

# OBJECTIVE ACADEMIC ACHIEVEMENT AND SUBJECTIVE WELL-BEING

Dr. Betty McDonald

University of Trinidad and Tobago  
O'Meara Campus, O'Meara Industrial Estate,  
Arima, Trinidad, West Indies

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Dr. Betty McDonald  
University of Trinidad and Tobago, O'Meara Campus,  
Lot 74-98 O'Meara Industrial Estate, Arima, TRINIDAD, WI.  
Postal Address: 17 Portugal Crescent, Santa Rosa Heights,  
Arima, TRINIDAD, WEST INDIES  
Email: [betmcddee@gmail.com](mailto:betmcddee@gmail.com), [betmcddee@yahoo.com](mailto:betmcddee@yahoo.com), [betty.mcdonald@utt.edu.tt](mailto:betty.mcdonald@utt.edu.tt)  
1 (868) 642-8888, Ext. 21104 (Tel.), 1 (868) 643-1617 (Fax)  
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### *ABSTRACT*

This paper examines the relationship between objective academic achievement OAA and subjective well-being (SWB). Using a sample of 515 adolescents from ten different high schools across a small country, semi-structured interviews, academic records and observations provided relevant data for the study. OAA was measured from examination results and SWB was measured using with permission Jackson's Personality Research Form (PRF) - Form E. Allowing for psychological factors, qualitative and quantitative results showed that high achievers felt better about themselves compared to their low achieving counterparts. Strategies for assisting low achievers are discussed. Further research unraveling how OAA impacts SWB could assist policy makers and curriculum planners in being more student focused. Successful implementation of teaching innovations like self assessment in the classroom requires that early attention be paid to potential sources of student resistance. It is hoped that this research would serve as a catalyst for further studies in this area.

**Keywords:** Objective academic achievement, subjective well-being, affect, cognition.

### *INTRODUCTION*

For the purpose of this study, the construct objective academic achievement (OAA) was referred to as 'task oriented behaviour that allows the individual's performance to be evaluated according to some internally or externally imposed criterion that involves the individual in competing with others, or that otherwise involves some standard of excellence' (Spence, 1983: 43). The other construct of interest, subjective well-being (SWB) was defined as 'the individual's current evaluation of his/her happiness' (Schwartz & Strack, 1999). Oftentimes an evaluation of happiness is expressed in affective terms. Participants express their happiness by saying 'I feel good' or 'I feel bad'. Essentially, therefore subjective well-being speaks to a partial global affective evaluation.

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### *LITERATURE REVIEW*

The field of psychology called subjective well-being (SWB) attempts to understand people's evaluations of their lives. Evaluations may be primarily cognitive, referring to people's satisfaction with their lives or specific areas of their lives. Evaluations may refer to the frequency with which people experience what they describe as pleasant emotions, for instance joy or happiness, or unpleasant emotions like depression for example. An individual may be said to have high SWB if that individual experiences life satisfaction and frequent joy most of the time with infrequent unpleasant experiences like sadness. An individual may be said to have low SWB if that individual is dissatisfied with life and experiences little joy and affection with frequent negative emotions like anger or anxiety. Diener, Suh and Oishi (1997) posit that the cognitive and affective components of SWB are highly interrelated.

Finnish secondary school students (N = 245, 51.0% female) in seventh and ninth grades from 13 secondary schools participated in a study that examined the relationship among SWB, school satisfaction and health behavior. The Berne questionnaire of SWB and two subscales from an original Finnish questionnaire of values and SWB comprised the anonymous questionnaire for the study. Half of the global satisfaction variance among females was explained by school satisfaction, body satisfaction and self-rated good health. School satisfaction could incorporate a number of factors like satisfaction with the school leadership, school climate and school profile among others including OAA. This present study seeks to zero in on the specific relationship between OAA and SWB to fill that gap in the current literature.

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It would appear that any study attempting to relate SWB with OAA would have significant implications for a student-centered approach to teaching and learning and the general well-being of the student. It is for this reason that this study focuses on investigating a relationship between SWB and OAA. A student centered approach forces the student to accept that skill and practice in any endeavour are mandatory for success. Accordingly the student can and should take responsibility for learning (constructivism). Students could feel an integral part of the learning process as they fuel the feedback loop between SWB and learning and even actively contribute to curriculum design and implementation.

For improving OAA, Chall (2000) underscored the importance of a student-centered approach with student-centered educational programs in a supportive environment that transcended socioeconomic and learning differences. Bass (2006), the philosopher argues that ‘subjectivism about well-being does not in fact pick out something plausibly understood as the well-being of the agent. Rather, insofar as it appears to make progress in that regard, it does so by presupposing understandings of well-being’. Basically, it is very difficult to have a satisfactory subjectivist account of well-being. However, he contends that from various attempts to provide one it may be possible to reinterpret those attempts to have a valuable definition. With this difficulty described by Bass, in order to fully appreciate the complexity of the construct OAA as it relates to SWB, we need to explore the current literature. The current literature seems to provide a myriad of factors influencing OAA that appear to be personal to the student’s well-being. For example, a student’s belief of his/her abilities for achievement and the perception of others’ expectations of the student could influence OAA. The belief that a student is in control of

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his or her achievement outcomes and the student's willingness to take responsibility for them could affect the student's OAA. Those students whose teachers and parents had high expectations for them also had high expectations for themselves and did better in schoolwork. By the same token, this researcher observed that students' perception of their parents' and teachers' expectations also influenced their own OAA.

Another salient factor influencing OAA is achievement motivation. Dweck, cited in Aronson (2002), underscored the effect of motivation, praise, intrinsic and extrinsic rewards in boosting OAA. An individual who feels good about himself may be motivated to over exert himself; not exert himself at all; or operate at varying levels in that continuum. Should a given behavior be pleasurable in its own right and it is not being undertaken for the acquisition of an external reward, then that behavior may be described as being intrinsically motivated. Usually the goal of the student is to meet some standard of performance excellence so that part of the reward for engaging in the activity is the attainment of the specific goal. Successful achievement produces gratifying consequences that may involve extrinsic rewards. On the contrary, when the goal is to obtain external or extrinsic rewards then the behavior is described as being extrinsically motivated. Spence (1983) believes that both types of behavior need not be mutually exclusive. Students have different values for extrinsic factors such as money, prestige, status, respect and recognition and accordingly are actively motivated to different degrees. Where intrinsic motives are weak and persons are trapped in situations that fail to provide satisfactory outlets for their achievement, then extrinsic needs may be fuelled only by external incentives. Extrinsic rewards may serve to provide information to persons who are intrinsically motivated

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regarding the quality of their performance and competence as well as the gratification of the ego.

In summary therefore, the value of a particular task to a given student is a function of not only what the student perceives as being the qualities of the task but also the needs, goals, self-perceptions and feeling of well-being. Different past experiences with that task or similar tasks; social stereotypes; different information from parents, teachers and peers about the significance/obstacles consistent with good performance produce differences in needs, goals, self-perceptions and value given to a task. Sex roles, feeling of well-being, perceptions of the cost of success and previous affective experiences with similar tasks are important ingredients in determining the value of a task (Spence, 1983).

Affective experiences in the past or present may also influence OAA and SWB in the present. A student who has had bad experiences with a particular subject teacher may not be inclined to follow further subjects in that discipline. Variations in affective experiences may be overt (objective) or psychological (causal attributions or individual differences in anxiety). Past successes and failures have elicited characteristic affective responses. Quite often success, especially on challenging tasks, leads to positive feelings whilst failure particularly on easy tasks may lead to negative feelings. Other things being equal, these affective responses could influence the enjoyment or intrinsic value of subsequent related activities (Spence, 1983). Generally, it is expected that a person should like activities that have been associated with positive feelings (SWB) in the past more than activities that have been associated with negative feelings.

Causal attributions or individual differences in anxiety, the attribution of success or failure or the incidence of failure may actually affect success. For example,

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whilst attributing one's success internally (SWB) leads to feelings of pride, satisfaction and competence, attributing success externally leads to feelings of gratitude and surprise. Similarly, while one's failure internally may lead to feelings of guilt, resignation and regret, attributing failure externally leads to feelings of anger and disbelief. Thus, the affective responses a student's experiences in achievement settings are heavily influenced by attributions. The situation is well known of students with similar abilities but different psychological dispositions who are faced with the same task. The student who tends to be less anxious about the unknown has been found to perform better (Atkinson & Raynor, 1974). It is clear that one cannot easily determine whether OAA dictates SWB or vice versa. Nevertheless, what can be safely said, at this point, is that some general relationship may exist between OAA and SWB which is the central focus of this paper.

It must be underscored that because any relationship between OAA and SWB depends on the psychological context in which they occur it is very difficult to show directionality between the variables. For instance, based on a survey of 6,000 persons in Switzerland, Frey and Stutzer (2004) found that (1) the more developed the institutions of direct democracy, the happier the individuals are (2) people derive procedural utility from the possibility of participating in the direct democratic process over and above a more favorable political outcome (3) the unemployed are much less happy than the employed, independent of income and (4) higher income is associated with higher levels of happiness. Additionally, Furnham and Cheng (2000) found that self-esteem, extraversion and neuroticism were direct predictors of happiness (related to SWB) when they used 230 young people who completed a battery of questionnaires measuring personality, self-esteem and their 'theories of the causes of happiness'.

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Using a 17-item Subjective Overachievement Scale (SOS), which includes two independent subscales measuring individual differences in self-doubt and concern with performance, Oleson, Poehlmann, Yose, Lynch and Arkin (2000), found that persons high in over achievement suffer from high self-doubt, with numerous attending consequences like self-handicapping, defensive pessimism and impostor phenomenon. Their passionate concern with excellent performance drives them to avoid failure by over exerting themselves to attain objective success. The researchers found that the Concern with Performance Subscale of the SOS was correlated with achievement motivation, whereas the Self-Doubt Subscale was correlated with scales assessing negative affectivity (e.g., self-esteem, social anxiety) and other self-related strategies associated with concerns about one's competence. Oftentimes, subjective overachievers are neglected by significant others because of their remarkable success that in turn serve to augment and perpetuate a deep sense of insecurity and self-doubt in their own innate abilities.

As intimated earlier, SWB is plagued by psychological factors that make the relationship between it and any other variables (e.g. OAA) problematic. For instance, defensive pessimism and perfectionism for example, have been found to undermine SWB while simultaneously motivate objective trappings of achievement and success. De Cremer and Blader (2005) showed that the strong personal need to belong (an antecedent of SWB) is associated with care about procedural fairness information and the attendant meticulous and systematic processing of that information (a consequence of OAA). The Organization for Economic Cooperation and Development (OECD) has identified key competencies for personal, social and economic well-being: interacting in socially heterogeneous groups;

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acting autonomously; and using tools interactively. These key competencies imply the mobilization of knowledge, cognitive and practical skills, and social and behavioral components including attitudes, emotions, and values and motivations and are clearly related to OAA.

Among the prevalent psychological factors affecting SWB are perceptions about the role of work (Blustein, 2008) and intrinsic and identified motivation (Burton, Lydon, D'Alessandro & Koestner, 2006). There are also proactive personality and work-family interference (Cunningham & De La Rosa, 2008) and personality (Steel, Schmidt & Shultz, 2008) that affect SWB. There is also family history (Duke, Lazarus & Fivush, 2008) and economic status (Howell & Howell, 2008). Additionally, there is need for fulfillment in relationship functioning issues (Patrick, Knee, Canevello & Lonsbary, 2007; Sheldon & Niemiec, 2006). Finally, among the more salient relevant factors influencing SWB is the issue of acculturation and social connectedness (Yoon, Lee & Goh, 2008). Clearly, it is difficult to unravel the relationship between two constructs that are in themselves affected by several other factors oftentimes overlapping with each other. The foregoing cited studies highlight the role of the psychological context in the determination of OAA and SWB. In summary, OAA and SWB appear to be important variables to study. There is a hunch that they are related and this needs empirical proof. The relationship would be important for educators in their pursuit to continually improve educational standards.

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### ***OBJECTIVE AND RESEARCH QUESTION***

Arising from the foregoing literature, this present paper examines the relationship (if any) between OAA and SWB. Hence the following research question: What is the relationship between OAA and SWB?

### ***PARTICIPANTS***

All students from geographically separated territories utilize the identical syllabus, similar or identical textbooks and reference materials and take a common compulsory external examination designed and administered under standardized conditions. The participants of this study were 515 adolescents (259 males), equivalent to Grade 11 in American high schools, of age cohort (15- 16+ years). Participants came from ten high schools that were chosen to represent the spectrum of academic achievement levels (GPA) in their country. Their academic records were obtained from their respective schools and verified by public records from the examination board.

### ***METHOD***

#### ***Measuring OAA***

Quantitative data representing OAA was collected from the results of the examination board that is in the public domain and from the high schools. The examinations were reported on a six-point grading scheme that tells how candidates perform in each subject under six overall-subject grades and six within-subject profile grades. Overall grades are designated I, II, III, IV, V, VI and within-subject profile grades are designated A, B, C, D, E, F. Grades I-IV at the General and Technical Proficiency

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levels and Grades I-III at the Basic Proficiency level represent satisfactory grades for entry-level employment. Grades I and II at all proficiencies are considered acceptable for further study at the Form 6 level (equivalent to the US Grade 12 level).

Overall Grade and Profile descriptions for the subjects are as follows:

- GRADE I - Candidate shows a comprehensive grasp of the key concepts, knowledge, skills and competencies required by the syllabus
- GRADE II- Candidate shows a good grasp of the key concepts, knowledge, skills and competencies required by the syllabus
- GRADE III- Candidate shows a fairly good grasp of the key concepts, knowledge, skills and competencies required by the syllabus
- GRADE IV- Candidate shows a moderate grasp of the key concepts, knowledge, skills and competencies required by the syllabus
- GRADE V- Candidate shows a limited grasp of the key concepts, knowledge, skills and competencies required by the syllabus
- GRADE VI- Candidate shows a very limited grasp of the key concepts, knowledge, skills and competencies required by the syllabus.

Within subject profile grade descriptions are: A - Outstanding, B - Good, C - Fairly good, D - Moderate, E - Weak, F - Poor.

Source: Examination Grade Description Brochure in the public domain.

A profile grade represents a candidate's achievement on certain dimensions of the domain of the subject. The subject panel responsible for syllabus development determines the dimensions in keeping with the course content. Generally, profile dimensions reflect cognitive, affective and psychomotor attributes of the domain.

To obtain quantitative data for the statistical analysis, using SPSS, profiles for each grade were given nominal values 1 to 36 in order (Table 1). It must be pointed out that some designated numbers cannot really exist for example 31, 32, 33 and 34 for a Grade I (since profiles C, D, E and F are not allowed in Grade I); 25, 26 and 27 for Grade II (since profiles D, E and F are not allowed in Grade II) and 19 and 20 for Grade III (since profiles E and F are not allowed in Grade III). However, the number designations were given to

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ensure uniformity and provide an easy-to-follow pattern for the reader. The composite OAA score for each student was calculated as the mean of all numerical scores for all subjects for the given student.

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<Insert Table 1 here>.  
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### *Measuring SWB*

Diener, Suh and Oishi (1997) postulated three primary components of SWB; satisfaction, pleasant affect, and low levels of unpleasant affect. They view SWB as structured in such a manner that the three components 'form a global factor of interrelated variables'. They postulate that each of the three major facets of SWB can be subdivided further. For example, global satisfaction can be divided into satisfaction with domains of life like recreation, love, marriage and friendship. These domains can in turn be divided into facets.

Pleasant affect can be divided into specific emotions such as joy, affection, and pride. Finally, unpleasant or unpleasant affect can be separated into specific emotions and moods such as shame, guilt, sadness, anger and anxiety. Each of the subdivisions of affect can also be subdivided even further. Accordingly, SWB can be assessed at the most global level, or at progressively narrower levels, depending on the researcher's interest. For example, one researcher might study general life satisfaction, whilst another might study a specific area of satisfaction, for example academic satisfaction. Diener, Suh and Oishi (1997) contend that the justification for studying more global levels (rather than just focusing on the most molecular concepts) is that the narrower levels tend to co-occur. This

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means that people tend to experience similar levels of well-being across different aspects of their lives. Hence, the study of *molar levels* can help us understand the general influences on SWB that cause these covariations. Further, by studying narrower definitions of SWB researchers can understand specific conditions that could influence well-being in particular domains. Additionally, narrower types of measures tend to be more sensitive to causal variables (Diener, Suh & Oishi, 1997). Bearing this in mind this researcher chose to concentrate on SWB as it relates to academia by selecting those items in a validated instrument that focused on the respondent's evaluation of life experiences in a self reporting manner. While the instrument used may not give a quantitative measure of SWB, unlike the instrument used to measure OAA respondent selection of items are assumed to mirror their SWB. Normally, self-report surveys in which the respondent judges and reports his life satisfaction; the frequency of his pleasant affect; or the frequency of his unpleasant emotions are used to measure SWB. Oftentimes, a Likert scale is used ranging from strongly agree to strongly disagree. However, this researcher chose a dichotomous scale because of the age of the cohort under study. Too many options were postulated to confuse respondents and not allow 'true' opinions to be expressed in the given time available for instrument administration. Finally, semi-structures interviews provided much needed information including self reports that allowed this researcher to understand how respondents felt about the influence of OAA to their SWB.

### ***PROCEDURE***

With permission, a selection of a dichotomous instrument, Jackson's Personality Research Form (PRF) - Form E (Jackson, 1984) (Table 2), was used to measure SWB.

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During the processes of conducting reliability and validity checks, non contributors of items checked the statements for clarity, unambiguity and precision. Several items were dropped based on Likert and Thurstone approaches to attitude scale development. Final items were selected with due consideration given to percentage response selection, item mean, standard deviation, point-biserial, discrimination index and basis for item selection (measuring what it is supposed to measure) (Jackson, 1984). A decision consistency approach to reliability proposed by Buckendahl, Yang and Ferdous (2003) that attempted to address challenges faced by assessments that incorporate partially locally developed information further verified reliability of the instrument. The guiding principle was that the validation procedure with 'substantive, structural and external components' should be integrated in the instrument construction.

For the substantive component, the focus was on the degree to which the items comprising the instrument reflected 'on theoretical grounds an appropriate universe of content'. At the structural component, prior to data gathering, a structural model was formulated to which item responses would conform giving high estimates of internal consistency and face, content and construct validity by virtue of the homogeneity of the items. At the external component, the concern was the degree to which items 'correspond to non-test manifestations of the trait'. To ensure conformity to the specified scale each item was investigated in detail for both convergent and discriminate validity. Accuracy, compactness, conciseness, simplicity of language, non-ambiguity, minimal mutual redundancy, readability and freedom from irrelevant variance were essential features considered (Jackson, 1984).

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From evidence regarding sources of bias from the response style of acquiescence or the tendency to agree with all statements regardless of content, this feature was suppressed by providing an equal number of positive and negative statements. Desirability or the presentation of a favourable picture of self, regardless of accuracy was suppressed by allowing the more commonly occurring statements to be presented in a positive manner. As a validity check several ludicrous statements like *'I have never driven in a car'* or *'I have never seen the sea in all my life'* were included to ensure that participants were alert and acquiescence was suppressed.

Using a number of contrasting statements ensured consistency. One example of contrasting statements on the instrument was statement # 3 *'I enjoy difficult work'* compared to statement # 12, *'If I run into great difficulties on a project, I usually stop work rather than try to solve them'* and statement # 47 *'I seldom set standards which are difficult for me to reach.'* Consistency was also ensured by including parallel statement, for example, # 54. *'I have rarely done extra studying in connection with my work'* and statement # 57 *'I try to work just hard enough to get by'*.

Additional consistency was achieved by having items worded both positively and negatively. For example, worded positively were item 9 (*'I would work just as hard whether or not I had to earn a living'*); item 13 (*'Even if I had money and the time, I wouldn't feel right just playing around'*) and item 14 (*'I believe people tell lies any time it is to their advantage'*); item 34 (*'I like to do whatever is proper.'*) that speak to a keen appreciation for justice, honesty, integrity, and fair play; contributors for SWB. Worded negatively, item 11 (*'In my work I seldom do more than is necessary'*) and item 17

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(*'I would not go out of my way to behave in an approved manner.'*) address the same attribute.

Semi-structured interviews directed to students, administrators, parents and other stakeholders (available upon request) provided background data and on going information about how participants felt about changes in their well-being as a result of their improved OAA. Diener, Suh, and Oishi (1997) posit that self report surveys are considered the usual ways of measuring SWB since respondents are able to judge and report their life satisfaction, the frequency of their pleasant affect, or the frequency of their unpleasant emotions. In the interviews respondents were allowed to openly express their perceptions about how they felt when they received high or low scores on assignments or examinations. By empathizing with the respondents, this researcher allowed them to feel more relaxed to share their true feelings without embarrassment.

### **RESULTS**

Numerous comments from semi-structured interviews revealed participants' perceptions about improved OAA as it influenced their SWB. Using the Glaser and Strauss' (1967) unitizing and categorizing methods of qualitative analysis, several selected comments indicated the positive relationship between OAA and SWB as perceived by several respondents. Additionally, content analysis of the semi-structured interviews revealed an overall positive view relating OAA and SWB. One respondent commented, '*... I feel so much better about myself now that I am doing well...*'. This particular respondent was commended by her facilitator as making progress despite personal challenges. Another respondent remarked, '*... Now I know why the high achievers feel so good about*

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*themselves...'*. It was noteworthy that this respondent had been influenced by feelings of inferiority evidenced by intermittent comments about his personal shortcomings that he frequently shared with his colleagues. *'...I never thought that improved grades could affect my health...'*, remarked a respondent who was plagued by a persistent cough that appeared to have no remedy despite medication from several medical practitioners. Yet another respondent in a similar predicament claimed that *'...The headaches I used to have whenever I had homework have now gone since I am in control of my future....'* Even respondents requiring much attention confirmed that, *'...There is no more need for me to crave attention when my work provides so much satisfaction....'*

Notwithstanding, there were those respondents who were not willing to relate OAA and SWB. For example, one comment was *'... I'm not sure how it all works but sometimes I feel good about myself when I get high marks and at other times I feel really badly about myself ...'* Others seemed to relate to the complexity of the psychological influence previously described: *'... Whether I get high or low scores, the way I feel is pretty much dependent on what happens to me on a given day ...'* *'...I'm so confused that I cannot tell when I feel good about myself or not...'*. These comments appear sensitive and seem pivotal to an understanding of the intimate relationship between OAA and SWB.

The matrix of correlations showed that a number of variables in the SWB instrument appeared to be linked to each other. A careful study of the linkages emerging allowed the researcher to tentatively anticipate factor groups among the variables. Following this preliminary analysis, a nonlinear factor analysis using Varimax (Orthogonal) rotation technique indicated a best fit model of two dimensions (Table 2).

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<Insert Table 2 here>.  
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Loadings were primarily univocal, indicating minimal overlap of the two identified factors. Labels were assigned to the two factors based on the specific attributes that the items that loaded on those factors purported to measure. For example, items 42, 44, 47, 54, 57, 63, 17, 62, 37, 56 and 24 produced loadings of .718, .798, .818, .833, .831, .844, .889, .841, .826, .811 and .720 respectively. A closer examination of the items indicated an anti intellectual disposition since they appeared to be about student responses that were negative. Consider for example the following: item 47 ('I seldom set standards which are difficult for me to reach') with loading .818 ; item 54 ('I have rarely done extra studying in connection with my work') with loading .833; item 17 ('I would not go out of my way to behave in an approved manner') with loading .889 and item 63 ('I do not let my work get in the way of what I really want to do') with loading .844 all appear to be measuring a latent attribute that speak to an anti intellectual disposition on the part of the individual. A close examination of all the items that loaded on factor 1 indicated that they generally tended to measure a latent attribute that appeared to be an anti intellectual disposition (AID).

By a similar analytical procedure, the items that loaded on factor 2 were closely examined. For example, item 6 ('*Family obligations make me feel important.*') with a loading of .758; item 64 ('*I don't want to be away from my family too much.*') with a loading of .847; item 48 ('*I would feel lost and lonely roaming around the world alone.*') with a loading of .838; item 64 ('*I don't want to be away from my family too much.*') with

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a loading of .847; item 29; (*'Adventures where I am alone are a little frightening to me.'*) with a loading of .902; item 12 (*'If I run into great difficulties on a project, I usually stop work rather than try to solve them.'*) with a loading of .858; item 16 (*'I don't believe to sticking to something when there is little chance of success.'*) with a loading of .873 and item 21 (*'If I become tired I set my work aside until I am more rested.'*) with a loading of .898 all appear to address the issue of social and family commitment. A close examination of all the items that loaded on factor 2 indicated that they generally tended to measure a latent attribute that appeared to be social and family commitment (SFC).

In summary, the researcher used items that loaded on a given factor to illustrate the detailed process involved in factor identification. The first factor was identified as an anti intellectual disposition (AID). This accounted for over 70% of the variance ( $r = 0.77$ ). A second factor was identified as social and family commitment (SFC). SFC accounted for 17% of the variance ( $r = 0.17$ ). Together both factors accounted for over 87% of the variance.

Items purporting to measure a single factor appeared to be reasonably closely correlated. For example, items 9 and 19 purported to measure an anti intellectual disposition (AID) or factor 1 have .45 as the correlation coefficient. Further, intercorrelations of items from different factors indicated that the factors overlapped minimally. Items purporting to measure different factors appeared to be lowly correlated. For example, item 9 designated as measuring an anti intellectual disposition (AID) had a correlation of .02 with item 64, measuring social and family commitment (SFC). The variance/covariance matrix (available on request) supported the identity of the factors. The residuals of the order of 0.001 after fitting a two dimensional model indicated how well the

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model fitted and showed how the principle of local independence was satisfied. Further confirmation came from results of dual scaling as indicated in Table 3.

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Results showed a positive correlation of respondents' OAA and SWB scores indicating that respondents who did well academically tended to perceive themselves as having a better sense of well-being.

### ***DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS***

The inert desire of every teacher is to have successful students. Among the well known measures of success is academic achievement, especially in external examinations. Observational research worldwide concur that high achievers are more cooperative, satisfied, less disruptive and generally project a better positive attitude as they tend to be focused and remain on-task. Taking into account psychological influences, empirical evidence of the close association of SWB and OAA and the role of SWB in creating a well-rounded individual provide reason for believing that OAA appears to affect the well-being of an individual. Hence, the investigation of the relationship between OAA and SWB to provide empirical evidence in support of a hunch. As discussed earlier, there are a myriad of variables related to OAA which make it difficult to disentangle exactly how SWB fits into the equation.

Despite this difficulty, this present paper extends scientific research beyond laboratory studies as it sought to investigate the relationship between OAA and SWB using

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an adolescent cohort. It utilized minimal stimulus conditions to probe questions about significant real life issues in everyday contexts. Additionally, the present study contributes to the field of positive psychology as it ties the concept of well being to academic achievement.

It would appear that high achievers are so preoccupied with their personal progress that they tend not to find disruptive behavior attractive. They tend to use all their energies in productive pursuits that redound to their further progress. Like the self-fulfilling prophecy, high achievers speak health and progress to their situations thereby creating an atmosphere that encourages further higher achievement. A feeling of well-being abounds as high achievers tend to be optimistic and see the positive side of any given situation.

This present paper also demonstrated that OAA is directionally related to SWB. The foregone discussion examined the operational definition of OAA and the complexity of its manifestation to SWB as a result of unique genotypes, physical and psychological makeup, influenced by a blend of heredity, the environment and cognitive functioning. Several factors influencing OAA and SWB were discussed in varying detail with special emphasis on achievement motivation.

It must be appreciated that, as occurs in most field studies of this nature there are several assumptions and limitations that affect one's ability to draw conclusions and make very guarded interpretations and extrapolations. There are inherent issues of ethnocentrism since the participants, having grown up in the same culture that existed prior to their birth are influenced so subtly and so thoroughly that they grow up thinking that 'this is the way things are' instead of 'this is the way things operate in THIS society'. Thus the social unconscious is always at work in each participant. Ingrained in this society like any other

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are peculiar ways of comprehension of information; peculiar ways of caring for what others think; peculiar ways of clarifying information and non-acceptance of criticism; peculiar student abilities to fit into the expected behavior patterns that may influence the kinds of responses to the SWB instrument. Additionally, dogmatism may affect responses to the instrument as participants who have spent all their lives believing that they are dispositioned in a certain manner may not allow questions, doubts or new information about their person. This is what they have always been used to and is comfortable with. It is what has worked in the past so there is a certain kind of defensive attitude in favour of the participant's responses.

Despite the use of validity checks, it is assumed that participants were alert and optimally motivated so that responses to interview prompts and observations made and documented truly reflected real life situations. For participants who have just completed a classroom test, or are in preparation for an imminent classroom test, the assumption that the researcher's task at hand is by far the most important activity the participant has to do at that time may be far from the truth. Perhaps for compliant, energetic, self-motivated students, participating in only one of these types of SWB profiles, the assumption might be somewhat true.

Generalizations to this study must be guardedly made because of inherent limitations that include a sample taken from a small country where OAA dictates upward social mobility, the assurance of a comfortable life and some measure of respect and honour in that society. Information is easily disseminated by word of mouth and authorities are willing to become involved in innovative ventures. In places where material success is not necessarily tied to OAA several observations in this present study may not

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apply. An additional limitation to this present study is the use of a dichotomous scale, selected to minimize options because of the age cohort under study. Several internationally accepted SWB instruments like the Satisfaction With Life Scale (SWLS) for example utilize five or seven point Likert scales. Several other SWB instruments include Adelman's (1989) Perceived Life Satisfaction Scale (PLSS), Huebner (1991) Students' Life Satisfaction Scale (SLSS), Watson, Clark, and Tellegen's (1988) PANAS scale that measures separately both positive and negative affect. Sandvik, Diener and Seidlitz (1993) posit that self report scales that are designed to measure SWB usually correlate with each other, and converge with SWB assessed by other methods. This researcher believed that self reporting for adolescents may not reflect their true views because of peer pressure, the desire to be always right and the inert desire to appear important before peers.

Bearing in mind that only a short term study was conducted with a single age cohort (15-16+ years old) to control for maturation of the participants, a longitudinal study could investigate the nature of OAA as it relates to SWB of the individual from infancy to adulthood. Since this present study was conducted in a high school setting where school rules, regulations, norms and values apply there is need for research in OAA as it affects the well-being of persons at a variety of different work places, especially as the well-being of an individual affects work performance.

Several other writers have suggested a number of initiatives for improving OAA. Rathvon (2003) recommends among other actions daily assignments, classwide peer tutoring, reciprocal peer tutoring, reinforcing correct answers, small group instruction, performance feedback, self-managed teams to monitor homework, self instruction to improve homework and self-monitoring to improve work completion. Zimmerman and

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Schunk (2001) among others have proposed self-regulated learning. McDonald and Boud (2003) proposed self assessment to improve academic achievement. Recognizing the significance of a myriad of factors affecting OAA, this present paper seeks to take the discourse a step further by attempting to blend the foregoing influences on OAA into a corporate whole and examine how OAA is related to SWB.

The subject of this present paper has practical interest in line with the growing knowledge component in developing processes. Highly skilled persons who are able to use their knowledge for increased quality of life of all citizens of their country are a strategic resource to any country whether large or small, whether developed or developing. For these people SWB, their motivation to spend 20 or more years to obtain knowledge and skills, their personal satisfaction with achieved results is a critical precondition for forming a knowledge resource. Detailed studies of the habits of such individuals could provide valuable material for assisting low achievers. Curriculum design for them could be informed by results of studies like this one. Additionally, readers can appreciate that successful implementation of teaching innovations like self assessment in the classroom requires that attention be paid to potential sources of student resistance at the outset as well as active listening and response to student concerns (Keeney-Kennicutt, Gunersel & Simpson, 2008). With much of the current literature celebrating OAA at the higher levels, additional research on the extent to which OAA impacts human relations, especially in higher education is needed. It is hoped that issues raised by this present paper will provoke much needed relevant research.

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Table 1  
Grade Transformations into numerical values

Grade	Within-subject profiles					
	A	B	C	D	E	F
I	36	35	34	33	32	31
II	30	29	28	27	26	25
III	24	23	22	21	20	19
IV	18	17	16	15	14	13
V	12	11	10	09	08	07
VI	06	05	04	03	02	01

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Table 2  
Factor Loadings of Varimax (Orthogonal) Solution for the instrument from NOHARM

#	Item on instrument	Factors	
		1(AID)	2 (SFC)
03	I enjoy difficult work.	<b>.361</b>	.236
15	People should be more involved in their work.	<b>.486</b>	.218
09	I would work just as hard whether or not I earn a living.	<b>.468</b>	.121
36	As a child I worked a long time for some of the things I earned.	<b>.445</b>	.216
42	My goal is to do at least a little bit more than anyone else has done before.	<b>.718</b>	.174
43	Nothing would hurt me more than to have a bad reputation.	<b>.530</b>	.261
44	I am not really certain what I want to do or how to go about doing it.	<b>.798</b>	.000
47	I seldom set standards which are difficult for me to reach.	<b>.818</b>	.172
54	I have rarely done extra studying in connection with my work.	<b>.833</b>	.163
57	I try to work just hard enough to get by.	<b>.831</b>	.172
63	I do not let my work get in the way of what I really want to do.	<b>.844</b>	.177
19	I often set goals that are very difficult to reach.	<b>.395</b>	.275
30	People seldom think of me as a hard worker.	<b>.409</b>	.003
27	I really don't know what is involved in any of the latest cultural developments.	<b>.456</b>	.098
31	When I was a child, I read almost every book in my house and often went to the library.	<b>.379</b>	.098
32	I do almost as much reading on my own as I did for classes when I was in school.	<b>.360</b>	.063
33	People think I am quite shy.	<b>.692</b>	.107
17	I would not go out of my way to behave in an approved manner.	<b>.889</b>	.192
62	Studying the history of ideas has no appeal to me.	<b>.841</b>	.197
37	I seldom read extensively on any one subject.	<b>.826</b>	.180
41	I think I would enjoy studying most of my life so I could learn as many things as possible.	<b>.378</b>	.067
56	I would rather build something with my hands than try to develop scientific theories.	<b>.811</b>	.156
41	I think I would enjoy studying most of my life so I could learn as many things as possible.	<b>.378</b>	.067
24	Serious books are of little use to me.	<b>.720</b>	.407
06	Family obligations make me feel important.	.123	<b>.758</b>
64	I don't want to be away from my family too much.	.170	<b>.847</b>
52	I could live alone and enjoy it.	.102	<b>.644</b>
38	I would like to be alone with my own boss.	.198	<b>.413</b>
45	I delight in feeling unattached.	.025	<b>.369</b>
34	I like to do whatever is proper.	.033	<b>.346</b>
50	People who try to regulate my conduct with rules are a bother.	.060	<b>.396</b>
48	I would feel lost and lonely roaming around the world alone.	.183	<b>.838</b>
23	I respect rules because they guide me.	.075	<b>.612</b>
29	Adventures where I am alone are a little frightening to me.	.133	<b>.902</b>
18	When I get a hard place in my work I usually stop and go back to it later.	.245	<b>.424</b>
40	I feel uncomfortable when people are paying attention to me.	.297	<b>.381</b>
53	I was one of the quietest children in my group.	.028	<b>.580</b>
07	I never attempt to be the life of the party.	.003	<b>.330</b>
12	If I run into great difficulties on a project, I usually stop work rather than try to solve them.	.172	<b>.858</b>
16	I don't believe in sticking to something when there is little chance of success.	.027	<b>.873</b>
46	The idea of acting in front of a large group doesn't appeal to me.	.029	<b>.484</b>
21	If I become tired I set my work aside until I am more rested.	.024	<b>.898</b>
14	I believe people tell lies any time it is to their advantage.	.052	<b>.404</b>
58	I could never be a popular singer because I am too shy.	.284	<b>.405</b>

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Note. Since focus was on factor structure only absolute values are given, rounded to three decimal places. Items with loadings <.300 on any factor were rejected. NOHARM was specially designed for analysis of dichotomous data. DUAL3 (Table 2) further analysed data to extract all information from unloaded statements.

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Table 3

Summary statistics for instrument using dual scaling  
in the computer software package DUAL3

Solution	Factor 1 (AID)	Factor 2 (SFC)
Correlation Ratio	0.04	0.03
Maximum Correlation	0.20	0.18
Alpha	0.61	0.54
Delta	7.23	6.14
Cumulative Delta	7.23	13.37
Delta B	0.30	0.25
Cumulative Delta	0.30	0.56
% Homogeneity	3.90	3.31