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Moderators of the Accuracy of Self-Report Grade Point Average

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GMAC® Research Reports • RR-06-10 • June 19, 2006

Abstract

While a convenient method for gathering data, self-report can raise a host of data quality concerns. This study replicated and extended research examining the accuracy of self-reported undergraduate grade point average and moderators that affect the accuracy of the self-report. Among the moderators examined were measures of ability, demographic categories, and time-related variables. Self-reported undergraduate grade information was gathered from more than 4,500 students enrolled in 128 graduate business programs and compared with grades reported by the graduate schools. The results of this study support previous research and found that those with higher ability are more accurate in their self-report of grades. Small but significant effects of the time variables of age and months since graduation suggest that memory errors in self-report should be examined in greater detail and would be a possible avenue for further research.

Grade point average is a variable studied frequently in educational research and often gathered conveniently through self-report. The accuracy of that self-reported information is of great interest to researchers who would derive conclusions from the data. Previous research suggests that individual differences may affect the accuracy of self-report. For instance, various studies have cited differences in the accuracy of self-report related to gender, race, and personality characteristics (Bernard & Walsh, 2002; Gilger, 1992; Hamilton, 1981; Kuncel, Credé, & Thomas, 2005; Schiel & Noble, 1991; Zimmerman, Caldwell, & Bernat, 2002). There seems to be quite a bit of evidence to support the case that those with higher ability are more accurate in their self-report of grades (Gilger, 1992; Gramzow, Elliot, Asher, & McGregor, 2003; Kuncel et al., 2005; Schiel & Noble, 1991). Considering the undergraduate degree requirements and selection process of graduate programs, one would expect that those individuals who are attending graduate school would have generally high abilities. If this is the case, then the self-reported grade point average (GPA) of this group should be highly accurate, though a number of factors might affect the ability or the desire of these individuals to accurately report their GPA.

This study examined the accuracy of self-reported GPA for a select group of graduate business students as well as moderators that affect the accuracy of the self-report. In particular, ability or achievement that might affect the accuracy of a response was studied. Demographic characteristics, such as gender and race, were also studied to identify group differences in the accuracy of self-report. Undergraduate major is understood to affect classes and grades, which may also affect self-report. Time is an important consideration, since it could affect memory and introduce random variance into the accuracy of self-reported grades. These possible moderators were examined separately and in combination to address the research questions. This study replicated and extended the results of previous research, such as the recent meta-analysis of Kuncel et al. (2005).

Background

There are a number of reasons why grades may be reported inaccurately. In a study of the relationship of academic performance and perceived validity of grades, students with higher GPAs, when compared with those with lower GPAs, tended to see the overall GPA as a more valid indicator of academic ability (Woo & Frank, 2000).

Conversely, the lower the GPA, the less likely the student was to view GPA as a valid indicator of their academic ability. A similar study conducted by Gramzow et al. (2003) predicted that low actual GPA would be associated with exaggerated self-reports of GPA. The authors suggested that acknowledging low grades (even to the self) could produce negative affect because low grades suggest a lack of academic ability or effort. Another study examining self-report showed that those who over-reported their grades also had better coping and self-acceptance behaviors than those who accurately reported their grades (Zimmerman et al., 2002). These studies seem to suggest that students may "self-enhance" in order to create positive views of themselves or report values they feel are more in accordance with how they see themselves.

A wide variety of characteristics could, conceivably, affect the accuracy of self-reported grades. For instance, studies have shown that individuals of higher ability, as measured by test score or actual GPA, report their grades more accurately (Gilger, 1992; Kuncel et al., 2005; Schiel & Noble, 1991), which suggests that researchers relying on self-reported data for higher ability students can have faith in the quality of the data. Studies such as these classify the subjects into groups, by defining the characteristics for the achievement group (Gilger, 1992) or by creating bands of ability based on a characteristic such as achievement test scores (Schiel & Noble, 1991). However, the use of groups may lead to some confusion if, for instance, a middle-level group is more accurate than both higher and lower ability groups, as Schiel and Noble (1991) observed. Examining ability on a continuous scale can illustrate the overarching trend present in the data.

Demographic characteristics such as gender and ethnicity have also been examined to determine their effect on the accuracy of self-reported grades, but the studies have reported conflicting findings with regard to gender. Hamilton (1981) suggested that females were less accurate in their self-report than males, whereas the study by Gilger (1992) suggested that females were more accurate than males. Overall, most studies have found little moderating effect on accuracy of the demographic variable of gender (Bernard & Walsh, 2002; Kuncel et al., 2005; Schiel & Noble, 1991; Zimmerman et al., 2002). Studies have shown that moderating effects may exist by ethnicity, but these studies have generally only compared black and white groups without examining any other racial or ethnic categories (Kuncel et al., 2005; Schiel & Noble, 1991; Zimmerman et al., 2002).

In terms of undergraduate major, there appears to be an effect of subject area impacting reported grades. It is unclear from the available literature whether the effect is for individual course grades or for grades across a program of study, such as a particular undergraduate major (Kuncel et al., 2005; Schiel & Noble, 1991).

Business students, as well as graduate students in general, tend to be those with high abilities, and abilities can be measured by previous grades or by standardized tests. Because these measures of grades and test performance are both good predictors of school performance (GMAC®, 2004; Kuncel, Credé, & Thomas, 2004), they are often used in selecting applicants to be admitted into the graduate program. It follows, then, that those individuals who have been selected and who subsequently enroll would be those with the highest scores on these two ability measures.

A sample of business school students may also differ from a typical study sample in terms of age or the amount of time that has elapsed since grades were given. Many graduate business programs require a certain amount of work experience prior to enrollment. As a result, students tend to be older than graduate students in other fields, and they may be reporting their grades several years after having last considered them. It may be that memory or random variation in accuracy would have more of an effect for these older students or those who have been out of school for a long time. Because there is generally a relatively short amount of time between grades given and the data collection, few studies have examined the effects of time on the accuracy of self-report (Kuncel et al., 2005). One study that collected self-report data years after grades were given found that accuracy was actually higher for the middle age ranges than for either the earlier or later age ranges (Bernard & Walsh, 2002). It is clear that the question of the effect of time on self-report needs further examination.

Research Questions

Information gathered from a large number of graduate business schools was added to the information gathered from the enrolled students, which allowed data to be analyzed addressing the accuracy of self-reported grades. Specifically, the following questions were addressed:

- How does the accuracy of self-reported GPA for a select group of graduate business students compare to that observed in other studies?
- Are there differences in the accuracy of self-reported GPA based on ability level?
- Are there differences in the accuracy of self-reported GPA by demographic characteristics or undergraduate major categories?
- Are there differences in the accuracy of self-reported GPA based on time since graduation?
- To what extent are ability, demographic, and time variables related to differences in the accuracy of self-report GPA?

Methods

Participants

Data was gathered from two sources: a database of GMAT® examinees and a database of validity studies conducted by graduate business programs. The latter database contains data for 273 validity studies conducted for schools through the Graduate Management Admission Council® (GMAC®) between 1997 and 2004. Each of the studies has information about the school and the GMAT® scores and undergraduate GPA of each of the students in the program. Since the information was sent from the schools, the undergraduate GPA represents values taken from student transcripts.

The other database has information on individuals taking the GMAT® exam. Upon finishing the GMAT® test, examinees are asked to complete a series of background information questions (BIQ) that include questions about undergraduate grade point average, undergraduate major, graduation date, and demographic information. Matching information from the two databases provided a working dataset containing 4,780 cases representing 128 different graduate programs. The demographic information for the students included in the study is presented in Tables 1 and 2.

Table 1. Group Frequencies

Group	N	Percent
Gender	4777	
Male	3197	66.9%
Female	1580	33.1%
Race/Ethnicity	3827	
Asian	355	9.3%
Black	179	4.7%
Hispanic	212	5.5%
White/Non-Hispanic	3081	80.5%
Undergraduate Major	4709	
Business	1747	37.1%
Humanities	294	6.2%
Sciences	1347	28.6%
Social Sciences	1321	28.1%

Table 2. Sample Descriptive Information			
Variable	N	Mean	SD
TUGPA	4780	3.226	0.417
SRUGPA	4780	3.232	0.409
GMAT® Total	4780	584.77	98.505
Months since graduation	4657	54.61	54.795
Age	4742	27.31	5.337

Variables

Self-reported undergraduate GPA (SRUGPA), GMAT® total scores, gender, race/ethnicity, undergraduate major, test date and graduation date data were retained from the GMAT® file. In order to avoid using small group sizes, race/ethnicity and undergraduate major categories were collapsed, as illustrated in Table 1. Age was calculated based on date of birth and test date. The length of time since grades were given was the difference between test date and graduation date measured in months. Any examinee who took the test before graduation was not included in the database, as these examinees would not have had their final grades at that time. The validity study file provided the true undergraduate GPA (TUGPA) values from the student transcripts. The SRUGPA values were reported to only one decimal place, so the TUGPA values were rounded to be in the same format, where all cases with hundredths values greater than 0.05 increased to the next tenth and all other values truncated after the first decimal place.

Three additional variables were calculated from the data for each individual. The first variable compared SRUGPA to TUGPA and was assigned a "1" if it matched and a "0" if it did not match. The second variable was used to determine the direction of the difference, with "-1" indicating that the SRUGPA was lower than TUGPA, "1" indicating that SRUGPA was higher, and "0" indicating an exact match. The final variable quantified the amount of the difference and was calculated simply as SRUGPA minus TUGPA.

Differences in ability were addressed by looking at actual earned grades. Three levels of ability using TUGPA were defined as "4.0" = group A, "3.0 to 3.9" = group B, and "below 3.0" = group C. It was expected that individuals with earned averages of 4.0 would be unlikely to forget it and that self-reports from this group would be highly accurate. Some schools specify a minimum undergraduate GPA of 3.00 for admission to a graduate program, so students with grades below this value may be more likely to misrepresent their grades.

Data Analyses

Descriptive and correlational analyses were used to address the study questions. Proportions of students reporting accurately, those under-reporting and those over-reporting were examined overall and for each group. Correlations of SRUGPA and TUGPA were also examined where possible. Mean differences between self-reported and actual GPA can give an indication into the practical effects of using self-reported grades. Because of the large sample size used, this study has the power to detect small differences that may not have practical significance. For this reason, probability values less than 0.001 were considered statistically significant, though any probability values below 0.01 were also further examined.

To determine to what extent ability, demographic, or time variables affected the accuracy of SRUGPA, regression analyses were conducted. The difference between SRUGPA and TUGPA was used as the dependent variable in a multiple linear regression. Predictors used were TUGPA; GMAT® Total score; months since graduation; age; and dummy variables representing gender, race/ethnicity, and undergraduate major categories. All predictors were entered into the linear regression simultaneously. Because different subsets of variables might show differences in the importance of the predictors, a dominance analysis was conducted. The dominance analysis, described in Azen and Budescu (2003), identifies the consistency of the relative importance of the predictor variables across all possible subsets. The relationships among the predictors may affect

their relative importance, so the dominance analysis should be able to identify those predictors that have the greatest effects.

Logistic regression analyses were also performed using the same predictors as those for the linear regression. The first analysis showed how the predictor variables were related to accurate reporting versus inaccurate reporting. The second analysis was used to determine to what extent characteristics could predict whether cases would over-report or under-report their grades.

Results

Most of the students in the dataset reported their grade point average accurately or within a small range. Of the 4,780 students, 55.4% (n = 2,650) reported a GPA that matched their rounded transcript average, with 19.5% (n = 993) under-reporting and 25.0% (n = 1,197) over-reporting their grades. Based on the overall standard deviation of TUGPA (SD = 0.4), less than 6% (n = 283) of students reported a GPA that was different from their actual GPA by more than the TUGPA standard deviation. As with the proportions, the average difference between the GPA values showed that there was a slight tendency to over-report scores, though the overall mean was very small (M = 0.006, SD = 0.225, n = 4,780) with arguably no effect size. The relatively high standard deviation appeared to be the result of outliers; 28 students (<1%) had absolute differences over 1 point and for 2 students the difference was almost 3 points (differences of -2.9 and 2.8). It was believed that extreme discrepancies such as those close to 3 points were a result of misunderstanding either by the examinee or by the reporting school. In an attempt to model a more accurate picture of self-report behaviors, the most extreme 1% of cases was eliminated from the sample with 0.5% trimmed from either end. This resulted in 48 cases with differences less than -1.0 and differences greater than 0.8 being removed from the sample. Removing these extreme cases improved the correlations but had little effect on proportions of students under-reporting, reporting accurately, or over-reporting their GPA. All subsequent analyses were conducted on the trimmed sample.

The correlation between SRUGPA and TUGPA for all students was r = 0.900. These values are consistent with the observed average values for GPA generally and college GPA specifically from the Kuncel et al. (2005) meta-analysis, 0.84 and 0.90 respectively. The value observed in the present study is well within the credibility intervals reported in that study, so the results for this study are similar to previous research. Thus, the hypothesis that select graduate business students would be more accurate in their self-report was not supported from the correlations.

Although the data did not show differences from other studies in terms of correlations, the pattern of the proportions of students reporting inaccurately deserves further attention. In the meta-analysis, students appeared to be 3-4 times more likely to over-report their grades rather than under-report them (Kuncel et al., 2005). The current analysis of graduate business students shows that although more students over-reported than under-reported, the relative proportions are much closer than observed in other studies. Because many graduate business programs have a work experience requirement, the amount of time between completion of undergraduate work and subsequent admission testing and graduate enrollment can hamper the ability of students to accurately recall their GPA. For this dataset, the average time since graduation was about 4 ½ years. Though the self-reported GPAs for graduate business students were not perfectly accurate, the differences may be more random and attributable to memory than for other groups.

Ability

The relative rates of accurate reporting, under-reporting, and over-reporting of grades for the three groups and the available correlations are shown in Table 3. The hypothesis that students at higher ability levels would be more accurate in their self-report was supported in this dataset. It is important to keep in mind that the C group would have more 'room' to over-report than the other groups, just as the A group would only be able to under-report grades if reporting inaccurately. This should not, however, affect exact accuracy.

Table 3. Proportions and Correlations by Ability Level							
		Frequencies (Percent)			Difference		
Group	N	Under-Reported	Accurate	Over-Reported	Mean	SD	Correlation
All students	4732	908 (19.2%)	2650 (56.0%)	1174 (24.8%)	0.008	0.182	0.900
Ability Level							
A, 4.0	59	19 (32.2%)	40 (67.8%)	—	-0.100	0.208	—
B, 3.0-3.9	3394	701 (20.7%)	2078 (61.2%)	615 (18.1%)	-0.016	0.168	0.819
C, below 3.0	1279	188 (14.7%)	532 (41.6%)	559 (43.7%)	0.077	0.198	0.702

The exact accuracy rates increased from 41.6% for the C group to 67.8% for the A group. The rates of over- and under-reporting were also markedly different for the B and C groups, though it was difficult to compare with the A group, since over-reporting was not possible for the A group. Because groups were formed on TUGPA, the variability was restricted within each group, making interpretations of correlations difficult. The correlation for the A group could not even be calculated because there was no variance in TUGPA that was constant at 4.0. The correlations given in Table 3 for groups B and C appear to be lower than the overall correlation. However, if these correlations are corrected for restriction of range according to the method found in Hunter and Schmidt (1990), the values are actually quite similar ($\rho_B = 0.872$ and $\rho_C = 0.809$) to the overall group.

Test scores can be used as another measure of ability. Rather than create bands of ability levels, continuous GMAT® scores were correlated with the absolute value of the difference between SRUGPA and TUGPA. Results showed that those with higher test scores reported grades that were closer to their actual grades ($r = -0.194$, $n = 4732$, $p < 0.001$). When examining only those who over-reported their scores, results were similar, with those of higher ability reporting grades closer to their actual grades ($r = -0.173$, $n = 1174$, $p < 0.001$). Although these correlations are relatively small, the direction supports the previous findings of the relationship of higher ability to more accurate reports.

Groups

The proportions of students accurately reporting, over-reporting, or under-reporting for each of the groups and the correlations of grades are presented in Table 4. Patterns for the groups of students were similar to those for the overall group, with small average differences between the GPA values and relatively equal rates of over- and under-reporting across groups. The tendency to over-report grades was apparent across all groups, with higher proportions of students over-reporting rather than under-reporting. All but one group had positive average differences between their SRUGPA and TUGPA. For the group whose mean value was negative, showing average under-reporting, the absolute magnitude was the smallest observed. Chi-square tests revealed no statistically significant differences in accurate reporting, over-reporting, or under-reporting among the groups. Analysis of variance showed groups had equivalent mean grade differences. Correlations were also similar across groups.

Table 4. Proportions and Correlations by Group							
		Frequencies (Percent)			Difference		
Group	N	Under-Reported	Accurate	Over-Reported	Mean	SD	Correlation
All students	4732	908 (19.2%)	2650 (56.0%)	1174 (24.8%)	0.008	0.182	0.900
Gender							
Male	3162	595 (18.8%)	1773 (56.1%)	794 (25.1%)	0.008	0.183	0.904
Female	1567	310 (19.8%)	877 (56.0%)	380 (24.3%)	0.008	0.180	0.883
Race/Ethnicity							
Asian	355	73 (20.6%)	189 (53.2%)	93 (26.2%)	0.012	0.175	0.895
Black	177	27 (15.3%)	107 (60.5%)	43 (24.3%)	0.028	0.172	0.900
Hispanic	211	44 (20.9%)	106 (50.2%)	61 (28.9%)	0.007	0.196	0.886
White/Non-Hispanic	3059	567 (18.5%)	1758 (57.5%)	734 (24.0%)	0.008	0.170	0.913
Undergraduate Major							
Business	1730	314 (18.2%)	971 (56.1%)	445 (25.7%)	0.016	0.171	0.913
Humanities	292	56 (19.2%)	165 (56.5%)	71 (24.3%)	0.009	0.187	0.877
Sciences	1329	277 (20.8%)	714 (53.7%)	338 (25.4%)	0.003	0.201	0.891
Social Sciences	1312	250 (19.1%)	768 (58.5%)	294 (22.4%)	-0.002	0.171	0.899

Time

Since it is assumed there would be no benefit for under-reporting grades, the relatively large percentage of students under-reporting their grades may be related to memory or time issues. A longer time period since graduation might mean that a person is less likely to remember their grades, which could lead to less accuracy. Age could be related to memory in the same way, and that data might be available for a greater number of students than graduation date. Memory would presumably affect the ability to recall one's GPA exactly, but there should be little difference in under- or over-reporting. Both age and time since graduation were correlated with the absolute value of the differences between SRUGPA and TUGPA. Results supported the theory that greater time would lead to greater differences for both the age ($r = 0.132$, $n = 4694$, $p < 0.001$) and the time since graduation ($r = 0.078$, $n = 4613$, $p < 0.001$) variables, though the magnitude of the relationships was small.

To further examine time differences, months since graduation was grouped into three categories defined as one year or less, more than one year and up to five years, and more than five years. Proportions, means, and correlations were calculated for each of the three groups, as shown in Table 5.

Table 5. Proportions and Correlations by Time							
		Frequencies (Percent)			Difference		
Group	N	Under-Reported	Accurate	Over-Reported	Mean	SD	Correlation
All students	4732	908 (19.2%)	2650 (56.0%)	1174 (24.8%)	0.008	0.182	0.900
Time since graduation							
1 year or less	685	170 (24.8%)	344 (50.2%)	171 (25.0%)	-0.006	0.212	0.858
1-5 years	2534	440 (17.4%)	1510 (59.6%)	584 (23.0%)	0.008	0.157	0.920
More than 5 years	1394	274 (19.7%)	741 (53.2%)	379 (27.2%)	0.012	0.204	0.887

Chi-square tests showed that the groups differed in their relative proportions for accurately reporting, over-reporting, and under-reporting ($\chi^2 = 34.032$, $df = 4$, $p < 0.001$). The relative proportions were examined informally to determine which patterns appeared different. Unexpectedly, the findings suggested that the students reporting their grades between 1 and 5 years after graduation were more accurate in their reports than both the other groups, and the students closest to graduation were the least accurate. The correlations showed a similar pattern, with the most reliable self-reports coming from the mid-range time group. The mean differences between the GPA values showed that the group with the most recent graduation date actually under-reported their scores on average. That is, the group that should have been least affected by memory in terms of time was the one that most supported random differences in self-report with relatively equal proportions over- and under-reporting and mean differences closest to zero.

Predicting Differences

Multiple linear regression was used to determine the extent to which ability, demographic, and time variables moderated the differences between SRUGPA and TUGPA. The primary interest was in the relationship between characteristics of students and inflated self-reports of grades. It was assumed that there would be no benefit to under-representing one's grades, so cases with negative differences were excluded from this analysis. The model explained approximately 13% of the differences in the amount over-reported ($R^2_{adj} = 0.133$, $SEE = 0.114$). The results of the regression are presented in Table 6.

Table 6. Regression Results Predicting Positive Differences				
	Standardized Coefficients		Correlations	
Variable	Beta	Sig.	Zero-order	Part
True UGPA (TUGPA)	-.311	.000	-.332	-.283
GMAT Total Score	-.074	.000	-.199	-.064
Months since graduation	-.091	.001	.072	-.057
Age	.157	.000	.137	.097
Gender	-.037	.035	-.004	-.036
Asian	.052	.003	.019	.051
Black	-.024	.170	.012	-.023
Hispanic	.008	.644	.031	.008
Science	-.002	.936	.031	-.001
Humanities	.006	.726	.000	.006
Social	-.031	.111	-.062	-.027

The analysis showed that ability and time variables were statistically significant in the presence of the other variables with $p < 0.001$. Defining ability using TUGPA, those who had higher actual grades had smaller differences from the self-report. The same pattern appeared to be true for ability defined by GMAT® scores, as shown through the zero-order correlation, but in the presence of the other variables, the semi-partial correlation showed a smaller contribution from the test scores. The simple relationships of both months since graduation and age showed that more time led to greater differences in self-report of grades. However, when used in combination with other variables, the direction changed for the months since graduation variable, even though the direction of the relationship stayed the same for age. This suggests that older students report higher grades than they received, but all other things being equal, more time since graduation leads to smaller discrepancies in GPA. The findings from the analysis of time suggest that the relationship of self-report accuracy and time since graduation is not linear, and the effect of time may not be well modeled in the regression.

Of the dummy-coded grouping variables, neither gender nor undergraduate major appeared to have a significant effect on differences between self-reported and actual grades, but race could be considered a statistically significant predictor (Asian, $p = 0.003$). The contribution of the variable was minimal in isolation (zero-order correlation $r = 0.019$); however, the effect increased in the presence of the other variables (semi-partial correlation $r = 0.051$). Since race was dummy-coded with White as the reference category (with a value of 0), then the positive correlations indicate that Asian students were more likely to report higher grades than White students. Even though race was statistically significant, given the large sample size and the small effect size, it is difficult to attribute any practical significance to this finding.

The dominance analysis examined the relative importance of the variables in predicting the difference between accurately reporting grades and over-reporting grades. For these analyses, the three dummy variables for race were always entered simultaneously to assess the effect of race. Similarly, the undergraduate major dummy variables were always entered as a unit. The TUGPA variable completely dominated all other predictors. In all subsets, ability defined by TUGPA added more to the prediction than any of the other predictors. The relationships were less clear among the remaining predictors, with no other variables either completely dominating or conditionally dominating the others. However, the undergraduate major dummy variables (entered together) generally dominated the remaining variables. On average, these variables increased the explained variance more than either the GMAT® Total, months since graduation, age, gender, or race variables.

Logistic regression was used to examine the characteristics predicting an accurate response, as well as those over-reporting compared to under-reporting their undergraduate GPA. The purpose of these regression analyses was to determine what characteristics of students were related to correctly reported and over-reported self-reports of grades. The first logistic regression model, which examined whether an examinee accurately reported their UGPA, is significant ($p < 0.001$) and predicted 61.3% of the responses correctly. The *Nagelkerke* R^2 is 0.084. The results of this regression are presented in Table 7.

Table 7. Logistic Regression Results Predicting an Accurate Self-Report

Variable	B	S.E.	Wald	d.f.	Sig.	Exp(B)
True UGPA	.694	.090	59.504	1	.000	2.002
GMAT Total Score	.003	.000	59.581	1	.000	1.003
Months since graduation	.002	.001	3.007	1	.083	1.002
Age	-.045	.010	18.351	1	.000	.956
Gender	.035	.076	.215	1	.643	1.036
Asian	-.343	.118	8.441	1	.004	.710
Black	.406	.166	6.021	1	.014	1.502

Table 7. Logistic Regression Results Predicting an Accurate Self-Report						
Variable	B	S.E.	Wald	d.f.	Sig.	Exp(B)
Hispanic	-.120	.150	.638	1	.425	.887
Science	-.169	.088	3.693	1	.055	.844
Humanities	-.118	.151	.615	1	.433	.888
Social Science	-.046	.087	.275	1	.600	.955
Constant	-2.528	.420	36.266	1	.000	.080

According to the regression results, the TUGPA, GMAT® score, and age variables were statistically significant in the presence of the other variables with $p < 0.001$. Those who had higher ability as measured by grades were twice as likely to report their grades correctly when compared to those with lower ability. Those who have higher ability already have higher grades and therefore may have less motivation to misrepresent their grades. Similarly, those with higher GMAT® scores were slightly more likely to correctly report their UGPA. Older students were less likely to correctly report their grades.

Among the dummy-coded grouping variables, only race/ethnicity appeared to have a significant effect on determining an accurate response. The variable Asian could be considered a statistically significant predictor ($p = 0.004$). Race/ethnicity was dummy-coded with White/Non-Hispanic as the reference category. Therefore, the results suggest that Asians are less likely than Whites to accurately report their grades. Similar results were observed in the linear regression analysis. Due to the sample size, this finding is statistically significant but may not be practically significant.

The second logistic regression model, which examined whether an examinee over-reported their grades, is significant ($p < 0.001$) and predicted 66.2% of the responses correctly. The *Nagelkerke* R^2 is 0.183. The results of this regression are presented in Table 8.

Table 8. Logistic Regression Results Predicting Over-Reporting						
Variable	B	S.E.	Wald	d.f.	Sig.	Exp(B)
True GPA	-2.076	.151	190.255	1	.000	.125
GMAT Total Score	.003	.001	18.403	1	.000	1.003
Months since graduation	-.004	.001	6.137	1	.013	.996
Age	.041	.015	6.976	1	.008	1.041
Gender	-.224	.120	3.493	1	.062	.799
Asian	.067	.179	.139	1	.709	1.069
Black	-.190	.274	.477	1	.490	.827
Hispanic	.124	.228	.295	1	.587	1.132
Science	-.480	.139	11.995	1	.001	.619
Humanities	-.402	.241	2.781	1	.095	.669
Social Science	-.308	.139	4.920	1	.027	.735
Constant	4.719	.639	55.044	1	.000	112.023

The regression results indicate that the ability variables were again statistically significant in the presence of the other variables with $p < 0.001$. Using TUGPA to define ability, those with higher ability were less likely to over-report their grades when compared to those with lower ability. It should be noted that those who have higher ability have grades closer to the top of the grade point scale, which provides less opportunity to over-represent grades. Conversely, those with higher GMAT® scores were slightly more likely to over-report their UGPA. This is a surprising finding and seems to contradict the results of the earlier models. However, although those with higher scores may be over-reporting their grades, it may not be by much, as suggested by the linear regression.

Only undergraduate major appeared to have a significant effect on predicting whether grades were over-reported among the dummy-coded grouping variables. The variable Science was a statistically significant predictor ($p < 0.001$). Undergraduate major was dummy-coded with Business as the reference category. Therefore, the results indicate that Science majors are less likely than Business majors to over-report their grades, or as suggested by the relative proportions, are more likely to under-report their grades. It may be that Science majors were more likely to have grades near the top of the scale and so had more opportunity to under-represent their grades.

There was some effect of time on the likelihood of over-reporting versus under-reporting of grades, with age having a p-value of less than 0.01. As observed through the linear regression results, older students were more likely to over-report their scores. This may be due to a memory component. The results for the time variables in the logistic regression did not indicate as strong a relationship as for the linear regression. Further examination of these variables is warranted.

Discussion

The present study replicated and extended previous research of differences in self-report by examining ability level and subgroup and by hypothesizing the extent to which time could lead to memory errors in reporting GPA. This research supported previous findings that higher ability leads to more accurate reporting. Interestingly, this particular sample seemed less inclined to inflate their grades and, although there was a tendency to over-report more often than under-report grades, the average difference was very small. Although this group showed similar reliability in terms of self-reported grades, more of the error appeared to be attributable to random effects.

Some of the differences in under- and over-reporting may have been due to the effect of time, which was supported by the data that, in general, more time led to less accurate reporting. However, there were several findings that were curious. When examined in groups, those who had graduated most recently actually seemed to have random error in responding, with nearly equal rates of under- and over-reporting and an average mean difference under-reporting their GPA by 0.006. The middle time group that graduated within 1 to 5 years before reporting was actually the most accurate, and those out of school the longest were most likely to over-report their scores. It may be possible that students in the middle time group were closer to entering business school, having met the requisite work experience minimums expected at many schools, and had recently reviewed their academic histories in preparation for entering a program. Because of the observed differences, the relationship of time did not appear to be linear, which may have led to the low observed correlations. Interestingly, the Gilger (1992) study found better reporting accuracy for grades by the middle time group as opposed to earlier or later groups, which is similar in terms of time to the results observed here. Future studies examining time should consider non-linear methods of modeling the effect.

Entering the two time variables simultaneously in the prediction models affected the relationships with accuracy of grades. For instance, although in general those who had been out of school longer tended to be less accurate in their report, this changed once age was controlled. Therefore, given students of the same age, the students who had been out of school longer would be more accurate in their self-report. On the other hand, regardless of the amount of time since graduation, older students tend to over-report their scores. Since previous studies have suggested that beliefs about one's abilities may affect the report, then it is possible that the older students believe their self-reported grades more accurately reflect their abilities. This may be a particular possibility if the students believe grade inflation is affecting more recent grades. If this is the case, then inflating their own grades would make them more on par with what they feel their

abilities would earn with more recent standards. The differences in the two time variables suggest they are measuring different effects. Future research in this area should examine these questions separately.

Results for the other predictor variables differed among the analyses. Demographic groups did not exhibit any noticeably different patterns and most did not affect the accuracy of self-report in the multiple regression results. Similar to the previous findings, differences between gender groups did not appear meaningful. Previous research on ethnic differences has been limited to Black and White groups. The current study also examined Asian and Hispanic groups. In the presence of the other variables, Asian students appeared to be more likely to over-report their grades than White students, though both the correlations and the mean values suggest this amount is very small. The dominance analysis suggests that undergraduate major has more of an effect predicting over-reporting than the other variables in the model, though the strongest effect was consistently from the TUGPA ability measure. This general dominance is somewhat surprising given the low correlations of these variables in the final model. It is likely that the relationship of the undergraduate major variables with the other predictors is behind the increased variance explained in the models, including major. These findings, in addition to the differences in groups in the logistic regression results, warrant further research.

There were several limitations to this study. Students reported their GPA as one of their background, or BIQ, responses. It is unclear how students view the consequences of this self-report: do they consider it to be important to their subsequent admission or inconsequential and non-threatening? The accuracy of self-report or the likelihood of intentional misrepresentation would very likely be affected by this view. The analysis of moderators depended on the accuracy of the other self-reported BIQ responses, such as graduation date and undergraduate major. Another limitation lies in the VSS data. It was assumed that the average grades reported were from the students' transcripts, but this may differ across schools. Some schools may have reported only grades in the last two years, or only grades in the major field. Some may have even substituted grades in graduate school if the students had a graduate degree. Transfer hours may be another source of difference in calculating GPA by schools, or even by students. This study included no test for a school effect and assumed that the grades represented true UGPA values. In terms of accuracy at the differing ability levels, it is important to note that by definition certain ability groups would have more 'room' to be inaccurate in their reports, and results should be examined with that in mind. Groups formed, particularly for the time analysis, could be considered arbitrary and other group formations may have led to differing results. Citizenship data was available for many of the students but was not included in the current study due to possible grading scale differences. Future research can address some of these limitations.

Self-report poses a threat to the external validity of studies. Researchers could be more confident in their conclusions if they could identify factors that would moderate the accuracy of the self-report data they have collected. One indicator is ability level of the respondent. Time appears to affect accuracy by introducing more random variance but would likely have little effect on research conclusions. Further research could include perceived consequences on situations like the BIQ responses given after a test and examine the effects of time more systematically. Self-reported information is convenient to gather, but one must always be aware of the limitations of this data and ensure that the unreliability of the data will not adversely affect the outcome of the study.

Contact Information

For questions or comments regarding study findings, methodology or data, please contact the GMAC® Research and Development department at research@gmac.com.

Acknowledgements

Nathan Kuncel, University of Minnesota; Veronica Garcia, Research Writer/Editor, GMAC®.

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