

**TEACHERS PROFESSIONAL GROWTH:
Examining the Effect of Teacher Maturity on LOC Orientation**

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In this research, a modified version of Rose and Medway's Teachers' Locus of Control (TLOC) instrument was used to investigate the relationship between a selected group of high school teachers' age, length of service, and their teachers' locus of control orientation. Several studies have suggested a high correlation ($r = 0.845$) between age and length of service; one from the US showed increasing internality with length of service and the other from Israel showed increasing internality with age. In this study, a sample of 205 high school teachers in Kingston, Jamaica participated in the research. T-test and analysis of variance showed no significant difference between Jamaican high school teachers' length of service, age, and their teachers' locus of control orientation. These results imply that Jamaican teachers are not developing in their perception of personal control and responsibility for students' outcomes in the classroom. It is suggested that in-service development programmes should address these particular shortfalls in the professional growth of Jamaican teachers.

Introduction

Locus of control (LOC) is a personality construct identified by Rotter (Phares, 1976). This construct refers to the extent to which people perceive reinforcements as due to their own efforts (Internals) rather than to luck, fate, or powerful others (Externals). This conceptualization of two categories of LOC points to distinctions between social perception, with internals depending more heavily on inner sources as compared with externals who tend to hold social pressures accountable for their actions. Internals are perceived to be more active than externals in their efforts to shape their environment and in their willingness to correct personal shortcomings (Cheng, 1994; Phares, 1976).

Several research studies indicate that teachers' age and length of service affects teachers' locus of control (TLOC) and efficacy (Chester & Baudin, 1996 as cited in Main, 2008; Romi & Leyser, 2006; Sherman & Giles, 1981). Chester and Baudin found that novices who were over 30 years of age experienced increasing efficacy, whereas younger novices experienced decreasing efficacy; they also noted that the efficacy of

Lorraine D. Cook & Tony Bastick

beginning teachers in their second year who were over the age of 30 dropped, while the efficacy of the beginning teachers under the age of 30 increased. Romi and Leyser cited several studies (Berryman, 1989; Cook et al., 2000; Forlin et al., 1996; Heflin & Bullock, 1999) which demonstrated that teachers' experiences (correlated with teachers' age) are related to attitudes—for instance, teachers with more years of experience hold more negative attitudes.

It is important to note that people, depending on their age and past experiences, can develop a stable LOC orientation. Lefcourt (1982) points out that one has to be careful in seeing LOC as a trait that is inherent in a person's personality. We need to recognize that personality instruments are approximations of the operations of a construct. We also need to be aware that people do change their minds and perceptions about things. Meaningful experiences encountered by individuals can change their actions and perceived outcomes (Lefcourt). Lefcourt cited several studies that support the hypothesis that there is a positive correlation between age and internality (i.e., internal locus of control). For example, Penk (1969, as cited in Phares, 1976) found chronological age to be positively correlated with internality as assessed by Bialer's locus of control scale. Also included in Penk's research was a measure of mental age; Penk, using the Peabody Picture Vocabulary Test, found that there was also a positive correlation between mental age and internality.

Several studies have indicated that on-the-job experience generates a greater sense of personal control. This disposition may be influenced by a greater understanding of how to affect the systems within the workplace (Kremer & Lifmann, 1981; Lefcourt, 1982; Sherman & Giles, 1981). Teachers with less than five years teaching experience are initially externally oriented in their LOC, but over time they become internal. Inexperienced teachers just embarking on their career tend to have more lofty expectations of students, and tend to expect students to more quickly own the learning process. Their expectations tend to be idealistic. They expect that the students will naturally want to learn, study, do homework, and navigate their own path in the academic discipline. The literature indicates that older teachers in their 30s and 40s are characterized by a greater deal of creativity. Writers such as Kremer and Lifmann (1981) explain that teachers at the abovementioned ages may have already overcome certain difficulties in their career path, and subsequently express more control of their environment and higher degrees of job satisfaction (Cheng, 1994).

Evans' (1997) findings about Jamaican teachers indicated that novice teachers wrestled with implementing the new knowledge and skills gained from training, when she noted that during their first year of

teaching, they grappled with closing the gap between what was taught in college and the practice that occurs in the classroom. She noted that first-year teachers, in attempting to replicate what was taught in college in actual classroom teaching, became frustrated and played it safe by adhering to more traditional teaching methods of lecturing and giving notes. This is reflected in the response of this first-year teacher:

I find that if I used note-taking with the class, it worked, even though the college advised against it. If they were too excited, I'd start giving notes and they would settle down. (p. 82)

Main (2008) discussed two groups of beginning teachers. The first group included those who perceived that they received high levels of support from the principal, deputy principal, and other teachers during induction. This group thought that their tutors were "useful problem solvers who assist with matters such as student assessment" (p. 129). Conversely, there was another group of teachers who reported lower levels of satisfaction with their induction programme. They reported increasing levels of stress and less networking. The latter group also reported the least staff support and thought that their tutor lacked skills and knowledge in pedagogical practices.

Kremer and Lifmann's (1982) results revealed that the two extreme age groups—20–30 and over 41—were more externally oriented than the 31–40 age group. Sherman and Giles (1981) found significantly higher internal scores by teachers with more than five years experience as compared to teachers with less than five years experience. However, the results did not concur with Cook's (2002) research findings; her results indicated that there was no relationship between participants' Teacher Locus of Control (TLOC) orientation and their age and length of service.

Due to the limited literature on teachers' locus of control, this paper serves to update the literature on teachers' locus of control in the Caribbean.

Purpose

The purpose of the study was to investigate the relationship between a selected group of high school teachers' age, length of service, and their TLOC orientation, using a more sensitive LOC instrument targeted at Jamaican teachers in order to test for the "maturity effect" with Jamaican teachers. The researchers were motivated to conduct this research in order to improve the effectiveness of teachers by providing a framework for developing internality training for teachers. Additionally, the study was aimed at identifying those teachers who would most benefit from an

Lorraine D. Cook & Tony Bastick

internality training programme and in ensuring that eligibility criteria did not exclude important groups of teachers. Age and length of service were examined in this study using the following research question:

Do Jamaican teachers' age and length of service influence their degree of LOC internality?

The above discussion suggested that as teachers grow older and gain more years of teaching experience, they tend to become more internal. The discussion also provided support for a link between increased internality by training and improved teaching performance.

Methods

The research design of this study was guided by two studies: Kremer and Lifmann (1981), and Sherman and Giles (1981). Teachers' length of service was categorized as less than five years or greater than five years; teachers' age was categorized into three groups: 21–30 yrs; 31–40 yrs; and 41 and over.

Instrument

The data for this study were collected using the Rose and Medway Teachers' Locus of Control instrument (TLOC). The TLOC questionnaire was developed by Rose and Medway (1981) to measure the extent to which teachers held themselves responsible for students' success and failure in the classroom. This instrument was geared only for classroom teachers and so far has been utilized only in the classroom (Cook & Bastick, 2003; Northington, 1998; Rose & Medway, 1981; Stanton, 1982). This questionnaire, with modifications, was used in this research to measure teachers' belief in their control and to determine the extent of the relationship, if any, between teachers' LOC and teachers' age and length of service.

Included in the modified TLOC questionnaire were items on teachers' demographic variables, including their education, age, and length of service in the educational system. These variables were included because they were found to have significance with regard to differences between externally- and internally-oriented teachers (Kremer & Lifmann, 1982).

The scale was modified to make it more culture-friendly. An example of a culturally biased question from the original instrument is as follows:

Q3. Suppose students did not appear to be benefiting from a more individualized method of instruction. The reason would be.

The above stem from the question was modified to read:

Q11. If my students did not appear to be benefiting from the discovery method of instruction, the reason for this probably is.....

The question was changed since high school teachers in Jamaica rarely use individualized methods of instruction.

Scoring of Teachers' Locus of Control Instrument

The teachers were asked to choose between three options (a, b, or c). In addition, the modified TLOC instrument's instructions required that teachers rate their answers by giving a continuous score of 0–100 for a, b, or c, with 0 denoting no contribution and 100 denoting maximum contribution.

The modified TLOC questionnaire consisted of 21 forced choice items. Each question was scored by the researcher as follows: “-1” was given for each external answer and “1” was given for each internal answer.

Initially, dichotomous scores were calculated for each teacher using summations of minus 1 or positive 1. Continuous scores were calculated by multiplying the dichotomous scores with the associated percentages. Each teacher was given two final scores—an internal or external dichotomous score and an internal or external continuous score. The continuous scores facilitated a more sensitive scoring of responses to the TLOC instrument.

The discrete scoring fixes the degree of internality and externality of an individual by the equation $I+E = 40$, where I is internal and E is external. As an individual's internal scores increase, his external scores decrease in exactly the same proportion of his increased internality. Therefore, if an individual's internal score increases by one, his external score will decrease by one.

On the discrete scale, two persons with the same internal score implies the same proportion of internality; however, in reality this may not be so. Two individuals with the same internal scores on the discrete scale can be very different in their proportion of internality or their mixture of internality as measured on the continuous scale. This was reflected in the data collected. For example, using the NLC instrument, participants numbered 1 and 8 scored 29 as their internal score using the discrete scale; however, using the continuous scores their internal scores were 64.8% and 48.8% respectively. Another example is participants 11 and 13; they scored 33 each using the discrete scale; however, on the

Lorraine D. Cook & Tony Bastick

continuous scales their scores were 66.3% and 71% respectively. For example, on a continuous scale a teacher may indicate that she believes that she is responsible 70% of the time for the success of students, while with discrete scoring she would be forced to answer a or b—which suggests 100% internality or externality.

Sample

Copies of the TLOC scale were administered to 225 teachers: 210 copies of the questionnaire were collected, of which 5 were incomplete and 15 were not returned to the researcher at the end of the data collection. The 205 teachers represented 21% of the total population of the 12 high schools.

The sample consisted of 175 females and 50 males with a mean age of 32 years. This sample of teachers had an average of 9 years teaching experience. The teachers were all high school teachers, specializing in different subject areas such as mathematics, literature, history, Spanish, and technical drawing.

Hypotheses and Statistical Analysis

Analysis of variance (ANOVA) was employed to determine the influence of teachers' length of service and age on their TLOC orientation. Bivariate correlation was used to ascertain the relationship between age and length of service.

Hypothesis 1 tested the relationship between age and length of service. Results hypotheses 2a and 2b responded to Research Question 2:

Research Question 1

Is there a relationship between teachers' age and length of service?

H₀: 1 There is no relationship between teachers' age and length of service.

Research Question 2

Do internals and externals have the same mean age and length of teaching experience?

H₀: 2 Teachers with internal scores are not different from teachers with external scores with respect to their mean age and length of service.

Cronbach Alpha was computed for responses to the TLOC instrument to determine the internal consistency—the degree to which the items that made up the instrument were all measuring the same construct (TLOC). The values ranged from 0 to 1, with higher values indicating greater reliability. Pallant (2003) noted that a Cronbach Alpha 0.70 and greater

is acceptable. Other quantitative analyses included statistical tests for normality and descriptive statistics.

Results

Test for Normality

The K-S test indicated the likelihood of the sample coming from a normal distribution. This indicated that parametric statistical techniques would be more appropriate. The result from the K-S test in Table 1 showed, at the $p < 0.05$ level, that the sample is unlikely to have come from a normal population. The result of 0.183 was non-significant.

Table 1. One-Sample Kolmogorov-Smirnov Test

		cTotal
N		205
Normal Parameters (a,b)	Mean	-559.30
	Std. Deviation	496.531
Most Extreme Differences	Absolute	.076
	Positive	.076
	Negative	-.032
Kolmogorov-Smirnov Z		1.093
Asymp. Sig. (2-tailed)		.183

a Test distribution is Normal.

b Calculated from data.

Internal Consistency of Instrument

The internal consistency of the TLOC instrument for both the dichotomous scores and the continuous scores was moderately high using Cronbach Alpha, 0.70 and 0.71 respectively (see Tables 2 and 3). This also suggested that the two types of scoring did not contradict each other.

Table 2. Reliability: Continuous Scores

N of Cases = 205.0
N of Items = 21
Alpha = .71

Table 3. Reliability: Dichotomous Scores

N of Cases = 205.0
N of Items = 21
Alpha = .70

Testing for Significant Relationship Between Teachers’ Age and Length of Service

To verify the relationship between age and length of service, Hypothesis 1 was tested using correlation: $H_0: 1$ *There is no relationship between teachers’ age and length of service.*

Hypothesis 1 was rejected. The results indicated that there was a strong relationship between teachers’ age and their length of service. As teachers increase in age their length of service also increased (see Table 4). We can observe that age was significantly correlated with length of service ($r = .852, p < .01$).

Table 4. Correlation Between Age and Length of Service

		Age	Length of Service
Age	Pearson Correlation	1	.852**
	Sig. (2-tailed)	.	.000
	N	178	172
Length of Service	Pearson Correlation	.852**	1
	Sig. (2-tailed)	.000	.
	N	172	196

** . Correlation is significant at the 0.01 level (2-tailed).

Testing for Significant Differences Between Two TLOC Orientations

In order to ascertain the differences in TLOC based on teachers’ age and length of service, a two-way ANOVA was generated to test the following hypothesis:

$H_0: 2$ *Teachers with internal scores are not different from teachers with external scores with respect to their mean age and length of service.*

Null hypothesis 2 was not rejected. Teachers with internal scores did not differ significantly from teachers with external scores with respect to their length of teaching and their age. Results of ANOVA can be seen in

Teachers' Professional Growth

Tables 5, 6, and 7. Results showed that teachers' age and length of teaching experience did not have any significant impact on participants' TLOC orientation ($F= 1.083, p> 0.05$; $F = .070, p>.05$, respectively) (see Tables 6 and 7).

Table 5. Descriptives: Age, Length of Service, and TLOC

Length of Service	Age	Mean	Std. Deviation	N
less than 5 years	20–30 yrs	-9.1233	6.67488	73
	31–40 yrs	-6.5000	6.65475	8
	over 50	-9.0000	.	1
	Total	-8.8659	6.63653	82
more than 5 years	20–30 yrs	-8.6111	5.75110	18
	31–40 yrs	-6.7424	8.31738	66
	over 50	-5.1250	7.79079	8
	Total	-6.9674	7.81862	92
Total	20–30 yrs	-9.0220	6.47556	91
	31–40 yrs	-6.7162	8.11479	74
	over 50	-5.5556	7.40120	9
	Total	-7.8621	7.32668	174

Table 6. ANOVA: Age, Length of Service, and TLOC

Source	Type II Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	271.166	3	90.389	1.704	.168	.029
Intercept	10755.310	1	10755.310	202.806	.000	.544
Age	114.903	2	57.451	1.083	.341	.013
Length of Service	3.695	1	3.695	.070	.792	.000
Error	9015.524	170	53.032			
Total	20042.000	174				
Corrected Total	9286.690	173				

Table 7. Post Hoc: Length of Service and TLOC

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
20-30 yrs	31-40 yrs	-2.3058	1.13993	.110	-5.0010	.3895
	over 50	-3.4664	2.54466	.363	-9.4831	2.5502
31-40 yrs	20-30 yrs	2.3058	1.13993	.110	-.3895	5.0010
	over 50	-1.1607	2.57083	.894	-7.2392	4.9179
over 50	20-30 yrs	3.4664	2.54466	.363	-2.5502	9.4831
	31-40 yrs	1.1607	2.57083	.894	-4.9179	7.2392

Discussion

Do internals and externals have the same mean age and length of teaching? The results did not establish any statistically significant relationship between age, length of service, and TLOC orientation. This is contrary to Kremer and Lifmann's (1982) results where they found that the two extreme age groups—21-30 and over 41—were found to be more externally oriented than the 31-40 age group. Sherman and Giles (1981), however, found significantly higher internal scores by teachers with more than five years experience as compared to teachers with less than five years experience. However, the results did concur with Cook (2002), whose results yielded no relationship between participants' TLOC orientation and their age and length of service. This implies that internality training should not be restricted to younger teachers. It also indicated that the scores of an LOC measure could be the most discriminating factor in deciding on teachers who would benefit most from internality training.

The results also suggest a need for continual professional development programmes within the schools for teachers, as the results from this study suggest that they were not experiencing career maturity. Evans (1997) noted that newly trained teachers, through observations of what older teachers do or by listening to what others such as the principal and other teachers say about teaching and students' learning, fail to use methods and apply concepts learned in teachers' college; instead these

newly trained teachers line up their teaching approaches with the norms of the workplace.

Teacher training institutions need to explore opportunities for professional development programmes in the school system for teachers from different age groups and with varying length of service. The development programmes should involve techniques such as action research. As Stringer (2008) noted, “action research applied systematically to the issue of poor academic performance, provides a high likelihood of improving student outcomes” (p. iii).

Action research connotes involvement, commitment, and growth as educators; teachers are taught that action research and action learning skills create understanding and insight into the classroom situations by bring together process and outcome, teaching and research, reflection and action, theory and practice (Baird, Mitchell, & Northfield, 1987; Stringer, 2008)

As guardians of education, training institutions are not only responsible for the training of new teachers but they should also be concerned with the continued empowerment of teachers in the classroom. These development programmes should result in the continued development of self-confidence and sense of responsibility towards their students.

The results from this study caution teacher education trainers not to limit training to younger teachers or to impose restrictions in terms of age and length of service. The results suggest that there are situations when the mature and younger teachers will have similar professional needs.

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Lorraine D. Cook & Tony Bastick

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