PERCEPTIONS OF ACADEMIC ACHIEVEMENT IN A COMMUNITY COLLEGE SAMPLE

By

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Abstract

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Devon Burg

Self-reported GPA is often used in academic achievement research when gathering GPA as a variable, though it is not always completely accurate. Previous studies have shown that actual GPA effects self-report as those with higher GPAs tend to be more accurate. Those with lower GPAs tend to inflate their self-reported GPA. Race has also been identified as a variable that affects self-reported GPA as White students tend to be more accurate than non-White students. Gender has had mixed outcomes with accuracy of self-reported GPA.

Previous research showing self-reported GPA to be a valid measure of GPA has used samples from higher achieving four-year colleges with predominantly White students. This study tested the accuracy of self-reported GPA in a more diverse, lower achieving sample from a community college.

This study has demonstrated that a community college sample of students can produce less accurate self-reported GPAs. While race and gender have shown to have differences in previous studies, these variables did not differ in accuracy of self-reported GPA in this study. The lower accuracy of self-reported GPA in this study is consistent with previous findings of the effects of having a lower GPA.

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Introduction

Grade point average (GPA) is a widely used measure of academic achievement in college and is one of the most studied variables in education research (Kuncel, Crede & Thomas, 2005). There is considerable research focused on predicting GPA (e.g. Fong, Krause, Acee, & Weinstein 2016; Huang, Eklund, & Cornell, 2016; Layous et al., 2016) as well as work focused on use of GPA as a predictor of outcomes such as for job recruitment, predicting success at a job, and predicting salaries at a job (e.g. Hope, 2016; Imose & Barber, 2015; Sibulkin & Butler, 2016).

Although GPA is part of a student's academic record, most research uses self-reported GPA (e.g. Aspelmeier, Love, McGill, Elliott, & Pierce, 2012; Campagna, 2012; Hen & Goroshit, 2014). Reliance on self-report, likely reflects challenges associated with gathering protected information. Another reason researchers commonly use self-reported GPA is the belief that it is a valid measure of actual GPA for all students.

Previous research demonstrated self-reported GPA is a valid measure of actual GPA (Caskie, Sutton, & Eckhardt, 2014; Cassady, 2001; Dobbins, Farh, & Werbel, 1993; Frucot & Cook, 1994; Kirk & Sereda, 1969; Kuncel et al., 2005; Schmitt, Oswald, Gillespie, Ramsay, & Yoo, 2003). However, self-reported GPA is not always accurate. Among the factors that affect the accuracy of self-reported GPA are actual GPA, gender, and ethnicity. Depending on the population studied, these variables may be present at different levels. This suggests that for some populations, self-reported GPA may not validly measure actual GPA.

Literature Review

In this section, I address demographic variables that influence accuracy of self-reported GPA. Next, I examine differences between four-year college and community college students and argue that research including community college populations is necessary to ensure self-reported GPA is an appropriate variable to use across institutions.

Variables Affecting Accuracy of Self-reported GPA

Actual GPA, gender, and race affect the accuracy of self-reported GPA.

Actual GPA effects. A meta-analysis including 12 studies with an overall sample size of 12,089 students examined the validity of self-reported GPA (Kuncel et al., 2005). The meta-analysis examined the accuracy of self-report grades using high school and college samples. At both levels, higher achieving students' self-reported grades were reasonably accurate. Lower achieving students are less likely to report accurately. Overall self-reported college GPA correlated strongly with actual GPA (r = .90). However, those with lower GPAs are the least accurate.

A number of studies concluded those with lower GPAs are less accurate (e.g., Caskie et al., 2014; Cassady, 2001; Dobbins et al., 1993; Frucot & Cook, 1994; Kirk & Sereda, 1969; Kuncel et al., 2005; Schmitt et al., 2003), however the size of such differences is unclear as only one study reported actual mean differences. In that study, those in the lowest GPA quartile over estimated by 0.22 GPA points. The remaining quartiles overestimated less (0.13, 0.07 and 0.02 for the second, third, and highest

quartiles respectively). Among under estimators, the least accurate quartiles were again the bottom two (both at 0.12); the two highest quartiles were more accurate (.06, and .05; Cassady, 2001). The sample size for this study was 68 with the smallest cell having only four students, so it is unclear whether this effect exists on a larger scale.

Gender effects. There are conflicting reports on the effects of gender on self-reported GPA. The three studies reviewed show different results on the effects of gender on the accuracy of self-reported GPA.

In one study, men under-reported and women over-reported GPAs (Caskie et al., 2014). The authors did not report the magnitude of these effects. Significant gender differences existed in the lower achieving groups where males under-reported their GPAs and women over-reported their GPAs. The sample consisted of mostly Whites, with a median GPA of 3.30. These results may not be generalizable to a more diverse or lower achieving population.

Another study (n = 132) found that both men and women significantly overestimated their GPAs. Men overestimated more, however, the amount of the overestimations was not reported (Frucot & Cook, 1994).

Still another study reported men and women both over-reported their GPA but women inflated their scores more than men (Hamilton, 1981). It was not reported by how much more women inflated their scores more than men, nor was it reported whether the differences were significant. Correlations were given for the self-reported to actual GPA, with men correlating at r = .81 and women correlating at r = .76. Such a small difference in correlations would require a sample size of roughly 450 per group to attain statistical

significance. The sample size was given in a range with men ranging from 75 to 216, and women ranging from 123 to 400, so the differences likely were not significant.

Racial/ethnic differences. In one study where actual GPA and self-reported GPA correlated at $r = .91$, Asian American and African American students were less accurate than Whites (Schmitt et al., 2003). Again, mean differences for each racial category were not given. Actual GPA for African Americans ($M = 2.46$) and Asian Americans ($M = 2.50$) were also lower than Whites ($M = 3.14$), suggesting that these differences might correspond to GPA level rather than racial differences. It should also be noted that Whites comprised a much larger portion of the sample ($n = 505$) than African Americans ($n = 59$) or Asian Americans ($n = 33$), calling into question how representative the samples were for each racial category.

Self-reported GPA in Community College Samples

Whereas there is research on the validity of self-reported GPA conducted using four-year college samples, there appears to be no research on the validity of self-reported GPA for community college students. Despite the lack of validity information, research using community college samples often uses self-reported GPA as an indicator of achievement to be predicted and as a predictor of outcomes similarly to how four-year colleges use the variable (e.g. Conard, 2006; Underwood, 2002).

Community college students differ considerably from 4-year college students. For example, community colleges serve more lower-achievers and people of color (Provasnik & Planty, 2008). Other demographic differences exist that may or may not affect the

accuracy of self-reported GPA. For example, community colleges serve a higher percentage of part-time students, more first generation college students, and more lower income students. These differences may lead to reduced validity of self-reported GPA.

The Present Study

Self-reported college GPA is widely used and accepted as valid. Several studies show it correspond to actual GPA. The current study highlights limitations of research supporting validity. Specifically, studies predominantly use White samples from four-year colleges. It is unclear whether self-reported GPA is a valid indicator in other populations.

Community colleges serve a more diverse student population than four-year colleges (Pravasnik &Planty, 2008). Research using community college samples often uses self-reported GPA as an indicator of achievement (eg. Conard, 2006; Underwood, 2002) but it is not clear whether such uses of self-reported GPA is empirically supported. This study seeks to contribute to the body of research on the accuracy of self-reported GPA, and inform in what instances caution is best advised, with a particular focus on whether self-reported GPA is valid for community college settings.

Research Questions and Hypotheses

Hypothesis 1. The previous findings of $r = .90$ for the correlation between four-year colleges actual GPA and self-reported GPA will fall outside of a confidence interval for actual community college GPA and self-reported GPA .

Rationale for Hypothesis 1. Multiple studies show high correlations between self-reported GPA and actual GPA, however these studies focused on mostly White students from four-year colleges. Different results are expected using a sample with different demographics from a community college, including more non-traditional students, more racial diversity, and more lower achieving students (Provasnik & Planty, 2008).

Hypothesis 2. Non-White students will be less accurate than white students in their self-reported GPA.

Rationale for Hypothesis 2. A meta-analysis found that minorities tend to be less accurate than non-minorities (Kuncel et al., 2005). Similarly, self-reported college GPA for African Americans and Asian Americans were found to be less accurate than White students (Schmitt et al., 2003).

Research question 1. Are there gender differences in the accuracy of self-reported GPA?

Rationale for research question 1. A meta-analysis found that there are no differences between men and women in the accuracy of their self-reported GPA (Kuncel et al. 2005). The meta-analysis mixed data with GPA from not only colleges but high school as well, which is a different construct. Among other studies, evidence was mixed

with one stating women tend to over report while men under report (Caskie et al., 2014), another stating both men and women over report but men over report more (Frucot & Cook, 1994), and still another finding that both men and women over report with women over reporting more (Hamilton, 1981).

Method

Participants

A power analysis was conducted using SPSS syntax for a confidence interval around a correlation (Aberson, 2010) used to test the first hypothesis. The first hypothesis states that actual community college GPA will correlate more weakly than found in samples of four-year colleges. It is expected that r = .90 will fall outside the confidence interval. A confidence interval around a correlation with a range of .20 will require 300 participants. A sample of 300 yields 80% power to detect effects as small as d = 0.35, for the independent means t-tests for hypothesis 2 and research question 1.

Institutional Review Board (IRB) approval from Humboldt State University (IRB # 17-153) was obtained before data collection, with an IRB Authorization Agreement approved by Erie Community College (ECC). Participants came from ECC city campus in the fall of 2018. Out of the 551 questionnaires collected, only 341 were 18 or older, who Self-reported their GPA item and had an actual GPA, to be included in the study. Gender was reported by 316 participants, of which 111 were men. 319 respondents reported their age (M = 25.01, SD = 7.91, range: 18 – 60). 321 respondents reported their ethnicity of which about 34% identified as African American, about 26% Caucasian,

about 15% Asian, about 9% Hispanic, about 1% Native American, and about 14% who identified as other.

Materials

FERPA release form. Erie Community College supplied the release form (Appendix A) required by the Family Education Rights and Privacy Act (FERPA). This form allows for an outside party to view confidential material relating to the student such as grades and financial information.

Demographics form. The demographics form (Appendix B) was used to assess the student's gender, ethnicity, age, self-reported cumulative GPA at ECC, semester in school, how many classes they are taking, if they are a transfer student, if English is their first language, if they are first generation college students, and self-reported letter grade.

Consent Form. The consent form consisted of a short explanation of the study (Appendix C). Students were made aware that they did not have to participate in the study if they did not wish. Contact information was be given of the principal investigator and thesis advisor, along with contact information for the IRB in case students had any questions or concerns.

Procedure

Participants were students of Erie Community College city campus. Participation consisted of filling out three forms. A consent form was used to obtain consent for participation. A FERPA release form was used to grant permission to the researcher to access students actual GPA. A demographic form with variables paramount to this study

including self-reported cumulative GPA at Erie Community College, race, and gender was given. The principal investigator was present during data collection to address all questions and concerns the students may have had. The researcher detaching and shredding the forms with identifying information on them was a measure put in place to protect the students' identity once an arbitrary ID number is assigned each case.

Results

Normality, Assumptions and Analytic Approach

The accuracy score data was leptokurtic as well as negatively skewed with a skew to standard error of skewness ratio of 16.053 and a kurtosis to standard error of kurtosis ratio of 65.612 which violated ANOVA assumptions. For this variable Robust one-way ANOVA approaches with robust and effect sizes were employed (Wilcox, 2012). For this measure, values of 0.15, 0.35, and 0.50 correspond to definitions of small, medium and large effects (Wilcox & Tian, 2011). For analyses employing robust approaches, multiple comparison tests for mean comparisons use the MCPP bootstrap command with probabilities adjusted to account for inflation of familywise alpha. Statistical reporting for these variable notes use of Robust *F* and Robust *ES*.

Data Analyses

The mean GPA of participants was 2.85, with a range of 0.00 to 4.00. The mean of the accuracy score is .20, with a range of -3.03 to 3.25. Self-reported GPA ranges from .64 to 4.00, with a mean of 3.05.

As predicted the previous findings from a meta-analysis (Kuncel et al., 2005) of r = .90 falls outside the 95% CI: [.69, .77] around the correlation (r = .74,) for this study. These results support the first hypothesis that predicted community college students would be less accurate than 4-year college students.

Contrary to the second hypothesis, White students had similar accuracy scores (M = 0.13, SD = 0.56) to non-White students (M = 0.22, SD = 0.55), Robust F(1, 168.6) = 2.3, p = .13, Robust ES = .12.

Relevant to the exploratory research question, male accuracy scores (M = 0.17, SD = 0.39) were similar to female accuracy scores (M = 0.22, SD = 0.63) Robust F(1, 146.6) = 0.02, p = .88, Robust ES = .04.

Ancillary Analyses

I separated the results for GPA into quartiles and ran a Robust ANOVA to detect the differences between them. There were significant group differences in accuracy scores Robust F(3, 89.1) = 28.36, p < .01, robust ES = .72. Robust multiple comparison tests revealed the first quartile (M = .62, SD = .67) differed significantly from all others, as did the second quartile (M = .27, SD = .34). The only quartiles to not differ significantly from each other were the third quartile (M = .00, SD = .30) and the fourth quartile (M = -.09, SD = 42). This is in line with previous literature stating that those with the lowest GPAs tend to be the least accurate.

The questionnaire had multiple items that were not part of the hypotheses or the research question. I performed exploratory analyses on some of the remaining items. None of the exploratory analyses performed showed significant relationships.

There was no relationship between age and accuracy of self-reported GPA, $r(317) = -.003$, $p = .95$. Year in school was unrelated to accuracy, $r(300) = -0.04$, $p = .45$, nor was number of classes, $r(321) = -0.04$, $p = .47$. Transfer students ($M = 0.17$, $SD = 0.71$) did not differ in accuracy scores from those who did not transfer ($M = 0.21$, $SD = 0.50$) Robust $F(1,57) = 0.10$, $p = .74$, robust ES = .06). There was no significant difference on accuracy between those who spoke English as a first language ($M = 0.21$, $SD = 0.58$) and those who spoke English as a second language ($M = 0.20$, $SD = 0.50$) Robust $F(1, 108.2) = 0.30$, $p = .58$, robust ES = .05, nor did being a first generation student ($M = 0.19$, $SD = 0.45$) or not ($M = 0.23$, $SD = 0.64$), Robust $F(1, 187.8) = 0.32$, $p = .57$, robust ES = .04.

Discussion

The first hypothesis, stating that the community college sample collected would be less accurate than previous studies from 4-year colleges received support. Previous studies reporting a correlation of $r = .90$ explained 81% of the variance. While a correlation of $r = .74$ is still fairly high, this only explains 55% of the variance, which is not ideal for research. Mean GPA is 2.85 for the current sample, and a median of 2.98. The scores for this sample are not extremely low, so it is hard to say if the correlation of GPA to self-reported GPA is lower mostly due to the effect of a lower GPA, or due to other factors.

There was no difference between white and non-white student's accuracy, which differs from previous findings. There were also no differences in accuracy between

genders. It could be that the differences across gender and ethnicity in previous studies were driven by differences of other factors that may be lessened at the community college level.

One such construct could be academic self-concept defined as, a student's self-perception of academic ability including cognitive and affective judgments (Lent, Brown & Gore, 1997). Academic self-concept has been studied as a mediator of racial and gender differences of GPA in four-year colleges and it has been found that academic self-concept and GPA positively correlate (eg. Cokley, 2000, 2002).

Another variable that may help explain the differences in self-reported GPA between four-year colleges and community colleges is the imposter phenomenon. Imposter phenomenon is described as a feeling among high achievers where they don't feel smart or deserving of their success (Clance & Imes, 1978).

Imposter phenomenon and academic self-concept have been used in a study of gender differences of GPA (Cockley, 2015). It was shown that those with lower academic self-concept tend to score higher on imposter phenomenon. It could be that community colleges have lower academic self-concept overall, and those who score higher tend to experience imposter phenomenon. While it may be a fluke of this particular sample, the imposter phenomenon could explain why the fourth quartile for GPA under-reported their GPA.

Limitations

The data were not collected at random. The only students who participated were those whose professors were willing to allow collections to take place during class. It

could be that these professors have something in common as to why they allowed an outside researcher gather data during their class time. One such factor could be if the subject of the class is research based. It could be that subject matter such as economics, or psychology that discuss research, may be more willing to have research occur during classroom hours as it may be considered a learning experience.

ECC city campus was chosen for this study due to its diversity. There are various refugees, and an English skills center to help those with English as a second language. Nearly a third of participants reported English as not their first language. While English as a secondary language did not affect the accuracy of GPA, this particular make up of a sample still may not be generalizable to other community college samples.

Importance

This study demonstrates conditions in which self-reported GPA has lower validity than previously found in the literature. The variable included in analyses that had the most impact on the accuracy of self-reported GPA was actual GPA in this study. Researchers studying similarly lower achieving samples should be aware that the common practice of using self-reported GPA would produce less valid results than those of higher achieving four-year colleges.

Future Research

Males and females showed no difference in accuracy of their self-reported GPAs. This was a research question with conflicting results already existing. It is unknown if the lack of differences in gender for accuracy of self-reported GPA will carry over into other community college samples, or if there would be conflicting findings as there are in four-

year colleges. Similarly for racial and ethnic differences it is unknown if the results of the current study would carry over to a sample from another community college. It could be beneficial for future research to include gender and racial or ethnic differences.

The lack of differences of accuracy among groups compared to a 4-year school may be due to factors that are present at different rates in community colleges. As previously discussed academic self-concept and imposter phenomenon are two factors that may be present at different levels in community college. These two factors may help explain why similar accuracy is experienced across gender and race and should be included in future research of this subject.

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Appendix A

FERPA RELEASE FORM

I, _____, hereby authorize the following agencies or individuals as specified below and/or its representatives to obtain from Erie Community College:

- all records of my progress
- degrees and/or certificates including graduation status
- course schedule including credit hours
- **grades**
- attendance including acceptance date
- financial aid information
- billing information

and all information required for the processing of scholarship applications (WIA, TAA, WIB, etc.) and/or 599 Application during the period of which I am being considered or enrolled with and in need of services provided by these offices.

Please initial by each of the agencies or write in the name or names of the individuals that you are granting permission for information to be released.

_____ Worksourceone One Stop Workforce Services (Erie, Niagara Genesee Chautauqua or Cattaraugus County)

_____ Workforce Investment Board

_____ NYS Department of Labor

_____ Other

_____

Name(s) of individual _____

_____

I understand that all information will be treated as confidential and privileged, and used only for the purpose of monitoring my progress by the individual or agency indicated above.

SIGNATURE _____ DATE_____

Student I.D. _____

Appendix B

Demographics Form

1. Gender M/F

2. Ethnicity African American Asian Hispanic Native American Caucasian Other_____

3. Age _____

4. Cumulative GPA at ECC _____

5. Semester in college _____

6. How many classes are you taking? _____

7. Did you transfer from another school? Y/N

8. Is English your first language? Y/N

9. Did at least one of your caretakers go to college? Y/N

10. What is your college grade? A A- to B+ B B- to C+ C C- or lower

Appendix C

INFORMED CONSENT
Perceptions of Academic Achievement in a Community College Sample

You are invited to participate in a research study, which will involve filling out 3 forms. My name is Devon Burg, and I am a Master's student at Humboldt State University. The purpose of this research is to learn about the various characteristics that affect academic achievement outcomes in college students as well as their perceptions.

If you decide to participate, you will be asked to fill out a demographics form, a FERPA release form, and a consent form. Your participation in this study will last about 15 minutes.

There are no possible risks involved for participants. There are no benefits to this research.

The Investigator will answer any questions you have about this study. Your participation is voluntary and you may stop at any time. If you have filled out the forms and wish to opt out after we can take out your submission though once the identifying information has been removed your data will be anonymous and cannot be removed from the dataset.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Measures to ensure your confidentiality are managed by each participant being assigned an arbitrary identification number for their set of data. Identifying information will be handed over to the registrar's office and removed then returned with the data requested and the identification number for the data.

The data obtained will be maintained in a password-protected computer and will be destroyed after a period of three years after the study is completed. This consent form will be maintained in a safe, locked location and will be destroyed after a period of three years after the study is completed.

If you have any questions about this research at any time, please email me at dtb183@humboldt.edu or call me at (805) 636-3531 or Christopher Aberson at Chris.aberson@humboldt.edu or (707) 826-3670. If you have any concerns with this study or questions about your rights as a participant, contact the Institutional Review Board for the Protection of Human Subjects at irb@humboldt.edu or (707) 826-5165.

Your signature below indicates that you have read and understand the information provided above, that you willingly agree to participate, and that you understand that your participation is voluntary, and you may stop at any time.

Signature _____ Date _____