

The Relationship Between Academic Motivation  
and Psychosocial Adjustment Among University Students:  
The Validity of Self-Determination Theory in the Nigerian Context

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## Abstract

Self-determination theory proposes that there are four types of motivation that differ in the degree to which the behavior has been internalized and integrated into one's personal values. Therefore, motivation follows a continuum from external regulation, introjected regulation, integrated regulation, to intrinsic motivation. The purpose of this study was to test the theoretical applicability of self-determination theory in the Nigerian context. Using a correlational design, 132 university students completed a questionnaire that measured each of the four types of motivation (external, introjected, integrated, and intrinsic) and three measures of psychosocial adjustment (happiness, deep study strategies, and effort). The study found that the continuum of motivation is valid in the Nigerian context. Furthermore, intrinsic motivation was found to be the ideal form of motivation because of its significant positive correlations with all three measures of psychosocial adjustment. Therefore, educators should foster intrinsic motivation among their students. Furthermore, educational researchers should use self-determination theory as a theoretical basis for future research studies.

## Introduction

Self-determination theory is a modern approach to motivation that proposes that motivation is not a singular concept. Instead, different types of motivation exist along a continuum from entirely extrinsically regulated to intrinsically motivated (see Figure 2; Ryan & Deci, 2000b). Formally defined, motivation is the process that gives behavior its energy and direction (Reeve, 2001). However, the process that guides behavior can come from two fundamentally different sources: motivations that are internal to the activity and motivations that are external to the activity. In other words, students can get an education because they want a certificate or are forced to by their parents (extrinsic motivations) or because they enjoy learning (intrinsic motivation). In the first two examples of getting a certificate or being forced by parents, the processes that guide academic behavior are external to the activity of getting an education. In the last example, the process that guides academic behavior is internal to the activity of getting an education: enjoying learning. Therefore, self-determination theory proposes that motivation can be classified into two mutually exclusive categories: extrinsic and intrinsic motivation. Extrinsically motivated behaviors are those in which the reason for doing the behavior can be separated from the activity itself. On the other hand, intrinsically motivated behaviors are those in which motivation is based on the inherent satisfaction or enjoyment in the activity (Ryan and Deci, 2002).

Self-determination theory assumes that human beings have a natural tendency towards intrinsic motivation (Ryan & Deci, 2000b). From birth, children are active, curious, and playful when they are healthy. Healthy adults have a natural tendency to use and develop their abilities, explore their environment, and learn. Adults are also naturally curious and desire challenges to test their abilities (Ryan & Deci, 2000b). These are all characteristics of intrinsic motivation. Therefore, self-determination theory proposes that intrinsic motivation is the ideal form of motivation.

Self-determination theory also proposes that extrinsic motivation can be divided into three categories that differ in the degree to which the behavior has been internalized and integrated into one's personal values. On the far end of the continuum, external regulation is when an activity is done to get an external reward or to avoid an external punishment (Reeve, 2001). For example, a student goes to university only to get a certificate. Next, introjected regulation is when an activity is done to get approval from others (Ryan & Deci, 2000a). For example, a student goes to university to make her father proud. Finally, integrated regulation is when an activity is done because it matches a person's values and beliefs, or the value of doing a behavior is integrated into one's beliefs (Ryan & Deci, 2000a). For example, a student goes to university because he values being educated. All three of these types of motivation fall under the umbrella of extrinsic motivation because the motivation for getting an education is outside of the activity of learning itself.

Empirical research has demonstrated that intrinsic motivation is associated with positive psychosocial adjustment. Students who are intrinsically motivated to learn have better academic performance and get more education than students who are not intrinsically motivated (Deci, Vallerand, Pelletier, & Ryan, 1991). Furthermore, intrinsically motivated students are more creative and have higher quality learning (Ryan & Deci, 2000a), have more positive emotions in school (Deci et al., 1991), and also are more engaged in learning.

#### Purpose of Study

This continuum of motivation from external regulation to intrinsic motivation as proposed by self-determination theory has widespread empirical support in the Western context. However, the theory has never been empirically tested in Nigeria. Therefore, the purpose of this study was to test the theoretical applicability of self-determination theory to the Nigerian context. Specifically, the first purpose was to examine the level of each of the four different types of motivation (external, introjected, integrated, intrinsic) in Nigerian

university students. The second purpose was to find out whether the four different types of motivation fall along a continuum as proposed by self-determination. This can be tested by calculating the correlations between the four types of motivation. The final purpose was to determine whether intrinsic motivation is indeed the ideal form of motivation as proposed by self-determination theory. This can be done by examining the relationship between the four types of motivation and psychosocial adjustment. Psychosocial adjustment was operationalized in this study as happiness, effort put into school, and deep study strategies.

#### Research Questions

1. What are the levels of the four types of motivation proposed by self-determination theory in Nigerian university students?
2. What are the relationships between the four types of motivation?

#### Research Hypotheses

1. There is no significant relationship between each of the four types of motivation and happiness.
2. There is no significant relationship between each of the four types of motivation and deep study strategies.
3. There is no significant relationship between each of the four types of motivation and effort put into school.

#### Research Method

##### Design

This study adopted the correlational research design. The purpose of a correlational research design is to discover relationships between variables (Gall, Gall, & Borg, 2003). This study sought to identify relationships among each of the four types of motivation, as well as the relationships between each of the four types of motivation and psychosocial adjustment operationalized as happiness, deep studying strategies, and effort put into school.

## Participants

The participants in this study consisted of 132 university students in their 100-level in the Faculty of Education at the University of Jos. All 557 students in the a core education course were randomly given one of three questionnaires, including the questionnaire for this study. Therefore, the sample represents a random selection of 100-level university students in the Faculty of Education at the University of Jos.

Of the 132 participants, 65% were male and 31% were female (4% missing). The average age of the participants was 23.3 years.

## Instrument

The four types of motivation (external, introjected, integrated, and intrinsic) were measured by the Academic Self Regulation scale developed by Vansteenkiste, Sierens, Soenens, Luyckx, & Lens (2009). (See the Appendix for the questionnaire.) Each of the four types of motivation was measured by four items, except for intrinsic motivation which was measured by three items.<sup>1</sup> The directions to this section read, “The following statements are some reasons why people may get an education. Please read each statement carefully and respond about how important the reason is for you personally. I am getting an education because...” Then the fifteen items were presented separately. Participants responded on a 5-point scale from 1 not important at all to 5 very important. A sample external regulation item was, “I’m supposed to.” A sample introjected regulation item was, “I want others to think I’m smart.” A sample integrated regulation item was, “I want to learn new things.” A sample intrinsic motivation item was, “I enjoy learning.”

The three psychosocial adjustment variables were measured in the next section of the questionnaire. The directions for this section read, “For each of the following statements, please indicate how true it is for you.” Participants responded to all items on a 6-point scale

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<sup>1</sup> The fourth item, “Learning is fun,” was removed because of its poor internal consistency with the remaining three items that measured intrinsic motivation.

from 1 not at all true to 6 very true. Happiness was measured by four items from the Subjective Happiness Scale that measures how happy the participant perceives themselves to be (Lyubomirsky & Lepper, 1999) A sample item was, “I consider myself a very happy person.” Effort put into school was measured by five items from a sub-test of the Intrinsic Motivation Inventory measuring the degree of effort that students put into studying (Ryan, 1982). A sample item was, “I put a lot of effort into studying.” Deep processing strategy was measured by a sub-test of the Revised Study Process Questionnaire (Biggs, Kember & Leung, 2001). Five items were presented measuring the degree to which students make an effort to understand their course material. A sample item was, “I test myself on important topics until I understand them completely.”

#### Procedure

At the end of a class session, the instructor gave directions for the questionnaire and class representatives distributed the questionnaires to the students. The questionnaires were returned by the students to the instructor within three weeks.

#### Results

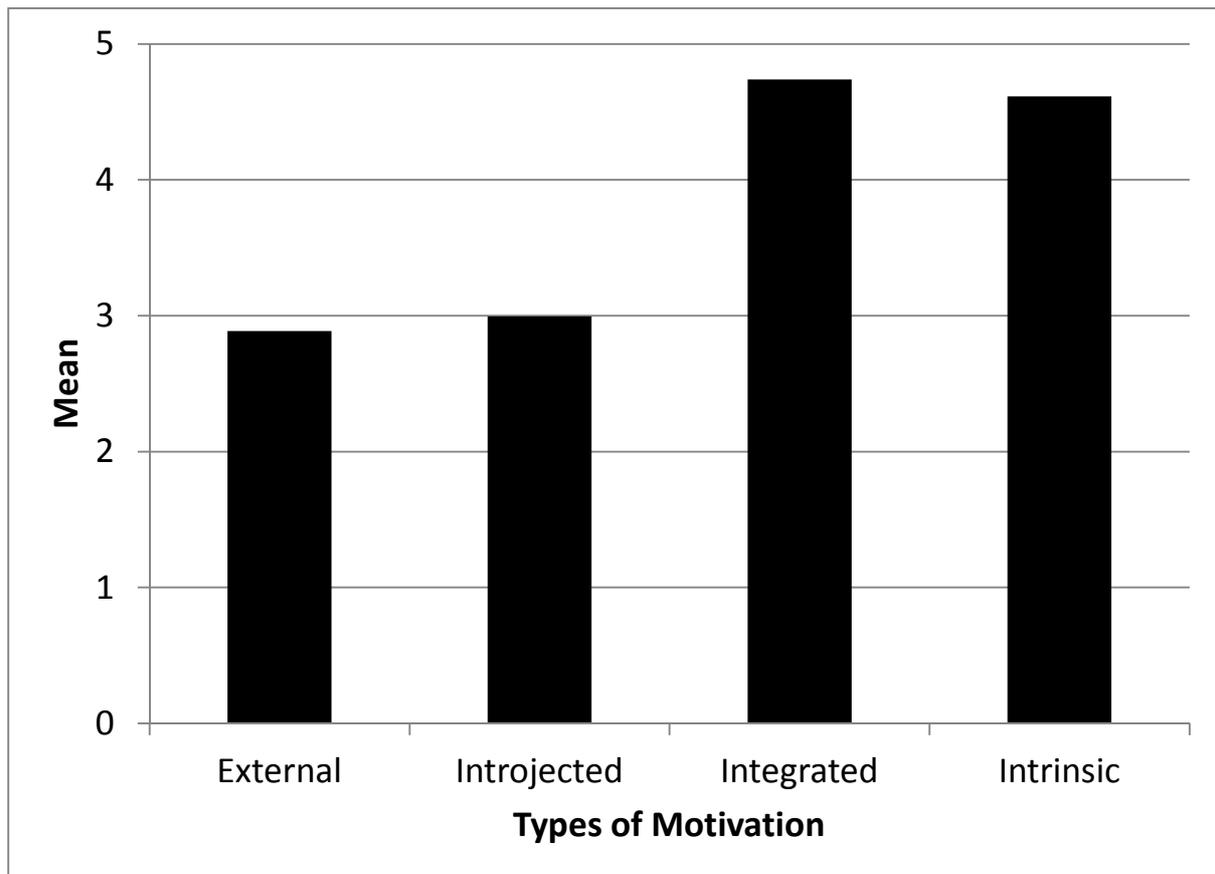
The first research question examined the levels of the four types of motivation proposed by self-determination theory in Nigerian university students. The item means are presented in Table 1. A total composite score for each of the four motivation variables was calculated for each participant by taking the mean of each of the four items representing that motivation variable, also represented in Table 1. This total composite score was used in all subsequent analyses. The scale of responses to these items ranged from 1 not important at all to 5 very important. Therefore, the higher the mean, the more important that source of motivation was for students to get an education.

Table 1. Item Means and Standard Deviations

Item	Mean	Standard Deviation
External Motivation		
It is something others (parents, friends, etc.) force me to.	1.68	1.18
Others (such as parents, friends, etc.) expect me to get an education.	3.92	1.35
I'm supposed to.	4.06	1.24
Others (parents, friends, etc.) force me to get an education.	1.93	1.43
<b>External Total</b>	<b>2.89</b>	<b>0.82</b>
Introjected Motivation		
I want others to think I'm smart.	2.06	1.42
I would feel ashamed if I didn't get an education.	3.64	1.51
I want others to think I'm a good student.	2.44	1.53
I would feel guilty if I didn't study.	3.80	1.39
<b>Introjected Total</b>	<b>3.00</b>	<b>1.02</b>
Integrated Motivation		
Getting an education represents a meaningful choice to me.	4.67	0.80
I want to learn new things.	4.83	0.47
Getting an education is personally important to me.	4.76	0.66
Getting an education is an important life goal to me.	4.70	0.81
<b>Integrated Total</b>	<b>4.74</b>	<b>0.47</b>
Intrinsic Motivation		
I enjoy learning.	4.61	0.84
Learning is an exciting thing to do.	4.50	0.88
I am highly interested in learning.	4.74	0.59
Learning is fun. <sup>1</sup>	3.94	1.29
<b>Intrinsic Total</b>	<b>4.61</b>	<b>0.60</b>

<sup>1</sup>This item was removed from the total score due to its low consistency with the other items.

Figure 1. Mean Levels of Four Types of Motivation Proposed by Self Determination Theory.



As can be seen from in Table 1 and Figure 1, integrated motivation had the highest mean, indicating that university students were most motivated to get an education because they identify with the values of getting an education. The next highest level of motivation was intrinsic motivation. These high mean scores indicate that integrated and intrinsic motivation are very strong among university students. To determine whether the differences between motivation type were significant, t-tests were calculated to compare each of the motivation variables. The results are presented in Table 2. This table shows that there was a statistically significant difference between integrated motivation and intrinsic motivation.

Introjected motivation had a significantly lower mean score than intrinsic motivation. The mean score of 3.00 is exactly at the midpoint of the scale, indicating that introjected motivation is midway between very important and not at all important for university students.

Finally, external motivation had the lowest mean score. However, the difference between introjected and external regulation was not statistically significant. Therefore, the answer to the first research question is that university students have positive motivation since the highest levels of motivation were integrated regulation and intrinsic motivation.

Table 2. Comparison of Motivation Variables

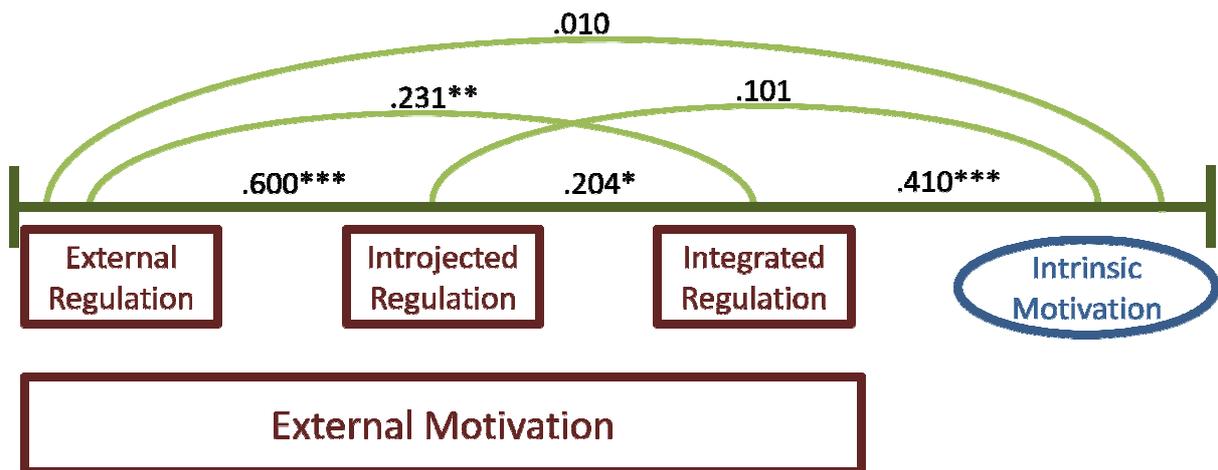
Comparison	Mean Difference	t	df	p	Decision
Intrinsic and Integrated	-0.12	2.44	131	.016	Significant
Intrinsic and Introjected	1.62	16.46	131	<.0001	Significant
Intrinsic and External	1.73	19.62	131	<.0001	Significant
Integrated and Introjected	1.74	19.43	131	<.0001	Significant
Integrated and External	1.85	25.16	131	<.0001	Significant
Introjected and External	0.11	1.50	131	.136	Not Significant

The second research question examined the relationships between the four types of motivation. These results are presented in Table 3 and Figure 2. As can be seen from Figure 2, the correlations between the four types of motivation follow the theoretical prediction of a continuum of motivation from external regulation to introjected regulation to integrated regulation to intrinsic motivation. Each type of motivation had a statistically significant correlation with the type of motivation immediately adjacent. The correlations between types of motivation two steps away were smaller, and the correlation between external regulation and intrinsic motivation was negligible. Therefore, the answer to research question two supports the theoretical thesis that the four types of motivation according to self-determination theory fall along a continuum within a sample of Nigerian university students.

Table 3. Correlation between Motivation Types

Comparison	r	t	df	p	Decision
Intrinsic and Integrated	.410	5.13	130	<.0001	Significant
Intrinsic and Introjected	.101	1.16	130	.248	Not Significant
Intrinsic and External	.011	0.12	130	.905	Not Significant
Integrated and Introjected	.204	2.38	130	.019	Significant
Integrated and External	.231	2.70	130	.008	Significant
Introjected and External	.600	8.56	130	<.0001	Significant

Figure 2. Correlations between Motivation Types.



\*p < .05. \*\*p < .01. \*\*\*p < .001.

Next, the three research hypotheses were analyzed, comparing the four types of motivation to three indicators of psychosocial adjustment. The correlational results for all three research hypotheses are presented in Table 4 for ease of comparison. The t-tests to test the significance of the correlations are presented in tables separately for each research hypothesis.

Table 4. Correlations Between the Four Types of Motivation and Psychosocial Adjustment.

Research Hypothesis	Psychosocial Adjustment	Type of Motivation			
		External	Introjected	Integrated	Intrinsic
1	Happiness	-.030	-.008	.108	.240**
2	Deep Study Strategies	.092	.195*	.157	.287***
3	Effort	.065	.166	.137	.199*

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

The first research hypothesis stated that there is no significant relationship between each of the four types of motivation and happiness. As can be seen from Table 5, the only type of motivation that significantly correlated with happiness was intrinsic motivation. Since the correlation is positive, the higher the intrinsic motivation a student has, the happier they are. However, none of the remaining correlations with happiness were significant. Therefore, neither external, introjected, nor integrated regulation are related to happiness.

Table 5. Significance of Correlations Between the Four Types of Motivation and Happiness.

Type of Motivation	r	t	df	p	Decision
External	-.030	-0.35	130	.727	Retain
Introjected	-.008	-0.09	130	.928	Retain
Integrated	.108	1.24	130	.217	Retain
Intrinsic	.240	2.82	130	.006	Reject

The second research hypothesis stated that there is no significant relationship between each of the four types of motivation and deep study strategies. Table 6 shows that two types of motivation had significant correlations with deep study strategies: intrinsic motivation and

Table 6. Significance of Correlations Between Motivation and Deep Study Strategies.

Type of Motivation	r	t	df	p	Decision
External	.092	1.05	130	.296	Retain
Introjected	.195	2.26	130	.025	Reject
Integrated	.157	1.81	130	.073	Retain
Intrinsic	.287	3.41	130	.001	Reject

introjected regulation. Therefore, the more a student enjoys learning (intrinsic motivation), the better study strategies they use in learning. Furthermore, the more pressure a student feels from others to succeed (introjected motivation), the better study strategies they use. However, neither external nor integrated regulation were significantly related to deep study strategies.

The third research hypothesis stated that there is no significant relationship between each of the four types of motivation and effort put into school. According to Table 7, only intrinsic motivation has a significant correlation with effort. Therefore, the more a student enjoys learning (intrinsic motivation), the more effort they put into school. External, introjected, and integrated regulation did not have significant correlations with effort put into school.

Table 7. Significance of Correlations Between Motivation and Effort in School.

Type of Motivation	r	t	df	p	Decision
External	.065	0.74	130	.461	Retain
Introjected	.166	1.92	130	.057	Retain
Integrated	.137	1.57	130	.119	Retain
Intrinsic	.199	2.32	130	.022	Reject

In summary, only intrinsic motivation had significant relationships with the three measures of psychosocial adjustment: happiness, deep study strategies, and effort put into school. Introjected regulation was positively related with deep study strategies. However, neither external regulation nor integrated regulation were significantly related to any of the three measures of psychosocial adjustment.

### Discussion

This study found that university students had high levels of integrated regulation and intrinsic motivation and low levels of introjected and external regulation. This demonstrates that university students have positive motivation toward getting an education. This finding contradicts the popular understanding that most university students only want to earn a certificate (e.g., Kabara, 2012), which would be external regulation. There are two explanations for this contradiction. The first explanation is that the popular belief is wrong and most university students truly have positive motivation for getting an education. The second explanation is that perhaps the instrument that was adopted in this study needs to be slightly modified to reflect the external motivation of earning a certificate. None of the items on the Academic Self Regulation scale directly asked whether students were getting an education for a certificate. Therefore, further research studies should modify the external regulation portion of the Academic Self Regulation scale by adding items that reflect earning a certificate.

The second finding of this study was that the correlations between the four types of motivation follow the theoretical prediction of self-determination theory as put forth by Ryan and Deci (2002). Strong correlations between external regulation and introjected regulation, introjected regulation and integrated regulation, and integrated regulation and intrinsic motivation provide evidence that these four types of motivation exist along a continuum. Ryan and Connell (1989) also found a similar pattern of correlations of these four types of

motivation among primary students. Therefore, the motivational continuum proposed by self-determination theory can be applied to the Nigerian context.

The third finding of this study was that intrinsic motivation is positively related to three measures of psychosocial adjustment: happiness, deep study strategies, and effort. Students who are intrinsically motivated in education are happier, use better study strategies, and put forth more effort in school. This finding is similar to other studies that has found that found that both secondary and tertiary students with good quality motivation have more positive learning outcomes (Vansteenkiste et al., 2009). Therefore, intrinsic motivation is the best type of motivation that can be developed in the classroom, just as self-determination theory proposes. By supporting intrinsic motivation, educators should also improve the amount of effort, deep study strategies, and happiness among students.

#### Recommendations

Since intrinsic motivation was positively related to psychosocial adjustment, educators should make a concerted effort to foster intrinsic motivation in their students by providing a learning environment that is interesting and exciting for students. Furthermore, since university students reported positive motivation toward education, educators should capitalize on students' positive motivation by creating a classroom atmosphere that continues to foster positive motivation.

According to self-determination theory, educators and parents can foster intrinsic motivation by meeting students' three psychological needs of relationships, success, and choice. To meet the need for relationships, the educator needs to show the students that he or she cares about their welfare (Reeve, 2001). There are three primary strategies for meeting the need for success. First, educators needs to provide feedback, which is information about what a student is doing well and how they can improve on their performance. Second, educators also need to provide optimal challenges, which are assignments and exams that

challenge students' abilities so they learn more, but where students also have a reasonable possibility of being successful. Finally, the educator should provide the support that is necessary for students to succeed in terms of providing clear guidance and directions as well as being available to answer students' questions. To meet the need for choice, educators must plan their lessons so students can see the connection between school and their own interests, preferences, goals, and values. Furthermore, the educator should provide a rationale for all learning tasks so students see how the task is relevant to their lives and personal values.

Because this study provided evidence that the continuum of motivation as proposed by self-determination theory is applicable to the Nigerian context, educational researchers should use self-determination theory as a theoretical framework for developing future research studies about motivation. Specifically, educational researchers should examine teaching factors that are related to intrinsic motivation as well as conduct experiments aimed at improving intrinsic motivation. These two types of studies will provide concrete ways of improving education in the Nigerian context.

Furthermore, educationalists should provide training to pre-service and practicing teachers about self-determination theory's continuum of motivation. Helping educators understand what motivation is and how to foster it can improve motivation and, as a result, psychosocial adjustment and intellectual functioning among students.

### Conclusion

In conclusion, this study found that the continuum of motivation from external regulation to intrinsic motivation is applicable in the Nigerian context. Furthermore, intrinsic motivation was found to be the ideal form of motivation because of its significant positive relationships with happiness, deep study strategies, and effort put into education. Therefore, educators should create a classroom environment that supports intrinsic motivation.

## References

- Biggs, J., Kember, D., & Leung, D. Y. P. (2001). The revised two-factor study process questionnaire: R-SPQ-2F. *British Journal of Educational Psychology, 71*, 133-149.
- Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. *Educational Psychologist, 26*, 325-346.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2003). *Educational Research: An Introduction* (7th ed.). Boston: Allyn and Bacon.
- Kabara, A. A. (2012, July 26). Nigeria: Exam malpractice is caused by emphasis on paper qualifications – Luggard. *Leadership*. Retrieved from <http://allafrica.com/stories/201207260533.html>
- Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validity. *Social Indicators Research, 46*, 137-155.
- Reeve, J. (2001). *Understanding motivation and emotion* (3rd ed). New York: John Wiley & Sons.
- Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43*(3), 450-461.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57*, 749-761.
- Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67.
- Ryan, R. M. and Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.

Ryan, R. M. and Deci, E. L. (2002). Overview of self-determination theory: An organismic dialectical perspective. In E. L. Deci and R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3-33). Rochester, NY: University of Rochester Press.

Vansteenkiste, M., Sierens, E., Soenens, B., Luyckx, K., & Lens, W. (2009). Motivational profiles from a self-determination perspective: The quality of motivation matters. *Journal of Educational Psychology, 101*, 671-688.

Appendix: Questionnaire

**Academic Motivation Questionnaire**  
**Due: 6 July to EDU 102 Course Lecturer**  
*This is an **INDEPENDENT** assignment.*

*The following questionnaire asks a variety of questions about academic motivation. Please answer the questions **honestly**. There are **NO** right or wrong answers. If there are items you do not know the answer to or you do not want to answer, please skip them. Your responses will be kept confidential. If you complete the questionnaire sincerely, you will receive 5 Continuous Assessment points. These points will **NOT** depend on the responses you give. Once it is determined that the questionnaire was completed independently, you will automatically receive 5 points. After you are given credit for completing the questionnaire, your responses on the questionnaire will **never** be linked to you personally and will not affect your course grade in any way.*

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**Part 1**

*Please circle the most appropriate response.*

1. **Gender:**    Male                      Female
2. **Mode of Entry:**    UME                      Direct Entry    Remedial
3. **Age:**            18-19                      20-21                      22-23                      24-25                      26-27                      28+
4. **Secondary School:**    Public                      NGO Private    Religious Private                      Other Private

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**Part 2**

*The following statements are some reasons why people may get an education. Please read each statement carefully and respond about how important the reason is for you personally using the following scale.*

	1	2	3	4	5
	Not Important At All				Very Important
<b>I am getting an education because...</b>					
1. I want others to think I'm smart.					
2. Getting an education represents a meaningful choice to me.					
3. It is something others (parents, friends, etc.) force me to.					
4. I enjoy learning.					
5. I would feel ashamed if I didn't get an education.					
6. I want to learn new things.					
7. Learning is an exciting thing to do.					
8. Others (such as parents, friends, etc.) expect me to get an education.					
9. Getting an education is personally important to me.					
10. I am highly interested in learning.					
11. I'm supposed to.					
12. I want others to think I'm a good student.					
13. Others (parents, friends, etc.) force me to get an education.					
14. I would feel guilty if I didn't study.					
15. Getting an education is an important life goal to me.					
16. Learning is fun.					

*Please Turn Over*

### Part 3

For each of the following statements, please indicate how true it is for you, using the following scale:

	1	2	3	4	5	6	
	Not at all True			Very True			
				Not True	Very True		
	1	2	3	4	5	6	
1. I consider myself a very happy person.	1	2	3	4	5	6	
2. I make a point of looking at most of the suggested readings that go with my lectures.	1	2	3	4	5	6	
3. I do <u>not</u> put much energy into studying.	1	2	3	4	5	6	
4. Compared to most of my friends, I think I am more happy.	1	2	3	4	5	6	
5. I do <u>not</u> try very hard to do well in my education.	1	2	3	4	5	6	
6. I am generally very happy regardless of what is going on.	1	2	3	4	5	6	
7. It is important to me to do well in school.	1	2	3	4	5	6	
8. I test myself on important topics until I understand them completely.	1	2	3	4	5	6	
9. I study very hard.	1	2	3	4	5	6	
10. I find most new topics interesting and often spend extra time trying to obtain more information about them.	1	2	3	4	5	6	
11. I never seem to be as happy as I could be.	1	2	3	4	5	6	
12. I put a lot of effort into studying.	1	2	3	4	5	6	
13. I study a topic so that I can form my own conclusions before I am satisfied.	1	2	3	4	5	6	
14. I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes	1	2	3	4	5	6	

*Note. Questionnaire items measuring the key items are listed below.*

#### Page 1

External regulation: 3, 8, 11, 13

Introjected regulation: 1, 5, 12, 14

Integrated regulation: 2, 6, 9, 15

Intrinsic motivation: 4, 7, 10, 16

#### Page 2

Happiness: 1, 4, 6, 11 (R)

Deep study strategy: 2, 8, 10, 13, 14

Effort: 3 (R), 5 (R), 7, 9, 12