Attention Problems	Normal	15	13	11
	At-risk	1	1	1
	Clinical	1	1	1
	Mean	58.06	58.67	60.31
	SD	5.67	6.49	8.37

ASR Syndrome Scales		Screening Period		
		Fall 2015 (n=17)	Winter 2016 (n=15)	Spring 2016 (n=13)
Aggressive Behavior	Normal	17	15	13
	At-risk	0	0	0
	Clinical	0	0	0
	Mean	55.06	54.40	53.15
	SD	5.12	4.24	3.58
Rule Breaking	Normal	15	15	13
	At-risk	1	0	0
	Clinical	1	0	0
	Mean	54.12	53.40	53.00
	SD	6.41	3.37	4.32
Intrusive	Normal	17	13	13
	At-risk	0	2	0
	Clinical	0	0	0
	Mean	54.41	56.00	54.39
	SD	4.77	6.42	4.52
Internalizing Problems	Normal	13	10	9
	At-risk	3	3	2
	Clinical	1	2	2
	Mean	59.41	61.13	60.31
	SD	8.24	8.98	10.26
Externalizing Problems	Normal	15	15	13
	At-risk	2	0	0
	Clinical	0	0	0
	Mean	51.77	52.67	50.92
	SD	8.78	5.70	6.17

Note. Normal: < 64; At-risk: 65-69; Clinical: 70 <; Mean and standard deviation are based on scores for each given sub-scale.

2. Given the previous literature (e.g., Davis et al., 2011; Gadke et al., 2016; Hillier et al., 2011; Joshi et al., 2010; Joshi et al., 2013; Mazefsky et al., 2011), particularly surrounding the co-occurrence of internalizing disorders, these findings should be of no surprise. Of particular note regarding the current study, it is one of the few, if not only, to collect ASR data with college students who have a documented diagnosis of ASD. Previous studies focused on children (e.g., Mazefsky et al., 2011) or included students based on symptoms of ASD, not diagnosis (e.g. Gadke et al., 2016). The cur-

rent data extend the literature by providing further evidence of comorbidity of mental health concerns in college students with ASD.

Implications. Overall, the completion of the screeners allows for the identification of concerns and areas of need that may have otherwise been overlooked, as it is quite possible that students with ASD are less likely than their peers to seek out help given the presentation of social communication deficits. While screening is an essential foundation to MTSS in any setting, it is only the first step. Beyond screening,

TABLE 2: SRS-2 SCORES ACROSS ACADEMIC YEAR

SRS-2 Scales		Screening Period		
		Fall 2015 (n=16)	Winter 2016 (n=15)	Spring 2016 (n=13)
Awareness	Normal	6	6	6
	Mild	5	5	4
	Moderate	4	4	3
	Severe	1	0	0
	Mean	60.06	58.00	57.92
	SD	9.24	9.92	8.45
Cognition	Normal	7	8	6
	Mild	1	2	2
	Moderate	6	5	3
	Severe	2	0	2
	Mean	62.88	60.40	62.08
	SD	10.99	10.51	11.54
Communication	Normal	6	8	4
	Mild	4	1	4
	Moderate	6	4	4
	Severe	0	2	1
	Mean	62.94	61.33	63.23
	SD	8.25	11.26	10.04
Motivation	Normal	7	7	6
	Mild	5	5	1
	Moderate	2	2	5
	Severe	2	1	1
	Mean	61.56	59.93	62.15
	SD	8.71	8.71	11.07
Repetitive Behavior	Normal	6	6	4
	Mild	1	1	2
	Moderate	5	6	2
	Severe	4	2	5
	Mean	67.69	65.00	66.78
	SD	12.84	10.06	13.39
Social Communication Index	Normal	5	8	4
	Mild	3	1	3
	Moderate	6	4	4
	Severe	2	2	2
	Mean	64.19	61.00	63.85
	SD	9.47	10.46	10.36
Total	Normal	5	7	5
	Mild	3	2	2
	Moderate	6	4	4
	Severe	2	2	2
	Mean	64.19	62.00	64.15
	SD	10.00	10.48	11.12

Note. Normal: <59; Mild: 60-65; Moderate: 66-75; Severe: 76 <; Mean and standard deviation are based on scores for each given sub-scale.

tiers of support/intervention need to be conceptualized, using the screening data as a guide. Do students need additional assessment (what are they anxious about)? What support is needed based on the area of concern? Where might the need exist for support (e.g., social situation vs. classroom)? These questions and others need to be asked and answered when considering what to do next. While the procedures do not map directly onto an MTSS model as may be found in a primary and secondary educational setting, they operate from the same set of principals for a targeted population (i.e., ASD). That being said, with appropriate resources, it would be feasible for universities to provide universal screening. School psychologists, either as members of a university's faculty or as a separate staff member, could easily lead a university in these screening procedures. Additionally, school psychologists are adequately trained to be directly involved in service provision offered at universities for students with ASD (and others). Fortunately, universities often have a host of services in place that students with ASD can be directed to for assistance. Some examples include:

Mental Health Support. Given the results of the current study and previous literature indicating students with ASD are experiencing comorbid psychiatric concerns, campus counseling services are an obvious line of defense. Weekly meetings with counselors or psychologists would provide targeted treatment. School psychologists are well-equipped to be hired as direct service providers with universities' disability support services and mental health clinics, either affiliated with school psychology programs or as independent staff. Additionally, if a school psychology program has a training clinic, this may provide an opportunity for school psychology trainees to practice direct service delivery.

Social Support. Given the cornerstone of ASD is social deficits, these students may need assistance identifying social supports on campus. The most direct route is to help place these students into clubs or interest groups (e.g., film club, chess club, live action role playing group, etc.) that map onto their interests and hobbies. Additionally, school psychology programs with training clinics may consider providing social skills groups or individualized social skills training.

Mentoring. The development of a student mentorship program would likely be an avenue to provide targeted services to students with ASD. This could be organized in a variety of ways, including campus partnerships with Student Support Services, undergraduate mentorship programs, or through the school psychology-training clinic. Mentors could act as a weekly, bi-weekly, or monthly “check-in” providing opportunities to problem solve difficulties students with ASD may be having across settings or activities on campus. This would ensure students with ASD are being supported in all aspects of functioning.

Classroom Support. Participants in the current study were enrolled at Disability Support Services; however, they may or may not receive accommodations from Student Support Services. These services could include extended time on tests, access to lecture notes, or a note-taker. For example, services of this nature could be beneficial for students who experience anxiety surrounding tests or taking adequate notes during class. If currently receiving services through Student Support Services, accommodations should be evaluated and examined for their appropriateness. If it is determined that additional services are needed, they should be provided. Another additional academic support could be provided in the form of tutoring. It may be necessary for the student’s mentor to facilitate acquiring and scheduling a tutor.

Advocacy and Raising Awareness. Lastly, in order to ensure that these students are supported on col-

lege campuses, it is critical that faculty and staff are educated on what ASD is and how it may present in students on campus, specifically in their classrooms. Mentors and staff at Disability Support Services should provide trainings on ASD, characteristics of ASD, potential challenges these students may encounter, and possible solutions to these problems. Educating those who may interact with these students increases the likelihood that students with ASD will be understood and supported by professors and others on campus.

Limitation and Future Directions. A primary limitation of the current study is the limited number of participants. While the pattern of results maps onto what we would expect given previous literature, it is difficult and beyond the scope of the data to run comparisons across time, measures, etc. That being said, this limitation does little to take away from the primary point of the manuscript: mental health screening for college students with ASD is essential and feasible, can lead to the provision of tiered services, and that school psychologists are well-poised to make this possible. Hopefully, future studies can focus on comparisons and track outcomes across time with this population. Also, pre and post measures of mental health concerns following service delivery would provide insight into the efficacy of a given service.

Conclusion

It is not surprising that there is an increasing number of college-aged students with Autism. Similarly, it should not be surprising that these students may likely present with additional mental health concerns beyond what would be expected of a neurotypical college-aged peer. The current study provides at least preliminary evidence that the use of screening procedures can help identify students with ASD who may need additional services to successfully complete

college. Screening data can then be used to place these students into a variety of targeted services that may be present on their campus or a school psychology program may benefit from providing these services, particularly to enhance training. Services may include social skill intervention, mentorship, additional assessment, mental health counseling, and more, leading to a robust set of multi-tiered supports. Overall, given MTSS has its roots in school psychology, school psychologists are well poised to appropriately conceptualize and guide these services at a systems level, while also potentially enhancing training opportunities for school psychology students along the way.

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Supporting College Students with Autism

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More students with Autism Spectrum Disorder (ASD) are attending college than in years past; however, there is a dearth of literature available to school psychologists regarding how to best support this traditionally underserved population. This article provides recommendations relevant to practitioners in both postsecondary and high school settings, including developing appropriate transition plans, increasing self-advocacy skills, understanding varying disability laws, and forming professional and community partnerships. Additionally, a detailed description of a successful college-based support program is supplied as an example of the kinds of services school psychologists may help develop at postsecondary educational institutions. Preliminary outcome data, including first-year grade point average, retention, and graduation rates suggest targeted intervention can help close the achievement gap between students with ASD and their neurotypical peers. School psychologists in postsecondary institutions are optimally positioned to have a positive impact on college students with ASD, campus communities, and future psychology professionals.

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The prevalence of Autism Spectrum Disorder (ASD) has risen dramatically over the past several decades. Between 2002 and 2012, the number of children diagnosed with ASD increased from 1 in 150 to 1 in 68 (Center for Disease Control and Prevention, 2014). Despite the social difficulties experienced by this population, approximately 44% of children with ASD demonstrate average or above average intelligence (Christensen et al., 2016). Increased prevalence of ASD coupled with intellectual strengths among this population suggests more of these students will consider college as a post-secondary goal. Indeed, the number of young adults with ASD who attend college is expected to continue to increase (Adreon & Durocher, 2007).

Many college students with ASD are not receiving the supports they need to maximize their success. An overwhelming majority (85.4%) of college students with ASD are enrolled full-time; however, only 38.5% receive services and accommodations (Newman, Wagner, Cameto, & Knokey, 2009). Although it is certainly possible some of these students may not need support, it is likely appropriate support is difficult to access. Of the students who did not receive accommodations, 59.8% of them believed service delivery would have been beneficial, and only one-quarter of those who received on-campus services believed they were definitely getting the appropriate amount of support (Newman et al., 2009).

School psychologists at the secondary and post-secondary level should be aware of the challenges faced by college students with ASD and familiar with interventions that may help ameliorate these difficulties. Unfortunately, the literature on this population is scant. Gelbar, Smith, and Reichow (2014) conducted a broad and systematic literature review about the experiences and services for college students with ASD, and found only 20 appropriate articles, the majority of which had sample sizes of less than 5, with the maximum sample size of 12. Despite the recognized need

for professionals working with students with ASD to engage in evidence-based practice (e.g., Stichter, Riley-Tillman, & Jimerson, 2016), the paucity of research addressing the needs of college students with ASD poses a challenge for college-based practitioners. This paper will assist school psychologists in effective service delivery to college students with ASD by first providing recommendations to enhance successful transition to college, and then describing a successful support program at a traditional four-year university and sharing some preliminary outcomes. For the purposes of this paper, the terms “college” and “university” are used interchangeably to describe any traditional post-secondary institution for undergraduate students earning bachelor’s degrees.

Transitioning to College

For a student with ASD, successful transition to college can be enhanced by informed service delivery by both high school and post-secondary level school psychologists. The following sections provide recommendations for service providers in both settings.

IEP considerations. School districts are mandated by the Individuals with Disabilities Education Improvement Act of 2004 (IDEA) to develop a transition plan by the time students turn 16. Child Study Teams (CSTs) should encourage students with ASD to attend their own Individualized Education Program (IEP) meetings to solidify post-secondary goals (Dente & Coles, 2012). Any potential barriers to post-secondary success should be identified and remediation should be implemented before graduation. CSTs should also consider reducing or eliminating unnecessary supports. As discussed below, college accommodations are often less comprehensive than those in high school, and students may transition easier to college if high school accommodations more closely resemble those they will eventually receive in a univer-

sity setting. In addition, high school students may wish to obtain an updated psychoeducational evaluation during their senior year that stipulates their documented disability and any recommended services. Frequently, students' IEPs or 504 Plans are not sufficient documents to obtain accommodations at college, although they should also be included (Dente & Coles, 2012).

Self-advocacy and motivation. Self-advocacy skills should be taught in high school. College students with disabilities are responsible for relaying their accommodation requests to the college disabilities office and will be independently responsible for requesting any changes to their accommodations and obtaining granted accommodations from professors (Williams & Palmer, 2004). School psychologists should use IEP meetings to improve high school students' understanding of their own disabilities/diagnoses and educational accommodations.

Throughout the transition planning process, it is also important for school psychologists to ensure that students are independently motivated to apply for college, are not being unduly influenced by family members, and do not assume that a four-year college is their only option for post-secondary success. Vocational or trade schools are alternatives to 4-year universities, which provide training in a more focused area of interest and may not require as many general education course requirements as a traditional college (Ardeon & Durocher, 2007). School psychologists may need to help families consider these options as alternative paths that can also lead to achieving goals such as productivity, financial success, and career satisfaction.

Legal considerations. Upon entrance into post-secondary education, students are no longer protected under IDEA. After college admittance, the Americans with Disabilities Act of 1990 (ADA) becomes the primary source of civil rights protection for students with disabilities. There are clear distinctions between these two laws. IDEA holds individual school districts ac-

countable for the success of their students and mandates that students with disabilities are provided a free and appropriate education. Throughout elementary, middle, and high school, students suspected of having a disability are evaluated and subsequently provided appropriate academic accommodations to access the curriculum at no cost to the family. Under ADA, universities are required to provide students with disabilities equal *access* to education and educational materials, but are not legally responsible for the *success* of their students. College disability offices provide students with accommodations that fit their needs; however, they do not monitor students' progress nor do they adjust accommodations as needed. If modifications to accommodations are needed, students must independently advocate for these changes. Importantly, students with disabilities are held to the same academic standards as all other students at the institution. Colleges are not required to make significant changes to their program curricula; therefore, students frequently must pass all of the required coursework with few or no substitutions or exemptions. Colleges are also not mandated to provide accommodations that cause undue financial or administrative burden.

The changes in disability laws may result in alterations to the accommodations students are granted in college. School psychologists working in post-secondary environments have an excellent opportunity to promote self-advocacy skills by helping undergraduates with ASD discuss with their professors' allowances that may not be officially granted accommodations; for example, reduced demands to speak in class, choice of seat, and permission to take short breaks. School psychologists should also practice with students how to respond if these requests are denied, and help them devise alternative coping strategies.

Professional and community partnerships. School psychologists at post-secondary institutions should form partnerships within their communities to

help disseminate information about college demands and the other issues related to transitioning described above. Meeting with local transition counselors or CSTs and holding free or low-cost community workshops addressing transition information for high school students with ASD can be particularly helpful. Consultation between high school and post-secondary school psychologists could be mutually beneficial; school psychologists working in high schools have expertise about what students and families are seeking in a college or specialized support program.

Intervention Description

The authors of this paper work in an intervention program for undergraduate students with ASD, and a description is offered as an example of the kinds of services school psychologists can help develop at post-secondary institutions. The COMPASS (COMMunity Promoting Academic and Social Success) Program at Fairleigh Dickinson University is an individually-tailored support program for undergraduates with ASD. Students participate for their first two years at college; therefore, the primary goals are to successfully transition students from high school to independent college functioning. After the first two years, students can still take advantage of support services offered to any undergraduate student (e.g., tutoring, counseling, academic accommodations, etc.). COMPASS students live on campus to maximize attainment of independent living skills. The COMPASS program began at the Metropolitan campus in 2008. The program recently extended to the Florham campus and at the time of this writing is still in its first year. Therefore, this paper focuses on the services and outcomes of the Metropolitan Campus COMPASS Program (referred to hereafter simply as “COMPASS”).

Pre-college programming. Supports begin prior to the first semester at college to make the transition as smooth as possible. The selection process includes

thorough review of psychoeducational evaluations and IEPs as well as in-person interviews with applicants and their parents, so as to provide individualized recommendations regarding skills to practice over the summer. In rare cases, staff consults directly with students’ high schools to help prepare them for college. COMPASS staff is (unobtrusively) present at the University’s summer new student overnight orientation, at which time a COMPASS parent orientation session is also held. When students register for their first semester, we strongly recommend taking as few credits as possible while still maintaining full-time status. COMPASS students are also able to move into the dorms early, which assists with avoiding the stress and sensory overload of general move-in day.

Academic Coaching. Academic coaching is an essential part of the intervention program due to potential difficulties with executive functioning (EF) that can hinder academic success. Executive functioning problems have historically been linked to ASD (Kenworthy, Yerys, Anthony, & Wallace, 2008), and deficits have been reported across specific domains such as inhibition, cognitive flexibility, generativity, working memory, and planning (Pennington & Ozonoff, 1996). One recent study (Rosenthal, et al 2013) examined a large cross-sectional cohort of children with ASD in order to evaluate age-related differences in parent-reported EF problems during childhood and adolescence. They found that adolescents, compared with younger children, have the most difficulty with metacognitive tasks, which include the planning, organization, working memory and the cognitive flexibility aspects of executive functioning.

Due to these specific deficits, young adults with ASD beginning college struggle with keeping materials organized for classes, being a “self-starter” on papers and projects, and following multi-step directions inherent in many academic activities in a university setting. Academic Coaching addresses these difficulties with EF by teaching students how to plan and schedule their

time, prioritize tasks, and break down large assignments into manageable steps. Learning styles are assessed via a measure adapted from Carter, Bishop, and Kravits (1998), with permission from the authors. Additionally, students discuss study habits, learn problem-solving strategies and note-taking techniques, and discuss appropriate college-level classroom behavior.

Although Academic Coaching is not tutoring (indeed, students are often referred to tutoring services as needed), the Coach can provide some direct interventions as needed. For example, students with ASD commonly struggle with reading comprehension (Nation, Clarke, Wright, & Williams, 2006) stemming from deficits in higher-ordered processing abilities (i.e., oral language) and EF impairments. Contrary to popular belief, many students with ASD also struggle with math abilities. Oswald and colleagues (2016) examined math achievement in students with ASD and found that 22% demonstrate a learning disability in math in comparison to only a small sample (4%) of students who display mathematical giftedness.

Group therapy. Group therapy sessions are tailored to address various issues of Freshman and Sophomore students. Each week, members share highlights and low points of the past week, and engage in conversations to discuss issues related to transitioning to a college environment. Topics include, but are not limited to, stress surrounding exams, use of accommodations, dormitory and classroom etiquette, career planning, and activities of daily living. Group members discuss these topics and engage in role-play and other experiential learning techniques to practice skills such as public speaking, communicating with professors and potential employers, applying for summer positions, completing daily routines such as laundry, and utilizing relaxation techniques. Furthermore, the group offers students the opportunity to gain feedback in regards to interpersonal relationships, an important com-

ponent given that many students with ASD are at risk for loneliness secondary to deficient social skills (Jobe & White, 2007). Members are encouraged to bring to group any issues that they are experiencing in the college environment, and group leaders help students engage in conversations and problem-solving to address each situation. Students and parents report that group therapy sessions also encourage COMPASS students to foster relationships, many of which continue after they graduate from the two-year transition program.

Individual counseling. Individual counseling sessions are tailored to fit the needs of COMPASS students. In addition to academic and social challenges, college students with ASD commonly report feelings of anxiety, loneliness, and depression (Gelbar et al., 2014), which all are appropriate treatment targets. Research has demonstrated that students are likely to benefit from counseling that is directive, contains explicit guidance, and incorporates role plays (VanBergeijk, Klin, & Volkmar, 2008). A report by Glennon (2001) suggests that although college students with ASD are likely to experience loneliness, anxiety, and worry, they are also hesitant to express their difficulties, particularly without prompting. Even students who do not report comorbid emotional difficulties upon entering the program are assigned a counselor.

Peer mentoring. College students with ASD are more likely than their neurotypical peers to have struggles associated with roommates, friendships, or approaching peers (Gelbar et al., 2014). Through the optional peer mentorship program, COMPASS students are paired with an upperclassman, often a psychology major, with whom the student meets weekly. Peer mentoring allows students increased opportunities for friendships, social events, and exploration of new activities on campus. Additionally, the COMPASS program hosts a fun activity once each month in order to foster relationships across the peer mentor pairs.

Campus community. School psychologists are ideally suited to help foster a school climate conducive to success of undergraduates with disabilities, including ASD. Faculty and staff outreach efforts are designed to benefit all students with ASD, not just those within the program. Additionally, Resident Assistants and summer Orientation Leaders are trained annually. Trainings do not identify specific individuals with ASD. Not only does this protect confidentiality, but not everyone with ASD will be enrolled in a specific support program. Training staff who might encounter distressed students, such as campus security and technical help desk staff, is also recommended.

Progress Monitoring

An important component of effective school-based service delivery is regular progress monitoring. Repeated measurement of progress is superior to summative outcome assessment alone, as the former allows for school psychologists to engage in informed service delivery (Becker & Domitrovich, 2011). Routine monitoring of student variables allows clinical interventions to be modified as needed, consistent with the guidelines offered by the National Association of School Psychologists (NASP) *Model for Comprehensive and Integrated School Psychological Services*, specifically, the Data-Based Decision Making and Accountability Domain (NASP, 2010).

Direct observation. Prior to their first semester, COMPASS students participate in an overnight Freshman Orientation with neurotypical peers. COMPASS staff, who are indistinguishable from Orientation Leaders, observe the students while making narrative style qualitative notes, and write an intervention plan for students and their families to follow over the summer to address any areas of concern.

Evaluation of adaptive skills. Some college students with ASD may struggle with effective communication, activities of daily living, and socialization

skills; therefore, regular assessment of adaptive behavior is a core component of COMPASS. The authors use the Vineland Adaptive Behavior Scales, now in its Third Edition (Vineland-3; Sparrow, Cicchetti, & Saulnier, 2016); however, any technically sound instrument that addresses these variables would suffice. Survey interviews are administered to parents at the beginning and end of each semester, and data is used to guide individual treatment goals, as well as group therapy goals if common areas of concern are discovered. Parents are interviewed, rather than students, to conform with administration instructions in the Vineland-3 manual (Sparrow et al., 2016).

Professor feedback. Three times a semester, feedback is elicited from students' professors with a one-page form created by program staff. Using a Likert scale, professors rank student progress on attendance, academic performance, motivation and attitude, completion of assignments, and appropriateness of classroom behavior. Results are shared with students during Academic Coaching or individual counseling. One potential barrier to this form of data is less than optimal response rate. Follow-up phone calls may be helpful, as is administrative support. Results are also used to drive consultation services. COMPASS staff frequently help professors understand behaviors they may see in students with ASD such as leg shaking, lack of eye contact, and difficulty inferring classroom behavioral expectations without explicit instruction. Staff also assist with developing classroom-level intervention, which often consists of guiding faculty with good ways to address sensitive topics with undergraduates with ASD.

Institutional and stakeholder data. COMPASS staff track available institutional data such as semester and cumulative GPA and graduation rates, both during and after students finish the two-year program. Semester and cumulative GPA are tracked after every semester and recorded in a database, and former students' institutional status is checked to determine graduation

dates. Finally, parents and students are regularly surveyed about their experiences with COMPASS.

Outcome Data

Preliminary outcome data examining the effectiveness of COMPASS is promising. COMPASS staff have historically defined success primarily by academic achievement; specifically, student retention, GPA, and graduation rates. Future plans include analysis of socioemotional and behavioral gains of COMPASS students. The program started in 2008, and has historically served very small cohorts. A total of 22 students have been admitted (new cohorts were not accepted in 2010 or 2013). Although the following data is based on a somewhat small sample size (which obviously decreases as more long-term data is analyzed), it exceeds many previous studies of this population (Gelbar et al., 2014).

Freshman success. Given the numerous variables that may impede a successful transition to college, Freshman students are particularly vulnerable to college failure (Feldt, Graham, & Dew, 2011). Given the additional challenges posed by a college student with ASD, Freshman outcomes are particularly important to investigate. All but one (96%) of COMPASS students successfully completed their first semester, with an average first semester GPA of 3.15. Ninety percent successfully completed the Freshman year, and the average cumulative GPA following the first year of college was 3.12.

Retention. Eighty-six percent of COMPASS students who initially entered as Freshmen returned for a Sophomore year, which exceeds the average campus Freshman-Sophomore retention rate of 74.8% (“Fact Sheet,” 2016). Additionally, 95% of COMPASS Freshmen who completed their first year return as Sophomores. Seventy-five percent successfully completed both years of the program, and this figure excludes

one additional student who left the program early because they made remarkable gains and no longer needed services.

Graduation. Published graduation rates seem to allow for students to graduate within six years, which reflects the fact that many students, including those without ASD, are taking longer than four years to graduate. Thus far, 50% of COMPASS students have graduated from FDU within 6 years. Recent FDU student cohorts at the Metropolitan campus (all students) have 6-year graduation rates ranging from 47.3% to 52.0%. Conversely, the nationwide graduation rate for students with ASD is 37.9% (Newman et al., 2009). Therefore, it seems that COMPASS may be contributing to the successful closing of the achievement gap between students with ASD and their neurotypical peers. Additionally, there are some COMPASS students who transferred to other colleges and have graduated; however, we did not count them in the above statistics.

Conclusions

School psychologists at post-secondary institutions are optimally positioned to support college students with ASD. At the broadest level, they should be involved in development of specialized support programs at their institution. Their specialized knowledge of ASD and disability law also makes them exceptional candidates for service on any college committees or in offices related to accommodations. School psychology professors may have particular opportunities to increase positive impact on both undergraduate and graduate students. The service providers (e.g., Coaches, counselors, group leaders) in COMPASS are doctoral candidates in either school or clinical psychology (the psychology doctoral programs offered by FDU). These graduate students are supervised by school and clinical psychology faculty. This provides a

“win-win-win” situation; not only are undergraduates well-served, but the graduate students are provided with valuable practicum experiences, and therefore, more psychology professionals are graduating with ASD expertise. The biggest challenge in developing interventions for COMPASS has been the lack of empirical data regarding college students with ASD. We therefore encourage our school psychology colleagues to continue to investigate both challenges of and interventions for these students, and to collaborate with service providers at other institutions. As preliminary outcome data suggests, college success for students with ASD is certainly possible, and with the appropriate supports, they can thrive.

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A Model for Facilitating an Inclusive Experience for College Students with Health-Related Conditions: Application for Students with Diabetes

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Advances in technology and knowledge, changes in institutional policies and practices, and legal mandates make it possible for young adults with health-related conditions (HRCs) to more fully participate in higher education. This article proposes a framework of seven principles that institutes of higher education can use to facilitate the success of students with HRCs. The framework consists of seven principles that were derived from a panel of experts and refined through consensus agreement. Specific suggestions for how to implement innovative programming are provided, as well as how the model can be tailored for various HRCs. Specifically, we illustrate how the principles could be applied to assist students with diabetes, given the prevalence of this condition in college age students. Finally, we discuss the complexity of implementation and potential challenges.

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Introduction

An estimated 5.7% of college students in the United States report having a health-related condition (HRC), which represents an increase from previous estimations (Ravert, Russell, & O'Guin, 2017). HRCs refer to chronic illnesses such as diabetes, epilepsy, cancer, juvenile arthritis, and asthma. Federal legislation, such as the Individuals with Disabilities Education Improvement Act (IDEIA) ensures that students with disabilities receive a free and appropriate public education and provides special education and related services (IDEIA, 2004). Although this law does not extend into postsecondary education, other federal laws can be applied to students in college, such as the Americans with Disabilities Act (ADA), which provides protection by prohibiting discrimination against individuals with qualifying disabilities, defined as "physical or mental impairment that substantially limits one or more major life activities of such individual" (ADA, 2008). Most public universities have implemented services and standards aimed at ensuring fair treatment of individuals with disabilities, including those with HRCs, to ensure that they may participate fully in all facets of the college experience (Jung, 2003). Although students with HRCs might have qualified for special education services previously, many students entering college may not identify as having a disability and instead only require accommodations of their health needs (Thies & McAllister, 2001, p. 167). Thus, services provided by postsecondary institutions for students with disabilities may not be adequately addressing the unique needs of students with HRCs in higher education, as these students may not identify as having a disability (Royster & Marshall, 2008). Furthermore, there is a lack of consensus on best practices for providing a fully inclusive experience for college students with chronic health conditions. Thus, the first objective of this article is to introduce principles that

can be used to mitigate institutional barriers, identify reasonable accommodations, and enhance the quality of the college experience of students with HRCs. The second objective is to demonstrate the versatility of the model by applying the framework to college students with diabetes. We conclude with considerations regarding potential challenges to implementation.

Proposed Framework in Higher Education. Research has suggested that students with HRCs are at higher risk for not graduating from institutions of higher education in comparison to traditional students (Getzel, 2008). In a study by Maslow et al. (2011), 18% of individuals with a childhood onset HRCs reported obtaining a college degree, compared to 32% - 34% of non-chronically ill students. In a study that examined differences in educational attainment between individuals with childhood-onset HRCs, adult-onset HRCs, and healthy peers, findings showed that those with childhood-onset conditions were least likely to pursue higher education. Furthermore, individuals with adult-onset HRCs had comparable college enrollments rates as their healthy counterparts; however, they were significantly less likely to graduate (Maslow et al., 2011). The reasons often cited for poor retention include (1) reluctance to be "labelled," which interfered with disclosure and seeking supports and services; (2) unavailability of campus services that took into account the unique needs of the students; (3) adjustment difficulties inherent in the university milieu; (4) lack of guidance available to assist students to self-navigate and advocate within the university system; (5) lack of access to services that existed; and (6) perceived naiveté on the part of instructors and other university personnel (Getzel, 2008). In contrast, positive relationships with family members, mentors, and schools serve as protective factors for graduation success, with school connectedness being particularly important for those with HRCs (Maslow et al., 2011).

Colleges and universities vary in how accommodations are provided to students with HRCs. A brief report on a Chronic Illness Initiative at a private university highlighted several components that were successful in supporting students with HRCs (Royster & Marshall, 2008). The components were support services (e.g., dedicated advisor, scholarships, social events, mentoring, and disability-related courses), outreach (e.g., building community connections and increasing public awareness), and infrastructure development (e.g., integration into university administration and budget). However, generalizability would be enhanced through the use of a framework based on research and theoretical underpinnings to provide best practices to guide institutions in developing services for students with HRCs. A principle-driven approach has been shown to be successful for developing curriculum and instructional materials in educational settings and lead to strong effects on student outcomes (Singer, Marx, Krajcik, & Chambers, 2000). In many cases, adhering to the principles would encourage universities to build upon existing services by enhancing knowledge and skills of staff regarding institutional barriers facing students with HRCs.

The following sections present seven defining principles, intended to be applicable to services for college students with any HRC. After describing the conceptual frame of each principle, we provide practical suggestions for implementation. Finally, we illustrate the application of the principles to students with diabetes, to demonstrate how the framework could be adapted to ensure access and inclusion for students with various HRCs.

Diabetes. Diabetes mellitus, both type 1 (T1DM) and type 2 (T2DM), is one of the most prevalent HRCs encountered by college age students. Research has suggested that the lack of structure in the university setting puts students with diabetes at risk and impacts their ability to function academically

(Balfe, 2009; Ramchandani et al., 2000). Unfortunately, data from qualitative studies has indicated that college students with diabetes perceive limited external support from their institutions (Balfe, 2009). Fluctuating course schedules across days and semesters make it difficult for these students to maintain a fixed regimen, affecting care practices such as consistent mealtimes and insulin administration (Balfe, 2009). Transition to a new healthcare provider either because of relocation or age poses additional challenges (Garvey et al., 2014). There are also neurobehavioral effects related to blood sugar levels that influence the academic performance of students with diabetes. Despite these obstacles, it has been well-documented that college students with diabetes thrive in educational environments that welcome and include their unique healthcare, psychosocial, and learning needs. Given the prevalence of the disease and the potential for diabetes to interfere with functioning in a higher educational setting, we illustrate the application of the principles within our framework for services for this population to balance the students' desire for autonomy with appropriate accommodations (Garvey et al., 2014).

Method

The principles were devised with input from key stake holders and a panel of experts. The task force included disability studies professionals, certified school psychologists, licensed psychologists, and rehabilitation counselors knowledgeable about HRCs, as well as students with HRCs and their families. After the model was developed, the original panel consulted with students with diabetes, parents of college students with diabetes, and two pediatric endocrinologists to apply the principles to diabetes.

Procedures. The model was developed following a series of steps. Step 1 involved a meeting of core faculty representing rehabilitation, school psychology,

and school counseling. A representative from the Juvenile Diabetes Research Foundation (JDRF) identified gaps in higher education services for students with diabetes. Further information was collected through a comprehensive literature search on the prevalence and needs of students with HRCs and diabetes. Key terms used included: diabetes, health-related, medical condition, chronic illness, college, higher education, and post-secondary. In Step 2, the panel interviewed three families of students with diabetes. In step 3, a list of 11 principles grounded within the sociopolitical framework was created based on the research and information gathered by the panel. In Step 4, the principles were further refined with input from additional sources, including students with disabilities, and a second literature search focused on empirical findings related to the principles. Based on the feedback and additional literature search, Step 5 focused on refining and collapsing the principles to be more inclusive and to reduce redundancy. Step 6 involved drafting the proposed services by identifying existing services at the panel's institution as well as desired services based on expertise of those involved.

Results

The final model is described below with examples to illustrate how each of the seven principles can be applied to students with diabetes.

Principle 1: Services are grounded in a sociopolitical model of disability. Disability activists and scholars reject the deficit frame of disability, referred to as the medical model, in favor of the sociopolitical model of disability. Within this framework, individual limitations and biological differences are not viewed as the primary cause of the problem, but rather society's failure to value and accommodate physical, sensory, and cognitive conditions. Serving students with HRCs in a sociopolitical context may be the most challenging task, since professionals and students often

have been socialized to define and conceptualize disability as a problem to fix. Higher education institutions must strive to design welcoming and inclusive environments that alleviate the need for individual accommodations whenever possible. For example, waiting for a student to self-identify or only providing accommodations for students who declare a disability alienates individuals who do not label their HRC as a disability. Furthermore, specific services that are developed for students with HRCs must be designed in ways that clearly portray disability in a sociopolitical frame. Focusing on neutral, environment-based wording in documents such as position descriptions, job titles, mission statements, goals, brochures, and websites will be necessary to help change the societal frame. For example, documents can be drafted to represent HRCs as an aspect of diversity and be framed in a way that highlights access as an environmental concern, as opposed to a problem with the individual (Thornton & Downs, 2010). University personnel may reference [a website](#) (Funckes, Kroeger, Loewen, & Thornton, 2017) that was developed to promote these perspectives includes example mission statements, and other faculty or administrator communications, service, and suggested outreach activities.

Application of Principle 1. This principle is the key for changing both individual and institutional frames of HRCs, including diabetes. Adopting this model seeks to enhance the quality of education, create a more welcoming and inclusive educational environment, and increase college success for students with diabetes. One approach is for staff such as school psychologists or counselors to offer workshops, mini-classes, and counseling to students with diabetes and other HRCs. Topics could be broad to accommodate all students with HRCs, but specific information about the success of individuals with diabetes and their ability to participate fully in the college experience would help personalize the activities. The purpose of these outreach efforts are to foster a community in which

people are able to identify themselves not as problems, but as unique individuals whose voices and presence is valued and appreciated within a high education setting.

Principle 2: Services build individual and institutional capacity. College may be the first time that students with HRCs are away from home (Balfe, 2009). Like students without HRCs, support from family, peers, and college personnel is vital for students' satisfaction, sense of belongings, and college success. Therefore, the goal of services should be to build supports, both systemically and individually. Within the context of the sociopolitical model of disability, Disability Resource Centers (DRCs) should address attitudinal, curriculum, technology, and physical barriers and must work with all entities on campus to facilitate access, consistent with the requirements of the ADA. A quandary occurs when universities place all of the responsibility for addressing the needs of students with disabilities within the DRC, neglecting to invest resources on building capacity and awareness among other campus entities with which the students must access on a regular basis.

With regard to individual capacity, research has indicated that knowledge of disabilities, available services, and legal rights promote self-advocacy among students (Test, Fowler, Wood, Brewer, & Eddy, 2005). Similarly, effective communication of this information can serve as a tool to empower students with HRCs to advocate for access and inclusion, thus supporting their autonomy. In fact, a qualitative study of college students with HRCs, which found that accessibility to experts on the students' own HRC, peer support groups with other students with HRCs, campus health-services, recreational activities, an individual knowledgeable about available services for students with HRCs, and instructor or supervisor supports were among the most highly ranked campus resources desired (Ravert et al., 2017). Online support groups capi-

talize upon the digital nature of young people's contemporary lives and can be used facilitate positive relationships among these students and all units on campus, their families, and health service agencies (Bauman, 2011). Online support groups have several advantages over in-person groups in that they provide access to those with geographic, transportation, or scheduling barriers contributions and can be anonymous to protect student privacy (Bauman & Rivers, 2015; Loader, Muncer, Burrows, Pleace, & Nettleton, 2002; White & Dorman, 2001).

Application of Principle 2. Given the challenges raised by Balfe (2009), colleges should foster a sense of stability within the otherwise dynamic environment (Rasmussen, Dunning, & O'Connell, 2007). Specifically, institutions should utilize an organized approach to provide services to help students with diabetes balance academic and medical needs (Eaton et al., 2001). To achieve this objective, communication and collaboration should be promoted among different groups, including faculty, medical providers, school psychologists, counselors, and other support staff.

Although living in residence halls may facilitate maintenance of diabetes routine (Balfe, 2009), such an arrangement may also increase stress (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005). Students who plan to live in residence halls should be encouraged to disclose their condition to roommates and resident assistants (Balfe, 2009; Mellinger, 2003). Universities can promote a supportive living environment by accepting requests for housing based on physical and health needs as well as offering a group of designated rooms for students with HRCs. The latter approach provides access to a network of peers who are also experiencing HRCs (Furman University, ND). Another relatively simple, but important, structural modification would be to have private places on campuses to inject insulin and dispose of the needles properly. At the individual level, students should be provided with

opportunities to network with and develop supportive relationships with other students. Utilizing personal technology to enhance networking has been successful for individuals with diabetes (Loader et al, 2002; Zrebiec & Jacobson, 2001).

Principle 3: Services address transitions to higher education and the work force. Having a HRC can be source of both acute and ongoing stress, which is exacerbated during the transition from high school to college (Wodka & Barakat, 2007). A qualitative study (Hamlet, Gergar, & Schaefer, 2011) that examined school counselors' approach to working with students who have been diagnosed with a HRC revealed that the key to success was collaboration with other school personnel. As such, collaboration with school psychologists and other professionals is critical in working with students with HRCs to ensure continuity of services (McCabe & Shaw, 2010). Recommendations from school psychology (McCabe & Shaw, 2010) and counseling literature (Hamlet et al., 2011) for working with students with HRCs included: (1) development of written protocols for responding when a student is identified as having a HRC; (2) collaborative efforts with medical professionals; (3) training in developing 504 or individualized education plans; (4) plans for transitioning students from hospital to school; and (5) professional development opportunities for school personnel working with students who have specific HRCs. Furthermore, school psychologists and high school counselors are encouraged to work directly with the student and college personnel to ensure successful transition of accommodations. School psychologists and other support staff can also assist students with HRCs in finding out what services are available at different institutions and types of documentation needed to access these services. Furthermore, school psychologists and counselors can assist with financial aid planning, including advising students to list all their out-of-pocket medical expenses to

get maximum consideration for financial aid (Mellinger, 2003).

Universities that publish readily accessible materials about such services for students with HRCs at universities equip school psychologists and counselors with information to share with students with HRCs who are considering college. During the application process, universities can provide information about what services are available. Once accepted, admission packets should provide information specific to students with HRCs. The panel recommends that students be encouraged to identify their HRC to appropriate individuals at the college upon arrival to ensure they are informed of and can access available services immediately (Skinner & Lindstrom, 2003). All college services need to be aimed at promoting participation and productivity. Although several on-campus activities would fulfill this principle, some possibilities include new student orientation components or mini-courses designed for students with HRCs that are adapted based on the nature of the conditions of the students enrolled. Training of campus staff, personnel, and faculty may be beneficial to ease the transition process for these students.

To increase retention of students with HRCs, researchers have emphasized the importance of academic advising and the benefits of career counseling, career exploration, and career-related experiences (DeBerard, Spielmans, & Julka, 2004; Getzel, 2008). Often the academic advisor is the only or primary link the student has with the institution (Glennen & Vowell, 1995; Nutt, 2000), and quality academic advising can enhance students' sense of belonging and bolster their motivation for their college career (Earl, 1988). Most academic advisors have not been trained to specifically address the needs of students with HRCs, suggesting a need for more specialized training and collaboration with other professionals with expertise with HRCs, such as school psychologists (Heisserer & Parette, 2002; Reiff, 1997).

Application of Principle 3. Although school counselors may be well-trained in post-secondary educational planning, a survey study (Wagner & James, 2006) indicated limited training regarding the needs of students with HRCs. The majority of participating counselors did not endorse the idea that “diabetes affects post-high school planning” (p. 389). Counselors, school psychologists, and other support staff should be able to provide students with information and strategies about organizing their lives and managing their condition in a less-structured college environment. Emphasizing the importance of finding a support network may increase the likelihood of a successful adjustment to the college environment. To facilitate the planning process for students with diabetes considering college, we recommend a new student orientation to: 1) acquaint students with diabetes with available services and supports, 2) provide information and contacts critical to managing both academic life and diabetes, and 3) establish a mechanism for follow-up information and support.

Principle 4: Services are individualized and address the needs of the whole student. In a qualitative study, Jung (2003) suggested that students with HRCs require flexibility with accommodations because the impairment resulting from their disease is not static or constant. To adequately address students’ educational experience, a variety of services across multiple domains (e.g., emotional, social, physical), should be present. Mental health services should be available for students. These services can be provided by college-based counseling centers or be provided by advanced school psychology or counseling students as part of practicum experiences. Counseling should address postsecondary issues that pertain to all students, as well as specific concerns for students with HRCs. For example, experimentation with alcohol is primary concern for many students entering the college environment, but this issue is particularly important for indi-

viduals with certain health conditions, as the interaction between substance and alcohol use and HRCs can be life threatening.

An integrated service aimed at mental health screening, assessment, and referral/service coordination is also necessary in order to address the needs of the whole student. Specifically, assessment tools can be utilized to identify and individualized accommodations and services to meet students’ specific needs. For example, neurocognitive assessments may be necessary to better understand the student’s individual requirements for educational success and can be conducted by school psychologists. Alternatively, support staff can make recommendations for or coordinate outside referrals if more comprehensive evaluations or interventions are required. School psychologists and other support staff can also utilize outcome assessments to track student progress after services are implemented.

Application of Principle 4. For students with diabetes, mental health screening, assessment, and referral/service coordination should include diabetes specific measures, such as resiliency and diabetes quality of life, and make appropriate service recommendations or referrals to specialists who are knowledgeable about both mental health and diabetes (Perfect & Jaramillo, 2012; Perfect, Levine-Donnerstein, Swartz, Wheeler, & Amaya, 2010). College mental health professionals, such as school psychologists, should be educated on considerations for students with HRCs, as conditions like diabetes have been linked to increased risk for internalizing problems, such as depression and anxiety. Mellinger (2003) emphasized the importance of psychoeducation regarding alcohol use for students with diabetes. Strategies included not drinking more than three alcoholic beverages daily, establishing stable glucose levels before drinking, informing companions about how to treat hypoglycemia, and eating while drinking (Ravert, 2009). Students with diabetes

may also benefit from meeting with a school psychologist for an assessment of neurocognitive outcomes to identify strengths and weakness to aid them with developing their own study strategies. Such information would also assist college personnel in offering reasonable educational and structural accommodations to fit student needs.

Principle 5: Services are comprehensive, integrated, and coordinated. We contend that successful services should transcend academic units and involve key stakeholders to support students with HRCs. Accordingly, an advisory committee should exist to both influence institutional policies regarding students with HRCs, as well as ensure that provided services are practical, appropriate, and effective. Members should include anyone directly involved in providing services to students with HRC, including school psychologists, counselors, other support staff, and students themselves. Till (2003) documented the benefit of having someone designated as the “navigator” available to help coordinate services for individuals with HRCs, if desired by the student. Within an institute of higher education, a navigator would be available to students with HRCs to assist with general advocacy, making referrals, providing preemptive health education, and coordinating community-based resources (Marr, Pillow, & Brown, 2008). Individuals from within the DRC or other departments, such as school psychologists, counselors, or other support staff, who are willing to provide assistance to students can be designated as “navigators.”

Application of Principle 5. The campus advisory committee should include a medical professional knowledgeable about diabetes (e.g., diabetes educator, endocrinologist, nurse), a school psychologist or counselor, at least one faculty member knowledgeable or interested in diabetes, several students with diabetes, and representatives from the different units that would accommodate students with diabetes (e.g., DRC, regis-

trar’s office, food services, campus counseling, a residence hall assistant representative). Collaboration among diverse professionals is critical as these key stakeholders possess expertise that can be used to inform services for students with HRCs. For example, school psychologists can provide specific knowledge on the neurocognitive impact of diabetes on student functioning and suggest ways to mitigate these effects through the use of appropriate accommodations. Students should be made aware of the committee and encouraged to be active in advocating for their needs and the needs of other students with HRCs.

Principle 6: Services are accessible and inviting. Services cannot be effective unless utilized. The three issues with accessibility involve the identification of relevant students, availability of services, and student knowledge of services. College campuses must have efficient and effective ways of identifying students with HRCs. A DRC may be one avenue, but not all students with a HRC will self-identify as having a disability. For those who register through the disability office, the DRC can collaborate with students to develop a plan for accommodations, facilitate communications with instructors, and provide educational supports to reduce barriers to learning. However, training and access to necessary information and essential supports should be offered through other entities across campus. Institutions should consider various communication tools to increase communication with students and staff, such as email listservs, websites, and orientations. Documents included with admission packets and new student orientations could invite students to describe potential medical issues and provide contact information. However, students may be concerned with discrimination and not want to disclose their health status in such formal ways. Thus, there needs to be multiple methods for students to contact providers. A website with information about services available for individuals with

HRCs might be a way for students to learn about relevant services and contact personnel.

Application of Principle 6. To promote available services for students with diabetes, information can be disseminated through campus postings. Local endocrinology clinics, the University Health Center, and the DRC could also inform students about services and provide the students with appropriate contacts. As part of efforts to increase visibility, a campus-wide public relations/health promotion plan could be developed to target students with diabetes. For instance, articles including information about the available services could appear in student publications. Having welcoming messages for students with diabetes, providing opportunities for the students to connect with peers, and having readily available services, such as needle dispensers in bathrooms and nutrition information, are all likely to promote school connectedness.

Principle 7: Safety is the primary focus. The panel's definition of safety included access to immediate medical intervention when necessary and respect for students' legal rights to privacy. With regard to crises that might arise as a result of health-related complications, universities should provide students with a list of medical facilities along with their hours of operation. Universities might also develop pamphlets highlighting risks, symptoms, appropriate emergency responses for major HRCs to increase awareness among faculty and staff and enhance the capacities of the institution to take appropriate action if an emergency occurs. In addition, universities must adhere to the Family Educational Rights and Privacy Act (FERPA) as well as the Health Insurance Privacy and Portability Act (HIPPA) if they are covered entities. Thus, any disclosure of a student's health status during the referral process or service provision can only be done with the student's informed consent.

Application of Principle 7. Students with diabetes need access to emergency services for severe hypo-

glycemia and diabetic ketoacidosis. The American Diabetes Association (ADA) has a campaign for K-12 entitled "Safe at School," which includes ensuring all students with diabetes are "medically safe" and have the same educational opportunities as those without diabetes (ADA, 2010b). These objectives are also suitable for the college level. The ADA contends that although not necessarily required by law to have diabetes-specific knowledge, all school personnel who have a student with diabetes should be trained on warning signs of diabetes-related complications and what procedures to follow in the event of an emergency (ADA, 2010b). To ensure privacy, there should be a protocol for communicating between student affair units. Students should sign exchanges of information forms to grant permission for communication among these providers.

Discussion

There remains an unaddressed gap in providing an inclusive educational experience for students with HRCs on college campuses. The purpose of this article was to summarize key principles derived from theoretical, empirical, expert, and consumer influences. From this process, we illustrated how the principles can be applied in practice. We conclude with potential challenges, solutions, and future directions.

Challenges to Implementation. There are challenges to modifying existing services and/or designing new services to fit the proposed principles. Thus, several barriers must be considered when creating services aimed at individuals with specific HRCs.

Funding. Whether the university wants to build upon existing services or establish new services, funding is always a challenging issue. Administrators should consider federal, state, and local grants, many of which are tied to college retention for students with disadvantages or disabilities. Business-community

partnerships or university partnerships with foundations invested in students with HRCs can also facilitate services (Patterson Foundation, 2013). Furthermore, institutions of higher education are rich with trainees. School, clinical, or counseling graduate students would benefit from providing services for individuals with HRCs as part of practicum experiences. Additionally, institutions could utilize staff already working with students with HRCs as part of the DRC or academic advising team to provide some services, such as serving as a “navigator,” as part of their already established positions.

School size. School size should be considered when determining how the model is best implemented. Although certain aspects of the framework might be easier to implement at larger universities, the principles are also applicable to smaller student populations. The creation of support groups for specific HRCs might be more plausible at larger schools due to the size of the student body. However, in-person supports can focus on HRCs as a whole instead of being disease specific to allow for greater reach for smaller institutions. Smaller schools can also compensate for size by promoting communication between students with HRCs at other schools through the use of technology, such as online support groups. Other modifications can be made depending on the types of HRCs experienced by students. Volunteers from the community or practicum students from undergraduate or graduate programs could be utilized at no cost to facilitate such services for students with HRCs.

Student participation. When designing any service, it is important to consider the fact that students with HRCs may already feel burdened. Thus, any services should be readily accessible, flexible, and convenient. Having a point person, such as a “navigator”, may help students feel at ease. Additionally, depending on the time of the semester (i.e., final exams), levels of participation may vary. Therefore, alternatives to

face-to-face meetings, such as phone conferences or online meetings are critical. Another potential student concern may be the perceived stigma of participating in a service that is specifically targeting them because of their HRC. Therefore, offering services for students with HRCs within the context of services offered to all students may promote usage.

Limitations. The process undertaken to create the set of principles is not without limitations. Accordingly, although major stakeholders provided input into the development of the principles and we drew from theory and empirical literature to identify systemic barriers and individual needs of students with HRCs and potential services to address these needs, the proposed model itself has not been systematically investigated. Data also need to be obtained to determine program effects and isolate services that have the greatest impact. Furthermore, the examples provided focused solely on students with diabetes, although many of the proposed services could be applied to other HRCs. For example, the use of safety guides is applicable to many HRCs in which there is the potential for medical emergencies, such as what to do in the event of a seizure for a student with epilepsy. Furthermore, there is evidence that many of the suggested services for students with diabetes may also be critical for other HRCs, such as students recovering from cancer. A qualitative study of students who survived cancer suggested that coordination of campus health care providers with the oncology team during the transition, psychosocial supports, training for residence hall staff, and assurance that the campus has knowledgeable personnel and assistance with navigating the college campus were critical elements of college programming (Cantrell & Conte, 2016). Finally, the challenges to implementation may also be viewed as limitations as the conceptualization of the principles did not quantify costs and generalizability to campuses of all different sizes. However, services and supports that are offered based on the

principles can be adapted to fit the resources of any institute of higher learning.

Summary and Conclusions

Using extant literature and input from relevant professionals and students, this article proposes a framework with seven principles for enhancing success of students with HRCs in higher education, and illustrates the application of these principles to a proposed service model for students with diabetes. In summary, individualized services focusing on barrier-removal, access, inclusion, empowerment, support, whole person concept, and safety for students with HRCs is suggested. The campus community should continually monitor all services, programs, courses, activities, facilities, and policies to ensure that they are inclusive and alleviate the need for “special” accommodations.

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Academic Outcomes in Higher Education for Students Screened as Twice-Exceptional: Gifted with a Learning Disability in Math or Reading

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From a pool of 20,761 undergraduate students, 244 students were screened as twice-exceptional (2e), potentially gifted with a learning disability in math or reading, and their academic outcomes and choice of major were compared to students screened as gifted without a learning disability, and students in the general population. In comparison to their gifted-screened peers, students screened as 2e underachieved in terms of first-year retention and final college GPA ($p < .01$), and they were more likely to be undecided in their choice of major ($p < .001$). High school GPA and composite ACT score were not correlated significantly with first-year retention or graduation for students screened as 2e, though these correlations were significant ($p < .01$) for students screened as gifted and students in the general population. Implications for advocating for the needs and treatment of students screened as twice-exceptional who pursue higher education are discussed.

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Keywords: post-secondary, gifted, learning disability, school psychological services

Introduction

Twice-exceptional (2e) students are those students who demonstrate the potential for high achievement or creative productivity in one or more domains while also manifesting one or more disabilities as defined by federal or state eligibility criteria (Reis, Baum, & Burke, 2014). Only in the past 30-40 years has 2e been recognized as a singular disability. Twice-exceptional students are likely to demonstrate characteristics typically associated with both giftedness and their disability, most often a specific learning disability (SLD); but experts recognize that these students may have a unique set of needs that cannot be adequately defined by either exceptionality in isolation or in simple combination. Furthermore, the two exceptionalities do not appear to “cancel each other out.” Rather, 2e students are believed to possess a third category of characteristics that are unique to the interaction of both giftedness and the disability (Olenchak, 1995; Reis, Neu, & McGuire, 1995). This interaction is characterized by masking, wherein the difficulties associated with the student’s disability are hidden by the strengths associated with the student’s giftedness, and vice versa (Baum, 1990; Silverman, 2003). This masking of 2e students’ strengths and weaknesses often precludes identification for special education services (Brody & Mills, 1997). Usually, when 2e students are noticed, either the giftedness or the SLD will be identified in isolation, the student will be classified accordingly, and the second exceptionality will go unrecognized (McCoach, Kehle, Bray, & Siegle, 2001; Miner, 1990).

Over the past few decades, researchers have accumulated and integrated a foundation of knowledge about the academic, social, and emotional needs of 2e students in primary and secondary school settings. Variability in academic performance across subject areas is considered a hallmark characteristic of 2e stu-

dents (McCallum, et al., 2013; McCoach et al., 2001). By definition, intellectually gifted students with a SLD have normative strengths in one cognitive area with normative weaknesses in another, and naturally, this variability translates to uneven academic achievement. 2e students in K-12 students have also been shown to have a tendency to experience academic frustration, low persistence, low academic self-confidence and self-esteem, and reluctance to ask for help (Baum & Owen, 1988; Olenchak & Reis, 2002; Reis & Colbert, 2004; Trail, 2010). However, little is known about this population in higher education settings. Consequently, this study was conceptualized to explore prevalence and characteristics of students screened as 2e as compared to peers screened as gifted and nongifted.

Success in college is increasingly important; by the year 2020, 65% of jobs are projected to require advanced education and training beyond high school (Carnevale, Smith, & Strohl, 2013). Given primary and secondary 2e students’ characteristic variability in academic performance across subject areas (McCallum, et al., 2013; McCoach et al., 2001), coupled with their tendency to experience academic frustration, low persistence, low academic self-confidence and self-esteem, and reluctance to ask for help (Baum & Owen, 1988; Olenchak & Reis, 2002; Reis & Colbert, 2004; Trail, 2010), students who exhibit 2e characteristics and who go on to pursue higher education may be vulnerable to poor academic outcomes, despite their giftedness and potential to excel. While vulnerabilities of 2e students in primary and secondary settings have been studied, little information is available regarding academic outcomes for 2e students who pursue higher education.

Academic success in higher education settings is typically defined by grade point average (GPA) and retention, and colleges often use high school grade point average (GPA) and scores from college readiness tests, such as the ACT and the SAT as predictors (for

review, see Westrick, Le, Robbins, Radunzel, & Schmidt, 2015). Again, there is no literature characterizing how gifted students with learning disabilities, or those screened as 2e, perform on either of these measures relative to their peers. However, given the wide variability across areas of academic achievement that is characteristic of 2e students, high school GPA or college readiness test scores may overestimate or underestimate these students' ability to succeed in college.

Research Questions. The purpose of the present study is to explore and describe academic outcomes for students who are screened as 2e, and specifically, students who are screened as gifted with a SLD in math or reading. Additionally, the predictive power of traditional operationalization of college success (i.e., GPA, graduation, first-year retention) for students screened as 2e will be described and then compared to the power of these measures for students not screened as 2e. The following specific research questions address these general questions:

1. In terms of college success (i.e., GPA, first-year retention, six-year graduation), do students screened as 2e perform as well as: a) the general population of students and b) students screened as gifted but not 2e?

2. Upon enrollment at the university, are students screened as 2e more likely to be undecided in their choice of major than students in the general college population and students screened as gifted?

3. Do traditional metrics used to predict college success (i.e., high school GPA, composite ACT score) predict final college GPA, first-year retention, or graduation as well for students screened as 2e as they do for students in the general population and students screened as gifted but not 2e?

Method

Participants. Data on the demographics, ACT college readiness test scores, high school and final college

GPA, major declaration status, and year of graduation or exit were obtained for 24,801 undergraduate students at a large southeastern university. These data comprised a portion of a larger database compiled and maintained by the university's Office of Institutional Research and Assessment, and the dataset includes information on all students who enrolled at the university as first-time freshmen from the years 2007 and 2012. Students for whom ACT test scores were unavailable and students classified as nonresident alien were removed from the dataset, resulting in a final sample size of 23,249 students. The 2011 freshmen cohort of students was set aside as an independent representative sample for the purpose of establishing cutoff criteria for screening for giftedness and 2e, and analyses were performed on a remaining sample of 20,761 students.

Of the full sample ($N=23,249$), 50.5 % were female ($N=11,738$) and 49.5% were male ($N=11,511$); 83.2% of students were White ($N=19,354$), with Black ($N=1,919$), Asian ($N=620$), and Hispanic students ($N=570$) comprising an additional 13.5% of the sample population. Students in the sample had an average high school GPA of 3.79 ($SD=.47$) and average ACT composite score of 26.46 ($SD=3.38$). Approximately 70% of students were undecided in their choice of major upon initial enrollment ($N=16,187$), while around 30% of students declared intent to pursue a specific major ($N=7,062$).

Establishing criteria for gifted and 2e screening. Recent developments in 2e identification include a systematic method to screen for 2e in the K-12 population using scores in critical and distinct academic domains such as reading and mathematics (McCallum et al., 2013). McCallum et al. proposed a method for identifying students who exhibit academic discrepancies (i.e., statistically significant gaps between individual students' performance in reading versus math on measures that provide a metric of performance relative to peers). In this model, a large discrepancy between

domain area scores when one of those scores is significantly above average, is an indication that a student may be gifted with a SLD. This method of identification is consistent with key aspects of the definitions of specific learning disabilities (i.e., intra-individual variability or uneven performance; Scruggs & Mastropieri, 2002) and giftedness (i.e., high academic achievement; National Association for Gifted Children, 2014). A major advantage of this model is that it minimizes masking effects by taking into account performance in specific skill areas, typically math and reading, as opposed to relying on a composite score to reflect skills and abilities. To screen for 2e students in the present study, the discrepancy identification method proposed by McCallum et al. was adapted using the distributions of math and reading ACT superscores (highest scores obtained in each subject area across one or more administrations of the ACT) of students in the 2011 freshmen cohort of the university, as shown in Table 1. Like the measures used by McCallum et al. the ACT is a standardized measure of academic achievement.

In the 2011 freshmen cohort, the average reading ACT score was 27 ($M=27.37$, $SD=4.50$) and the average math ACT score was 25 ($M=25.50$, $SD=3.88$). Based on these distributions, students in the large dataset were screened for giftedness and then subsequently screened for 2e. Students were screened as gifted if they earned a reading or math superscore that was 1 standard deviation above the university mean or higher. While some (e.g., Lovett & Sparks, 2011) recommend 1 and 1/3 standard deviations above the mean as the cutoff criterion for gifted eligibility on standardized instruments, a lower threshold of one standard deviation above the mean or higher was selected for the present study, as students enrolled in the university setting generally represent a higher-achieving population than students in K-12 settings. Therefore, students were screened as gifted in math if they earned an ACT

math superscore of 30 or higher and were screened as gifted in reading if they earned an ACT reading superscore of 32 or higher. Students not screened as gifted were classified as the general population of students ($N=14,824$).

A practical advantage of the model proposed by McCallum et al. is that cut scores for giftedness and discrepancy level can be adjusted for both liberal and conservative screening for 2e. To maximize the likelihood that students screened as 2e in the present study would have met diagnostic criteria as gifted with a SLD in math or reading, a highly conservative application of the model was applied. Among the students who were screened as gifted, those who also exhibited a discrepancy between their math and reading superscores higher than two standard deviations above the mean discrepancy level ($M=5.17$, $SD=3.38$) of students screened as gifted in the reference dataset were identified as potentially 2e. This level of discrepancy ensures a cutoff beyond the typical variability across academic areas that would be expected for gifted students who are only screened as gifted in one domain. Among all students in the 2011 freshmen cohort, the mean discrepancy between math and reading superscores was about 4 points ($\mu=3.86$, $SD=2.93$). For students screened as gifted in the reference subset, the mean discrepancy between scores was slightly higher, at about 5 points ($\mu=5.39$, $SD=3.28$). In the large dataset, a discrepancy between reading and math superscores greater than two standard deviations plus the mean discrepancy in scores of students screened as gifted (i.e., greater than or equal to 12 points) was experienced by only 1.7 % of all students and by 4.2% of the students screened as gifted. This level of overlap between students meeting screening criteria for both giftedness and a SLD is consistent with rough estimates in the literature that the percentage of gifted students who also have a SLD is between two and five percent (Bracamante, 2010).

Students screened as gifted in math. Of all students screened as gifted ($N=5,820$), 53.1% ($N=3,093$) were screened as gifted in math. Less than half of students who were screened as gifted in math were also screened as gifted in reading ($N=1,340$). The average reading superscore for students screened as gifted in math was 30.35 ($SD=3.75$), while the average reading superscore for all students in the sample was 27.22 ($SD=4.50$).

Students screened as gifted in reading. Of the students screened as gifted, 69.9% ($N=4,067$) were screened as gifted in reading. Only 32.9% of students who were screened as gifted in reading were also screened as gifted in math ($N=1,340$). The average math superscore for students screened as gifted in reading was 27.91 ($SD=3.72$), while the average math superscore for all students in the sample was 25.40 ($SD=3.99$).

Students screened as 2e. Students screened as gifted with a possible SLD in reading or math accounted for 1.2 % of all students ($N=244$).

Screened as 2e-Gifted with a SLD in math. Students screened as gifted with a SLD in math ($N=210$) scored an average ACT superscore of 33.89 in reading and 20.61 in math, with an average high school GPA of 3.64. This GPA was lower than the average GPA of all students in the sample, which was 3.79. The majority of these students were female ($N=144$), comprising about 69% of the group. About 91% of these potentially 2e students were White ($N=191$), with Black students accounting for about 3% ($N=6$), and Multiracial students accounting for an additional 3% ($N=6$).

Screened as 2e-gifted with a SLD in reading. For students screened as gifted in math with a SLD in reading ($N=34$), the average ACT scores for math and reading were 33.12 and 20.09, respectively. These students had an average high school GPA of 3.79, similar to the average GPA of 3.78 for all students in the sample. About 79% of these students were male ($N=27$), with about 68% being White ($N= 23$) and 26.5% being

Asian ($N= 9$). The remaining two students were Black ($N=1$) and Hispanic ($N=1$).

Measures. The mean, standard deviation, skewness, and kurtosis of the distribution for each numeric measure relative to all students in the sample are displayed in Table 2. The scores were as expected, with negative skewness characterizing some measures (e.g., high school and college GPA). Almost all kurtosis values were within the range of -1.0 to +1.0, with college GPA being the only exception.

ACT Superscores. Since 1956 the ACT Test of College Readiness has been used to gauge high school students' probability of being successful in college coursework and the psychometric properties are well established. The ACT is divided into four multiple-choice tests of academic achievement in the areas of English, Mathematics, Reading, and Science, and these scores contribute to an overall composite score. For admissions decisions, the university sampled in this study uses ACT superscores, or the highest scores obtained across all test administrations. The highest score across all testing dates is individually identified for each subject area superscore and for the composite superscore.

ACT Discrepancy. The size of the discrepancy between math and reading ACT scores was computed by taking the absolute value of the difference between reading ACT superscore and math ACT superscore for each student.

GPA. Two grade point averages (GPA) were used in this study: high school GPA and final college GPA. High school GPA is a grade point average assigned by the University for admission purposes, and it is based on grades in the core academic classes on applicants' high school transcripts. High school GPA is calculated by dividing total quality points (i.e., A-F grade assignment in class converted to a 4.0 scale plus 0.5 quality points per Honors class and plus 1.0 quality points per Advanced Placement, International Baccalaureate, or Dual Enrollment class) by the total num-

ber of core academic classes taken by the student in high school. Final college GPA is based on a 0.00-4.00 scale and reflects students' grades in classes taken only at the university used in the study. Final college GPA is calculated by total quality points (i.e. grade assignment in class converted to 4.0 scale multiplied by the number of credit hours) divided by the total number of credit hours taken by the student that are contributing to the student's GPA. At the time of data collection, final college GPA information was only available for the 2008 freshmen cohort of students. All analyses using college GPA are limited to students in the 2008 cohort ($N=3,739$.)

First-Year Retention. First-Year Retention is defined as continuing from the first fall term of enrollment to the next fall term. Students who are retained after their first year at the university are those who re-enroll for the next fall term at the end of their first academic year.

Graduation. For this study, graduation is defined as graduating within six years upon initial enrollment at the university. Students who took longer than six years to graduate, left the university without returning, or who are currently enrolled are not classified as having graduated in the present study. At the time of data collection, the six-year graduation rate could only be determined for students in the 2007 freshmen cohort. Therefore, for all analyses where graduation was used as an outcome measure, only students in the 2007 freshmen cohort were included in the sample.

Major Type. Upon enrollment at the university, freshmen students were given the opportunity to declare intent to pursue a specific major or to be classified as undecided. Students in the present study were classified as either declared or undecided.

Results

Results of the following analyses focus on various academic outcomes for college students screened

as 2e and the use of metrics traditionally employed to forecast college success in order to predict outcomes for 2e students. In general, students screened as 2e did not achieve to the same level as their gifted-screened peers, and common correlates of college success appeared to be less useful in predicting actual outcomes for students screened as 2e as for other groups.

Academic Outcomes for Students Screened as 2e Compared to Other Groups. To determine whether students screened as 2e were as likely to graduate or to be retained at the university after their first year as other groups (i.e., students screened as gifted, general population of students), each student was first identified according to whether he/she had graduated and whether he/she had been retained after the first year. First-year retention rates for students screened as 2e, students screened as gifted, and students in the general population are displayed in Table 3. The percentage of students who were retained after the first year of college was highest for students screened as gifted (88.8%), followed by students in the general population (83.9%), and by students screened as 2e (82.4%). A chi-square analysis revealed that students screened as 2e were significantly less likely to be retained after their first year in college than their gifted-screened peers, $\chi^2(1) = 9.49, p < .01$. Though first-year retention was slightly lower for students screened as 2e than for students in the general population, this difference was not statistically significant, $\chi^2(1) = 0.39, p = .53$.

Six-year graduation rate data were available for only the 2007 freshmen cohort of students ($N= 3,980$). The number and percentage of students in the 2007 freshmen cohort who graduated within six years of initial enrollment at the university are shown in Table 4 for each group of students. Within six years, 65.6% of students in the general population, 75.1% of students screened as gifted, and 70.5% of students screened as 2e graduated. However, the six-year graduation rate for students screened as 2e was not significantly different from students screened as gifted, $\chi^2(1) = 0.47, p=$

.49, nor students in the general population, $\chi^2(1) = 0.46, p = .50$.

To determine whether final college GPA was significantly higher or lower for students screened as 2e than for other groups (i.e., students screened as gifted, students in the general population), a one-way analysis of variance (ANOVA) was conducted. Final college GPA was only available for the 2008 freshmen cohort of students ($N = 4,171$); 45 students in the 2008 freshmen cohort were screened as 2e.

Significant mean differences in final college GPA were observed among the three groups, $F(2, 3969) = 82.11, p < .001$. Using η^2 as the measure of effect size, group membership as 2e, gifted, or general population accounted for 4% of variability in final college GPA. Students screened as gifted had the highest mean college GPA ($M = 3.25, SD = 0.61$), followed by students in the general population ($M = 2.97, SD = 0.61$), followed by students screened as 2e ($M = 2.91, SD = 0.63$). The mean college GPA for students screened as 2e was 0.35 points lower than students screened as gifted and 0.07 points lower than students in the general population, 95% CIs [0.57, 0.13] and [0.28, 0.15]. Post-hoc comparisons using the Tukey HSD test revealed that mean final college GPA was significantly lower for students screened as 2e than for students screened as gifted without the second exceptionality, $p < .001$. However, mean college GPA did not differ significantly between students screened as 2e and students in the general population, $p = .74$.

Choice of Major Comparisons. The percentage of students in each group who were classified as declared and undecided are displayed in Table 5. Chi-square analyses were used to compare the percentage of undecided students screened as 2e to the percentage of undecided students screened as gifted and to the percentage of undecided students in the general population. Chi-square values and significance levels for these comparisons are presented in Table 6. Students

screened as 2e were more likely than students screened as gifted to be undecided, $\chi^2(1) = 12.95, p < .001$. Major declaration status did not vary significantly between students screened as 2e and students in the general population.

Utility of Traditional Predictors of College Success for Students Screened as 2e. So that the correlation coefficients between traditional predictors and the categorical outcomes of graduation and retention could be calculated, these categorical variables were first dummy-coded (Graduation: 1 = yes 0 = no; First-Year Retention: 1 = yes; 0 = no). Fisher r-to-z transformations were then used to determine whether correlations of various predictors and outcomes differed significantly between students screened as 2e and students screened as gifted or in the general population. Pearson product moment (PPM) correlations between traditional predictors of college success (i.e., high school GPA and composite ACT score) and college outcomes (i.e., retention, graduation, and final college GPA) were individually computed for students screened as gifted, students who were 2e, and students in the remaining general population. Due to limitations in the availability of data, correlations between graduation and traditional predictors were limited to students in the 2007 freshmen cohort, and correlations between final college GPA and traditional predictors were limited to students in the 2008 freshmen cohort. PPM correlations and significance levels for each comparison, by group, are shown in Table 7.

For students screened as gifted and for students in the general population, all correlations between the two predictor variables and three college outcomes are statistically significant. However, for students screened as 2e, only one statistically significant correlation was found: the correlation between final college GPA and high school GPA $r(44) = .34, p = .023$. To determine whether the correlation between high school GPA and college GPA was significantly different for

students screened as 2e than for students in the general population, $r(2863) = .42, p < .001$, or for students screened as gifted, $r(1060) = .47, p < .001$, Fisher r -to- z transformations were performed. The difference in the strength of correlations of final college GPA and high school GPA between students screened as 2e and students in the general population was not statistically significant, $Z = -.609, p = .542$. The difference in correlations for students screened as 2e and students screened as gifted was statistically nonsignificant, as well $Z = -1.003, p = .316$.

Unlike the group of students screened as gifted and the group of students in the general population, for students screened as 2e, composite ACT was significantly associated with neither retention, $r(242) = .06, p = .39$, graduation, $r(42) = .02, p = .890$, nor final college GPA, $r(44) = .034, p = .812$. Furthermore, high school GPA was significantly correlated with neither retention, $r(242) = .07, p = .271$ nor graduation, $r(42) = -.13, p = .419$, for these students.

Discussion

Students whose dual exceptionality is based on the presence of both giftedness and a SLD have been described as “the most misjudged, misunderstood, and neglected segment of the student population and the community” (Whitmore & Maker, 1985, p. 204), and educators still have a long way to go in terms of addressing the academic, social, and emotional needs of these students (Foley-Nicpon, Assouline, & Colangelo, 2013). School psychologists working in K-12 education settings can directly support 2e students by advocating for their eligibility to receive special education services and by providing recommendations for data-based interventions to target known problems for K-12 2e students, including academic frustration, low academic self-concept, and low persistence (Baum & Owen, 1988; Olenchak & Reis, 2002; Reis & Colbert,

2004; Trail, 2010). To reduce the likelihood that masking effects will preclude 2e students from identification as being gifted and as having a SLD, Morrison and Rizza (2007) recommend avoiding using composite, full-scale scores for 2e students, whether on cognitive or academic measures, and advocate for flexibility in the use of test data to focus on students’ strengths and weaknesses. They also recommend the provision of in-service training for teachers regarding the characteristics and needs of 2e students. School psychologists, who have expertise in assessment and intervention, are particularly qualified to provide this training. Our contention is that students screened as 2e using the conservative criteria employed in this study are very similar to those diagnosed as 2e using formal, individualized instruments and consequently most of the recommendations for 2e students apply. Of course, students screened as 2e may be referred for additional testing to rule in/out 2e status, depending on goals and resources of the institution or school. Below, we summarize the relevant findings from this research for college students screened as 2e and describe some specific implications within the higher education context.

In general, results of this study show that students screened as 2e (gifted with a SLD in math or reading) earned significantly lower college GPAs and were significantly less likely to stay in college after the first year than students screened as gifted without a SLD. However, final college GPA, first-year retention rate, and graduation rate did not differ significantly between students screened as 2e and students in the general population, though GPA, retention rate and graduation rate were lower for students screened as 2e. These findings indicate that students screened as 2e may continue to fall short of their academic potential, even once they reach higher education levels.

While the first year is widely recognized as being critical to students’ overall success in college, the first year may be particularly crucial for students

screened as 2e. Students screened as 2e in this study had a first-year retention rate that was slightly lower than the general population of students and significantly lower than students screened as gifted. Perhaps this outcome is not surprising, considering that researchers have observed that the academic frustration experienced by many 2e students often results in a lack of persistence (Baum & Owen, 1988; Olenchak & Reis, 2002; Reis & Colbert, 2004).

Interestingly, despite having a lower first-year retention rate, the 2e-screened group was able to achieve a six-year graduation rate similar to students screened as gifted and even slightly higher than students in the general population. These findings imply that students screened as 2e may be particularly vulnerable during their first year of college, but that the students who make it to the second year are generally resilient and go on to graduate. For this reason, it appears that the first year of college is a critical opportunity for intervention for students screened as 2e. Furthermore, results of the present study show that approximately 76% of students screened as 2e were undecided in their choice of major when they began college, compared to only 65% of students screened as gifted and 73% of students in the general population. While being undecided may not be a vulnerability in itself, the high percentage of students screened as 2e who were initially undecided in this study shows that choosing a major may be difficult for them.

Some Implications and Limitations. While limited research is available regarding interventions specifically for 2e college students, these students will likely benefit from research-based interventions that are commonly provided to undecided students, including supplemental academic advising, first-year seminar courses, and career counseling (ACT, 2010; What Works Clearinghouse, 2016), as these interventions may support 2e students in persisting in college and choosing majors in which they will be successful. Al-

though these recommendations are intuitively appealing, additional research is needed to determine whether they are effective for this unique population.

In addition to the potential benefits of exploring interventions at the college level, researchers may investigate how interventions at the K-12 level later affect higher education outcomes for these students. This type of follow-up research is rare because of methodological difficulties associated with operationalizing student characteristics/gains across two very different settings, but needed when students transition from one setting to another. Research is also needed to identify appropriate predictors of college success for students screened as 2e, as traditional metrics, such as high school GPA and ACT score, may not be as useful for them relative to non-2e students in predicting graduation and retention; that is, in this study these predictors were significantly correlated with outcomes for students screened as gifted and students in the general population but not for students screened as 2e.

Several limitations characterize this study. For example, group assignment of participants was based on screening measures (i.e., ACT) as opposed to individually-administered standardized tests of cognition and achievement. While the highly conservative screening method used in the present study permits researchers to explore academic outcomes associated with a defining characteristic of 2e (i.e., extreme academic variability), future research is needed to explore whether outcomes in this study generalize to students who have been identified as 2e by traditional diagnostic methods. A second salient limitation of this study is that it explores college outcomes for only a fraction of potentially 2e students: those screened as gifted with a SLD in math or reading who decided to pursue college. Future research is needed to address outcomes for other kinds of 2e undergraduate students, such as students who are gifted with autism spectrum disorder, ADHD, and other disabilities.

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Tables

Table 1: Establishing Cutoff Criteria Using Distributions from 2011 Freshmen Cohort

Measure	<i>M</i>	<i>SD</i>	Formula to Establish Screening Cutoff Scores	Screening Cutoff
Reading ACT Superscore	27.37	4.50	Gifted in Reading if Reading ACT $\geq \mu + 1$ SD	≥ 32
Math ACT Superscore	25.50	3.88	Gifted in Math if Math ACT $\geq \mu + 1$ SD	≥ 30
*Discrepancy between Reading and Math	5.39	3.28	Twice-Exceptional if Screened as Gifted AND Discrepancy $\geq \mu + 2$ SD	≥ 12

*Note. *For students screened as gifted.*

HIGHER EDUCATION OUTCOMES

Table 2: Shape of Distributions for Numeric Measures for All Students

Measure	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
High School GPA	3.78	0.47	-0.51	-0.09
Final College GPA	3.05	0.63	-1.03	1.36
Composite ACT Superscore	26.44	3.39	0.06	-0.28
Math ACT Superscore	25.40	3.99	0.07	-0.13
Reading ACT Superscore	27.22	4.50	-0.15	-0.62
Discrepancy	3.89	2.94	0.92	0.64

Table 3: Percentage of Students Retained by Group

Group	Number of Students in Group	Number of Students Retained	Percent Retained
General Population	14,824	12,431	83.9%
Screened as Gifted	5,693	5,055	88.8%
Screened as 2e	244	201	82.4%
2e-SLD in Reading	34	30	88.2%
2e-SLD in Math	210	171	81.4%

Table 4: Six-Year Graduation Rate by Group (2007 Freshmen Cohort)

Group	Number of Students in Group	Number of Students who Graduated	Percent of Students who Graduated
General Population	3,002	1,969	65.6%
Screened as Gifted	934	701	75.1%
Screened as 2e	44	31	70.5%
2e-SLD in Reading	7	5	71.4%
2e-SLD in Math	37	26	70.3%

Table 5: Major Declaration Status by Group

Major Group	Declared	Undecided
General Population	26.8% N=3,978	73.2% N=10,846
Screened as Gifted	35.0% N=1,990	65.0% N=3,703
Screened as 2e	23.8% N=58	76.2% N=186

Table 6: Chi-square Values for Major Declaration Status Comparisons

Comparison Groups	Undecided
<i>Screened as 2e</i>	
to students screened as gifted	12.953*
to students in general population	1.149

Note. * $p < .001$

Table 7: Comparison by Group of Correlations of High School GPA and Composite ACT Score with Academic Outcomes in College

Variables	General Population	Screened as Gifted	Screened as 2e
<i>High School GPA with</i>			
Retention	.153**	.210***	0.071
Graduation ^a	.223**	.311**	-0.124
Final College GPA ^b	.414***	.470***	.338*
<i>Composite ACT Score with</i>			
Retention	.079**	.113***	0.055
Graduation	.106**	.178**	-0.043
College GPA	.228***	.202***	0.036

Note. ^aGraduation correlations based on 2007 freshmen cohort only (N=3,980). ^bFinal college GPA correlations based on 2008 freshmen cohort only (N=4,171). * $p < .05$. ** $p < .01$. *** $p < .001$

Collaborating with Institutional Research: A Best Practice for School Psychologists in Postsecondary Settings

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Practicing in a postsecondary setting provides school psychologists a unique opportunity to plan, implement, and evaluate organizational-level programs. There is some literature discussing different aspects of practicing in a postsecondary environment, but this literature neglects the contribution of one essential collaborator: institutional research (IR). In this article, we describe the fundamental aspects of IR, provide some guidance for how school psychologists can partner with IR personnel, and give an example of how a school psychology faculty member and an IR professional collaborated to conduct a needs assessment related to undergraduate non-persistence.

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School psychology training provides individuals with a unique set of skills that allow them to provide a continuum of educational and mental health services to students, families, and schools (National Association of School Psychologists, 2010). Historically, the "school" aspect of school psychology has referred to a P–12 educational environment, but more recently it has also come to encompass postsecondary settings (Byrd & Hodges, 2015).¹ As with practicing in a P–12 environment, working in a postsecondary setting can include a variety of activities ranging from the traditional (e.g., providing support groups for students with Autism, conducting psychoeducational assessments) to the non-traditional (e.g., consulting with new faculty about effective teaching, providing faculty development talks on student learning) (Sandoval, 1988; Sulkowski & Joyce, 2012).

Practicing in postsecondary settings provides a superb opportunity for school psychologists to use a public health framework (Strein, Hoagwood, & Cohn, 2003). In this perspective, the client is the entire body of students enrolled at the institution. Moreover, a central characteristic of a public health framework is the focus on the prevention of problems (Short & Talley, 1997). Thus, practice often requires working at the systems level, providing consultation, assessment, or program planning so that all students have comprehensive and integrated care.

Another key aspect of the public health framework is that program development, implementation, and evaluation is interdisciplinary (Nastasi, 2000). When thinking of interdisciplinary practice in postsecondary settings, it is probably not hard to imagine why school psychologists would need to collaborate with medical, educational, public safety, or mental health specialists on campus. One overlooked—but equally

as important—collaborator for postsecondary practice is institutional research.

Institutional Research. Traditionally, the role of institutional research (IR) on postsecondary campuses was descriptive and evaluative—typically producing "fact books" to describe the institution as well as reports to aid various stakeholders make organizational decisions. This started to change in the 1980s as universities started to be more strategic in their organization and sought to find their unique niche in higher education. As a result, IR evolved to not only continue their descriptive and evaluative roles, but also take on a more proactive role such as aiding in program planning, policy development, and other aspects of institutional improvement (Peterson, 1999).

Currently, many IR offices are designed to be centers of organizational intelligence that encompass: gathering data, analyzing and transforming that data into information, and interpreting that information to provide insight and aid in decision making (Terenzini, 1993; Volkwein, Liu, & Woodell, 2012). From the perspective of a school psychologist, IR can be thought of as a key collaborative partner with expertise in acquiring the information needed to make data-based programmatic decisions (Association for Institutional Research, 2017).

The information that IR can provide will vary from one institution to another. Most should have access to basic student information (e.g., admissions data, demographic information), student outcome data (e.g., retention, employment), as well as program process data (e.g., courses taken, grades, membership in student organizations). Many IR offices do—or are capable of doing—much more (Voorhees, 2008), such as collecting information on course learning outcomes, conducting student/faculty focus groups, implementing well-designed surveys, and forecasting enroll-

¹ Throughout this article, we use the term postsecondary to refer to all types of higher education institutions. This includes two- and four-year institutions, as well as professional schools and vocational/technical/trade schools.

ments of students with unique educational needs (e.g., learning disabilities, Autism). In other words, they are instrumental in accessing the information needed to make decisions about program planning, implementation, and evaluation.

How to Collaborate with Institutional Research

Most staff and faculty at postsecondary institutions—irrespective of their discipline or position—do not have much interaction with IR. Thus, school psychologists who find themselves practicing in postsecondary settings may be unsure of how to engage their IR office. Many of the best practices for developing collaborative relationships and working at the systems level within a P–12 environment (e.g., planning, collaboration, understanding idiosyncrasies of a particular system; Harrison & Thomas, 2008), also apply to postsecondary environments—including working with IR. It is within this framework we suggest the following steps to develop a solid partnership.

1. Create a rough draft of the project. This should include how the project will benefit the institution, the questions to answer, and the data needed to answer them. This does not need to be extremely detailed, but IR personnel will be able to collaborate better if they have a clear understanding of the project's purpose and the information needed to accomplish the project.

2. Engage administrators (e.g., Dean, Provost's office). Whether the project's purpose is to study student retention or develop a program to help first-generation students integrate into college life, administrators are key stakeholders and they should be part of the project's team. Moreover, access to some data requires administrator approval, so getting them on board early can help pave the way for smoother data access.

3. Make an initial contact with the IR director. Inform the director about the project and request a meet-

ing to discuss using data collected (or potentially collected) by IR.

4. Meet with the IR director (or other designated employees). The purpose of this meeting is to discuss the particulars of the project outlined in Step 1 as well as foster a relationship with the IR office. Be open to the fact that IR may not currently collect the exact variables of interest, but may collect other data that can be used to approximate those variables. For example, say the purpose of a project is to evaluate the impact of the institution's program for students identified as having a learning disability. IR likely will not have information specifically for that program, but it could provide some other useful outcome data (e.g., graduation, GPA) for the students in the program as well as help create a matched comparison group of other students not enrolled in the program.

5. Develop a data security plan. Because most of the data IR supplies are part of students' education records, FERPA regulations apply. Thus, it is important to work with IR and other university entities (e.g., IRB, information technology services) to develop a plan on how to keep the information secure—keeping in mind that the level of security will depend on the nature of the requested data. If the project requires collecting data (or using existing data) in addition to what IR provides, be sure to describe the dataset linking process in the security plan. The National Center for Education Statistics published a series of technical reports on data stewardship (Seastrom, 2010a, b, c) that may be helpful in crafting such plans, although some institutions already have data security plan templates available.

6. Set a reasonable timeline for the project. Each IR office has their own guidelines about how quickly they can process data requests, which will largely depend on workload, the data, any permissions needed from other campus entities (e.g., IRB), and whether it is a one-time or ongoing data request.

7. Conduct the analyses. Depending on the purpose of the project and the personnel in a particular IR office, IR may be able to provide some data-analytic services or consultations, or it may be incumbent on the person requesting the data to complete all the analyses. School psychologists not confident in their data analysis skills should inquire about any analysis support available from IR as part of Step 4.

8. Communicate the results. This includes communicating with the project's stakeholders (including administrators involved in the project), professional outlets (e.g., journals, conferences), as well as the IR office. IR personnel often have a good understanding of the institution's current and planned programs, so may be able to help disseminate the results to other parties that could use the information to aid in their decision making. Moreover, they can provide feedback about whether the presentation/report is sufficiently de-identified to present to audiences outside of the university.

Example of a Successful Collaboration

The authors of this manuscript (a school psychology faculty member [AAB] and a senior research and planning associate within IR [DDF]) were involved in a project. While we had previously worked together on other research, this particular project highlights how a school psychologist and IR professional can collaborate to provide services to postsecondary students.

The background for this particular project was that there was a gap between the current level of student non-persistence and the level desired by the university's administration. Consequently, an associate vice provost requested that we conduct a needs assessment (Nagle & Gagnon, 2014) on undergraduate student non-persistence (i.e., enrollment interruption without a subsequent return to the university) and provide recommendations based on our results. Although there are many variables pertinent for such a study, we were

tasked with focusing on those already available from IR.

Since neither one of us were experts on non-persistence, we both examined the published literature in the area. For efficiency, we looked at different aspects of non-persistence. DDF focused on examining the substantive literature to determine what set of variables would be useful to examine; AAB focused on examining the best statistical method for modeling non-persistence data.

After examining the substantive literature, DDF examined all the variables IR collected (or had access to) in order to determine the ones that were similar to the variables suggested by the literature. After reviewing both sets of variables, we arrived at a final list of 14 variables in IR's databases that we wanted to examine. In a similar fashion, AAB examined the types of statistical models that experts in the field recommended to analyze non-persistence data. We decided that event history models (Singer & Willett, 2003) were the most appropriate for our particular questions and data because they account for the discrete nature of the outcome (i.e., enrolled/graduated vs. non-enrolled) as well as make use of the longitudinal nature of the data. Since we wanted our model to be as robust as possible, we decided to examine multiple cohorts of students. Specifically, we selected five cohorts of students who entered the institution at least six years prior to this project's start data to allow the students ample time to graduate.

After we determined the variables and cohorts we wanted to examine, we developed a data security plan so that AAB could have access to the data (DDF already had access since she worked for IR) and then submitted a proposal to the IRB. The last step gave us the option of presenting our results to an audience outside our institution once the project was completed.

Once we received approval from the IRB, we ran our analysis for a single cohort of students, comparing varying models to see which ones fit the data the

best. As expected, we found that the students' GPA was a strong predictor of non-persistence, with merit-based aid status serving as a protective factor. Moreover, we found that non-persisting students usually made the decision to discontinue enrollment in their second or third semester (i.e., spring or summer of their freshman year).

Once we completed the initial analysis, we then applied the same model to the other cohorts to assess generalizability. While the cross-validation process prompted us to make some tweaks to our original model, the timeframe for deciding to discontinue enrollment remained the same as did the importance of GPA and merit-based aid. Thus, some of our recommendations included strengthening the institution's efforts to increase the likelihood of student success during their first three semesters, especially focusing on students not receiving merit aid.

After completing the analysis, we prepared a technical report that discussed our methods, findings, and recommendations. We then made presentations to the associate vice provost and other stakeholders. This was the most difficult aspect of the entire project since our audiences largely consisted of administrators and student support personnel whose educational backgrounds ranged from a doctoral degree in mathematics to a bachelor's degree in the humanities. Thus, we had to convey our core message, findings, and recommendations in a way that not only could be understood by a diverse group of individuals, but also persuade them to take action (Grob, 2015). In addition, we also presented our project and results at some peer-reviewed conferences devoted to IR scholarship.

Conclusion

Practicing in a university setting is well within the realm of possibility for school psychologists, especially for those adept—or wanting to be adept—in us-

ing a public health framework. Part of this practice will likely involve developing a working relationship with IR. They have a warehouse of information about students and programs, and can provide the informational support needed for planning, implementing, and evaluating programs to provide students with comprehensive and integrated care.

An additional benefit of working with individuals in IR is that collaborating with them on the project—as opposed to just telling them the variables you want to examine—may result in analyses (or future projects) that are more useful and enriching than what was originally intended (Kroc, 2015). In our non-persistence study, for example, neither one of us would have developed the models and insight we did had we conducted the project in isolation. It was only in collaboration that we were able to develop the model we did and provide stakeholders with the necessary information to make their decisions. Thus, for school psychologists working in postsecondary settings—especially those using a public health model—a relationship with individuals in IR may very well prove to be very fruitful and well worth the time to cultivate.

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