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differences and predictive abilities of competitiveness between motivation levels, contexts, and sex.

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**ABSTRACT**

*We examined differences in competitiveness and relative predictive abilities of competitiveness across two levels of motivation and across two separate contexts. Three competitiveness measures were utilized: general, academic, and athletic. We tested relationships between competitiveness and performance on verbal reasoning, math, and handgrip endurance. Perceptions about the pros and cons of competition and past competitive goal setting were also examined. Results revealed level, contextual, and sex differences in competitiveness. Only one measure was a significant predictor of task performance, the academic measure. Content analysis of the open-ended questions about academic and athletic goals revealed a unique competitive goal, sub-win. Methodological, conceptual, and applied implications are discussed, including concerns about the cognitive validity the global measure of competitiveness and the positive potentiality of sub-win goals.*

*Keywords: competition, academics, sport, sex differences, task performance, cognitive validity, sub-win goals*

**INTRODUCTION**

Competition and competitiveness are hotly debated topics. Should competition be used in the classroom? Is it healthy for a child to be competitive in youth sport? Is a competitive personality a benefit or detriment and does this depend on the context? Surprisingly, empirical research on competitiveness that compares individual differences across contexts is lacking.

The sport context is most well-known for being competitive. Sport is often referenced within the definition of competition and sport is competitive by definition. Athletes are more likely to have competitive personalities. However, in other contexts such as academics, competition is less pervasive and we would be hesitant to claim that most students are competitive. Central questions in this study are: Are the same individuals equally competitive across contexts? Is competitiveness the same across levels of motivation, i.e., global and contextual? Does competitiveness differentially predict performance across levels (i.e., global vs contextual) and contexts (athletic vs academic)?

This study examined individual differences in competitiveness across contexts (academic and sport-related), motivation levels, and sex. In addition, we also examined how well these measures predicted performance on three tasks (two academic, one physical). Last, participant perceptions about the pros and cons of competition and past competitive goal setting were examined.

**LITERATURE REVIEW**

A brief literature review defines competition and competitiveness, reports research about competitiveness within sport and education contexts, and examines purported pros and cons of competition. Because past literature on competitiveness often examined and found sex differences, this research is briefly reviewed.

**What is Competition and Competitiveness?**

Rosenau (2003) defined competition as, “The process by which contest or rivalry yields rankings, results, or relative excellence (p. 8).” Shields and Bredemeier (2009) described the etiology of the word competition: the Latin *petere* means to strive and that the prefix *com* means with. They argue true competition occurs when competitors seek out excellence together and embrace competition as a means to push oneself towards personal excellence.

For their competitiveness subscale, Helmreich and Spence (1978) defined competitiveness as, “The desire to win in interpersonal situations” (p. 4). Similarly, Johnson and Johnson (1983) characterize their competitive learning scale as a “liking for and positive attitude toward competing with other students” (p. 79). Gill and Deeter (1988) describe their competitiveness factor as a “desire to enter sport achievement situations, to strive for success, to work hard, to master skills, and an eagerness to meet competitive challenges” (p. 195).

It is important to note that the Helmeich and Spence scale assesses motivation at the global level whereas the other two measures are assessing competitiveness at the contextual level. Vallerand (1997) purports there are three levels at which we can approach predicting or explaining behavior or motivation: global, contextual, and situational. Global entails general tendencies or global personality constructs, contextual examines tendencies or beliefs within a specific context like sport, music, math, etc. Situational examines an individual’s beliefs or behaviors in a given moment or specific situation. There are tradeoffs to assessing at each level; global is stable over time but has less predictive validity, contextual has better predictive validity but one needs separate assessments for each context, and situational should have the best predictive validity but required a new assessment for every situation. One goal of this study is to assess whether the contextual measures are better predictors of behavior compared to the global measure.

**Competitiveness Contexts**

The sport context is most well-known for being competitive. Consequently, there is a fair amount of research examining competitiveness in this realm. Regarding sport competitiveness, four studies used the Sport Orientation Questionnaire (SOQ; Gill & Deeter, 1988) to examine competitiveness. Ryska (2003) examined the competitiveness of 319 adolescent boys and reported mean composite scores of much higher than the scale mid-point. Similarly, Tusak et al.’s (2005) survey of 330 Olympic caliber Slovenian athletes, Petroczi’s (2007) study of 199 male college soccer players, and Findlay and Bowker (2009) research with 171 top-level adolescent soccer players all reported the same findings with the last study also showing that males scoring significantly higher than females.

Less research has been conducted regarding academic competitiveness. Dudley et al. (1997) used the Classroom Life Measure (CLM; Johnson & Johnson, 1983) to examine 107 freshman student athletes in 17 different intercollegiate sports. The athletes’ mean score on the competitive learning factor was slightly below the mid-point. Rodger et al. (2007) also reported competitiveness scores below the mid-point for 160 undergrads in an introductory psychology.

**Pros of Competition**

Julian and Perry’s (1967) early research of undergraduates completing statistical computations revealed that competition yielded higher quality performances and higher quantity. Miller and Hamblin (1963) reviewed studies on competition and reported positive effects across various tasks: arithmetic, cancellation of letters, sorting, reading, hand grip, and word scramble, with the most prevalent finding being for arithmetic. Franken and Brown (1995) suggested competition motivates, causing individuals to put forth more effort. Vansteenkiste and Deci’s (2003) study of the effects of competitively contingent rewards found winning increased intrinsic motivation. Furthermore, even losers demonstrated higher levels of enjoyment, compared to a control group not engaging in competition. Likewise, Frederick-Recascino and Schuster-Smith’s (2003) study of adult bicycle riders found higher levels of competitiveness were associated with higher levels of enjoyment and cycling days per week. Additional studies (e.g., Pliskow, 2001; Robinson & Stewardson, 2012) have demonstrated competition increases interest in specific school subjects, particularly STEM disciplines.

**Cons of Competition**

Sherif et al.’s (1988) classic Robbers Cave experiment suggested competition results in hostility towards other competitors. Similarly, Kohn (1992) argued competition undermines performance by creating stress and an “other-focused attention.” He further suggested negative outcomes such as undermining self-esteem, as well as increasing feelings of shame, hostility, and aggression. Likewise, Vallerand et al. (2001) found a competition condition of instructing children to focus on “beating” other participants resulted in less intrinsic motivation. Anderman and Murdock (2007) even cited competition as a reliable predictor of cheating. However, Orosz et al.’s (2013) study of competition and cheating did not find such evidence.

**Sex Differences in Competitiveness**

Much competitiveness literature has examined differences between females and males. Early studies indicated males are rewarded more for competitiveness than females (Barry et al., 1957). Ahlgren and Johnson’s (1979) study of preferences in 2nd through 12th grade students for competitive motives in classrooms found small (Eta squared = .03) but significant sex differences, with males scoring higher.

Males have been found to score higher in competitiveness in a variety of populations: undergraduates, graduate students, and competitive swimmers (Cashdan, 1998; Fabian & Ross, 1984; Griffin-Pierson, 1990). These differences appear early in life, as Sutter and Rutzler (2010) reported sex differences in competitiveness as early as 3 years old. Sex differences also seem to hold across cultures, with Houston et al. (2005) reporting sex differences across Chinese, Japanese, and American samples. Regarding scholastic competitiveness, Kline (1995) examined sex differences in 240 undergraduates finding that the mean competitiveness composite score was only slightly above the mid-point.

In summary, levels of competitiveness differ across individuals, contexts, and sex. Studies utilizing the SOQ revealed that athletes score significantly above the scale mid-point on competitiveness. Studies utilizing the competition subscale of the CLM revealed that most participants scored slightly below the scale mid-point. Commonly cited pros of competition are higher quality performance, increased quantity or production, increase motivation, increased effort, higher intrinsic motivation, and more enjoyment or interest. Commonly cited cons are increases in stress and other negative emotions, decreases in self-esteem and decreased intrinsic motivation, as well as potential increases in cheating. Literature consistently reports males as scoring higher on self-report measures of competitiveness. Based on these findings the following research questions were formulated: 1) Are there context, level, and sex differences in self-reported competitiveness? 2) How well does competitiveness predict task performance across contexts and levels? 3) Do participants’ perceptions regarding competition’s pros and cons match the research literature? 4) Are there differences in reported competitive goals in school versus sport contexts?

**METHODS**

**Participants**

For the study, 126 undergraduate students at a mid-sized southeastern United States university were recruited from introductory and other psychology classes. All participants were at least 18 years old and native English speakers. Additional demographic information collected by self-report was as follows: sex (51 males; 75 females); age (Range = 18-23; *M* = 19.26; *SD* = 1.17); ACT composite (Range = 13-34; *M* = 23.59, *SD* = 4.78); past participation in academic competition (27% reported “yes”); and past participation in athletic competition (75% reported “yes”).

**Measures**

***General Competitiveness***

Helmreich and Spence’s (1978) Work and Family Orientation Scale (WOFO) includes a competitiveness subscale measuring an individual’s desire to outperform others. It consists of five items using a 5-point Likert scale from strongly disagree to strongly agree. Dividing scores by 5 results in a score range from 1-5, higher scores indicating higher competitiveness levels. This measure constitutes our global measure of competitiveness.

***Academic Competitiveness***

The CLM (Johnson & Johnson, 1983) assesses classroom climate and consists of 15 subscales. The competitive learning subscale, measuring one’s liking for and positive attitudes toward competing with other students, consists of 8 items based on a 5-point Likert scale from completely false to completely true. Dividing scores by 8 results in a score from 1-5, higher scores indicating a higher preference for academic competition.

***Sport Competitiveness***

The SOQ (Gill & Deeter, 1988)is a 25-item measure of competitiveness, win orientation, and goal orientation based on a 5-point Likert scale from strongly agree to strongly disagree. This study only used the 13-item competitiveness subscale, defined as “the desire to enter and strive for success in sport achievement situations” (Gill & Deeter, 1988, p. 195). Dividing scores by 13 results in a score from 1-5. Because lower scores usually indicate higher levels of competitiveness, scores were *reverse* *coded* to make comparison across the other two competitive measures easier.

***Mixed Math Worksheets***

For the math task, two worksheets with 100 mixed math problems were created. To avoid floor effects that might have resulted from using higher math levels such as algebra, geometry, or calculus, the math level was consistent with what elementary school students should have mastered (i.e., basic operations of addition, subtraction, multiplication, and division). Problems consisted of two double-digit numbers for addition and subtraction and a single digit and double-digit number for multiplication and division (e.g., 13 + 38, 49 - 22, 6 x 54, 64/8). The order of the problems was addition, subtraction, multiplication, and then division repeating 25 times. Participants were given two minutes to complete as many problems as they could on each worksheet.

***Verbal Reasoning Tasks***

Assessment Day’s (n.d.)Verbal Reasoning Tests 1 and 2 were used to assess verbal reasoning. Each test consists of 7-10 short reading passages (~150-250 words) with 3-5 comprehension questions, worded as statements. Participants were asked to respond to each statement with “True, False, or Cannot Say.” Participants were given 5 minutes to read each passage and respond to questions.

***Handgrip Endurance Task***

A handgrip endurance task measured physical performance, similar to Muraven et al.’s (1998) use of a handgrip exerciser to assess self-control. In their study, subjects held a wad of paper inserted between the handles for as long as possible. Unfortunately, there was no baseline testing of handgrip strength or any adjustment of handgrip resistance for each subject. In Basevitch et al.’s (2011) study, subjects squeezed a handgrip dynamometer for as long as they were able at 30% of their baseline maximum. We did not adopt this protocol as it is difficult to ascertain when subjects have dipped below this criteria. We combined these approaches by taking an initial assessment of maximum handgrip strength via a Lafayette Model 78010 handgrip dynamometer, then calculating the 30% value of each participant’s maximum using a Robert Baraban adjustable resistance hand gripper exerciser. After adjusting resistance to each participant’s 30% maximum, participants squeezed the handgrip exerciser with a nickel inserted between the handles. A stopwatch was started once the nickel was in place and stopped when participants could no longer keep the nickel from falling out.

***Open-ended Interview Questions about General, Academic, and Athletic Competitiveness***

After completing performance tasks, participants rated their feelings about competing/competition based on a Likert scale from 1 (I like it) to 5 (I dislike it) and responded to the question “How competitive are you?” via a Likert scale from 1 (Not at all) to 5 (Very). As a follow up to the previous question, participants were asked, “Why (what factors made you this way)?” Participants then responded to the following final questions: What do you see as the pros and cons of competition/competing? In school, did you set competitive goals (e.g., top score or top five)? If yes, give some examples. In athletics, did you set competitive goals (finish a certain place, win a certain title)? If yes, give some examples.

A team of coders independently examined responses to each question. After the initial read, coders met to develop initial categories. During their second read, coders attempted to code all responses using these categories. They then met to re-evaluate the categories and rectify any potential problems. Last, the two most senior coders met to reconcile any remaining coding discrepancies.

**Procedures**

Upon lab entry, participants answered screening questions about hand injuries. Next, they read and signed the informed consent form. After initial grip strength was assessed, participants completed demographics and self-report measures. They then completed performance tasks, counterbalanced with two orders: reading comprehension, mathematical problem solving, handgrip endurance; and mathematical problem solving, reading comprehension, handgrip endurance. Each task provided sample items and then the actual trials. After these tasks, participants answered the qualitative questions.

**RESULTS**

Planned analyses consisted of dependent t-tests (aka paired samples) to examine context and level differences. Independent t-tests were used to test for sex differences. Stepwise regression analyses were utilized to evaluate how well competitiveness predicts task performance across contextual and global measures. Qualitative coding and frequency summarizing were used to examine whether participants’ perceptions regarding competition’s pros and cons match the research literature and whether there were differences in reported competitive goals in school versus sport contexts. Data were screened prior to statistical analyses to check for outliers and any violations of statistical assumptions.

Table 1 reports descriptive statistics and estimates of internal consistency reliability (alpha) for the self-report measures. Table 2 reports descriptive statistics for the performance tasks.

Table 1

*Descriptive Statistics for Competitiveness Subscales on Self-Report Measures*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | Range | Alpha | Mean | Median | *SD* | Skewness | Kurtosis |
| WOFO | 1-5 | .75 | 3.89 | 4.00 | .67 | -.55 | .09 |
| CLM | 1-5 | .85 | 3.42 | 3.38 | .69 | -.32 | .41 |
| SOQ | 1-5 | .94 | 3.61 | 3.65 | .95 | -.51 | -.16 |

Table 2

*Descriptive Statistics for Performance Variables*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Range | Mean | Median | *SD* | Skewness | Kurtosis |
| Mixed Math  | 7-94 | 41.20 | 40.5 | 18.76 | .44 | -.15 |
| Reading  | 6-29 | 14.88 | 15.00 | 4.99 | .33 | -.50 |
| Handgrip  | 2.7-181.0 | 34.60 | 27.49 | 25.25 | 2.42 | 9.72 |

**Quantitative Findings**

To assess level and contextual differences, pairwise comparisons via dependent *t*-tests (aka paired samples) were conducted for each competition measure; comparisons revealed significant differences (see Table 3). The score order from highest to lowest magnitude (Eta-squared) was general competitiveness, sport competitiveness, and classroom competitiveness.

Table 3

*Dependent t-tests for the Competitiveness Subscales on Self-Report Measures*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Contrast |  *t* |  *df* |  *p* | Eta-Squared |
| WOFO vs. CLM | 9.33 | 125 | *p* < .001 | .07 |
| WOFO vs. SOQ | 3.44 | 125 | *p* = .001 | .03 |
| CLM vs. SOQ | -2.06 | 125 | *p* = .04 | .02 |

Regarding sex differences, males scored significantly higher in competitiveness on the CLM and SOQ, but not the WOFO (see Table 4); still the magnitude of CLM and SOQ differences was very small. Males also scored higher across all three performance tasks. However, only one difference, hand grip endurance (44.95 secs vs. 27.55 secs), was statistically significant (Eta-squared value of .05).

Table 4

*Independent t-tests for Sex across the Competitiveness Subscales on Self-Report Measures*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Females | Males | *t* | *df* | *p* | Eta-Squared |
| WOFO | 3.84 | 3.96 | 1.02 | 124 | .31 | N/A |
| CLM | 3.31 | 3.60 | 2.38 | 124 | .02 | .02 |
| SOQ | 3.43 | 3.87 | 2.57 | 124 | .01 | .02 |

With regard to whether competitiveness predicts task performance, first, correlations among competitiveness scales and performance measures were examined (see Table 5). Significant correlations were observed between the math task and two of the competitiveness measures, WOFO and CLM. CLM also significantly correlated with reading comprehension; WOFO with handgrip endurance.

Table 5
*Correlations among Outcome Variables with Competitiveness Subscales on Self-Report Measures*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Math | Reading | Handgrip |
| WOFO | .21\* | .15 | .18\* |
| CLM | .22\* | .18\* | .07 |
| SOQ | .11 | .12 | .10 |

*\*p* =< .05

Prior to regression analyses, predictor variables correlations were examined to identify potential multi-collinearity issues. WOFO and CLM scores were strongly correlated, *r* = .71; no other correlations surpassed .60. Keith’s (2006) recommendations suggested no problematic values regarding collinearity. Stepwise regression analyses were conducted on each performance task with WOFO, CLM, and SOQ as predictor variables; OLS estimation method was employed. For math, only CLM entered the model, accounting for 5% of the variance (*b* = .76, *SE B* = .30, *Beta* = .22, *p* = .01). Similarly, for verbal reasoning, only CLM entered the model, accounting for 3% of the variance (*b* = .16, *SE B* = .08, *Beta* = .18, p < .05). For handgrip endurance, no variables reached entry criteria.

**Qualitative Findings**

Regarding the two Likert type questions: “How do you feel about competing/competition?” and “How competitive are you?” most participants perceived competing/competition favorably with 89 (71%) providing positive, 28 (22%) neutral, and 9 (7%) negative responses. With regard to perceived competitiveness, most also viewed themselves as more competitive. Frequencies were 83 (66%) for more competitive, 28 (22%) for somewhat, and only 15 (12%) for less competitive.

Participants were asked about perceived pros and cons of competition or competing. Tables 6 and 7 display the varieties and frequencies of responses. Regarding setting competitive goals in school and sport, more participants had set goals in sport (n = 113 or 90%) than school (n = 69 or 55%). Those reporting competitive goals were asked to provide examples. Tables 8 and 9 report the varieties of goals and frequencies for each type.

Table 6. *Codes for the Question, “What Do You See as the Pros of Competition/Competing?”*

|  |  |  |
| --- | --- | --- |
| Code | Frequency | Example Statement |
| 1. It’s fun/enjoyable | 5 | It’s fun |
| 2. Comparison to others/relative standing | 22 | Let’s you know how you stack up against other competitors |
| 3. Social cooperation | 14 | Teaches different skills on how to work as a team |
| 4. Character development | 12 | Learn a lot about how you respond to adversity |
| 5. Motivation | 100 | Motivates people to put forth their best work |
| Not coded | 4 |  |

Table 7. *Codes for the Question, “What Do You See as the Cons of Competition/Competing?”*

|  |  |  |
| --- | --- | --- |
| Code | Frequency | Example Statement |
| 1. Pressure/Stress | 16 | A lot of pressure on some people |
| 2. Relative standing  | 27 | If you lose, not first place, you feel bad (i.e., lowers self-esteem) |
| 3. Motivation to win | 28 | You can get too caught up in competition instead of the task |
| 4. Generic Negative | 38 | People get too serious about competition |
| 4a. Negative Social Cooperation  | 10 | Can cause tension and conflict among team members |
| 4b. Undermines character development | 17 | It can make you more aggressive |
| Not coded | 5 |  |

Table 8. *Codes for the Question, “In School, Have You Set Competitive Goals (e.g., Top Score or Top/Five)? If Yes, Give Some Examples.”*

|  |  |  |
| --- | --- | --- |
| Code | Frequency | Example Statement |
| 1a. To Win/Get First Place | 17 | Highest grade on a test or in class. |
| 1b. Sub-win (Top5/Top10) | 33 | Always wanted to be within the top few, not necessarily the very best, but enough to get recognized. |
| 1c. Compete with Self/Personal Goals | 16 | Try to compete with self instead of others. Tried to improve grades test to test. |
| 1d. Avoidance | 3 | More of not to be the worst in the class. |
|  |  |  |
| 2. No | 57 |  |

Table 9. *Codes for the Question, “In Athletics, Did You Set Competitive Goals (Finish in Certain Place, Win a Certain Title)? If Yes, Give Some Examples.”*

|  |  |  |
| --- | --- | --- |
| Code | Frequency | Example Statement |
| 1a. To Win/Get First Place | 63 | To win regionals and state.  |
| 1b. Sub-win (Top5/Top10/make it to next stage) | 35 | Top 3 of school to get to regionals. |
| 1c. Compete with Self/Personal Goals | 13 | I was actually competitive with myself. |
| 1d. Avoidance | 2 | To be better than the worst, being the best wasn't going to happen but didn't want to be the worst. |
| 2. No | 13 |  |

**DISCUSSION**

For the first research question regarding competitiveness differences across levels, contexts, and sex, there were differences across all three. Sport competitiveness was significantly higher than classroom competitiveness; general competitiveness scores were significantly higher than both sport and classroom. Based on previous studies, we would have predicted that sport competitiveness levels would be higher than classroom competitiveness, however, that general competitiveness levels were higher than sport is perplexing. Perhaps when one is asked about competitiveness in general the individual contextualizes it? In other words they think about contexts wherein they exhibit more competitiveness. If this is happening, it raises a concern about whether global measures of competitiveness are biased as a whole. It also raises questions about other global measures wherein participants may be referencing their responses to a specific context. This is a serious concern that should be examined via research techniques such as cognitive interviewing (see Collins, 2003 or Willis, 2005). Future research into this question is warranted in order to resolve potential validity concerns about global measures all together.

Consistent with the literature, males scored significantly higher than females on both classroom and sport competitiveness; however, difference magnitudes were small. Frick (2011) argued that today boys and girls are socialized similarly; thus, sex differences should be less pronounced. However, even 1970s studies reported similar small effect sizes for sex differences with regard to preferences for competition (e.g., see Ahlgren & Johnson, 1979). Other studies have reported males also exhibiting a significant increase in performance in competitive environments compared to females (Gneezy et al., 2003; Niederle & Vesterlund, 2008). Although males in our study performed better on performance tasks, only hand grip endurance was statistically significant and with a minimum effect size (Ferguson, 2009). While sex differences in competitiveness persist the magnitude of these differences does not constitute a noteworthy finding.

The second research question asked how well competitiveness predicts task performance. Although correlations in Table 5 might suggest general competitiveness would be a significant predictor of both academic and physical task performance, when examined in conjunction with the contextual measures stepwise regression analyses revealed only the academic competitiveness measure met criteria for inclusion in the model, but also with small effect sizes. We expected that contextual measures would better predict performance within their respective context, which is what happened with the academic tasks. Performance on the handgrip endurance task was significantly predicted by any of the three measures. This may be due to the nature of the task. Although a physical task, it was purely an endurance task and did not involve motor skills per se. Future studies should include a multitude of physical tasks that vary across fine and gross motor skills as well as endurance tasks.

The third research question analyzed participants’ perceptions about pros and cons of competition and whether they matched the research literature. The pros from literature were improvements in task enjoyment, interest, motivation, and performance (especially for arithmetic tasks). Participants in this study cited increases in motivation and enjoyment as benefits. Performance was not explicitly stated but could be assumed under the motivation category (e.g., competition motivates people to put forth their best effort). The unique pros cited within this study were knowledge of relative standing and increases in both cooperation and character development. Knowledge of relative standing is form of performance feedback. This benefit makes sense, especially if the participant had an outcome goal (i.e., competitive). Increases in cooperation seem counterintuitive unless the participants were thinking specifically of competitive team endeavors. Future studies should attempt to examine whether cooperation as a perceived benefit of competition is unique to team settings or can also be found in individual performance contexts. Character development as a product of engaging in sport programs, has been cited previously, but not necessarily due to competing alone. Additional research would need to be conducted to tease out the mere participation vs competing.

The cons noted in literature were decrements in performance, lowering of self-esteem, increases in stress and negative emotions, as well as increases in cheating. Participants in this study most frequently cited general negative consequences, e.g., focusing too much on winning, negative impact on self-esteem from losing, increased stress and undermining of character development, and decreased cooperation. Participants did not mention the more extreme consequences noted in literature, such as hostility and aggression. Future research that explicitly addresses how losing is handled by coaches, teachers, and parents is warranted. Additionally, factors that moderate whether competition harms self-esteem, increases stress, or undermines character development is needed. It is our contention that if competition is done right, then most of the negative consequences are eliminated and in some cases transformed into growth opportunities. This would be more akin to what Shields and Bredemeier (2009) described as “true competition.”

The fourth research question was about differences in reported setting of competitive goals in school versus sport contexts. Nearly all participants had competitive goals in athletics versus only about half in school. In school settings the most frequently cited goals were sub-win, followed by win, personal (competing with oneself), and avoidance. In athletic contexts, the most frequently cited goals were to win, followed by sub-win, personal, and avoidance. Competitive goals in athletic contexts were more focused on the stereotypical “win” and being the best. Interestingly, both contexts saw frequent use of what we labeled as sub-win goals. These types of goals involved relative standing, but with a focus on placing in a certain subgroup (e.g., top 10 or top 25%) as opposed to being the best. Some participant goals were more ambitious (such as placing in the top three) than others (placing in the top 10 or top half).

We know of no literature that has explicitly studied the impact of competitive sub-win goals. Could these types of goals take advantage of the pros associated with competition while avoiding the cons? These sub-win goals may be a way to use competition as a means to improve personal performance. The Greek concept of *Arete* endorsed utilizing competition as a means to an end, i.e., a way to challenge oneself in order to grow (Porter, 2007). Elliot et al. (2011) also alluded to this approach, describing how one might compete with others as a path toward self-improvement. Future research on the pros and cons of sub-win goals should be undertaken.

In closing, to our knowledge our study is the first to examine level and contextual differences in competitiveness. Differences emerged in levels, and surprisingly the order was general competitiveness first, then sport, and classroom. Our findings raise questions about the validity of global measures wherein specific contexts may be utilized when responding to questions. This leads to the call for specific research on the cognitive validity (Karabenick, et al., 2007) of these measures. Sex differences in competitiveness consistent with the literature were found, but magnitudes were small. Only academic competitiveness predicted performance on two of three tasks. Of these, the math task had the most explained variance, consistent with previous studies. Participants’ pros and cons of competition were similar to those cited in previous literature, with some novel citations. Perhaps most promising novel citation for further study is participants’ frequent mention of sub-win goals. Future research should more closely examine the concept of sub-win goals including their motivational properties, precursors, and consequences.

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