

# The relationship between teacher certification and instructional practice in a tertiary institution in Barbados

## Sub-theme: Formal Education – Revamping Teacher Education and Quality Issues

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### INTRODUCTION

Barbados is a small island developing state with a population of approximately 275,000 and a literacy rate of over 98% as measured by the UNDP Report 2007/2008(<http://www.investbarbados.org/education.php>). Its major resource is people.

For the Barbadian Government, the interest in quality education is that it be an instrument of social change. As a result, education is offered free from primary to tertiary level. Under the caption '*Gov't committed to promoting quality tertiary education*', in the Barbados Advocate newspaper, it was cited that for 2008-2009 the financial investment to higher education was 33.6% of the Ministry of Education's overall budget.

To be a globally competitive educational system according to international standards, one common point must be with respect to teacher certification. This requirement for teachers in various countries and states of the world is not a mandatory pre-requisite for entry into the teaching profession and is not identified in any position policy statement for Barbados.

As a result, the current status of the Barbados Community College (BCC) is consistent with the general educational system in Barbados. According to Jones (1997) there is a tendency in Barbados to have untrained persons teaching in the educational institutions from primary to tertiary levels.

The BCC advertisements in the Daily Nation newspaper (2007:2008) concur with listings that "teaching experience is an asset" whereas a Degree in the particular area is a required qualification. Hence the emphasis for employment of teachers at the BCC seems to be knowledge base and not teacher training.

The purpose of the study is to investigate the relationship between teacher certification and instructional practices at one of the three tertiary institutions in Barbados that falls under the aegis of the Ministry of Education – the BCC.

This paper seeks to examine the following research questions:

- What is the relationship between teacher certification and the effectiveness of teachers' instructional practice?
- What is the effect of certification on the competence of teachers' instructional practice?

Throughout this paper the terms trained and certified, untrained and uncertified will be used interchangeably.

### KEY VARIABLES

**Tertiary education** - within the Barbadian context tertiary education refers to post-secondary education offered to persons 17 years and over (Grades 12 – 14). [www.mes.gov.bb/UserFiles/File/Education\\_in\\_Barbados.pdf](http://www.mes.gov.bb/UserFiles/File/Education_in_Barbados.pdf). The term is used synonymously with 'higher education'.

**Teacher certification** - refers to the one year programmes for training teachers such as the Diploma or Certificate in Education or the Certificate of Technical Education. It does not refer to licensure of teachers.

**Instructional Practice(s)** - refers to the teacher attitude, skills and behaviors demonstrated during the execution of the teaching practice.

Griffith (2002) citing other writers makes reference to the 'contextual factors 'that influence how a teacher behaves and performs in the classroom. These factors can include norms and practices of the school, time for lesson preparation, amount of content, class size and atmosphere, lesson objectives and resources available.

**Competence** - 'is the acquisition of knowledge skills and abilities at a level of expertise sufficient to be able to perform in an appropriate work setting (within or outside academia). <http://www.qualityresearchinternational.com/glossary/index.htm#t>. It was operationalized to refer to the skills and characteristics of the teacher according to (a) knowledge and content; (b) strategies and methods used in teaching; (c) planning and delivery; (d) assessment and (e) classroom management. It is noted that some of the variables will be affected by the curriculum and impact grading.

These measures are corroborated by Darling-Hammond, L., Holtzman, D., Gatlin S. & Heilig, J V. (2005:20) who mentioned that 'certification is only a proxy for the real variables of interest that pertain to teachers' knowledge and skills. These include knowledge of the subject matter content to be taught and knowledge of how to teach the content to a wide range of learners, as well as the ability to manage a classroom, design and implement instruction, and work skillfully with students, parents and other professionals.'

**Effectiveness** – Though academic scores are often criteria for effectiveness, this factor was measured on behaviour and attitude of the teacher towards training and instructional practices. So the variable was operationalized to measure (a) use of a variety of teaching methods; (b) participation in professional development activities and (c) having a positive attitude to certification and training.

## LITERATURE REVIEW

### Teacher Certification

Ruthland and Bremer (2002) refer to teacher certification in two ways - traditional and alternative certification routes. Traditional certification is when an individual completes a baccalaureate degree or post baccalaureate program in education. Alternative routes of certification are based on coursework in pedagogy and subject area without a degree in education.

In Hardy and Smith (2006) tertiary level educators when asked about ways other than formal qualifications for improving teaching cited short term activities such as mentoring, peer evaluations and workshops.

### Teacher Competence

Edmund Short (1985) and Zahorik (1986) as cited in Ashburn (1987:6) states that defining competence is a difficult matter. Short (1985) declared 'competence appears to refer to several different concepts, ranging from very narrow understanding of the term to very broad ones.' In his presentation of four different conceptions he describes competence as 'a quality of a person or state of being, including more than characteristic behaviors: 'performance, knowledge, skills, levels of sufficiency and anything else that may seem relevant such as intent, or motives, or attitudes, or particular qualities'.

Additionally, Zahorik (1986) supported the argument of competence having multiple theories based on the existence of multiple conceptions. He further asserts that beyond the obvious skills of explaining material to students and structuring knowledge for understanding, identifying universal teaching skills is difficult.

Consequently, Pushkin (2001) contends that though content is important, it is not the only component with which to be concerned. He notes that 'until teachers are educated about critically exploring and embracing their philosophical and intellectual views, each course, credential program, and degree program merely remedies an artificial symptom of teacher incompetence.' Therefore, as Ashburn (1987) opines the definition of teacher competence is dependent on many factors and is therefore a complex matter.

### **Effectiveness of Instructional Practice**

Brophy and Good (1986) as cited in Ashburn (1987:4-5) contends that “what constitutes ‘teacher effectiveness’ is a matter of definition, and most definitions include success in socializing students and promoting their effective and personal development in addition to success in fostering their mastery of formal curricula”. Whereas Danielson (1996), as cited in (Moore, 2005) proposed that four skills for effective teaching included (1)engaging in quality planning and preparation; (2) preparing a positive classroom environment; (3) using proven instructional techniques and (4) exhibiting professional behaviour. Conversely, Goldhaber and Anthony (2004:2) contends that “education research has failed to reach a consensus over which, if any, readily identifiable teacher characteristics are associated with students’ learning gains, and it remains an open question as to whether it is even possible to judge teachers’ effectiveness outside of direct observations of their teaching”.

Likewise, Kane, T.E, Gordon, R, & Staiger, D.O. (2006b) states that ‘differences in teacher effectiveness are largely unrelated to whether a teacher is certified’. Similarly Kane, T.E, Rockoff, J.E, & Staiger, D.O. (2006a) cautions against the use of certification ex ante in the traditional measure of effectiveness. This is supported by Goldhaber and Anthony (2004:1) on assessing the relationship between certification of teachers and student achievement finding that Board-certified teachers, prior to becoming certified, were more effective than their non-certified counterparts at increasing student achievement.

## **METHOD**

### **Participants**

A convenience sample of 89 participants was chosen at random from the 11 divisions of the BCC. The teaching experience ranged from less than one year to over 16 years.

### **Measures**

Data was collected by a survey conducted using a self report questionnaire designed by the researcher to measure two areas – teacher effectiveness and teacher competence. These areas were represented by 18 structured statements. In addition, there were 6 questions requesting biographical information about gender, teaching experience and qualification; and space was allocated for free response and comments.

Additionally, an institution designed instrument, Barbados Community College Student Feedback Questionnaire (BCC SFQ), was employed to gather data on students’ perception of teachers related to competence and instructional practice. This tool comprised twenty-seven items divided into two categories, of which 10 statements measured competence, and 17 instructional practices.

Both instruments utilized the Likert Scale with a five point rating scale that ranged from 5 = ‘Strongly agree’ to 1= ‘Strongly disagree’.

### **Procedures**

Permission to access and use data from this institution was requested. The questionnaires were distributed at the end of Semester 2 to instructors and tutors.

A sample of ten instructors and tutors was made from the main batch of the BCC SFQ. To determine the choice of staff based on certification information was extrapolated from the ‘Part-Time and Permanent Teaching Staff by Qualification’ documents and the researcher’s experience.

The Statistical Package for the Social Sciences (SPSS) software was utilized to analyze the data received from the self report survey given to teachers and the BCC SFQ. In conjunction with descriptive statistics, the t-tests for equality of means were used to verify homogeneity of variance across samples.

## **FINDINGS AND DISCUSSION**

There was a response rate of 66% from the survey. The respondents comprised of 15 part-time and 44 full – time staff from 9 divisions of the College excluding Science and Physical Education

From the fifty-nine respondents, 25 persons were teacher certified, whereas 34 were uncertified. For the BCC SFQ, four staff was untrained and six was trained.

### Competence and Instructional practice

Results in Table 1 from the teachers' responses to competence as it related to curriculum and grading indicated a mean of 2.87 to untrained teachers as compared to 2.58 for trained teachers. Based on the standard deviation, the mean for the untrained teachers shows that there was a greater dispersion to their perceptions of this area of competence. Additionally, since Course outlines and assessments measures are outlined by the curriculum and influence grading so too they affect what students receive in teaching practice. However, the variance of the Independent Samples test ( $p=.192$ ) showed there was no compelling evidence to signify a difference to competence for the two groups.

Training		Group Statistics			t-test for Equality of Means		
		N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Shows competence in Curriculum and Grading	Untrained	34	2.8676	.89873	1.320	57	.192
	Trained	25	2.5800	.71705			

**Table 1 – Independent Samples Test on teachers' perception of competence in Curriculum and Grading**

Training		Group Statistics			t-test for Equality of Means		
		N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Competence	Untrained	4	4.2537	.13582	1.233	8	.252
	Trained	6	3.7906	.72838			
Instructional Practices	Untrained	4	4.2173	.07901	1.426	8	.192
	Trained	6	3.7099	.69459			

**Table 2 – Independent Samples Test on students' perception of teachers' competence and instructional practices**

In Table 2, untrained teachers were rated higher by students for competence (4.25) and instructional practices (4.22). When these means were compared with the trained practitioners (3.79 and 3.71 respectively) the differences across the areas were minor. The reason for slight this difference may have been due to intervening issues related to teacher attitude, strategies or content not revealed in the survey. However it may be noted that the standard deviation for the trained teachers in competence (.728) and instructional practices (.695) was higher than their untrained colleagues (0.136 and 0.079 respectively). This wide dispersion shows that students had more varying perspectives on these two factors for the untrained and trained teachers. It may be theorized that trained teachers stick closer to the established practices dictated by the curriculum than do the untrained.

These results are corroborated by Jones (1997), Griffith (2002) and Kane et al (2006a) who contend that there is little to no significant difference in the classroom performance, instructional practices and student academic achievement of pedagogically trained teachers in the Caribbean or the United States of America. They are further justified Ashburn (1987) that competence is difficult to define.

### Effectiveness

		Group Statistics			t-test for Equality of Means		
		N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Effectiveness	Untrained	34	3.6073	.32875	-.966	57	.338
	Trained	25	3.7100	.48758			

**Table 3 – Independent Samples Test on teacher effectiveness**

Training		Group Statistics			t-test for Equality of Means		
		N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Variety of Teaching Strategies	Untrained	34	4.0319	.48331	-.111	57	.912
	Trained	25	4.0500	.76716			
Participation in Professional Development Activities	Untrained	34	3.2843	.51986	.419	57	.677
	Trained	25	3.2267	.52458			
Positive Attitude Certification/Training	Untrained	34	3.5058	.37962	-3.148	57	.003
	Trained	25	3.8533	.46781			

**Table 4 – Independent Samples Test on teacher effectiveness disaggregated**

In Table 3, the combined components characterizing effectiveness indicated a difference between trained and untrained teaching staff of 3.71 and 3.61 respectively. Though trained teachers received a higher mean rating, the variance between the two groups was not significant ( $p=.338$ ).

The disaggregated factors for effectiveness in Table 4 showed that trained teachers rate at a higher level in all but one category – participation in professional development activities (3.22 over 3.28 for untrained). This can infer that due to their certification, these persons no longer perceive the need for on-going training. Whereas the dispersion in the standard deviations shows that variety of teaching strategies is higher for the trained, all factors for effectiveness are about average within the groups and between the factors.

An analysis of the variance showed that positive attitude to certification and training was significant ( $p=.003$ ). It is not surprising that trained teachers had this opinion of certification and training (3.85). Nevertheless, when compared with the responses of untrained teachers (3.51) it reflected the strong consensus that teacher certification should be mandatory at the BCC and time apportioned for study.

Theme	Frequency
On-going training and support/resources	0.07
Teaching-learning process – skills and knowledge	0.05
Natural ability – creativity, passion, intuition	0.03

**Table 5 - Teachers' views on certification and instructional practices**

Table 5 showed general themes that emerged from the survey's open ended comments from teachers regarding training, teaching skills and certification. It may be suggested that the areas of creativity (.003), resources and training (0.07), instinctive ability and understanding the teaching learning process regarding delivery of content (0.05) are among the 'contextual factors' cited by Griffith (2002). Hence the study corroborates Kane et al (2006b) that the effectiveness of instructional practice is not according to teacher certification.

## **CONCLUSION**

Overall the results show that there is no relationship between teacher certification and effectiveness or instructional practices as pointed out by Kane et al (2006a). Though untrained teachers rate higher than trained practitioners in competence and instructional practices related to such variables as content, teacher strategies, attitudes and delivery, there is no significant relationship between teacher certification and these variables as cited in Kane et al (2006b). However, this does not negate the value of effectiveness in trained teachers as shown in Table 4 by two of the three factors represented.

Further, to be globally competitive in education the BCC and the Government of Barbados need to look at having legislation that would make teacher certification mandatory, and professional development workshops to improve those already trained. These measures will certainly ensure continuous learning and the building –in of quality education for this institution.

Senge, P, Cambron-McCabe, N, Lucas, T, Smith, B, Dutton, J, Kleiner, A (2000) speak of 'transformative pedagogy'. This is the move from exposition of theory to application. Finding alternative ways as mentioned in Hardy and Smith (2006) is what the BCC needs to use to help teachers improve in the teaching practice. Hence as the world view is towards certification it is important that BCC align itself with this process in order to be competitive.

There will always be financial costs to the investment in education. This is confirmed by Goldhaber and Anthony (2004) in their findings that the cost of "identifying high-quality teachers" is not an inexpensive process. There will be benefits to the state to have information on the number of qualified or certified teachers, and for teachers whose salaries may be increased from certification.

## **RECOMMENDATIONS**

Coining the statement by Senge et al (2000), "this is not the final word, it is only the first step. " The following are some recommendations:

- At BCC, continue to engage in continuous professional development, but encourage the use of peer evaluations and reflective practices during the academic year to improve teacher training. Modify and apply the concept of the "research lesson" used in Japan and China as cited by Barber & Mourshed (2007) in Chung Wei, R, Andree, A & Darling-Hammond, L (2009). This concept is explained as when a teacher demonstrates a 'best' lesson to a group of colleagues and the strengths, limitations and suggestions are made for improvement.
- Further research is needed to address the impact of teacher certification on untrained teachers before, during and after undergoing a teacher certification programme.

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