

# Development and Validation of the Tertiary Student Locus of Control Scale

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## Abstract

This study developed and validated a measure of Locus of Control in university students. Tertiary academic locus of control is the general expectancy that university students have regarding their ability to change their academic outcomes. Students who have an internal academic locus of control expect that their own efforts, skill, or luck will lead to academic success, while those with an external locus of control believe that academic outcomes are a result of luck, destiny, fate, or the behaviors of others. A series of steps were taken to develop the Tertiary Student Locus of Control (TSLOC) scale. These steps included defining the construct, developing a nomological network of the construct, and constructing an item pool of 66 items. Following the creation of the item pool, an item analysis was conducted on the 66-item measure to produce the 30-item TSLOC scale. The draft scale was administered to 100 participants (80 females and 20 males predominantly of Afro-Caribbean heritage from English-speaking Caribbean islands). The TSLOC scale had an internal consistency of .96 and had strong concurrent validity and moderate discriminant validity. A principal component analysis indicated that the TSLOC was a multidimensional scale composed of three underlying dimensions. The TSLOC scale was found to be valid and reliable for the current population of Caribbean tertiary students. The limitations and implications are discussed.

## Keywords

locus of control, tertiary students, Caribbean

Several researchers have demonstrated that locus of control is associated with various aspects of university students' lives including grade point average (GPA), final exam grades, and attendance (Curtis & Trice, 2013; Trice, 1985; Trice et al., 1987). Despite this interest, there is only one measure (Curtis & Trice, 2013; Trice, 1985) that is specifically designed to assess university students' locus of control. However, this scale only looks at how college students perceive themselves in relation to the overall situation that is tertiary education. The purpose of this study was to create and establish the psychometric properties of a multidimensional locus of control scale tailored for use with university students. It is hoped that this measure will assist in research specifically designed to assess the control orientations of university students and their associations with students' outcomes.

## Literature Review

Locus of control and its relationship to people's outcomes was first explored by Julien Rotter (Rotter, 1954). It is the general expectancy that people have about their outcomes. Successful outcomes were viewed as a product of people's own efforts, skill, or luck (Rotter, 1992). The situation and person both contribute to the feelings of control. Two loci are present in the concept of locus of control—internal and

external locus of control. People who are internally oriented believe that personal outcomes are as a result of skill and hard work. Those who are externally oriented believe that personal outcomes are as a result of luck, destiny, fate, or the behaviors of others (Rotter, 1990). Extremes on either loci can be a cause for concern. A strong external orientation may be related to apathy or despair. A strong internal orientation may cause people to feel personally responsible for all events, including those that they have no control over (e.g., the weather, the economic state of their country).

## *Locus of Control as a Multidimensional Construct*

The hypothetical construct of locus of control among tertiary students may be divided into three parts: academic, personal life, and relationships with others. The first dimension—academic locus of control—deals with how tertiary students view the outcomes of their academic pursuits for things such as assignments, study patterns, perceived ability, and exam

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focus. It also concerns the extent to which students plan and implement strategies to achieve academic goals. The dimension of personal locus of control concerns tertiary students' views of the outcomes in their personal life such as whether or not they perceive themselves as being capable and competent enough to achieve their academic goals. The final dimension—relationships with others—pertains to tertiary students' perceptions of the outcomes of their interactions with different people and situations in their life. As with locus of control in general, each dimension of academic locus of control exists on a continuum, with high external locus of control on one end and high internal locus of control on the other end.

### *Locus of Control and Tertiary Students*

The first person to develop a locus of control measure as it relates to academic orientations in tertiary level students—the Academic Locus of Control Scale—was Ashton D. Trice (1985). Up until the Academic Locus of Control Scale was developed and tested, academics measured locus of control for academic issues using the Rotter I-E scale (Trice, 1985). The other two measures (Clifford, 1976; Lefcourt et al., 1979) for measuring locus of control in tertiary level students were based on attribution theory, small samples, and did not assess elements that lead to students' success such as time management, attendance, and activities outside of class-related activities (Trice, 1985). In 2013, Curtis and Trice revised the Academic Locus of Control Scale for college students. It was reduced from 28 items to 21 items and was composed of four factors: hopelessness, poor student attitude, impaired planning, and distractability. Two studies were done to validate the scale. One was done in Oman (Ibrahim, 1996) and the other was done in Barbados (Richardson, 1995). Both studies showed that the measure was valid but cultural differences contributed to patterns of responses that were different to Trice's 1985 measure.

Several researchers have explored the association of locus of control in tertiary students with academic related variables such as academic achievement (Ladari et al., 2010; Landis et al., 2007; Otten, 1977). Otten (1977) examined the association of locus of control to academic performance. He found that students who possessed an internal locus of control were more likely to obtain their doctorate within 5 years than those with an external locus of control. Landis et al. (2007) found that internal locus of control and high self-efficacy were related to greater academic performance. Nelson and Williams (2004) found that students' perceived academic workload and their level of external locus of control had a positive correlation with each other such that as perceived academic workload increased, so too did individual's external locus of control. Finally, Ladari et al. (2010) using a sample of Iranian students found that students who have internal locus of control had higher levels of academic achievement.

### *Hypotheses*

**Hypothesis 1:** Scores on the TSLOC will be strongly correlated to the scores on the TLOC.

**Hypothesis 2:** Scores on the TSLOC will be weakly correlated with the scores on the International Personality Inventory Pool (IPIP)–Neuroticism subscale.

### *Method*

#### *Sample*

One hundred participants (80 females, 20 males; mean age = 20 years,  $SD = 0.83$  years) were recruited for the study using convenience sampling. To participate in the study, participants had to be currently enrolled at a Caribbean university and had to have come from an English-speaking country or have English as their first language. Questionnaires were administered to participants in a face-to-face manner. All participants who were sampled completed the research materials. Most participants were between 18 and 21 years of age (51%), with 38% being 22 to 25 years of age (Table 1). The majority of participants were Jamaican (86%; Table 1).

#### *Instruments*

Two instruments were used in the development of the Tertiary Students' Locus of Control Scale. They were the Total Locus of Control (TLOC) scale and the Neuroticism subscale of the IPIP. A brief demographic questionnaire was also used to provide information on person's age, gender, faculty, department, and country of origin. The TLOC was used to provide concurrent validity evidence for the TSLOC. The IPIP–Neuroticism subscale was used to provide discriminant validity evidence for the TSLOC. If the TSLOC has concurrent and discriminant validity, it would be expected that scores on the TSLOC would be strongly correlated to the scores on the TLOC and weakly correlated with the scores on the IPIP–Neuroticism subscale.

**TLOC.** The TLOC was developed to measure the internal–external control construct (Levenson, 1974, 1981). The internal–external construct was conceived as a generalized expectancy to perceive reinforcement either as a result of one's own behaviors (internal control) or as the result of forces beyond one's control (external control). Such forces consist of chance, fate, or powerful others. The construct is multidimensional in nature and consists of the following subdomains: Internal, Powerful Others, and Chance. The TLOC scale was used to establish the concurrent validity of the TSLOC scale. The TLOC is a 20-item Likert-type rating scale that measures whether persons have an internal locus of control or an external locus of control (Levenson, 1974, 1981); higher scores reflect an internal locus of control. Responses to individual items ranged from 1 to 5

**Table 1.** Frequencies of Age Ranges and Country of Origin.

Variable	Frequency (n)	%
Age		
18–21	51	51
22–25	38	38
26–29	4	4
30 and over	7	7
Country of origin		
Jamaica	86	86
Trinidad and Tobago	10	10
Barbados	3	3
USA	1	1

(1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*). The first 10 items are positively keyed and the last 10 items are negatively keyed. As such, the last 10 items had to be reverse-coded. The TLOC has reliability of between .84 and .86 (Levenson, 1974, 1981). For this study, the measure had a reliability of .91.

**IPIP–Neuroticism subscale.** Neuroticism was measured using the Neuroticism subscale of the IPIP. This personality questionnaire was developed by Goldberg (1992) and it assesses people on the Big Five Model (McCrae & John, 1992). According to McCrae and John (1992), there are five traits that make up a person’s personality. They exist in varying degrees across different people. These traits are Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Neuroticism is the amount of negative feelings/emotions that a person may feel. Neuroticism includes anxiety, depression, hostility, impulsiveness, self-consciousness, and vulnerability (Costa & McCrae, 1992). Individuals high on Neuroticism are prone to experience a myriad of emotions such as fear, anger, dejection, and shame (Costa & McCrae, 2011).

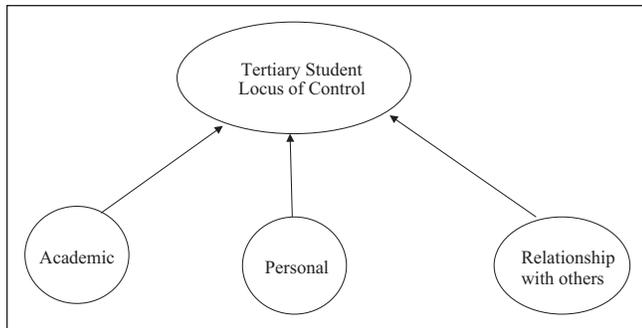
The IPIP is an open access, public domain, personality assessment pool that comprises different assessment tools from different researchers. The IPIP–Neuroticism subscale was used to establish discriminant validity of the TSLOC scale. The IPIP–Neuroticism subscale is a 20-item Likert-type rating scale that measures a person’s level of neuroticism. Higher scores reflect a greater level of neuroticism. Responses to each item ranged from 1 to 5 (1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree nor disagree*, 4 = *agree*, 5 = *strongly agree*). The first 10 items were positively keyed and the last 10 items were negatively keyed. As such, the last 10 items had to be reverse-coded. The measure has an internal consistency reliability of between .85 and .87. It was developed by Goldberg (1992). For this study, the measure had an internal consistency reliability of .94.

**Tertiary Student Locus of Control scale.** The Tertiary Student Locus of Control (TSLOC) scale is a 30-item measure of locus of control among university students. The measure consists of three subscales—academic, personal life, and relationships with others.

For the purposes of the development of the TSLOC scale, tertiary education is defined as any postsecondary/high school education. It refers to academic pursuits after postsecondary/high school level. Tertiary education programs can be broken into two groups: undergraduate and graduate. Undergraduate programs consist of any postsecondary/high school education that takes 3 to 4 years to complete. It includes certificates, diplomas, associate’s, and bachelor’s degrees. Graduate programs require completion of an undergraduate degree. It includes diploma, certificate, master’s, and doctoral degree programs. Tertiary education programs can be accessed at vocational schools, technical schools, community colleges, professional schools, colleges, and universities. For this study, undergraduate students made up the sample group.

A series of steps were taken to develop the TSLOC scale. The steps involved in developing the scale were defining the construct, developing a nomological network of the construct, and then constructing 60 items reflecting the construct. First, the construct was defined. Concepts of locus of control were examined by different researchers as well as looking at how locus of control was defined and conceptualized in disciplines such as psychology, education, management, and medicine. Second, a nomological network was developed. Elements of what comprised the concept “locus of control in tertiary students” were elaborated on. The emerging concepts, as seen by researchers in the area and topic rationalization of this study, had three elements: academic, personal, and relationships with others. Third, 60 items were created after elaboration on the three elements.

One round of concurrent, think-aloud interviews were done with five people. The interviews were done to get feedback from participants so as to assess the ease of answering each question, to determine if they understood what the questions were asking, and how participants reacted to the measure in the testing environment. Based on participants’ responses, items were kept, removed, or rewritten. After the think-aloud interviews, six items were added. Two items were split into three smaller, simpler items each. The first one was, “My study habits are effective, efficient, and consistent.” That item became, “My study habits are effective,” “My study habits are efficient,” and “My study habits are consistent.” The second one was, “I control my life, destiny, and myself.” That item became, “I am in control of my life,” “Only I can shape my destiny,” and “I always find ways to develop myself.” To cater to the context and meaning of different words the item “I often feel blue” was changed to “I often feel sad.” This item was on the discriminant measure. Two items were changed because they had grammatical errors. One was “I know where I want to be academically.” It



**Figure 1.** Nomological network.

was changed to “I know where I want to be academically in the future.” The other was “I use peer and lecturer information to improve work.” It was changed to “I use peer and lecturer information to improve my work.” The internal consistency reliabilities for the TSLOC30, the academic subscale, personal life subscale, and relationships with others subscales are as follows: .96, .88, .92, and .93.

**Demographic Questionnaire.** A brief demographic questionnaire was used to collect information on participants’ age, gender, faculty, department, and country of origin.

### Procedure

The academic locus of control construct was defined using work done by others on locus of control as well as how other fields such as medicine, management, education, and counseling view locus of control. Based on this information, the nomological network was developed (Figure 1). The three main emerging concepts from the academic locus of control concept were academic, personal, and relationships with others. Sixty items were then created, 20 items for each subdomain of academic locus of control. After the items were created, think-aloud interviews and concurrent interviews were done to improve items. Finally, after conducting both sets of interviews, certain items were re-worded and broken down into smaller items. The total number of items came up to be 66.

### Results

Item analysis was done on each subscale of the TSLOC to produce the 10 best items. Items were dropped based on their corrected item total correlation. The item with the lowest corrected item-total correlation was dropped. This process was repeated until 10 items were left for each subscale. These 10 best items from each subscale were put together to form the final measure which consisted of 30 items (Table 2).

The internal consistency reliability of the TSLOC was examined using Cronbach’s coefficient alpha. Concurrent

**Table 2.** Items in the TSLOC Scale.

Items
1. I am confident in my abilities to gain the most from my school life
2. I know I will be an academic success
3. I will do my best in my field of study
4. Ability is the key to academic success
5. I am just as capable of doing well as other people in my class
6. I have my own unique strategy to achieve my academic goals
7. I attempt to master most of the material I learn at school
8. I use time wisely to achieve my academic goals
9. I use peer and lecturer information to improve my work
10. I read extra material around topics so that I am as knowledgeable as possible
11. I am comfortable with who I am
12. I appreciate life for what it is
13. I always find ways to develop myself
14. I am just as competent as any other person
15. I am just as capable as any other person
16. I know where I want to be in life
17. I have a life plan for the future
18. I strive to master myself
19. I work toward improving my deficiencies
20. I can adapt to environments that I find myself in
21. I am comfortable around other people
22. I am capable of holding my own in social situations
23. I adapt to social engagements easily
24. I get along with others at school
25. I easily understand social cues
26. People feel comfortable around me
27. I make others feel comfortable around me
28. I am comfortable in new situations
29. People like interacting with me
30. People are usually pleased to meet me

Note. TSLOC = Tertiary Student Locus of Control.

and discriminant validity of the TSLOC was examined using Pearson’s product moment correlation. All three measures demonstrated high levels of internal consistency reliability (TSLOC  $\alpha = .96$ , TLOC  $\alpha = .91$ , and IPIP–Neuroticism subscale  $\alpha = .94$ ). The validity analysis suggested that the TSLOC had an acceptable degree of concurrent and discriminant validity (Table 3). Scores on the TSLOC strongly correlated with the scores on the TLOC ( $R = .65$ ) and moderately correlated with the scores on the IPIP–Neuroticism ( $R = -.49$ ). This suggests that the TSLOC has a high degree of concurrent validity and a moderate degree of discriminant validity.

An exploratory principal component analysis using varimax rotation was carried out to determine whether the three factors were indeed present in the measure. The analysis found three clear factors that underlie the TSLOC. The three components could be labeled academic locus of control, personal locus of control, and relationships with others locus of control (Table 4).

**Table 3.** Concurrent and Discriminant Coefficients for The TSLOC.

Scale	TSLOC	TLOC	IPIP–Neuroticism
TSLOC	1.00	0.65	–0.49
TLOC	0.65	1.00	–0.62
IPIP–Neuroticism	–0.49	–0.62	1.00

Note. TSLOC = Tertiary Student Locus of Control; TLOC = Total Locus of Control; IPIP = International Personality Inventory Pool.

## Discussion

The TSLOC was found to have concurrent and discriminant validity among Caribbean students, as well as a high level of internal consistency. Consistent with its intended structure, the factor analysis of the TSLOC found three factors that underlie the measure—academic locus of control, personal locus of control, and relationships with others locus of control.

Past measures of locus of control among university students have conceptualized locus of control as a unidimensional construct (Trice, 1985). This project expands the measurement of locus of control among university students into a multidimensional construct by providing a conceptually based, three-dimensional measure of locus of control. By conceptualizing locus of control as a multidimensional construct, future research on the control strategies used by university students can be expanded, allowing researchers to distinguish students' locus of control over academic matters from their global perceptions of control, and their perceptions of control over personal relationships. The TSLOC improves upon past measures by expanding the conceptualization of locus of control among students. While past measures (Trice, 1985) do incorporate multiple components, the TSLOC improves upon them by incorporating perceptions of ability, competence, and planning and implementation orientations. In fact, past measures (Trice, 1985) do not evaluate students' academic behavior in detail. It can be said that in Trice's Academic Locus of Control Scale that students' feelings of control are directly related to the situation. Conceptually, this is not the case due to the fact that personal variables, such as feelings of competence and ability, may allow individuals to feel as if they are in control of their fate. The TSLOC improves upon Trice's measure by exploring in detail how relationships with other people affect feelings of control. Relationships with peers and lecturers are important in tertiary education. It is this experience that molds skills, knowledge, and the ability to function in society and to be productive. If people believe that they can have a self-determined impact on their interactions with others, then that level of control can yield to positive development all around. Finally, the TSLOC has a higher range of variance than Trice's measure. Greater range of variance may increase the ability of the measure to be associated with other measures, thereby allowing more productive research to be done.

**Table 4.** Rotated Component Matrix of the TSLOC Scale.

Component	1	2	3
I adapt to social engagements easily	.806		
I make others feel comfortable around me	.775		
I am capable of holding my own in social situations	.753		
People like interacting with me	.747		
People are usually pleased to meet me	.745		
People feel comfortable around me	.688		
I am comfortable in new situations	.686		
I get along with others at school	.673		
I am comfortable around other people	.641		
I can adapt to environments that I find myself in	.629	.551	
I appreciate life for what it is	.617		
I work toward improving my deficiencies	.581		
I easily understand social cues	.581		
I always find ways to develop myself	.548		
I strive to master myself			
I am just as capable as any other person		.795	
I am just as competent as any other person		.778	
I am comfortable with who I am		.702	
I know where I want to be in life		.696	
I have a life plan for the future		.630	
I am just as capable of doing well as other people in my class		.616	
I know I will be an academic success			.729
I read extra material around topics so that I am as knowledgeable as possible			.718
I use time wisely to achieve my academic goals			.712
I attempt to master most of the material I learn at school			.644
I use peer and lecturer information to improve my work			.626
I will do my best in my field of study			.590
I am confident in my abilities to gain the most from my school life			.572
I have my own unique strategy to achieve my academic goals			.497
Ability is the key to academic success			

Note. TSLOC = Tertiary Student Locus of Control.

While locus of control has been shown to have strong psychometric properties in measuring control orientations, there are several things that should be taken into consideration. For example, Rotter (1975) highlighted that locus of control is not a complete measure of if used independently from Social Learning Theory (SLT). SLT looks at how behaviors, expectancies, reinforcements, and psychological situations guide actions. Specifically, SLT states that when an organism perceives two situations as similar, expectancies for one class of reinforcement will generalize from one situation to another. The expectancy variable was of particular interest to

Rotter. In this article, we proposed that a narrower or more specific generalized expectancy would allow for greater prediction in specific situations as generalized expectancy may not roll over across situations due to differences within the individual. To summarize the core idea of the paper, Rotter stated that “one must guard against the assumption that expectancy regarding control of reinforcement is a behavioral trait and that the prediction of behavior can ignore the value of the reinforcement that is the expected outcome of the behavior being studied.” It was also noted that all questionnaires, including personality and trait-related questionnaires, are subject to individual differences and testing errors. Future studies looking at locus of control, specifically TSLOC scale, can measure aspects of SLT to develop a more comprehensive approach to studying reinforcement and orientations.

Overall, it can be said that the TSLOC measures locus of control in tertiary students with greater depth and scope because control does not involve control perceptions, but also includes students’ perceptions of academic competence, their ability to contribute to the academic community, and their perceptions that they have the cognitive, emotional, and life/time management skills to be academically successful.

While past research examining locus of control among Caribbean university students has been conducted (Richardson, 1995), this article expands upon this work by demonstrating that academic locus of control is a very important variable when it comes to understanding how tertiary level students deal with school-related levels of control.

### Limitations and Recommendations for Future Research

Locus of control is an important variable when it comes to life decisions, how life events are viewed, and how this interpretation guides behavior. As such, it can shine a light on how to orient a student’s learning. While the measure was found to be valid and reliable, there were three limitations. First, the majority of the sample was Jamaican. While there is similarity in cultures between the islands from which students come, there are some differences. Second, this measure was tested in the Caribbean with Caribbean students but not with Caribbean students studying in foreign universities. It would be important to see if Caribbean values, beliefs, and culture holds in foreign countries. Further studies in different islands can strengthen the measure and lead to further development. Third, when the research was first conceptualized and the TSLOC developed, social media was not as dominant in the social sphere as it was now. As such, we did not include use of social media as potential items. Future development of the TSLOC should consider incorporating items dealing with the use of social media into the scale. The use of social media is now seen as a source of social interaction and people use their social media platforms as a means of assessing how other people perceive them.

### Conclusion

The TSLOC measure was found to be valid and reliable multidimensional measure of locus of control among university students. Future research examining locus of control among Caribbean university students, as well as university students in general, may benefit from the expanded conceptualization of locus of control.

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