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Michael P. McDonald

Georgia Southern University, mmcdonald@georgiasouthern.edu

John Leaptrott

Georgia Southern University, jleaptrott@georgiasouthern.edu

Darrell Parker

Georgia Southern University, dparker@georgiasouthern.edu

Sara J. Grimes

Georgia Southern University, jgrimes@georgiasouthern.edu

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Recommended Citation

McDonald, Michael P., John Leaptrott, Darrell Parker, Sara J. Grimes. 2013. "Generalizability Revisited: Comparing Undergraduate Business Students to Credit Union Managers." *Management Faculty Presentations*. Presentation 28.
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Generalizability revisited: comparing undergraduate business students to credit union managers

Michael McDonald
Georgia Southern University

John Leaptrott
Georgia Southern University

Darrell Parker
University of South Carolina Upstate

Jan Grimes
Georgia Southern University

ABSTRACT

This paper looks at the use of college students in survey research. Specifically examined is the use of undergraduate business school students to generalize to adult populations of practicing managers. Some studies suggest that such generalizations are valid, while others argue that generalizations need to be undertaken with caution. The differences between particularistic research and universalistic research are discussed. The findings from a study of 69 undergraduate business majors and 67 practicing credit union managers are presented. In summary, the current study finds that the two groups are very different in terms of two well researched personality constructs: locus of control and need for achievement, hence caution should be taken when generalizing findings from one group to the other.

Keywords: generalizability, college students, managers, locus of control, need for achievement

INTRODUCTION

The use of college students as experimental subjects and as respondents to surveys is very widespread in academic studies. Concerns arise, however, when findings from college students are then used to generalize to adult populations, especially when such findings are generalized to represent working professionals such as managers. Some authors argue strongly for the use of college students (Campbell, 1986; Greenberg, 1987; Ward, 1993), while others argue just as strongly against using students to generalize to adult populations (Gordon, Slade and Schmitt, 1987; Podsakoff and Organ, 1986).

The controversy normally revolves around the issue of how valid is it to generalize from college students to working professionals? The assumption among those who argue for the use of student samples is that undergraduates are like older full time working adults. Hence, the argument goes, it is acceptable to generalize from the student sample to older, fulltime, professionals. Essentially generalizability (or external validity) is the ability of a survey (or an experiment) to generalize to other subjects in the population under study. Such concerns become especially problematic when college students are used as substitutes for business people or working professionals (Zikmund, 1997). Because of convenience, cost, and time, many business school students end up as samples in studies that then generalize to business professionals or working adults. A major caution for researchers using such “convenience samples” is to ensure that the student population resembles the adult population they are to represent. Some studies show that students demonstrate considerable similarity to business people (Ward, 1993), while other studies suggest that students are not representative of the total business population (Flanagan and Dipboye, 1980). This debate has gone on for many years in academia and has not been resolved.

PARTICULARISTIC VERSUS UNIVERSALISTIC RESEARCH

In an attempt to resolve some of the issues involved with using college students to generalize to working adults, some authors argue that particularistic research strongly supports generalizability. Essentially, particularistic research is concerned with narrowly defined independent and dependent variables within a specific type of social context. Such research is very common and normally subjected to less rigorous standards of generalizability than is universalistic research (Gordon et al., 1987). Universalistic research, on the other hand, is designed to make observations about general social psychological processes. Hence, when conducting universalistic research, the results are subject to very rigorous standards of external validity (i.e., generalizability).

A major proponent of using students for particularistic research (Greenberg, 1987) reasons that samples of students can provide deeper understandings of how adult populations operate. This point of view is seen in the following argument. In a very real sense, college students are indeed “adults”, albeit in most cases typical undergraduates are a good bit younger than would be a group of managers or working professionals. Additionally, in support of using students in particularistic research, the argument is also made that a series of studies (not just one study) should be conducted to understand how social psychological processes operate within the environment being studied. The argument then ensues that using students in research helps to demonstrate how such processes work.

NEED FOR ACHIEVEMENT AND LOCUS OF CONTROL

Of particular interest to management and professional level work setting oriented scholars is how generalizable are the two psychological constructs of need for achievement and locus of control? A major focus of this study is to look at locus of control. Essentially locus of control is defined as one's general belief about personal control over one's own life and the events that occur in one's life. Most often this theory is associated with expectations about outcomes. People with a strong sense of internal locus of control believe that their own actions (i.e. demonstrated competencies and effort) determine the outcomes (e.g. pay raises, promotions, etc.) they receive in life. People with an external locus of control generally believe that they have very little control over the events and outcomes they receive in life. In the extreme, the strongly external locus of control person would believe that they have no control over outcomes.

A second major focus of this study is to examine need for achievement. Need for achievement (nAch) is defined as a person's desire to accomplish challenging goals through one's own effort. According to need for achievement theory, a strong high achiever generally prefers working alone rather than in a team. The theory posits that teams tend to dilute the performance of the high achiever. This view suggests that the high achiever prefers to have his performance stand alone. Furthermore, the high achiever chooses goals that are reasonably challenging, not too easy and not too difficult. Also such a person likes feedback on his/her accomplishments and likes the recognition that such behavior often leads to. Each of these two personality constructs has been the focus of literally thousands of research projects. In fact, Rotter (1990) (who is most closely associated with the original locus of control construct) reported that his formulation of the concept and supporting studies had been cited more than 4,700 times in the social and psychological literature to that time. Clearly, the interest that locus of control has had on researchers has made it one of the most, if not the most, studied psychological constructs ever.

Likewise, the need for achievement motive, first formulated by McClelland and Atkinson (1964) has been studied extensively. Because the need for achievement motive has been such a powerful predictor of job performance in a variety of settings (Wright, Kacmar, McMahan, and Deleeuw, 1995), it has been studied in Germany, England, South Africa, and India (Lindgren, Moritsch, Thulin, and Mich, 1986).

Each of these personality dimensions is so well documented as predictors of behavior that most university level textbooks in Principles of Management, Organizational Behavior, and Leadership contain major sections describing the importance of the two constructs.

WHY THIS STUDY?

This study builds on the work of Ward (1993). In Ward's studies, the primary concern was on the generalizability of results from undergraduate business school student samples to full time employed adults in a M.B.A. program. Among other measures, Ward used two measures: locus of control and need for achievement. Since these two measures are so well documented and validated, they each meet the following criteria necessary for the use of a convenience sample of students: extensive research with student samples using the constructs and extensive statistical support regarding the existence and predictive power of the constructs. According to Ward (1993), the two constructs are of wide concern as demonstrated by the very large body of published research associated with each. Likewise, each construct measure's usefulness as a

predictor variable is thoroughly supported by the sheer volume of published descriptive statistics and measures of reliability attached to their use.

Ward compared 207 undergraduate students to 180 full time employed adult M.B.A. students. The undergraduates were attending daytime classes leading toward a B.B.A. from an A.A.C.S.B. accredited school of business. The average age of the undergraduate students was 21.12. His fully employed students were working toward a Master of Business Administration (M.B.A.) degree from the same school. The M.B.A. sample's average age was 35.26. This sample was considered representative of managerial and professional level employees.

Essentially the research presented in this paper intended to replicate most of Ward's study. In contrast to Ward's approach, we used a sample of experienced managers instead of M.B.A. students. We hypothesized that our results would be similar to those of Ward's. By using full-time, salaried employees, Ward hoped to overcome the criticism of the use of student samples raised by Gordon et al. (1987) that such samples are not generalizable to adult samples. Likewise, since Ward's research (and ours) was a "particularistic" study designed to analyze specific psychological processes, the use of undergraduate students and working graduate students was considered appropriate (Greenberg, 1987).

Ward's study demonstrated clearly that the need for achievement and locus of control of undergraduates and employed adults did not differ in any statistically significant manner. According to Ward (1993), "These findings indicated that some, but not all, measures that are applied to convenience samples of undergraduates should result in descriptive statistics that are similar to those that would have been obtained using a sample of employed adults". Ward also added that "Need for achievement and locus of control did not appear to be affected by either full time employment experience or graduate school experience and, thus, may be generalizable" (i.e. when using a convenience sample of undergraduate students).

COMPARING MANAGERS TO STUDENTS

To examine Ward's findings of "generalizability" more fully, we surveyed 136 respondents regarding their locus of control and need for achievement. Our sample included 69 undergraduate business school students (average age 21.22) at two A.A.C.S.B. universities in the Southeast U.S.A. Rather than use adult Master of Business students (as in Ward's study), we choose to survey 67 senior level managers of credit unions from across the U.S.A. Ward's sample of fully employed M.B.A. students was younger (average age 35.26) than our sample plus not all of Ward's sample was employed as managers. All of our sample of managers worked full time and was older (average age 43.51). The managers in our survey were participating in a well-known professional level credit union school that has been taught through the continuing education program of a large state university in the south for over forty years. The school is supported and partly funded by the credit union leagues of the seven states in the Southeast U.S.A. Credit union managers come in from all over the U.S.A. to participate in the school although most participants are Southeastern U.S.A. based.

METHODOLOGY

Survey instruments were developed to capture salient personality characteristics that have been shown to predict effectiveness in senior level management positions. Nineteen questions incorporated attitudes toward work ethic, work mastery, and competitiveness (Spence &

Helmreich, 1983). These three measure constructs taken together constituted our measure of the need for achievement. Ten items captured the individual's locus of control. Demographic information on age and gender was also collected.

Four subscales were developed from the data. Student scores and manager scores were reported on scales for locus of control, work ethic, work mastery, and competitiveness. Cronbach's Alpha was run on each subscale to determine the reliability of the instruments used. The results were somewhat low but still acceptable for the locus of control scale and the work mastery scale with alpha equal to 0.5245 and 0.5123 respectively. The results from the work ethic and competitiveness scales evidenced strong reliability with alpha equal to 0.7751 and 0.8031 respectively. A series of F tests were performed to identify significant differences on the scales as well as on individual items.

RESULTS

The scale for locus of control combined the responses from the ten items on the survey that addressed attitudes about personal control. One item was reverse coded. A high score of 50 represents the extreme external locus of control view of environmental influences. A low score of 10 represents the strong internal locus of control perspective. Table 1 (Appendix A) presents the results of F tests comparing the student and manager populations for each of the ten items and the overall scale.

On each of the ten items, the student mean score is higher than that of the managers. This reflects a higher external locus of control for the student population. Five of the ten items are significant at the 99% confidence level. Another three are significant at the 95% confidence level. In two cases, the higher score for students is not significant. In general, students were much more likely to agree with statements that attribute success to chance, timing, destiny, or other external forces. On the locus of control scale overall, the student score differed from the manager's score at the 99% confidence level.

Our results differ markedly from those reported by Ward (1993) in a study of undergraduates compared to M.B.A.s who were full time employees. Our undergraduates were significantly more external locus of control oriented than were the credit union managers we surveyed. One interpretation of this contrast is that our managers were much different than the M.B.A.s used in Ward's study. Our managers were older, more experienced, and were responsible for the performance (i.e. results) of many staff. Ward's M.B.A. students were a younger group, less experienced, and were not exclusively managers. Essentially our interpretation of the results we found is that the managers we surveyed believe that there is a clear link between performance and outcomes (i.e. the better a person's performance, the better the outcomes obtained for that person's performance).

A similar set of differences was found on the responses to the measures associated with the need for achievement. The first construct we used examined attitudes toward a work ethic orientation as reported in Table 2 (Appendix B). The theory of high achievement strongly supports the notion that such individuals like to demonstrate their knowledge and skills through their work. Hence the high achiever is a very work ethic oriented person. The work ethic scale includes six items and is scored on a scale ranging from a low of 6 to a high of 30. The low score indicates a weak work ethic orientation and the high score a strong work ethic orientation.

The responses on the work ethic items indicated that both sub-samples report a strong work ethic orientation. Not too surprisingly however was that the managers indicated a stronger

work ethic than the students on each of the items measuring work ethic. The lowest score for students was a 4.04 mean on the item, “I like to work hard.” Managers mean score on this item was 4.33. The difference between students and managers on this item was at the 95% significance level. The highest score was the manager’s mean response of 4.73 on the item, “there is satisfaction in a job well done.” Again the difference between the two groups was at the 95% level. The overall difference in work ethic score between the groups is significant at the 95% confidence level. The strong significant differences found between the two groups suggest clearly that experienced managers and undergraduate students simply have much different orientations to how hard they work and how much satisfaction they obtain from hard work. The theory behind high achievement suggests that a strong high achiever likes to work hard and obtains satisfaction from seeing the results of that hard work. These results found here do not support Ward’s results which found no significant differences between undergrads and older full time working M.B.A. students.

The seven items on work mastery are reported in Table 3 (Appendix C). Work mastery is essentially viewed as a major characteristic of the high achiever’s psychological make-up. The work mastery measurement used in this study looks at how much does a person like to perform challenging and difficult tasks? Similarly, does the person want to take charge of the group and lead it? How persistent is the person in taking on a task? Here, the dominance of managers’ attitudes over students is not as complete. Only four of the seven items showed a significant difference between the sub-samples. On those items, managers expressed a higher response on two and students expressed the higher response on two. Interestingly, the one item where the students had the strongest difference in their desire for work mastery is associated with group activities. Students were significantly (99% confidence level) more likely to prefer directing an activity when in a group. This likely reflects their experience in business school classes that strongly emphasize group activities like team based case studies, team based simulations and team presentations. Our experience with courses using student groups suggests that generally students often do not like to work in groups. However, when they are assigned to a class project or task requiring group-work, the better students nearly always prefer taking a “lead role” so that the work actually gets done on time and at a level of quality that the professor would find acceptable. Unlike the students, our results suggest that the credit union managers were more likely to express a willingness to follow in a group setting. While this is not a result that we would have expected from the manager sample, it is not totally surprising and can be explained we think. Our experience with credit union managers is that most of them are very hard working, yet congenial, committed, cooperative people. Most credit union settings and “cultures” emphasize cooperation over competitiveness. Many of these managers previously worked in the private sector of the economy, primarily in “for-profit” banking and financial services industries where the cultures were much more competitive and pressured. Many credit union managers gravitate to this line of work and find it “refreshing” that it is not plagued by the intensity of mergers, acquisitions, and relentless pressure always to do things “better, faster, cheaper”. The core philosophy of the credit union “movement” is that credit union members themselves “own” the credit union and the credit union is treated tax wise as a “not for profit” entity. Based primarily on the strength of one work mastery item (i.e. preferring to direct an activity when in a group) the students’ mean score on the work mastery scale was significantly greater (at the 95% level) than that of the managers. On other items like “Once I undertake a task, I persist”, the managers displayed significantly stronger mastery than did the students (95%).

The final measure of comparison between the students and managers is the competitiveness scale. Again, underlying the theory of the high achiever is the notion that high achievers like to demonstrate their achievement in comparison to others. Competition with others, in this view, is a good thing. Table 4 (Appendix D) reports the F tests for the final six survey items and the overall competitiveness score. For this scale, there was no significant difference between the students and managers on overall competitiveness. However, there are differences on individual items. Students were significantly more competitive than managers in three of the six items. They expressed a greater desire to work in competitive situations, felt that winning was important for work, and they try harder when in competition. Again, one interpretation of these differences is that credit unions tend not to encourage a great deal of competition among staff, functions, departments, or locations. The philosophy of the credit union “movement” is all about the idea that the members (and hence employees of credit unions) are all owners of the union. In most credit unions, competition is essentially discouraged. It is certainly not strongly encouraged.

DISCUSSION

This comparative study and analysis of undergraduate students and credit union managers reveal some important differences relative to Ward’s conclusions. In terms of two important psychological constructs (locus of control and need for achievement) Ward reported that there were essentially no significant differences between undergraduate business school students and fulltime working adults, when using a group of M.B.A.s to represent managers and professionals. Our study strongly suggests that differences do exist between undergrads and experienced managers and that such differences are important in terms of “generalizing”. Managers in our study expressed a significantly stronger need for achievement in terms of work ethic orientation than did the students. However, on the work mastery scale, the two groups were about evenly split. The strongest difference was in how students much preferred to “be the leader” when in a group. Another difference between the two groups is that students reported a stronger competitive motivation than did the managers.

The strongest difference we found between the two groups was on the measure of locus of control. Ward reported no significant difference between undergrads and M.B.A.s. We found a highly significant difference at the 99% level. Several explanations found in the literature on locus of control might help clarify this finding. The credit union managers we surveyed were much older than the students (43.51 to 21.22). Some studies suggest that with age comes a belief that effort and outcomes are linked. Another explanation is that with career “success” comes a similar belief that the effort-outcome link. Yet another explanation is that managers tend to have higher internal locus of control attitudes that do non-managers.

Perhaps the most important contribution of the current study is to suggest caution when generalizing from convenience samples of undergraduate students to other populations like experienced managers. Our study points out very strong differences between young students and older, seasoned managers. We recommend that when using student samples (as surrogates for managers) that universalistic generalizations not be made.

SUGGESTED FUTURE RESEARCH AND LIMITATIONS

In terms of future research, it would be useful to extend this study to include other psychometrics beyond those involved in this one. For example, numerous studies suggest that the ascendancy motive is a strong predictor of the need to manage. The willingness to step up and take charge of situations and people is a key attribute of successful managers. Another strong predictor of success in management is the need for power. Similar to the ascendancy motive, the need for power has long been associated with leadership, especially as one moves to ever higher levels in organizations. Especially important in future research would be an investigation of the underlying life events and experiences that lead to differentiation between typical M.B.A. students and undergraduate business school students, as contrasted to mid-career managers like those in the current study. It would be useful to thoroughly identify those life events that shape successful managers.

The primary limitations in this study were twofold. One major limiting factor is that only two of many differences were examined. As stated above, future research should look at a broader array of variables. A second set of limitations are the sample size and features of the sample. A much larger sample to include managers from various work settings beyond credit unions would have been instructional.

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APPENDIX A

Table 1: Locus of Control			
Statement	Manager Mean (Std. Deviation)	Student Mean (Std. Deviation)	F (Sig.)
1. Heredity determines most of a person's personality.	2.97 (1.11)	3.16 (.93)	1.156 (.284)
2. Chance has a lot to do with being successful.	2.46 (.97)	3.00 (1.15)	8.614 (.004)
3. Whatever plans you make, there is something that always crosses them.	2.78 (1.36)	3.41 (1.15)	8.508 (.004)
4. Being at the right place, at the right time is essential for getting what you want in life.	2.93 (1.11)	3.38 (1.04)	5.996 (.016)
5. Intelligence is a given and cannot be trained or become stunted.	2.09 (.90)	2.62 (1.25)	8.124 (.005)
6. If I successfully accomplish my task, it's because it was an easy one.	1.57 (.68)	1.81 (.69)	4.320 (.040)
7. You cannot fool your destiny.	2.60 (1.23)	3.06 (1.25)	4.701 (.032)
8. School success is mostly a result of one's socio-economic background.	2.07 (1.05)	2.35 (1.07)	2.262 (.135)
9. People are lonely because they are not given the chance to meet new people.	1.81 (.93)	2.45 (1.19)	12.276 (.001)
10. If you set realistic goals, you can succeed no matter what. (R)	2.76 (1.28)	2.02 (.98)	14.025 (.000)
Locus of Control Scale 10 Internal – 50 External	24.03 (4.88)	27.26 (4.21)	17.134 (.000)

APPENDIX B

Table 2: Work Ethic			
Statement	Manager Mean (Std. Deviation)	Student Mean (Std. Deviation)	F (Sig.)
11. It is important for me to do my work as well as I can even if it isn't popular with my coworkers.	4.36 (.69)	4.25 (.77)	.789 (.376)
12. I find satisfaction in working as well as I can.	4.69 (.50)	4.48 (.66)	4.331 (.039)
13. There is satisfaction in a job well done.	4.73 (.48)	4.52 (.68)	4.315 (.040)
14. I find satisfaction in exceeding my previous performance even if I don't out perform others.	4.45 (.68)	4.22 (.87)	2.937 (.089)
15. I like to work hard.	4.33 (.75)	4.04 (.95)	3.786 (.054)
16. Part of my enjoyment in doing things is improving my past performance.	4.43 (.56)	4.33 (.74)	.780 (.379)
Work Ethic Scale 6 Low – 30 High	26.26 (2.48)	25.84 (3.23)	5.355 (.022)

APPENDIX C

Table 3: Mastery			
Statement	Manager Mean (Std. Deviation)	Student Mean (Std. Deviation)	F (Sig.)
17. I would rather do something at which I feel confident and relaxed than something which is challenging and difficulty. (R)	2.94 (.1.18)	3.07 (1.08)	.467 (.496)
18. When a group I belong to plans an activity, I would rather direct it myself than just help out and have someone else organize it.	2.15 (.87)	3.40 (.96)	61.964 (.000)
19. I would rather learn easy fun games than difficult thought games.	2.84 (1.08)	2.55 (.90)	2.799 (.097)
20. If I am not good at something, I would rather keep struggling to master it than move on to something I may be good at.	3.19 (1.18)	3.52 (.95)	3.183 (.077)

21. Once I undertake a task, I persist.	4.15 (.72)	3.91 (.66)	3.957 (.049)
22. I prefer to work in situations that require I high level of skill.	3.75 (.79)	3.62 (.86)	.759 (.385)
23. I more often attempt tasks that I believe I can do.	2.99 (1.01)	3.22 (.87)	2.071 (.152)
Mastery Scale 7 Low – 35 High	22.45 (3.53)	23.94 (3.28)	5.355 (.022)

APPENDIX D

Table 4: Competitiveness			
Statement	Manager Mean (Std. Deviation)	Student Mean (Std. Deviation)	F (Sig.)
24. I like to be busy all the time.	3.57 (1.28)	3.26 (1.29)	1.927 (.167)
25. I enjoy working in situations involving competition with others.	3.22 (1.10)	3.70 (1.10)	6.248 (.014)
26. It is important to me to perform better than others on a task.	3.31 (1.08)	3.34 (1.03)	0.19 (.891)
27. I feel that winning is important in both work and games.	3.15 (1.08)	3.54 (1.07)	4.439 (.037)
28. It annoys me when other people perform better than I do.	2.69 (1.08)	2.96 (1.27)	1.792 (.183)
29. I try harder when I'm in competition with other people.	3.51 (1.05)	3.91 (1.05)	5.055 (.026)
Competiveness Scale 6 Low – 30 High	19.45 (4.15)	20.66 (4.84)	2.447 (.120)