# The Development of Academic Buoyancy Scale for Accountancy Students (ABS-AS)

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The present study developed new items of Academic Buoyancy specifically for accounting students. This is called the Academic Buoyancy Scale for Accounting students (ABS-AS). The ABS-AS consists of five factors, namely: (1) Self-efficacy, (2) Uncertain Control, (3) Academic Engagement, (4) Anxiety, and (5) Teacher-Student Relationship based on the model by Martin and Marsh (2007). The scale was pretested to 300 Accountancy students of random year in one university in Manila. The scale's Cronbach's alpha obtained were .81 for the whole scale, .75 for Anxiety, .92 for Uncertain Control, .59 for Academic Engagement, .94 for Anxiety, and .79 for Teacher-Student relationship which indicate moderate to high internal consistency. Convergent validity was also attained where the four factors were all significantly correlated ($p<.05$). Construct Validity using the Confirmatory Factor Analysis (CFA) was conducted and showed that the data fit the hypothesized five-factor measurement model. The items also indicate good fit in 13 fit indices measured.

**Keywords:** *Accountancy; Academic Buoyancy; Self-Efficacy; Uncertain Control; Academic Engagement; Anxiety; Teacher-Student Relationship*

Students do not only experience 'acute' and 'chronic' life problems that affect their academic lives (Marsh & Martin, 2007; Garmezy, 1981; Lindstroem, 2001; Masten, 2001). Students also confronts academic setbacks and challenges that are typical of their daily lives in the school (Marsh& Martin, 2007). This concept has been termed as Academic Buoyancy.

Any study of academic buoyancy should include a sufficient discussion on how and in what sense does academic resilience is distinct from buoyancy. This is because buoyancy is a product of a long list of studies on resilience (Egeland & Farber, 1987; Luthar, 1991; Luthar, Doernberger, & Zigler, 1993; Sandler, Wolchik, Davis, Haine, & Ayers, 2003; Fergus & Zimmerman, 2005; Perez, Espinoza, Ramos, Coronado & Cortes, 2009). Resilience subsumes buoyancy (Martin & Marsh, 2007). That is why in most cases the former is confused with the latter precisely because they attempt to measure the same ability – the ability to successfully deal with academic setbacks and challenges. In this case, there is a need to tap on the distinction between the two. Martin and Marsh (2007) proposes that in terms of difference in definitional terms, resilience is characterized in terms of 'acute' and 'chronic' adversities "that are seen as 'major assaults' on the developmental processes" (p. 54), i.e. poverty (Overstreet & Braun, 1999), learning disabilities (Margalit, 2004; Meltzer, 2004; Miller, 2002), and the interaction of ethnicity and underachievement (Gonzalez & Padilla, 1997) to name a few. On the other hand, buoyancy deals with the academic setbacks and challenges that are typical of the ordinary course of school life (e.g., poor grades, competing deadlines, exam pressure, difficult school work). With this distinction, it can be inferred that buoyancy is experienced by more students than resilience because of the very fact that the academic setbacks and challenges here is 'typical'. And because resilience deals with 'extreme' setbacks and challenges, it is confined to the relative few who experience such (Martin & Marsh, 2007).

The present study adapted academic bouyancy which was proposed by Martin and Marsh (2007) where it is defined as "the ability to successfully deal with academic setbacks and challenges that are typical of the ordinary course of school life" (p. 54).

The study of Marsh et al. (2010) investigated whether or not the 5Cs– confidence (assessed via self-efficacy), coordination (planning), commitment (persistence), composure (low anxiety), and control (low uncertain control) – persistover time. These are the tentatively identified five motivational predictors of academic buoyancy. The Martin et al. (2010) study investigated 1,866 high school students from six Australian high schools in two years. Almost one-third (29%) of the respondents were in Grade 7 at Time 1 and Grade 8 at Time 2. There were 24% in Grade 8 at Time 1 and Grade 9 at Time 2; 23% were in Grade 9 at Time 1 and Grade 10 at Time 2; 18% were in Grade 10 at Time 1 and Grade 11 at Time 2; and 6% were in Grade 11 at Time 1 and Grade 12at Time 2. The students came from families within a range of middle-class (predominantly) to upper- middleclass to high social economic status. Structural Equations Model (SEM) tested the hypothesized model confirmed that 5Cs were significant predictors of subsequent academic buoyancy of the high school students. Also, the findings revealed that across a larger number of students, year levels and schools, and after controlling for prior variance in academic buoyancy, motivation factors seem to play a significant role in students' capacity to effectively deal with academic challenges and setbacks (Barnett, 2012). Results yielded that the 5Cs were significant predictors of academic buoyancy.

Another study was conducted by Marsh and Martin (2007) where 598 students in Years 8 and 10 from five Australian high schools were asked to rate their academic buoyancy in the area of Mathematics half-way through the school year and at the end of the school year (two times). There were five hypothesized predictors, namely: (1)

Self-Efficacy, (2) Uncertain Control, (3) Academic Engagement, (4) Anxiety, and (5) Teacher-Student Relationship. (These factors were adapted by the present study.) This study's most striking feature is the relative salience of anxiety in the model – explaining by far the bulk of variance in the context of the other predictor factors. Marsh and Martin notes that "this is something of a new finding in that it does not appear that anxiety has been considered in previous resilience-related research and suggests a powerful factor in explaining students' academic buoyancy" (p. 72).

Lastly, the study of Barnett (2012) investigated how profiles of buoyancy in the domains of English and Mathematics changed over the course of an academic year, and how they ultimately affect students' academic achievement in those domains. There were a total of 153 ninth and tenth grade female high school students attending an urban, private, high school in the metropolitan New York City area which were asked to answer a web-based survey four times during the 2009-2010 academic year. Students were asked to complete the measures twice, once in reference to their English class and once in reference to their Mathematics class, four times. The study revealed that students considered to be the most academically buoyant obtained the highest grades.

From these studies of Martin et al. (2010), Marsh and Martin (2007), and Barnett (2012), we could draw pertinent conclusions on the basis of the present study: (1) They measure the academic buoyancy of the students of developed countries, i.e. United States and Australia, and (2) the measurement of buoyancy is either generalized (or that which broadly apply to all academic subjects) or domain-specific (or that which apply for a specified subject, e.g. English, Mathematics, etc., and (3) the respondents in all of these studies are students from basic education programs. Taking into consideration these two, it could further be inferred that (1) there appears to be no scale that measures the academic buoyancy appropriate in the context of Filipino students (or students from a developing country). Furthermore, (2) there is no scale that is program-specific or a scale that measures the academic buoyancy of students which are enrolled to specific higher education program.

Therefore, this study developed an academic buoyancy scale that is (higher education) program-specific. This is for the reason that in the previous studies on academic buoyancy was limited for higher education students given the fact that they too experience academic setbacks and challenges. Educational researchers have demonstrated the need to differentiate between math and verbal domains (Marsh & Martin, 2007).

**Selecting the Program**

The higher education program was selected based on the population statistics available from the Commission on Higher Education (CHED). The CHED reports that in A.Y. 2011-2012 (latest available statistic), the program/ discipline/ field of study that gets the highest share in the 3,033,967 population of higher education students in the country is Business and Accountancy (and other related programs) programs. A total of 840,192 or 27.69% of the bulk was enrolled in Business and Accountancy programs. (It should be noted that either of the two contains accounting courses/subjects.) This is to say the present study attempts to investigate the academic buoyancy of the

higher education students who constitute the biggest percentage in the total population of higher education students in the country. Several studies have shown that students are less-motivated or display anxiety in mathematics-related subjects (Bong, 1996; Marsh, Martin & Debus, 2002; Pintrich, 2003; Zimmerman, 2001). Hence, students who major in accountancy much likely are less-motivated, display anxiety, and suffer from academic challenges akin to these ones. Accountancy seems to be a program in which a number of students experience these kinds of academic setbacks and challenges which would bring into consideration the issue of academic buoyancy. This study will therefore focus on accountancy.

There have been studies that showed how accounting students cope up with stress and academic setbacks. Endler and Parker (1990) theorized three coping strategies, where one has two subordinate factors: (1) task-oriented coping, (2) emotion-oriented coping, (3) and avoidance-oriented coping which can also be further split into (a) social diversion avoidance-oriented coping and (b) distraction avoidance-oriented coping. In the same way, in the study of Lim, Tam, and Lee (2013) found that that university (accounting) students, regardless of gender, ethnicity and nationality may encounter numerous stressors in their student life. They further found out that (Lim, Tam, & Lee, 2013, p. 03)

> "The perceived stress may vary from meeting deadlines to reaching expectations and coping in a new environment. Research of present study proved that perceived stress, coping capability and general health are interrelated. Hence, it is essential to raise awareness among parents, educators and people from all walks of life to provide constructive strategies to ensure that the needs of these students are met. In addition, as coping capability are important in moderating stress and general health, every possible action should be taken to enhance the coping strategy of students."

Redwan et al. (2009) suggested that universities should provide students with programs that help them to identify effective stress management strategies. Time management seminars, counseling services and healthy co-curricular activities can well be implemented in the university to help students reduce their stress. Lim, Tam, and Lee, (2013) proposed that a well-organised buddy system could also be implemented whereby each student is assigned a mentor to guide and advise them when they face stressful problems. In addition, lecturers in the university can also help students reduce their stress by providing them with additional coaching in their studies.

The present study uses the factors of buoyancy proposed in the study of Marsh and Martin (2007) to develop items, namely: (1) Self efficacy (students' belief and confidence in their ability to understand or to do well in their schoolwork, to meet challenges they face, and to perform to the best of their ability); (2) Uncertain control (students' uncertainty about how to do well); (3) Anxiety (pertains to both feeling nervous or the uneasiness students get when they think about their schoolwork or exams, and feeling worried or the fear to not doing very well in their schoolwork or exams); (4) Academic engagement (includes persistence, enjoyment of school, class participation, educational aspirations, and valuing of school); and (5) Teacher-student

relationships (pertains to students' perceptions of how they get on with their teacher and their teacher's regard for them).

The purpose of the study is to (1) develop new items of academic buoyancy which measure the academic buoyancy of accounting students (2) determine the internal consistency of these items using Cronbach's alpha., (3)prove the four factors of bouyancyfor accounting students using Confirmatory Factor Analysis (CFA).

## Methods

### Participants

The Accountancy Academic Buoyancy Scale was administered to 300 Accountancy students from one university in Manila, Philippines. The participants were randomly selected male and female whose ages range from 17 to 22 years old.

### Instrument

There are a total of fifty items which were developed based on the factors set in the model of Martin and Marsh (2007), namely: (1) Self-efficacy, (2) Uncertain control, (3) Academic Engagement, (4) Anxiety and (5) Teacher-Student relationship. There were 10 items that were developed in each factors.

The development of the items started with the determination of conceptual framework or theory. After which, the factors were determined and adopted from an existing study. Then, a table of specifications which is the blue print of the scale was designed as a basis for the distribution of items to the specific factors. After which, the type of response format was determined, (5-point Lickert scale).Then, the items were constructed; and, after the test was completed it was pre-tested for gathering of data to establish its validity and reliability.

The item review process or the content validity started with the submission of the constructed items to the item reviewer. The item reviewer who is an expert on scaling theory accepted some items, rejected a few, and suggested many revisions to the rest of the items. After which, the items were reviewed by the researchers and made the revisions. Then it was submitted again to the item reviewer for final revisions.

### Procedure

The researchers have given first the letter to the Dean of the College of Accountancy of one university in Manila. There were 300 Accountancy students in random year levels from these universities who answered the scale. At first, respondents were informed that they will be answering a scale that corresponds to their ability to successfully deal with academic setback and challenges and it was been said to them that the test items were taken from the five factors of academic buoyancy namely: (1) Self-Efficacy, (2) Uncertain Control, (3) Academic Engagement (4) Anxiety and (5)Teacher-student relationship. Afterwards, the copies of the scale were distributed to the respondents. The instruction in answering the test was indicated on the top part of the copies of the scale and it was also explained to them

verbally before answering. The respondents were asked to fill in necessary information which are asked in the copies. Students were asked if they have some clarification. They answered the scale for 30 minutes. When everybody was through with answering the scale, the purpose of the pretesting will be reiterated to them.

**Data Analysis**

After pretesting, the data gathered were subjected to two major statistical treatment, namely: reliability and validity analysis. Under reliability, to establish the internal consistency of the items, the Cronbach's alpha was obtained. Under validity, at least three validity measures were considered. First is the content validity. This happened when an expert on the subject of the study was consulted to review the items that were constructed. The expert suggested revisions on some items and accepted some items as well. The second is convergent validity were each of the factors were correlated to each other. The last validity measure is the construct validity specifically the Confirmatory Factor Analysis (CFA). This is intended to measure the goodness of fit of the items vis-à-vis the factors from which these items were drawn.

## Results

The reliability of the scale was assessed using Cronbach's alpha. The coefficient alpha determined the internal consistency of the 50 items as a whole and for each items (60 items each). The construct validity of the scale was first assessed using convergent validity by intercorrelating the five-factor model with the one-factor model.

Table 1
*Means, Standard Deviation, Kurtosis, Skewness, Variance, CI+, and CI-*

| Factors | M | SD | Kurtosis | Skewness | CI+ | CI- | Cronbach's Alpha |
|---|---|---|---|---|---|---|---|
| Whole Scale | 3.21 | 0.29 | -0.23 | 0.23 | 3.24 | 3.17 | .81 |
| Self-Efficacy | 4.02 | 0.41 | -0.31 | -0.01 | 4.07 | 3.98 | .75 |
| Uncertain Control | 3.20 | 0.75 | -0.26 | 0.25 | 3.30 | 3.12 | .92 |
| Anxiety | 4.03 | 0.41 | 1.18 | -0.70 | 4.08 | 3.98 | .59 |
| Academic Engagement | 2.68 | 0.90 | -0.46 | 0.11 | 2.80 | 2.59 | .94 |
| Teacher-Student relationship | 2.10 | 0.54 | -0.49 | 0.014 | 2.16 | 2.40 | .79 |

The descriptive statistics of the five subscales of the ABS-A was determined. The mean values are within a moderate range except for Self-Efficacy and Anxiety which are high (a total of 5-point scale). Standard deviations of the scores were minimal except for Academic Engagement which is 0.90 indicating wide dispersion of the scores.

The overall internal consistency of the scale using the Cronbach's alpha is .81 indicating high internal consistency of the items. With regard to the subscales, Uncertain Control and Academic Engagement indicated high internal consistency with values of .92 and .94 respectively. While Self-Efficacy, Anxiety, and Teacher-Student Relationship indicated moderate internal consistency with values of .75, .59, and .79 respectively.

Table 2
*Intercorrelations of the Factors of the A-ABS*

| Factors | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| (1)Self-Efficacy | --- | | | | |
| (2)Uncertain Control | .97* | --- | | | |
| (3)Anxiety | .88* | .96* | --- | | |
| (4) Academic Engagement | .75* | .87* | .95* | --- | |
| (5)Teacher-Student Relationship | .61* | .75* | .87* | .96* | --- |

**p<.05**p<.01*

When the subscales of the ABS-A were intercorrelated, significant correlations and positive magnitude indicates the convergence of the subscales. A high score in one subscale increases the scores in the other subscales.

The factor structure of the ABS-A was tested using the Confirmatory Factor Analysis (CFA). The five-factor structure proposed by Martin and Marsh (2007) was compared to a one-factor structure. This was done to determine which factor structure best fits the data. The five-factor structure was composed of five factors, namely: (1) Self-Efficacy, (2) Uncertain Control, (3) Academic Engagement, (4) Anxiety, and (5) Teacher-Student Relationship. In the one-factor model, all items were combined in one latent variable.

To determine which solution explains best the factors of the ABS-A, the goodness of fit indices were compared. The five-factor model structure of the ABS-A turned out to have the best fit compared to the one-factor model. The fit indices of the five-factor structure where the subscales are treated in separate latent variables had the best fit across several indices. The model proposed in the paper had the highest GFI with 0.616 compared to 0.391 of the one factor model; highest AGFI with 0.579 compared to 0.321. The fit indices Independence Model Chi Square, Independence Model df, Bentler-Bonett Normed Fit Index, Bentler-Bonett Non-Normed Fit Index, Bentler Comparative Fit Index, James-Mulaik-Brett Parsimonious Fit, Bollen's Rho, and Bollen's Delta have values that indicate that the items are good fit for the five-factor model. The proposed model also indicated the lowest RMSEA (see Table 3).

The five-factor structure explained the most adequate solution to fit the data supporting the factors proposed by Martin and Marsh (2007) where the Akaike Information Criterion, in particular, yielded 13.433 in the five-factor model was comparably lower than 23.65 of the one-factor model; the Schwarz's Bayesian Criterion with 14.796 as opposed to 24.89 of the one-factor model; and with Browne-Cudeck Cross Validation Index, 13. 58 was yielded in five-factor model as opposed to 23.79 in the one factor model. These fit indices indicate goodfit of items in the five-factor model.

**Table 3**
*Fit Indices of the Different Measurement Model for A-ABS*

| | Five Factor Model | One Factor Model |
|---|---|---|
| JoreskogGFI | 0.616 | 0.381 |
| JoreskogAGFI | 0.579 | 0.328 |
| Akaike Information Criterion | 13.433 | 23.65 |
| Schwarz's Bayesian Criterion | 14.796 | 24.89 |
| Browne-Cudeck Cross Validation Index | 13.585 | 23.79 |
| Independence Model Chi Square | 9343.87 | 9343.87 |
| Independence Model df | 1225.00 | 1225.00 |
| Bentler-Bonett Normed Fit Index | 0.594 | 0.265 |
| Bentler-Bonett Non-Normed Fit Index | 0.659 | 0.268 |
| Bentler Comparative Fit Index | 0.676 | 0.298 |
| James-Mulaik-Brett Parsimonious Fit | 0.565 | 0.254 |
| Bollen’s Rho | 0.573 | 0.233 |
| Bollen’s Delta | 0.678 | 0.303 |
| Population Gamma Index | 0.681 | 0.177 |
| RMSEA | 0.100 | 0.405 |

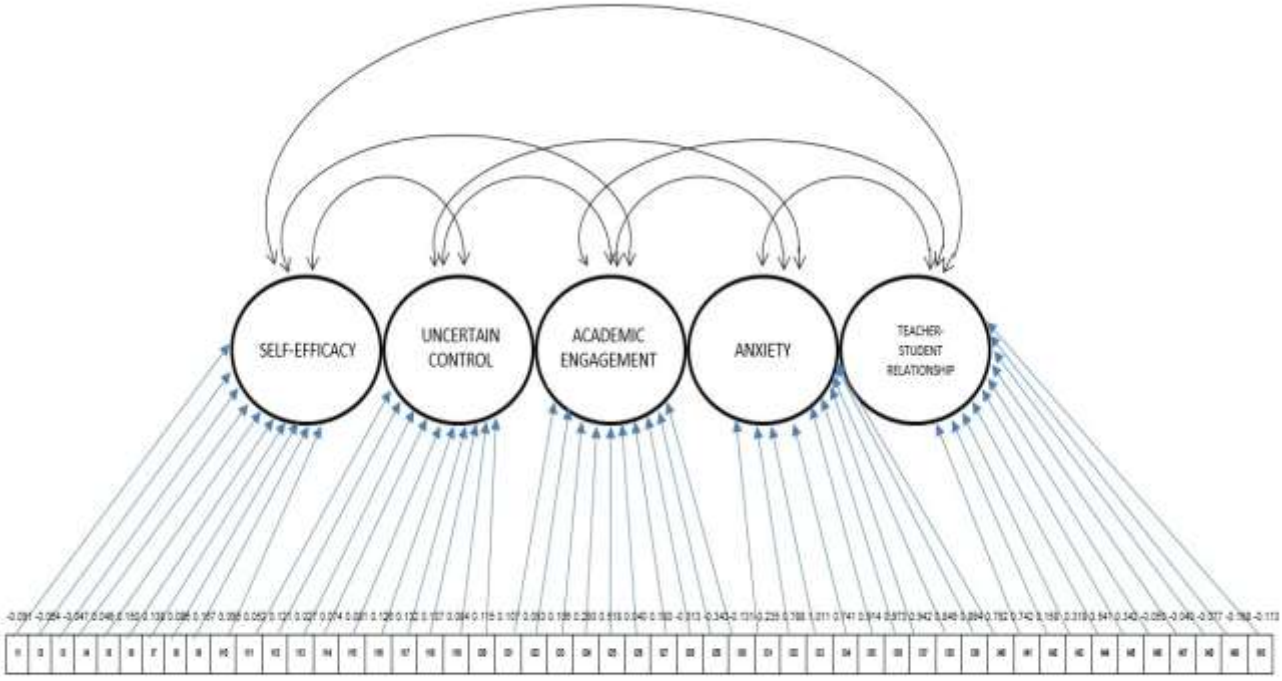


*Figure 1.* Five-factor model of A-ABS

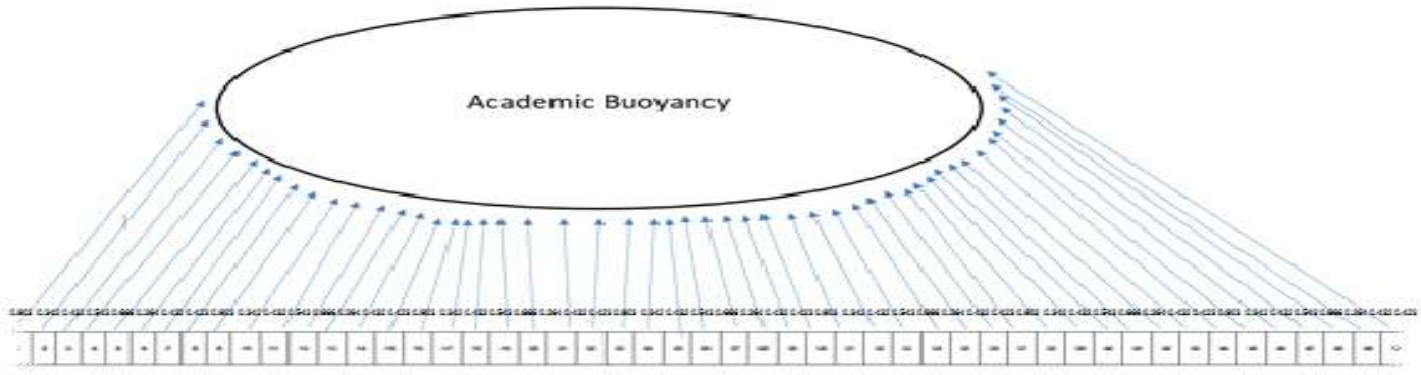


*Figure 2.* One-factor model of A-ABS

## Discussion

The main purpose of the study is to develop items that would measure the academic buoyancy of accounting students where the items are based on the factors of academic buoyancy proposed by Martin and Marsh (2007). The items have yielded adequate evidence of reliability and validity. The instruments are reliable where the items are internally consistent based on high values of the Cronbach's alpha. The items were also evidenced to be valid having attained convergence of the five factors. Factorial validity was established where a five-factor structure was compared with a one-factor structure. The five-factor structure explained the most adequate solution to fit the data supporting the factors proposed by Martin and Marsh (2007) where the Akaike Information Criterion, in particular, yielded 13.433 in the five-factor model was comparably lower than 23.65 of the one-factor model; the Schwarz's Bayesian Criterion with 14.796 as opposed to 24.89 of the one-factor model; and with Browne-Cudeck Cross Validation Index, 13. 58 was yielded in five-factor model as opposed to 23.79 in the one factor model. These fit indices indicate goodfit of items in the five-factor model.

The high internal consistency with the Cronbach's alpha of .81 among the items indicates that there is a similarity how the respondents answer each items within each subscales. The items are the same in reference to academic buoyancy. The participants while answering each item have in mind that their academic buoyancy as accounting students is what is being measured. This evidence of internal consistency implies that there is a marked coherence among the items for a given factor. This coherence served a basis for considering the reliability of the items. In Martin and Marsh's study, high internal consistency was also achieved with .89 which is a little higher than .81 which was achieved in the present study. When it comes to respective factors, Martin and Marsh's study achieved higher Cronbach's alpha than the present study with .83 for self-efficacy, .80 for uncertain control, .84 for anxiety, .87 for academic engagement, and .88 for teacher-student relationship. All of these values signify high internal consistencies while the values achieved in the present study signify moderate to high internal consistency with Cronbach's alpha of .59 for anxiety. (no explanation on why the differences occurred)

The significant intercorrelation among the factors showed that as one subscale increases, the others also increases. This evidence of convergent validity showed that the five factors have a commonality and that they actually measure the academic buoyancy of accounting students. The convergence of the factors was further proven in the results of the Confirmatory Factor Analysis (CFA). This means that factors proposed by Martin and Marsh (2007) which were adapted in this study are valid factors and not as predictors of academic buoyancy. These results were consistent with the prior studies on academic buoyancy by Martin et al. (2010), Marsh and Martin (2007), and Barnett (2012). The results show that academic engagement increases with self-efficacy which means that the one necessary predicts the other. This means that when the academic engagement of the student is high, it goes to say that his self-efficacy is high too.

Having established the reliability and the validity of the items of ABS-A, it is therefore warranted to conclude that when, after answering the scale, an accounting

student made low ratings (<3 means) on the items which are loaded in the self-efficacy, academic engagement, and teacher-student relationship; and made high ratings (>3 means) on the items which are loaded in uncertain control and anxiety, the student is likely to have low academic buoyancy. That means that they tend to have difficulty in overcoming well the academic challenges and setbacks that are typical of his life as an accounting student. On the other hand, if an accounting student obtained high ratings (>3 means) on the items which are loaded in the self-efficacy, academic engagement, and teacher-student relationship; and made low ratings (<3 means) on the items which are loaded in uncertain control and anxiety, the student tends to have high academic buoyancy. That means that they tend to overcoming well the academic challenges and setbacks that are typical of his life as an accounting student.

It is noteworthy that the present study yielded reliable and valid set of accounting specific items. The selection of accountancy as the specific program whose students' academic buoyancy was measured is in line with the several studies that suggested the need to separate language from mathematical domains in educational research (Martin & Marsh, 2007). Research have shown that the students who study mathematics-based domains or fields of study like accounting students are less-motivated or most often display anxiety (Bong, 1996; Marsh, Martin & Debus, 2002; Pintrich, 2003; Zimmerman, 2001). The present study filled this gap by constructing items that are reliable and valid which measure the academic buoyancy of accounting students.

Since the researches in academic resilience – from which buoyancy was derived – has been domain-general, most of academic buoyancy researches has followed such approach. Until Martin and Marsh (2007) shifted from domain-general to subject-specific. Martin and Marsh (2007) has their study on buoyancy specific to Mathematics subject of basic education students. The present study, on the other hand, introduced a new concept in the academic buoyancy research. This new concept is called program-specific approach. This study successfully tested items which measures the academic buoyancy of students of a specific tertiary program, which is accountancy, using the same factors used by Martin and Marsh (2007) in their subject-specific study.

Future researchers in academic buoyancy can test models following program-specific domains. They are encouraged to develop items which will specifically measure the academic buoyancy of other disciplines such as for law students, engineering students, medicine students, etc.

## References

Alva, S. A. (1991). Academic invulnerability among Mexican-American students: The importance of protective and resources and appraisals. *Hispanic Journal of Behavioral Sciences, 13,* 18–34.

Anthony, E. J. (1974). The syndrome of the psychologically invulnerable child. In E. J. Anthony & C. Koupernik (Eds.), *The Child in his Family: Children at Psychiatric Risk. International Yearbook: Vol. 3*.Oxford, UK: Wiley.

Bandura, A. (1997*). Self-efficacy: The exercise of control*. New York: Freeman.

Benard, B. (1991). *Fostering resiliency in kids: Protective factors in the family, school, and community*. University of Minnesota, College of Continuing Education: National Resilience Resource Center.

Benard, B. (1995). *Fostering resilience in children*. Eric Digest. Urbana, IL. Clearing house on Elementary and Early Childhood Education.

Benard, B. (1999). Applications of resilience: Possibilities and promise. In M. Glantz, M. & J. L. Johnson, (Eds.). *Resilience and Development: Positive life adaptations* (pp. 269–280). New York: Plenum.

Boekaerts, M., & Corno, L. (2005). Self-regulation in the classroom: A perspective on assessment and intervention. *Applied Psychology: An International Review, 54*, 199–231. doi:10.1111/j.1464-0597.2005.00205.x

Cicchetti, D., &Toth, S. L. (2009). The past achievements and future promises of developmental psychopathology: The coming of age of a discipline. *Journal of Child Psychology and Psychiatry, 50*, 16–25.

Doll, B., Zucker, S. &Brehm, K. (2004). *Resilient classrooms: Creating healthy environments for learning*. New York: Guilford Press.

Doll, B., Spies, R. A., Le Clair, C. M., Kurien, S. A., & Foley, B. P. (2010). Student perceptions of classroom learning environments: Development of the Class Maps survey. *School Psychology Review, 39,* 203–218.

Eccles, J. (1983). Expectancies, values, and academic behaviors. In J. Spence (Ed.), *Achievement and achievement motives* (pp. 75–146). San Francisco: Freeman.

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82*, 221–234.

Garmezy, N. (1971). Vulnerability research and the issue of primary prevention, *Journal of Orthopsychiatry, 41*, 101–116.

Garmezy, N. (1974). Children at risk: The search for the antecedents of schizophrenia. Part II: Ongoing research programs, issues, and intervention. *Schizophrenia Bulletin 1,* 55–125.

Garmezy, N., & Neuchterlien, K. (1972) Invulnerable children: The facts and fiction of competence and disadvantage. *American Journal of Orthopsychiatry*, 42, 328–329.

Garmezy, N. (1981). Children under stress: Perspectives on antecedents and correlates of vulnerability and resistance to psychopathology. In A. I. Rabin, J.

Arnoff, A. Barclay, & R. A. Zucker (Eds.), *Further explorations in personality* (pp. 196–269). New York: Wiley.

Hanewald, R. (2011). Reviewing the literature on ―at-risk‖ and resilient children a young people. *Australian Journal of Teacher Education, 36*,16–29.

Henderson, N., Benard, B., & Sharp-Light, N. (2007). *Resiliency in action: Practical Ideas for overcoming risks and building strengths in youth, families, and communities.* Ojai, CA: Resiliency In Action, Inc.

Kuhl, J. (2000). The volitional basis of personality systems interactions theory: Applications in learning and treatment contexts. *International Journal of Educational Research, 33,* 665–703

La Guardia, J. G., & Ryan, R. M. (2002). What adolescents need: A self-determination theory perspective on development within families, school, and society. In F.

Pajares & T. Urdan (Eds.), *Academic motivation of adolescents* (pp. 193–218). Greenwich, CT: Information Age Publishing.

Lindstroem, B. (2001). The meaning of resilience. *International Journal of Adolescent Medicine and Health, 13,* 7–12.

Locke, E. A., & Latham, G. P. (2002). Building practically useful theory of goal setting and task motivation. *American Psychologist, 57*, 705–717.

Luthar, S. S., &Cichetti, D. (2000). The construct of resilience: implications for interventions and social policies. *Development Psychopathology 12*, 857–85.

Martin, A. J. (2001). The Student Motivation Scale: A tool for measuring and enhancing motivation. *Australian Journal of Guidance and Counselling, 11*, 1–20.

Martin, A. J. (2002). Motivation and academic resilience: Developing a model of student enhancement. *Australian Journal of Education, 14*, 34–49.

Martin, A. J. (2003a). Boys and motivation: Contrasts and comparisons with girls' approaches to schoolwork. *Australian Educational researcher, 30,* 43–65.

Martin, A. J. (2003b). The Student Motivation Scale: Further testing of an instrument that measures school students' motivation. *Australian Journal of Education, 47,* 88–106.

Martin, A. J. (2003c). *How to motivate your child for school and beyond*. Sydney: Bantam.

Martin, A. J. (2003d). The relationship between parents' enjoyment of parenting and children's school motivation. *Australian Journal of Guidance and Counselling, 13,* 115–132.

Martin, A. J. (2005a). Exploring the effects of a youth enrichment program on academic motivation and engagement. *Social Psychology of Education, 8,* 179–206.

Martin, A. J. (2005b). *How to help your child fly through life: the 20 big issues*. Sydney: Bantam.

Martin, A. J. (2007). Examining a multidimensional model of student motivation and engagement using a construct validation approach. *British Journal of Educational Psychology, 77,* 413–440.

Martin, A. J. (2008a). Enhancing student motivation and engagement: The effects of a multidimensional intervention. *Contemporary Educational Psychology, 33,* 239–269.

Martin, A. J. (2008b). The Motivation and Engagement Scale. Sydney: Lifelong Achievement Group. Retrieved from www.lifelongachievement.com

Martin, A. J., & Marsh, H. W. (2006). Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools 43,* 267–281.

Martin, A. J., & Marsh, H. W. (2009). Academic resilience and academic buoyancy: multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs. *Oxford Review of Education, 35*, 353–370.

Masten, A. S. (2001). Ordinary magic: resilience processes in development. *American Psychologist 56,* 227–238.

Masten, A. S., &Gewirtz, A. H. (2006). Vulnerability and resilience in early child development. In K. McCartney & D. A. Philips (Eds.), *Handbook of early childhood development* (pp. 22–43). Malden, MA: Blackwell.

Masten, A. S. (2007). Resilience in developing systems: progress and promise as the fourth wave rises. *Development and Psychopathology 19*, 921–930.

Masten, A. S. & Wright, M. (2009). Resilience over the lifespan: Developmental perspectives on resistance, recovery, and transformation. In J. W. Reich (Ed.), *Handbook of Adult Resilience* (pp. 213–237). New York: The Guilford Press

Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., & Nicholls, J. D. (1996). Engagement in academic work: the role of learning goals, future consequences, pleasing others, and perceived ability. *Contemporary Educational Psychology, 21*, 388–422.

Miserandino, M. (1996). Children who do well in school: Individual differences in perceived competence and autonomy in above-average children. *Journal of Educational Psychology, 88,* 203–214.

Morales, E. E. & Trotman, F. (2004). *Promoting academic resilience in multicultural America: Factors affecting student success.* New York, NY: Peter Lang.

Morales, E. E. (2008a). Exceptional Female students of color: Academic resilience and gender in higher education. *Innovative Higher Education 33*, 197–213.

Morales, E. E. (2008b). Academic resilience in retrospect: Following up a decade later. *Journal of Hispanic Higher Education, 7,* 228–248.

Nicholls, J. G. (1989). *The competitive ethos and democratic education*. Cambridge: Harvard University Press.

Pajares, F. (1996). Self-efficacy beliefs in achievement settings. *Review of Educational Research, 66*, 543–578.

Pintrich, P. R., &Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall Merrill.

Pintrich, P. R., &DeGroot, E. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*, 33–40.

Pintrich, P. R., & Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. In M. L. Maehr& P. R. Pintrich (Eds.), *Advances in motivation and achievement, Vol. 7* (pp. 371–401). Greenwich, CT: JAI Press

Pintrich, P. R., &Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications* (2nd edition). Englewood Cliffs, NJ: Prentice Hall Merrill.

Qin, Z., Johnson, D. W., & Johnson, R. T. (1995). Cooperative versus competitive efforts and problem solving. *Review of Educational Research, 65*, 129–144.

Rutter, M. (1979). Protective factors in children‘s responses to stress and disadvantage. In M. W. Kent, & J. E. Rolf (Eds.), *Primary prevention of psychopathology, Vol. 3*: *Social competence in children* (pp. 49–74). Hanover, NH: University Press of New England.

Rutter, M. (1984). Resilient children. Why some disadvantaged children overcome their environments, and how we can help, *Psychology Today,* 57–65.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal Orthopsychiatry* 57, 316–31. doi:10.1111

Seligman, M. (1995). *The optimistic child*. Boston: Houghton Mifflin.

Seligman, M. E. P., &Csikszentmihalyi, M. (2000). Positive psychology. *American Psychologist, 55,* 5–14.

Storer, J. H., Cychosz, C. M., & Licklider, B. L. (1995). Rural school personnel's perception and categorization of children at risk: A multi-methodological account. *Equity and excellence in Education, 28,* 36–45.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1994). Educational resilience in inner cities. In M. C. Wang & E. W. Gordon (Eds.), *Educational resilience in inner city America: Challenges and prospects* (pp. 45–72). Hillsdale, NJ: Erlbaum.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1997). Fostering educational resilience in inner-city schools. *Children and Youth, 7*, 119–140.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1998). *Educational resilience (Laboratory for Student success Publication Series No. 11)*. Philadelphia: Temple University Center for Research in Human Development and Education.

Werner, E. E., & Smith, R. S. (1989). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: Adams, Bannister and Cox.

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of motivation. *Contemporary Educational Psychology, 25*, 68–81.

Winfield, L. F. (1994). *Developing resilience in urban youth*. Urban Monograph Series. Oak Brook, IL.

Zimmerman, B. J. (2002). Achieving self-regulation: the trial and triumph of adolescence. In F. Pajares& T. Urdan (Eds.), *Academic motivation of adolescents* (pp. 1–28). Greenwich, CT: Information Age.