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The Measurement of Student Motivation: Does one Scale do it All?

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This article focuses on the use of the Academic Motivation Scale in measuring motivation levels in undergraduate business students. The article poses the question whether this scale, which works in tandem with Self Determination Theory is an adequate motivation scale in the measure of student motivation. Other measurement scales are explored which do not have a corresponding motivation theory in order to highlight the complexity of this area of research. 232 undergraduate business students are administered the Academic Motivation Scale and results indicate that these students are severely lacking in subject motivation to such an extent that other options of measurement must be considered before research can validate the scale as being an appropriate measurement of business student motivation.

INTRODUCTION

The subject of student achievement and performance has long been a topic for both research and discussion. The dichotomy of understanding student motivation has been in either the development of theories to explain behavior or the development of instruments to measure behavior. However, the open question that remains from both paths of inquiry is that of how to stimulate, grow, create, or ignite behavior. At the university level, which is the subject of this paper, quite often the answer offered is the promotion of what is called 'student engagement'. Through this method students are kept active on-campus through various extra-curricular activities such as college organizations, academic organizations, and community service quotients. While all this does facilitate a student's transition to college and creates a comfort level with their peers, the resultant motivation is the desire to remain in attendance at a particular college. In other words, retention of the student by the college. So, while the student may be very pleased with their college selection, has adapted well to college life, and is very much active on campus it does not mean that college students are as pleased and enthused with their chosen field of study – the main reason why one should attend college in the first place. Again, a dichotomy arises in terms of the motivation of students in their performance at college. The purpose of this article consequently is to highlight the difficulty in identifying and measuring motivation and also of positing effective motivational remedies. This is done by employing a scale, the Academic Motivation Scale, as a general barometer of student motivation while also identifying other scales and theories extant that serve to measure, explain, and promote student motivation.

LITERATURE REVIEW

Treatment of pre-existing information which guides research falls into two realms, that of measurement instruments and theories of motivation. This current review will touch upon a sampling of important contributions from each area with the sole purpose of highlighting the complexity of human motivation in the domain of academic pursuit.

MEASUREMENT INSTRUMENTS

In terms of instruments designed to measure motivation there are a number of scales, which have, been used to quantify motivation. Although each takes a different approach to measuring motivation they all possess the quest for understanding how motivation is affected. Prior to using the Academic Motivation Scale (AMS) the following description of scales currently in use serve to emphasize the various approaches taken to uncover motivation, or the lack thereof, and is a testament to the density of this area of understanding human behavior.

Academic Self Concept Scale

Motivation on any particular task is often determined by the 'self concept' held by the individual. The more positive one's self concept the more one is inclined to engage challenging tasks. In terms of academics, research performed by Choi (2005) returned that academic self concept is a significant predictor of academic grades in college students. Therefore, the self concept and self efficacy an individual holds impacts their motivation and performance. The Academic Self-Concept Scale (Reynolds, 1980, 1988) is a 40 question survey using a Likert type scale and returns a numeric value on a student's overall confidence or feeling termed 'self-efficacy' towards their academic performance. This psychometric test maintains excellent internal consistency increasing its acceptance as a valid instrument as it returns a cronbach alpha of .91 (Reynolds, 1988). While there exists an association between intelligence and academic achievement (Koenig, Frey, & Detterman, 2008) the ASCS identifies the impact of self concept on academic achievement and has been used extensively in research across numerous academic domains (DeDonno, 2013; Cokley, 2002; Isiksal, 2010).

Motivated Strategies for Learning Questionnaire

This scale developed by Pintrich, Smith, Garcia, & McKeachie in 1993 has installed itself as being a reliable scale for use in measuring self regulated learning. The MSLQ measures both motivation and learning strategies as determining outcomes and hence is a very versatile instrument in understanding the mindset of students as they go about taking courses. It's length however, at 81 questions make for a time-consuming questionnaire, which may not be suitable for all classes. Nonetheless, the scale or its subscales have been widely used in academic research on motivation (Lynch, 2006; Dahl, Bals, & Turi, 2005; McKenzie & Gow, 2004; Matuga, 2009). In a recent study by Gilbert (2012) the MSLQ was administered to over 1,000 undergraduate students and revealed that motivation is influenced by a number of factors including age, major, and prior subject exposure.

Maslach Burnout Inventory

While there is a multitude of scales that measure strength of motivation the MBI (Maslach & Jackson, 1986) –measures lack of motivation. It has been well used and a modified version for college students has also been developed called the MBI –Student Survey (Schaufeli, Martinez, pinto, Salanova, & Bakker, 2002). As can be expected, college students are exposed to the high possibility of burnout, which affects graduation rates and career development. This scale examines responses to a 15 question survey to determine levels of exhaustion, cynicism, and diminished efficacy. The MBI in its various forms has been extensively used across a variety of disciplines (Rostami, Abedi, & Schaufeli, 2012; Law, 2010; Densten, 2001). Results from the use of this scale indicate that the more intrinsically an individual is involved the less the chances are of burnout (Pisarik, 2009).

Downing Self Assessment Questionnaire

This questionnaire provides use as a tool because it examines the belief students hold of what makes a successful student. Developed by Downing (2005) this scale consists of 64 questions divided into eight subscales: accepting responsibility, discovering self-motivation, mastering self management, interdependence, gaining self-awareness, adopting life-long learning, developing emotional intelligence, and believing in myself. Results of studies using this relatively new scale (Griffin, 2013) indicate that a student's self perception is a strong indicator of academic performance. Further studies are necessary however to validate this scale as well as the testing of self perception as an accurate self assessment.

Learning and Study Strategies Inventory

The LASSI was developed by Weinstein (1987) to examine the effectiveness of students' strategies for learning new material and as such help educators identify when students need assistance in learning. Essentially it determines when an intervention in learning needs to take place and what the strength of the intervention should be. The scale consists of 77 questions broken into 10 subscales. While some research suggests the instrument needs more testing to be validated for all student populations (Flowers, 2003) it is widely used as tool across a variety of educational platforms (Olaussen & Braten, 1998; Kwong, Wong, & Downing, 2009; Samuelstuen, 2003; Griffin et al, 2013).

Students Adaptation to College Questionnaire

The SACQ developed by Baker and Siryk (1984, 1989) measures the difficulties students have adjusting to college and considers such things as social and emotional adjustment as well as a feeling of attachment to an institution. With so many students travelling internationally for educational purposes this instrument has been used with international populations by Rientes et al (2012) and with this population growing may see expanded use. An obvious tenet of this instrument is that maladjustment to college results in poor motivation to perform. This 52-item scale, which has been used widely, finds utility in that it can be used by universities to identify at-risk students (Beyers & Goossens, 2002; Credé & Niehorster, 2012).

Academic Self Concept Scale

The ASCS investigates student beliefs about their academic ability. It consists of a 40 item questionnaire on a 4-pt Likert-type scale. The scale, developed in 1980 by Reynolds, Ramirez, Magrina and Allen, has excellent internal validity has been used to examine various individual (Findley & Galliher, 2007), familial (Bacro, 2012; DeDonno & Fagan 2013), and societal factors (Cokley, Komarraju, King, Cunningham, & Muhammad, 2003) on individuals academic self-concept. Its extensive use has made it a reliable tool in understanding the interaction of self concept and motivation. These scales examine student motivation from a variety of viewpoints but all are directed at measuring individuals' behavior. While all the scales measure motivation, they are measuring niche motivation where there is the presence of certain independent variables. Quite often therefore, these scales tell us more about the presence or absence of certain variables than they actually do about the strength of the motivation intended to be measured. The scale therefore used in this study (AMS) was chosen because it measures strength of motivation. It does not seek to explain the reasons for the presence or absence of motivation but rather simply reports a quantitative score of motivation. The scale will be explained further in the Methods section of this article but the emphasis of the discussion at this point serves to highlight how this scale is a good starting point on gauging the pulse of motivation in individuals from which further information can be derived.

Motivation Theories

Over the past century research into human motivation has returned numerous theories to help explain human behavior as it occurs in different contexts. The result is that motivation must be viewed through a

situational lens and that it comes in a variety of strengths unique to each individual. The following theories represent the main theories, which have directed motivational research in an educational setting.

Behavioral Theories

Dating back to work done by Skinner in 1953 motivation studies in this area pertain to observing behavior as it occurs. Behavioral theories look at the environmental settings and how they affect people. People learn to behave in a certain way from observing norms in their surroundings which in turn reinforce a certain kind of behavior. Thorndike's *connectionism theory* (1913), Skinner's *operant conditioning theory* (1953) and Pavlov's *classical conditioning theory* (1927) remain as the building blocks for subsequent theories in this area.

Expectancy-Value Theories

This area of motivational theories looks at individuals perception of how well they can achieve at a particular task and the subsequent self-question of "why should I attempt this?" The premise of these theories is built upon self perception of one's ability to be successful at a particular task and the ensuing return felt by completion of tasks. In other words, "can I do this?" and "is it worth it?" Lewin's *level of aspiration* (1935) is one such theory in this area where an individual identifies required levels of performance which they would expect to perform at to return a sense of accomplishment. Another such theory in this area is Atkinson's *achievement motivation theory* (1935). This theory posits that behavior is composed of motives, probability for success, and incentive value where motives focus either on success or fear of failure. This theory goes a long way to understanding over achievers who also possess high levels of fear of failure. A more modern theory in this area comes from work by Eccles (1983) in the area of motivation in an academic setting. This expectancy value theory of achievement motivation focuses on students' expectancy levels for success and the perceived return for their academic development. The higher a student expects to be successful the more persistent they will be in achieving academic success.

Attribution Theory

How we interpret the reasons for why things happen and the result that has on impacting our future behavior is covered by a multitude of theories in this area of motivation. Heider (1958) proposes that human beings are always looking for cause and effect in events, which directly affects their future behavior. Kelley's *covariation model* (1967) illustrates the fact that people gather information from a number of different sources and make decisions for things happening as being internal or external to the individual.

Social Cognitive Theory

The interaction of an individual with the environment and through personal cognitive factors affects motivational processes. Bandura (1986) posited that human beings are constantly learning through social interaction and this interaction has a profound effect on where we focus our motivation. This theory is the cornerstone of recognition that societal actors affect motivation and self-efficacy, which has been well explored by subsequent research (Schunk, 1991; Pajares, 1996).

All of the aforementioned theories seek to measure, explain, and explore motivation in human behavior. The numerous instruments and theories extant serve to underscore the depth and complexity in the realm of human motivation. However, regardless of which approach is used by researchers the law of readiness by Thorndike (1913) still holds true in that an individual will not engage learning until they are ready to do so in terms of optimal returns. In essence an individual must be at a point where they see the value in exerting effort to achieve something. With this in mind we broach the area of intrinsic and extrinsic motivation. Building upon Thorndike's postulation of preparedness this author offers the rationale that upon achieving a certain level of maturity and cognitive reasoning an individual to achieve their goals will be motivated either intrinsically or extrinsically; intrinsically because they have an interest in the subject matter, or extrinsically by realizing rewards from performance. This consequently

introduces us to the connectivity between self determination theory, which focuses on intrinsic and extrinsic motivation, and the academic motivation scale, which measures these forms of motivation.

METHODS

During the Spring 2014 semester the 28 question Academic Motivation Scale was administered to 232 undergraduate business students enrolled in a large urban university in the northeast United States. The students composed of freshman (96), sophomore (11), junior (34), and senior students (91). The survey was administered mid-term so as to facilitate students' adjustment to a new semester and to ensure an accurate in-semester response. The courses where the surveys were administered were required business courses that all majors must take. This was done to ensure an even cross-section of business majors. The students were also asked to provide demographic information such as age, gender, work experience, family expectations for highest degree expected, scholarship recipient, tuition remission recipient, international or domestic status, and grade point average. This was done in an effort to identify any patterns, which would serve and direct future research in the predictability of a student's motivation.

The Academic Motivation Scale developed by Vallerand, Pelletier, Blais, Briere, Senecal, and Valleires in 1992 was designed to measure the strength of motivation and to classify motivation as being intrinsic or extrinsic in nature. The instrument also identifies amotivation, which is absence of motivation. The scale employs a formula to responses from the 28 questions on a Likert type scale and returns an overall raw score for individuals ranging from -18 to +18. The scale seeks to identify motivation as being stronger in terms of its intrinsic or extrinsic motivation. The simplicity in what the scale seeks to identify underlies its attractiveness as an instrument in the identification and classification of motivation.

(This scale was chosen for this study because it is essentially the scale that measures SDT. A lot of scales exist independently but this scale co-exists with SDT. In other words, the marriage of SDT and AMS gives us the theory and the tool. The result is the increased reliability, validity, and accuracy of results in testing a theory of motivation.)

Simple descriptive statistics were used to measure levels of motivation in the 232 students who took part in the study. Primarily, the goal was to use the AMS model to return a numerical measure of motivation extant in undergraduate students. Further inquiries related as to whether undergraduate students were predominantly intrinsically or extrinsically motivated. And finally the research sought to answer if there were any correlation between demographic information provided and motivation.

RESULTS

Statistical analysis was performed to return a unique Self Determination Index value for each of the 232 students. On the designed instrument range of -18 to +18 initial descriptive statistics were observed which immediately frame the motivational levels of undergraduate students. These values are shown in table 1.

TABLE 1
DESCRIPTIVE STATISTICS

Mean	5.14
Median	5.33
Mode	3.54
Standard Deviation	3.76

The 28 questions were further divided into those that addressed intrinsic and extrinsic motivation and means were calculated for each. A *z test* was conducted on each of the internal subset areas, which measure types of intrinsic and extrinsic motivation and returned no significant relationship with the Self

Determination Index. The intrinsic mean and extrinsic means returned values of 4.38 and 5.62 respectively. These values indicate that students are more extrinsically motivated in their studies. A subsequent *t-test* between these two means was conducted and indicated that the difference between intrinsic and extrinsic motivation in undergraduate students is significant. Finally, correlation between demographics and the Self Determination Index was examined but no significant relationships were observed.

DISCUSSION

The results of this research inquiry indicated that motivation levels of undergraduate business students remain quite low. More concerning is that when this motivation is further investigated intrinsic motivation is lower than extrinsic motivation. Again, this is a matter of concern as colleges and universities would like to believe that students have somewhat more than a passing interest in the subject matter of their courses. Because the motivation levels returned are so low, questions surrounding the applicability of this scale to business students must be re-considered. While all statistical computations were conducted correctly, it does not mean that the results are reflective of the population. The mean of 5.14 on a range of -18 to +18 suggests that the use of the AMS with SDT may assign values to intrinsic and extrinsic motivation that would compromise the integrity of SDT as a standalone area of study. Consequently the researchers feel that the calibration of the range of motivation in the AMS needs further inquiry.

CONCLUSION

The presence of so many scales of measurement coupled together with numerous theories of motivation underscore the complexity of human motivation. The use of these scales further informs us that there is no consensus on a scale that adequately studies the measurement of students across various disciplines. There also is a lack of established relationships between motivation theories and motivation scales, which could better serve this research domain in terms of validity and reliability. These authors feel that while the AMS is a reliable tool, its validity needs closer examination before a position can be taken on its versatility as a measurement tool. Quite possibly, not until other theories of motivation are developed with a corresponding scale will we have the means to accurately assess the validity of the AMS when used in the measurement of college business students.

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