

Assessing Academic Risk of Student-Athletes: Applicability of the NCAA Graduation Risk Overview Model to GPA

James Johnson, Ball State University

In an effort to standardize academic risk assessment, the NCAA developed the graduation risk overview (GRO) model. Although this model was designed to assess graduation risk, its ability to predict grade-point average (GPA) remained unknown. Therefore, 134 individual risk assessments were made to determine GRO model effectiveness in the identification of academic risk for Division I student-athletes as determined by semester GPA. Pearson correlations and least-squares multiple-regression analyses revealed the GRO model as an effective means by which to assess academic risk. Academic advisors and other stakeholders of college student-athlete well-being can use this model to identify student-athletes most at risk for academic struggles and advise them accordingly.

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Advising student-athletes can be a difficult task because of the uniqueness of their athletic and academic expectations (Leslie-Toogood & Gill, 2008). Student-athletes shoulder a tremendous amount of responsibility placed on them by coaches, administrators, and faculty members. They often devote more than 40 hours per week to athletic pursuits (Simons, Bosworth, Fujita, & Jensen, 2007), including 2 to 4 hours of practice per day, travel, competition, film review, weight training, injury rehabilitation, media responsibilities, and community service. Many in their lives do not realize the time required to participate in these activities nor appreciate that they often leave athletes physically drained. Some do not understand that these student-athletes also face financial stress because they often cannot take advantage of work opportunities while maintaining a collegiate-level training regimen (Cogan & Petrie, 1996; Melendez, 2006; Nordeen, 2008). In addition, these athletes encounter the academic demands faced by all college students.

Due to the potential complexity of the many athletic and academic expectations for student-

athletes, advisors of athletes must be particularly knowledgeable in many specialized areas. Understanding the unique contexts of the sport of each advisee as well as the eligibility standards applied to student-athletes, the astute advisor often must intervene with the most appropriate support services (Nordeen, 2008; Robinson, 1999); however, to undertake an intervention, advisors must consider a variety of athletic and academic factors affecting the lives of student-athletes and thereby determine a theoretical level of risk. Currently, the process of assessing risk levels differs from a highly developed process on some college campuses to a less emphasized area in others (Friedman, 2008). To aid in this risk-identification process, the National Collegiate Athletic Association (NCAA) has offered a solution.

In October 2006, on the heels of the most comprehensive academic reform in recent NCAA history, the NCAA Presidential Task Force appointed a working group to identify several issues regarding academically at-risk student-athletes. Over the course of the subsequent two years, the working group focused its efforts toward defining and developing a data-driven model useful in identifying the academic risk level of new and continuing NCAA Division I student-athletes (National Collegiate Athletic Association [NCAA], 2009b).

In January 2009, with assistance from the NCAA research staff, the working group unveiled ideas for a system they coined “facilitating learning and achieving graduation” (FLAG). The FLAG system features three components meant to identify, and counter, the risk of postsecondary attrition faced by student-athletes prior to graduation. The first component, and the focus of this study, is the graduation risk overview (GRO). This model requires someone with intimate knowledge of a student-athlete (e.g., coach, advisor) to calculate an overall risk score by totaling points in five different categories: academics, role of academics, transfer, personal history, and sport.

The second component of the FLAG system is advising and support services, which include programming efforts designed to counter the risk levels assessed through use of the GRO model. The

third component calls for evaluation of advising as well as support services and programs, which determines the effectiveness of risk-elimination by campus units. Because the FLAG system is relatively new, GRO is the only component currently operational as a working model; it has been available for use since 2009. The intention of the GRO model is described as follows:

The GRO is a voluntary tool designed to help institutions perform a real-time assessment of an individual student-athlete's potential barriers to graduation. When risk is defined in terms of a student-athlete's likelihood of graduation, it requires the consideration of all factors that can reduce a student-athlete's chance of graduation. Under the GRO model, every student-athlete has some degree of risk of not graduating until the time that he or she actually completes all graduation requirements. Therefore, each student-athlete's risk can be evaluated and placed on a continuum based on the risk factors specific to that individual. (NCAA, 2009a, para. 1)

To date, researchers have offered no empirical evidence on the validity of the GRO model, which is still in its infancy. Although parts of the model were developed based on extensive research from the NCAA, the applicability of the GRO remains in question. Many of the categories (e.g., academic variables, personal history) have been consistently shown to aid in predicting academic success (Gaston-Gayles, 2004; Hill, 2004; Johnson, Wessel, & Pierce, 2010, 2012, in press; Loughran & Etzel, 2008; Storch & Ohlson, 2009; Wohlgemuth et al., 2006). However, the extent that each factor contributes to the overall impact measurable in a standardized risk-rating system remains undetermined. If the GRO model is to become the standard for risk-assessment routinely used by academic personnel in support service programming, as suggested by the NCAA (2009a), data must be gathered and studied on the validity of the model.

Review of Literature

Assessment of the academic risk of student-athletes was an institution-specific practice evolving since the beginning of college sports (Friedman, 2008), which first surfaced as small intramural competitions in the late 1800s and evolving into the commercialized college sports of today (Smith, 2011; Sperber, 2000). For as long as student-

athletes have represented their colleges and universities in competition, stakeholders have expressed concerns about finding the proper balance between academics and athletics as they seek to identify those who will most likely negotiate both areas and graduate (Gurney & Johnston, 1986; Lopiano, 2008; Meyer, 2005; Robinson, 1999).

Although one specific historical event cannot be identified as the reason for necessitating standardized academic risk assessment, some historical lynchpins warrant mention. Most notably, the early and contemporary academic reform policies of the NCAA reflect a need to strengthen the initial and continuing eligibility standards of student-athletes based on their academic risk. For example, in 1986 the NCAA instituted Proposition 48, which required high school graduates to earn a 2.0 grade point average (GPA) in 11 core courses and a minimum SAT score of 700 or ACT score of 15. Proposition 16 was introduced in 1995 and included a sliding scale of GPA and SAT to determine initial eligibility (Kingston, 1999). In 2005, the initial eligibility standards were changed to 14 core courses and included a new measure of continuing eligibility known as the *academic progress rate* (APR). The APR is a term-by-term team calculation determined by both eligibility and retention (Meyer, 2005). These policies, possibly viewed as generalized risk assessment tools, lack comprehensiveness and only address minimum qualification standards.

Beyond the NCAA academic reform policies, another key to the evolution of academic risk assessment is the NCAA's efforts to ensure academic support. In 1991, the NCAA mandated that all Division I member institutions adopt tutoring and counseling services for their student-athletes. As the list of approved academic-support services grew over the years, the NCAA eventually permitted financial support of any service necessary for the academic success of student-athletes (e.g., learning disability assessment, life skills courses, study hall) (NCAA, 2004). Student-athletes qualified for support services based on an academic risk assessment. Therefore, advisors and academic support personnel developed systems to determine academic risk as well as programming to mitigate such risks (Brooks, Etzel, & Ostrow, 1987; Gurney & Johnston, 1986; Hollis, 2002; Lopiano, 2008). Lopiano (2008) noted that many such programs are more "about responding to crisis than operating from a sound and proactive philosophical perspective" (para. 1).

Graduation Risk Overview Model

Currently, assessment of academic risk is still largely an institution-specific endeavor that provides unique challenges (Friedman, 2008). The factors that influence academic risk, and the means to weigh the influence of each risk factor, are complicated. However, for decades advisors have been tackling this challenge, and the NCAA GRO model offers a possible standardized means of placing student-athletes on a risk continuum determined by two primary categories: risk at entry and post-entry (NCAA, 2009a, 2009b), further broken down into five individual divisions: academic, role of academics, transfer, personal history, and sport. The developers of the GRO model determined the final 10 variables from 43 original academic and nonacademic variables examined. The NCAA research staff conducted linear regression analysis on 267 college and universities and over 5,700 current and former Division I student-athletes to determine which of the 43 variables are the most important in predicting graduation (NCAA, 2009a; Paskus, 2008).

Academic

Answers to a series of questions in each of the five GRO categories help determine the risk factors of a student-athlete. The academic category distinguishes new from returning students, requiring respondents to address a different set of questions based on the enrollment longevity of the student-athletes. The risk factors presented feature those common to other freshman risk-evaluation tools based on the initial information gathered by advising and support services (Hill, 2004). According to the NCAA (2009, p. 8), "Academic performance in high school is the best single pre-college predictor of graduation behavior in college." Johnson et al. (2010) have also suggested that high school GPA and numbers of core courses taken are strong predictors of student-athlete GPA, and for decades standardized tests have been used to make fairly accurate choices about college admission and predictions of performance, especially when combined with high school GPA (Burton & Ramist, 2001; Johnson et al., 2010; Sacks, 1997). Students demonstrating past academic instability, such as attendance at more than two high schools, or who work with an educational disability, experience dramatically increased risk of academic difficulty (NCAA, 2009a).

Academic category factors for continuing students are less complex as only the academic variables of GPA (cumulative and current), eligibility, and educational disability need consideration. Ultimately, college GPA is the most important of the academic variables because it is the most powerful predictor of degree attainment (NCAA, 2009a).

Role of Academics

Because it emphasizes effort, attitude, and athletic identity rather than specific academic performance, the role of academics category in the GRO model differs from the academic category. Athletic identity is the degree to which student-athletes define themselves as an athlete, oftentimes in direct contradiction to an academic identity (Melendez, 2006). Strong athletic identity often distracts athletes from other areas of interest and contributes to the anxiety if athletic pursuits do not meet expectations (Brown & Potrac, 2009; Marx, Huffmon, & Doyle, 2008). In addition to athletic identity, students with low motivation often demonstrate relatively less academic success (Gaston-Gayles, 2004), which makes sense because prolonged success in college requires some combination of motivation and effort. In addition, the literature on academic majors suggests that attitude toward a major potentially affects academic performance; specifically, students lacking confidence in their choice of major may be less motivated toward pursuing their degree (St. John, Hu, Simmons, Carter, & Weber, 2004).

Transfer

The only question in the transfer category asks whether a student has transferred from another institution. Fewer transfer students graduate than do students who maintain their enrollment in one institution (Storch & Ohlson, 2009). In fact, "a substantial body of NCAA research indicates that Division I student-athletes who transfer significantly increase their risk of not graduating" (NCAA 2009a, p. 10). Exacerbated for underprepared students, this situation may result from loss of credits or lack of engagement with the campus. Even after controlling for academic and demographic characteristics as well as type of institution, researchers have shown that transfer student-athletes are more likely to drop out academically ineligible (NCAA, 2009a; Paskus, 2008).

Personal History

To capture the social, personal, and intrapersonal issues that may negatively influence student-athlete academic performance, as shown in the literature, the GRO model includes a personal history category. Some of the negative impacts cited by researchers reflect potential insufficiency in college information, funding, or preparation. For example, first-generation college students have demonstrated lower academic performance than second- or third-generation students (Wohlgemugh et al., 2006). Low socioeconomic status has been linked to decreased academic performance (Loughran & Etzel, 2008). Homesickness dramatically influences the attrition rates of college students (Fisher, 1989). Furthermore, the impact of injury on the psychological well-being of an athlete is well-documented (Taylor & Taylor, 1997) as is a variety of mental health and substance abuse issues that could be detrimental to any college student (Gourlay & Barnum, 2010).

Sport

Factors unique to a sport that arise during a student-athlete's collegiate career correlate with decreased likelihood of graduation (NCAA, 2009a). Participants in the high-profile sports of men's basketball and football have consistently demonstrated the lowest APR scores among all who participate in NCAA sports (NCAA, 2011); these athletes also show historically low GPAs and graduation rates (Johnson et al., 2010, in press; Kihl, Richardson, & Campisi, 2008; Le Crom, Warren, Clark, Marolla, & Gerber, 2009). Additionally, after exhausting athletic eligibility, a student-athlete is at "substantially increased risk of not graduating even after other risk factors are considered" (NCAA, 2009a, p. 12). Furthermore, the literature on decreased APR scores suggests that a coaching change negatively influences academic performance (Johnson et al., 2012). Also, student-athletes dissatisfied with limited playing time may leave the institution before graduating (Johnson et al., in press).

If proven useful for assessing academic risk, the GRO model can eventually be applied to a wide variety of institutions, eliminating much of the guesswork about at-risk student-athletes such that academic advisors can offer the most appropriate level of academic support for a particular risk level. Therefore, several levels of analysis were applied to one primary research question.

Purpose, Research Question, and Hypotheses

In this study, the NCAA GRO model was evaluated as an instrument to predict individual student-athlete GPA. To reach the research objective the following question was addressed: Is the NCAA GRO model effective in the identification of academic risk as measured by semester GPA?

The following hypotheses were formed as a result of the research question:

- H1. The academic category will be associated with the highest mean risk score.
- H2. Of all demographic variables examined, *male* will have the highest mean risk score.
- H3. The GRO total score will demonstrate a strong relationship with semester GPA.
- H4. The GRO total score will be a significant predictor of semester GPA.
- H5. The GRO total score, with the addition of demographic variables, will be a significant predictor of semester GPA.

Method

Although the GRO model was designed to assess risk in terms of graduation, the link between graduation and GPA cannot be ignored (Belcheir, 2001). Also, due to the time constraints (one academic year) associated with this research, graduation rate could not serve as the dependent variable. Furthermore, as a primary determinate of eligibility, financial support decisions, and academic support services, GPA is a more practical dependent variable than graduation rates on which to evaluate risks to student-athlete success.

Sample

A purposeful criterion sampling approach was utilized to examine 134 student-athletes at a mid-sized (approximately 20,000 students) NCAA Division I university. All members from the women's swimming and diving team as well as the men's baseball team were purposefully chosen for participation. The sample included a relatively equal number of males ($n = 66$) and females ($n = 68$). This sample was statistically representative of the total student-athlete population at the institution ($\sim N = 400$) and allowed for a relatively equal distribution of demographic variables (Fraenkel & Wallen, 2006). A total of 134 individual risk assessments were conducted over an entire academic year based on the GRO criteria.

Graduation Risk Overview Scoring

Each of the five categories in the GRO model is scored differently. See Table 1 for a breakdown of the risk points added per category. After assigning risk points to each of the five categories, the points are totaled to provide the total number of risk points. The higher number of risk points relates to more potential risk to student-athlete success (NCAA, 2009b).

Procedures

To render a risk level through the GRO model, the researcher needs a variety of academic and personal information, so the head coach of each respective sport was consulted to complete this study. Based on the relationships established through day-to-day interactions during practice and competition, the coach can address subjective areas, such as the level to which the student identifies as an athlete, how much academic effort he or she exerts, and whether the individual appears homesick. Furthermore, through a variety of supervisory and administrative roles, the coach

can look at records to provide all the necessary information including the number of high schools, educational disabilities, transfer status, and socioeconomic background. In addition, the NCAA encourages the use of the coach as a source of data by noting “increased dialogue with or evaluation by coaches may prove useful in judging individual risk factors” (NCAA, 2009b, p. 2).

At the beginning of the 2011 academic year, the first of two meetings with coaches was conducted. During the initial meeting, the coaches learned about the GRO model and provided all related information. They first identified a specific student-athlete to code, and then progressed through each specific section of the GRO model. If the student-athlete met the qualification for risk in a specific category, the coach added the corresponding risk point to the overall total (see Table 1). For example, one coach believed a specified athlete identified strongly as an athlete but not as a student and displayed effort and a general liking of the chosen major, so 1 of the 4

Table 1. Graduation risk overview model for continuing students

Category	Points	Variable(s)/Criteria
Academic	+4	Current cumulative GPA < 2.0 <i>or</i> current term GPA < 2.0 <i>or</i> academically ineligible within the past year
	+2	Current cumulative GPA < 2.6 <i>or</i> current term GPA < 2.6 <i>or</i> education disability diagnosed <i>or</i> other locally identifiable academic criteria
Role of Academics	+1	Identifies strongly as an athlete, not as a student, <i>or</i> professional sports opportunity presents
	+2	Academic effort lacking (historical or contemporary)
Transfer	+1	Negative attitude toward major
	+1	Transferred into current institution (2–4 or 4-4)
Personal History	+1	First-generation college student <i>or</i> student has low financial resources <i>or</i> student is homesick <i>or</i> other locally identified criteria
	+1	Personal, health, injury, personal, family, mental health or substance abuse issue(s)
	+1	Student-athlete in high-profile sport at the institution <i>or</i> high-profile (e.g., Olympic caliber) student-athlete
Sport	+2	No athletic eligibility remaining
	+1	Team environment does not prioritize academics <i>or</i> coaching change occurred <i>or</i> student-athlete dissatisfied with athletics experience
Total		0–2 = low risk; 3–4 = moderate risk; 5+ = high risk

Note. NCAA (2009a)

risk points was added under the role of academics category. When coaches needed to make subjective judgments (e.g., other locally selected criteria), they received examples and instructions to consider only criteria that they thought added a level of academic risk for the student. For example, a negative living situation, such as a conflict with a roommate, may create an academic risk and thus prove an appropriate local criterion to include in the analysis.

The second meeting was scheduled at the end of the fall semester, during which the coaches provided GPA information. This two-meeting process was repeated during the 2012 spring semester. Gender of the student-athletes, as well as GRO scores, was recorded during the meetings within a Microsoft Excel file for further analysis. After the two-meeting schedule with coaches were concluded, information on three demographic variables were inserted through use of online sport media guides that contained player biographies.

Data Analysis

Analysis of the data was based on both descriptive and inferential statistics. Descriptive information (e.g., mean, standard deviation) shows the basic features of the data by means of frequency distributions and measures of central tendency (addressing H1 and H2). Inferential statistics (i.e., correlation and multiple regression) were utilized to evaluate the predictive ability of the GRO model; the dependent variable was semester GPA.

Pearson correlations were used to initiate inferential statistical assessment of the GRO scores (NCAA 2009a, 2009b), GPA, and other demographic variables collected in this study (for H3). According to Kline (2005), a Pearson correlation “estimates the degree of linear association between two continuous variables X and Y” (p. 22). In this case, the continuous variables are GRO scores, GPA, and demographic variables. After the Pearson correlational analyses, three ordinary least-squares multiple-regression analyses were conducted (for H4 and H5). An advanced technique, multiple regression “enables researchers to determine a correlation between a criterion variable and the best combination of two or more predictor variables” (Fraenkel & Wallen, 2006, pp. 338–339). In the first analysis, the GRO total score was regressed against semester GPA to determine whether the GRO model alone was a sound predictor of GPA.

For the second regression analysis, to obtain more specific information about the most influential categories, the subscales of the GRO model were regressed against semester GPA. In the third regression analysis, the demographic characteristics of academic level, student status as new or returning, gender, and in-season versus out-of-season were added to determine whether these commonly known demographic variables add to the predictive ability of the GRO model.

Results

To evaluate the GRO model, five hypotheses were created. H1 was based on the speculation that coaches would add the most points from the academic category such that the highest mean would be calculated from points attributed to student-athletes from this GRO category. Table 2 demonstrates this was not the case. The coaches scored the student-athletes such that the academic category ranked third in terms of total risk points ($n = 74$) and mean number of GRO points: $M = .55$, $SD = 1.16$. The personal history category was associated with the most risk points ($n = 109$, $M = .81$, $SD = .77$) followed by the sport category ($n = 93$, $M = .69$, $SD = .74$).

H2 predicted that the highest mean risk score would be found for the *male* demographic variable. Table 3 confirms this hypothesis. Of all the demographic variables, *male* was associated with the highest mean risk score of 3.61 risk points. The second highest mean score was reflected in the variable *juniors* ($M = 3.05$, $SD = 2.78$) followed by *in season* ($M = 2.65$, $SD = 2.67$).

For H3, Pearson correlational analysis confirmed a relatively strong relationship between GRO totals and semester GPA: $r = -.70$, $p < .01$. This result suggests that as GRO totals increase (i.e., academic risk is increased), semester GPA decreases. Table 4 demonstrates the correlational values associated with the GRO totals, GPA, and

Table 2. Summary of graduation risk overview (GRO) risk variables

Category	<i>M</i>	<i>SD</i>	Total Risk Points
Academic	.55	1.16	74
Role of Academics	.40	.81	53
Transfer	.07	.25	9
Personal History	.81	.77	109
Sport	.69	.74	93
GRO Total	2.52	2.37	338

Table 3. Summary of graduation risk overview (GRO) total scores for demographic characteristics, $N = 134$

Variable	<i>n</i>	%	<i>M</i>	<i>SD</i>	Total Risk Points
Freshman	27	20.15	2.04	1.91	55
Sophomore	46	34.33	2.70	2.47	124
Junior	39	29.10	3.05	2.78	119
Senior	22	16.42	1.73	1.61	38
New Students	18	13.43	2.17	1.65	39
Returning Students	116	86.57	2.56	2.47	297
Male	66	49.25	3.61	2.63	238
Female	68	50.75	1.44	1.47	98
In Season	69	51.50	2.65	2.67	183
Out of Season	65	48.51	2.35	2.03	153

the demographic variables. In addition to the significant relationship between the GRO total score and GPA, gender was the only variable significantly related to both GRO totals ($r = -.46$, $p < .01$) and GPA ($r = .32$, $p < .01$), a noteworthy result.

H4 postulated the GRO total score would be a significant predictor of semester GPA. To test this hypothesis, two separate least-squares multiple-regression analyses were conducted. In the first analysis, the individual GRO total score was isolated to determine whether it alone predicts GPA. Results show that total GRO score alone was a significant predictor of semester GPA: $F(1, 129) = 125.23$, $p < .01$. Approximately 49% of the variance in semester GPA can be predicted by the GRO total score as indicated by an R^2 value of .49. The second regression analysis included GRO subscales, and like the total score, the subscales proved powerful enough to predict semester GPA: $F(5, 125) = 27.08$, $p < .01$. The R^2 value was .52,

indicating approximately 52% of the variance in semester GPA can be explained using the GRO subscales. Table 5 contains the summary of both least-squares multiple-regression analyses.

H5 predicted that the GRO total score, with the addition of demographic variables, would prove a significant predictor of semester GPA. Similar to the analysis done to test H4, we found an R^2 value of .49, indicating that the model accounts for 49% of the variance in semester GPA. Furthermore, the analysis revealed that this linear combination of variables significantly predicted semester GPA: $F(5, 125) = 26.12$, $p < .01$. However, when combined with the total GRO score, none of the demographic variables alone significantly aided in predicting semester GPA. Table 6 demonstrates the regression information for H5.

Discussion

Based on the extensive evaluation of more than 43 academic and nonacademic variables (NCAA, 2009b), the GRO model incorporates the most powerful factors found to affect academic performance and graduation. Three risk categories (e.g., academic, personal, sport) have been shown by previous research to likely produce a valid indication of academic risk. Because of the lack of empirical research on this model, to answer to the following question adds important perspective on the instrument: Is the NCAA GRO model effective in the identification of academic risk as measured by semester GPA? Specifically, due to the importance of GPA in the determination of eligibility, financial support decisions, and academic support services for student-athletes, an investigation of the GRO applicability to GPA was conducted through testing of five hypotheses.

H1 stated that the highest mean risk score in the GRO model would be calculated in the academic category. This hypothesis was formed based on

Table 4. Pearson correlations for graduation risk overview (GRO) total, GPA, and demographic variables

Variable	GRO Total	GPA	Year in School	New vs. Returning Students	Gender	In Season vs. Out of Season
GRO Total	1					
GPA	-.70**	1				
Year in School	-.0	.16	1			
New vs. Returning Students	.06	.13	.48**	1		
Gender	-.46**	.32**	-.14	-.08	1	
In Season vs. Out of Season	-.06	.03	.03	.08	-.03	1

Note. * $p < .05$. ** $p < .01$.

Table 5. Summary of least squares linear regression for graduation risk overview (GRO) subscales

Categories	<i>B</i>	Std. Error	β	<i>t</i>	sig
GRO Total Score	-.20	.06	-.70	11.19	<.001**
GRO Subscales					
Academic	-.30	.05	-.49	-6.18	.002**
Role of Academics	-.06	.07	-.08	-.96	.340
Transfer	-.11	.16	-.05	-.70	.490
Personal History	-.25	.06	-.29	-4.31	.002**
Sport	-.18	.06	-.20	-2.78	.006**

Note. * $p < .05$. ** $p < .01$.

previous research suggesting traditional pre-college academic indicators (e.g., standardized tests, high school GPA, core units) were strongly related to college academic performance for incoming students (Gaston-Gayles, 2004; Johnson et al., 2010; Loughran & Etzel, 2008; Storch & Ohlson, 2009; Wohlgemugh et al., 2006). Likewise, for continuing students, the academic risk factors of term and cumulative GPA have been found to have a strong relationship to GPA for each semester (Johnson et al., 2010). In other words, academic variables were deemed to exert the greatest impact on semester GPA. Additionally, the academic category was predicted to be associated with the highest mean scores for risk based on objective GPA evaluations.

The role of academics category could be influenced by the factors noted in the cited literature, but the evaluations of these factors tend to be subjective and possibly more easily overlooked by coaches who may not know all of the personal feelings of their student-athletes. Therefore, coaches were not expected to add many risk factors from this category, but due to the relatively high number of possible risk points a higher mean score than the transfer or personal history category, which feature fewer possible points, was likely. However, the academic category ranked third

among the risk scores. A few possible explanations may account for this finding.

First, head coaches supplied all the information for the GRO model, including the qualitative evaluations regarding each student's academic, personal, and emotional situation. They offer a level of insight beyond that of a typical administrator, who may only have access to the quantitative data used by college admissions and advising departments (Giacobbi, Roper, Whitney, & Butryn, 2002; NCAA, 2009b). Coaches often learn intimate details about a student's social dynamics, including personal hardships or issues in one's life in sport that other sources may fail to provide for a variety of reasons (e.g., confidentiality, qualitative methodology, unwillingness of student to provide information). The results of this study suggest that knowledge about these personal and sport-related issues is the most important and predictive indicator of semester GPA, supporting the contention that coaches are an excellent source of information and should be utilized when completing the GRO evaluation (NCAA, 2009b).

Second, and consistent with the use of information provided by coaches, the weight assigned to each risk category cannot be quantitatively determined with the current GRO model. The varying levels of impact by such factors as financial

Table 6. Summary of least squares linear regression for graduate risk overview model total and demographic variables

Graduate Risk Overview Variables	<i>B</i>	Std. Error	β	<i>t</i>	sig
Academic Level	.04	.05	.06	.76	.45
New vs. Returning	.15	.14	.08	1.10	.27
Gender	.07	.09	.06	.76	.45
Season	.08	.08	.06	.93	.36
GRO Total Score	-.20	.02	-.68	-9.50	<.001**

Note. ** $p < .01$.

resources, homesickness, or personal, family, and mental health issues vary by student and are subjective evaluations. For example, whether sensing the student as a little homesick or very homesick, the coach adds 1 point to the total risk score in the GRO model, thus explaining the high points associated with the personal history category despite a possible large variation in actual risk among individuals. Likewise, a category with fewer possible risks scores, such as transfer status, may not reflect the proper level of real impact on a student. Perhaps additional criteria added to the personal history category to offer conditional elements would refine the classification such that the impact of the personal history is less pronounced and possibly more relatively appropriate in terms of risk evaluation.

Weighting subclassifications may also increase the predictive validity of the model. While determining the best changes of the weights given to model categories is beyond the scope of the current study, others might consider it during the modification process. This suggestion reinforces the NCAA stance that institutions may need to adjust the total points assigned to varying risk levels (NCAA, 2009b).

H2 predicted *males* would have the highest mean risk score of all demographic categories investigated. H2 was confirmed and is supported by a variety of research studies suggesting that female student-athletes, especially at the Division I level, regularly outperform their male counterparts with regard to academic achievement (Betz & Fitzgerald, 1987; Johnson et al., 2010, 2012, in press; Kane, Leo, & Holleran, 2008; Mayo, 1982; Purdy, Eitzen & Hufnagel, 1982; Rosser, 1989). The second highest mean risk score for the demographic variables was attributed to *junior*. The relatively high number of student-athletes with junior status included in the study ($n = 39$) may explain this curious finding; that is, more high-risk student-athletes with junior status may have contributed to the high risk score. Future researchers may wish to investigate a larger sample with more equivalent class sizes to look for differences among student-athletes by class. One may hypothesize that freshmen garner higher GRO scores because they comprise the group with the largest attrition rate (Johnson et al., in press; Tinto, 1993).

The relatively high mean risk score for the *in-season* variable supports findings by Scott, Paskus, Miranda, Petr, and McArdle (2008), who found that student-athletes are at a higher risk for academic deficiencies during their playing season,

when they expend maximum time and energy. This finding lends support to initiatives designed to increase academic support for in-season student-athletes, especially for those who tend to miss a large amount of class time due intense practice and competition schedules.

However, according to the results displayed in Table 4, athletic season did not significantly correlate to GPA. This result suggests that in-season student-athletes are no more at risk than student-athletes out-of-season. This finding appears to contradict findings by Scott et al. (2008); however, Scott et al. utilized a much larger sample over a variety of different sports than used in the present GRO study, and they did not investigate the potential relationship between GPA and the student-athlete's competition cycle with regard to the GRO model. These seemingly conflicting findings suggest a need for additional research on the impact of in-season performance in regard to its potential impact on the GRO model.

H3 predicted that the GRO total score would demonstrate a strong relationship with semester GPA. The Pearson correlation analysis confirmed this hypothesis. Although correlation does not necessarily indicate causality, the significant connection between the GRO risk-evaluation tool and the academic performance of student-athletes warrants further investigation. According to the NCAA (2009a, p. 2), the "factors that may be inherent to the student at the time of entry" consistently demonstrate a clear link to college academic performance (see also Gaston-Gayles, 2004; Hill, 2004; Johnson et al., 2010; Loughran & Etzel, 2008; Storch & Ohlson, 2009; Wohlgemuth et al., 2006). These factors, which include standardized test scores, socioeconomic status, and other personal characteristics, appear important to the effectiveness of the GRO model as per H1. When combined with institutional and program factors (e.g., sport, academic support availability) as well as variables reflecting transitions during a student-athlete's collegiate career (e.g., coaching change, professional opportunities), these inherent factors contribute to efforts for evaluating risk (Gourlay & Barnum, 2010; Kihl et al., 2008) and lend credibility to the use of the GRO model.

These findings, while supporting the use of the GRO, leave room for additional inquiry into ways to strengthen the relationship between GRO score and GPA. Despite the strong correlational relationship, exploration of category weights could be used to refine GRO scores and thus strengthen the relationship between GPA and total GRO score.

In an extension of H3, H4 indicated that the GRO total score would predict semester GPA. The least-squares linear-regression analysis was used to determine whether the GRO total score and its subscales can be used to make predictions about semester GPA. Results from the first regression, which isolated the total GRO score, confirmed H4: The GRO total score effectively predicted 49% of the variance in semester GPA. This result, in combination with the correlational evidence produced from H3, substantiates the GRO model as an effective tool for assessing academic risk.

In fact, an unstandardized regression coefficient of $-.2$ indicates that for every point increase of GRO score, a student-athlete's predicted semester GPA is lowered by $.2$. This result reflects the contention that the GRO model, designed for a similar predictive purpose regarding graduation and developed using a multitude of variables found to predict graduation (NCAA, 2009a), is an effective tool to use in academic risk assessment of Division I student-athletes.

Stakeholders interested in isolating the different GRO subscales will find the second least-squares linear regression, used to test H4, interesting: Approximately 52% of the variance in semester GPA can be predicted from the combination of the five subscales. Only three of the subscales, however, significantly aided in the prediction equation (i.e., academic, personal history, and sport). For the academic subscale, an unstandardized regression coefficient of $-.3$ indicates that for every point increase in the subscale, semester GPA decreases by $.3$. The academic subscale was the most powerful predictor of semester GPA, an unsurprising result, as much of the literature indicates that the subscale components are primary determinants of academic performance (Gaston-Gayles, 2004; Hill, 2004; Johnson et al., 2010; Loughran & Etzel, 2008; Storch & Ohlson, 2009; Wohlgenuth et al., 2006).

Although the most risk points were associated with factors of student-athlete personal history, the personal history category was the second-most statistically powerful predictor of semester GPA (after the academic subscale). This important finding demonstrates the value of utilizing the traditional academic indicators as predictors of future academic performance. For the personal history subscale, an unstandardized regression coefficient of $-.25$ indicates that for every point increase in the subscale, semester GPA decreases by $.25$, which is consistent with research indicating that personal circumstances influence academic

and sport performance (Cogan & Petrie, 1996; Gourlay & Barnum, 2010; Leslie-Toogood & Gill, 2008; Marx et al., 2008; Melendez, 2006; Nordeen, 2008).

The category of sport significantly aided in predicting GPA. The unstandardized regression coefficient of $-.18$ suggests that semester GPA would decrease by $.18$ for each point increase in the subscale. Although not as predictive as the academic and personal history subscales, the significance of the sport subscale comports with literature that suggests sport experiences affect academic performance (Gourlay & Barnum, 2010; Johnson et al., 2010, 2012, in press; NCAA, 2009a; Paskus, 2008). From a functional perspective, advising or administrative personnel can isolate the subscales to determine the ways factors from each category may reflect risk to a specific student-athlete; that is, they place a weight on each subscale such that it best predicts student-athlete's risk and plan accordingly.

H5 was used to determine if four demographic variables (i.e., academic level, new vs. returning status, gender, and in-season vs. out-of-season timing) would increase the predictability of the GRO model. Results indicate that, when combined with the GRO total score, none of the demographic variables significantly aided in the prediction of semester GPA. However, this result does not mean these variables are unrelated to academic performance. In fact, a variety of studies have linked these variables to various academic outcomes (Belcheir, 2001; Betz & Fitzgerald, 1987; Johnson et al., 2010, 2012, in press; Paskus, 2008; Tinto, 1993). However, when compared to the GRO total score and subscales scores, the demographic variables do not show the ability to aid in predicting GPA.

Although adding these additional factors into the prediction equation did not improve the predictability of the model, they do contribute to a model that explains 49% of the variance. This finding further reinforces the GRO model as an effective tool that reflects important variables that significantly contribute to semester GPA and proves effective in predicting semester GPA. Stakeholders who choose to use the other variables in conjunction with the GRO total score should understand that, although possibly related to academic performance, they do not match the ability of the GRO total score to predict semester GPA.

Limitations

Two primary limitations characterize this study. First, only student-athletes from two teams at one public state institution were studied. Although the sample size is representative of all student-athletes at this institution (Frankel & Wallen, 2006) and the institution posts average student-athlete graduation rates (the national average is 64%, institution is 66%) as well as academic progress rates (10 teams below national average, and 9 teams above it) for all NCAA Division I institutions (NCAA, 2010a, 2010b, 2010c), the generalizations may not reflect dissimilar Division I institutions. However, the novelty of the GRO model and lack of empirical evidence regarding its ability to accurately identify academic risk ameliorate this limitation as the study jumpstarts critical analysis of this potentially relevant model. To date, this study reflects the first set of empirical results on the GRO model. Future researchers should expand the sample to include more teams (sports) and institutions with a variety of characteristics (e.g., enrollment, location, conference, resources).

Second, GPA, instead of graduation, was the dependent variable used to evaluate risk. This deviation from the original intent of the GRO model, which was designed to assess risk with regard to graduation, allowed the study to conclude within a reasonable amount of time. In addition, the link between GPA and satisfactory progress toward graduation (Belcheir, 2001) renders this limitation acceptable in evaluating the usefulness of the data presented. Furthermore, for student-athletes, GPA may be the more important variable to consider in risk assessment because it can be evaluated per semester rather than at the end of a college career and factors directly into athletic eligibility. Yet, despite these benefits of using semester GPA information in practice, longitudinal data should be collected to determine if the GRO scores are an adequate predictor of graduation as well as stable predictors of progress toward degree requirements or target GPA.

Application for Advisors

Based on the results of this study, the NCAA GRO model is a promising tool for predicting semester GPA of Division I student-athletes. Although much work is left to do, the applicability of this model and the preliminary results with regard to size and scope provide a foundation from which to construct future research. The implications of this study, especially for academic advisors, fall directly in line with the research

agenda of the National Academic Advising Association (2013), which encourages scholars to examine “the impact of academic advising on students and institutions, such as measurement of advising’s impact on particular student populations or on institutional goals (such as retention or program implementation)” (para. 2). This evaluation of the GRO model directly advances the pragmatics of advising by assessing a model that identifies academic risk of a specialized student population.

Perhaps more important than advancing the pragmatics of advising through research, this model holds applicability and utility for practice. Found to contain predictive validity, the GRO gives advisors of Division I student-athletes a means to assess potential GPA risk, which could help determine the appropriate level of academic programming applicable to each individual. For example, by using the GRO model before the start of an academic semester to identify risk, advisors could institute more structured academic meetings, increased tutoring sessions, and objective-based study hall requirements based on risk scores. They can also suggest a balanced load of courses and utilize advising meetings to address study skills or to inform appropriate references of resources designed for specific support as based on issues revealed through the categories in the GRO model; for example, a high score on the personal history category may translate to referrals to counseling or life skills instructors. Advisors could tailor practices for men, juniors (i.e., upper-division), or athletes currently in competition, as these factors led to high mean risk scores in this study.

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Author's Note

James E. Johnson, EdD, is an assistant professor and graduate coordinator of sport administration at Ball State University. He can be reached at jejohnson1@bsu.edu.