The Caribbean Teaching Scholar
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EDITORIAL

This publication is one of the products of the Educational Research Association (ERA) of The University of the West Indies (UWI) and provides a vehicle for the dissemination of research information of particular relevance to education in the Caribbean context. The journal is a peer reviewed publication.

The Caribbean Teaching Scholar is grounded in the need to respond to the limited research and emergent theories about teaching and learning in the Caribbean context, as well as to provide the impetus for engaging practitioners in practice that is grounded in theory. This forum for research dissemination is designed to encourage practitioners, particularly at the tertiary level, to become more reflective and scholarly in their approach to the discipline of teaching and learning, and to facilitate scholarship. The journal also recognises the need to meet rigorous research standards that address transparency, systemization and accountability issues that are common characteristics of today’s educational arena.

While adhering to the rigorous scrutiny of peer review, the journal encourages teaching practitioners to address their practice from a scholarly perspective and sustains a network that provides feedback and direction as necessary to assure the requisite scholarship of submissions. We anticipate that teaching researchers would be buoyed by the support and commentaries on their research and work towards enhancing both their research portfolios and their practice. This journal moves us beyond a parochial approach to teaching (largely underpinned by personal anecdotes and experience with little reference to research) to the conceptualisation and practice of teaching and learning as a discipline. Additionally, the journal provides the basis for informing higher education policy and will serve to further distinguish the UWI as a premier institution for leadership and scholarship in higher education research in the region, and encourage networking among institutions in the region and beyond.

Overall, the Caribbean Teaching Scholar focuses on the scholarship of teaching and learning but this concept is interpreted in its broadest sense to include submissions that indirectly support the teaching and learning function. This first edition provides a mix of contributions from up-and-coming and more seasoned educational researchers. Articles range from inclusive education to strategies for overcoming classroom challenges and institutional collaboration to further scholarship.

The subject of academic cheating is the focus of one article. Jerome De Lisle, School of Education, UWI St. Augustine leads a small group of researchers, Sherma Hyland-Joseph, Trinidad and Tobago Hospitality Institute and Cheryl Bowrin-Williams, University of Trinidad and Tobago, in a study in which they suggest that academic cheating is “a complex construct that extends far beyond plagiarism to include a wide range of student beliefs, attitudes, and practices that act to corrupt recorded achievement scores”. The authors examine the phenomenon from an educational measurement perspective in the national context of Trinidad and Tobago, and posit that academic cheating is “a threat to quality and thus must be explicitly addressed in internal and external quality assurance schemes” in higher education institutions. The authors sought...
to explicate students’ perceptions of cheating as well as their motivations and practices congruent with their perceptions. The article is critical and timely as it signals the imperative for higher education institutions and accrediting agencies to ensure that the quality of their vital work is not undermined because of failure to reflect on their role in this regard and take necessary steps to manage the issue of academic cheating.

Another contribution examines the area of cultural inclusivity and its impact on the effectiveness of teaching and learning. Phaedra Mohammed and Permanand Mohan, Department of Computing and Information Technology, UWI St. Augustine, drawing on the work of McLoughlin and Oliver (2000) and Young (2007), explore the importance of developing culturally relevant eLearning environments by focusing specifically on the impact of an educational game, designed using language and expressions specific to the cultural context of Trinidad and Tobago. The authors report on the findings of an evaluation of the educational game called the “Trinbago Adventures of L. Macawell (TALM)”, which was designed to increase computer programming efficiency. The game provides a scenario which requires the player to engage in programming exercises. This contribution touches on the issue of gaming in education and gives consideration to cultural representation and relevance, which impact on teaching and learning. The significance of this article is in making learning learner-centred, culturally sensitive and fun for the learners and underscores the creative component of teaching practice.

The paper presented by Harry Hubball, Centre for Teaching, Learning and Technology, University of British Columbia, and Anna-May Edwards-Henry, Instructional Development Unit, UWI St. Augustine, locates the journal squarely in the realm of international collaboration towards institutional development. The paper examines an international collaboration between UWI St. Augustine and the University of British Columbia, to align institutional teaching development, learning-centred curricula, and the scholarship of curriculum and pedagogical practice. Data suggest that despite traditional institutional challenges with respect to curricula and pedagogical development, international collaborations and the strategic range of institutional Scholarship of Teaching and Learning (SoTL) leadership initiatives have positively impacted learning-centred curricula, course syllabi and teaching practices. International collaborations have also positively impacted local, national and international SoTL initiatives. Scholarship in teaching and learning can thus be enhanced by networking, broadening perspectives and collaborating with colleagues in the international community.

One of the contributions to the journal takes us into the tertiary level classroom and examines the responses of students to different teaching/learning methods in a particular programme. This is the paper presented by Hatim Ali, Cipriani College of Labour and Cooperative Studies. The findings suggest that there are many factors that impact teaching and learning especially in the context of heightened diversity among current student attributes. The role of the lecturer in identifying and selecting appropriate learning strategies is emphasised. While student performance after being taught using two different methods revealed no statistically significant difference, conclusions were moderated by a number of factors including student familiarity with the lecturer, lecturer’s encouragement of discussion and clarification of issues within the traditional lecture format, content quantity and coverage, and classroom location among other factors. The author concludes that there is no silver bullet in teaching, and therefore, there is a need for the teacher to be sensitive to the range of factors that may impact the
learning process for any group of students. It is thus important for teaching practitioners to reflect on their practice, take steps to develop a wide range of teaching competencies and habitually research their teaching to become more effective.

The final paper in this issue examines the challenge of orienting students to graduate study through the use of a popular, contemporary technology and a reworking of the methods to develop requisite student competencies for the level. The paper is the work of Marsha Pearce, Faculty of Humanities and Education, UWI St. Augustine. This paper proposes the strategic and structured blending of online and face-to-face learning modalities in higher education. It specifically explores the possibilities for the effective use of web logs or blogs in combination with classroom sessions at the level of graduate study. The paper posits the application of blogging as a practice for enabling graduate research writing in support of the development of research writing skills among new/first-year graduate students. The paper suggests a marriage of 1) blogging, 2) classroom active learning sessions that focus on research writing and 3) assessment for development strategies. In doing so, the paper makes a dual case: one for using the technology, blogs, and simultaneously, using the concept of B.L.O.G.S., that is, Blended Learning to Orient Graduate Study aimed at developing student competence at the graduate level. The paper is instructive in illustrating how a blended learning approach might be incorporated into teaching to fulfill learning outcomes. It sets the stage for further work in the blended learning arena and underscores the opportunities for creative application of theories and ideas that are foundational to effective teaching.

Anna-May Edwards-Henry
Executive Editor

The Educational Research Association (ERA) is proposed by the University of the West Indies (UWI) as an umbrella body with a focus on research in all disciplinary areas of education (e.g. engineering education, history education, teacher education, vocational education, business education), and at all levels (e.g. tertiary, secondary) within the national system. The Association views Education in its broadest sense to include, for example, policy, teaching and learning, administration and leadership.

The primary goals of this Association are to provide a common platform for discourse within the educational community, encourage and facilitate a progressive education research agenda, and to provide mechanisms for the dissemination and promulgation of relevant research findings. By promulgating and disseminating relevant research findings we adopt an approach to education decision-making that is reflective of best practice. The Association recognises Education as a discipline in its own right, the best practice of which, as for any other discipline, is supported by research and empirical evidence. A strong view of the Association is that educational research must be studied and structured based on evidence of the culture, social environment, resources and the context of practice. While the Association acknowledges that in the local context much work has been done in the educational arena there needs to be a stronger and more deliberate connection among the various elements and contributors to our growing knowledge of education, and more deliberate efforts to facilitate a culture of practice based on evidence.
“A little leaven corrupteth the whole lump”: academic cheating as a hindrance to achieving quality in higher education

Jerome De Lislea, Sherma Hyland-Josephb and Cheryl Bowrin-Williamsb

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Student assessment matters in higher education quality

Over the last two decades, there has been increasing clarity on the important and powerful role of assessment within higher education (Joughin, 2010). Once viewed simply as an add-on to curriculum, teaching and learning components in the quality agenda, the central role of assessment as an agent in the process of student learning is now much more recognized. Indeed, even in traditional higher education settings, “doing assessments” was always considered very important because it took up a considerable amount of time and was a central part of students’ lives (Tang, 1994). Perhaps, more importantly, in the context of assuring quality, important questions that arise are: (1) What is the possible impact of assessment on student learning and attitudes towards learning, and (2) what features of a student assessment system facilitate the achievement of quality outcomes?

Sambell and McDowell (1998) discussed the critical role of assessment in the construction of the hidden curriculum. They argued that students’ negative reactions to different assessment modalities might not be typical but rather dependent upon students’ learnt experiences and motivations. Likewise, Tang (1994) considered the washback effect (defined as the impact of assessment on student learning, teacher preparation, and organization of the institution) to be closely related to students’ perception of the demands and requirements of the assessment. She found evidence that student perceptions and the demands of some assessment tasks could lead to surface approaches to studying (Entwistle
Different assessment modes might have differential impacts upon curriculum and teaching-learning. For example, in a study of portfolio versus objective tests, Tang et al. (1999) found that the portfolio assignment has greater alignment with the espoused constructivist philosophy of Problem Based Learning (PBL).

In reality, student assessment should be regarded as a complex, multidimensional activity that requires alignment, balance and rigour in order to assure quality outcomes (Joughin, & Macdonald, 2004). Biggs (2003), for example, talked about the need for the constructive alignment of both teaching and assessment with curriculum objectives.

Increasingly, then, in repairing and improving assessment practices within institutions the focus has rightly been on the overall assessment scheme, inclusive of management systems, policies, beliefs and practices. This improved understanding of assessment’s nature, role, and impact within higher education systems is increasingly informing the quality assurance practice in developed countries. For example, the framework for quality assurance in higher education in Europe (European Association for Quality Assurance in Higher Education (ENQA)) explicitly recognizes this enhanced and complex role of assessment (ENQA, 2005). For example, Standard 1.3 states that “students should be assessed using published criteria, regulations and procedures which are applied consistently” (p. 6). The focus of this standard is therefore on ensuring alignment, transparency, rigour, and consistency in student assessment. These critical characteristics are further elaborated in the expanded guidelines summarized in Table 1.

Table 1. European Requirements for the Evaluation of Assessment Systems in Quality Assurance.

<table>
<thead>
<tr>
<th>Stated requirements for student assessment in Standard 1.3 (EAQA, 2005)</th>
<th>Assessment Characteristic</th>
</tr>
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<tbody>
<tr>
<td>1) Designed to measure the achievement of the intended learning outcomes and other programme objectives</td>
<td>Aligned</td>
</tr>
<tr>
<td>2) Appropriate for their purpose, whether diagnostic, formative or summative</td>
<td>Aligned</td>
</tr>
<tr>
<td>3) Clear and published criteria for marking</td>
<td>Rigour</td>
</tr>
<tr>
<td>4) Undertaken by people who understand the role of assessment in the progression of students towards the achievement of the knowledge and skills associated with their intended qualification</td>
<td>Aligned</td>
</tr>
<tr>
<td>5) Not rely on the judgements of single examiners</td>
<td>Rigour</td>
</tr>
<tr>
<td>Consistency</td>
<td></td>
</tr>
<tr>
<td>6) Take account of all the possible consequences of examination regulations</td>
<td>Rigour</td>
</tr>
<tr>
<td>7) Have clear regulations covering student absence, illness and other mitigating circumstances</td>
<td>Rigour</td>
</tr>
<tr>
<td>8) Ensure that assessments are conducted securely in accordance with the institution’s stated procedures</td>
<td>Rigour</td>
</tr>
<tr>
<td>9) Be subject to administrative verification checks to ensure the accuracy of the procedures.</td>
<td>Rigour</td>
</tr>
<tr>
<td>10) Students should be clearly informed about the assessment strategy being used for their programme, what examinations or other assessment methods they will be subject to, what will be expected of them, and the criteria that will be applied to the assessment of their performance*</td>
<td>Transparency</td>
</tr>
</tbody>
</table>

*This requirement is stated in the text on page 17
The features of rigour and alignment relate to the critical assessment criteria of validity and reliability. As shown in Table 1, even when innovative or authentic assessments are used, these criteria will still be applicable. In higher education, teachers bring different perspectives on assessment based on discipline as well as overall philosophical frameworks. Some have a scientific view of assessment, while others have a legal or an aesthetic perspective (Knight, 2006). Thus, one possible concern is whether the criteria of rigour and alignment also apply to continuous assessments as it does to final examinations. The question arises because in learning oriented continuous assessment, formative purposes dominate whilst in final examinations, summative purposes are more important. To be sure, there will always be a natural tension between formative and summative purposes (Palmer, 2004). Formative continuous assessment in the form of feedforward assessments and cumulative coursework (QAA, 2007) can surely serve as a motivator and director of learning especially if the task is also authentic; but, if there is also a score or grade that also contributes to final certification, then rigour and alignment must be considered.

When trust might be misplaced

Knight (2007a) used the term “warranting” to refer to the high stakes processes that cover the production of grade point averages, classifications, and awards in higher education. The term assessment warrant is an important one because it captures the reality that awards or certificates in higher education can also become a license to practice even in the professions. This is especially so in countries of the South where licensing systems are often embryonic or absent. Thus, in Trinidad and Tobago for instance, in several but not all of the health professions, it is possible for graduates from one or more local higher education institution to add their name to the register of professionals upon being awarded a credential from the institution. Heyneman (2004), however, has warned of the deleterious effects of this practice on quality, noting that

... the process by which individuals leave higher education and apply to practice or be certified in their professions should be separated from the higher education institutions themselves. No matter how excellent, no university should provide a license to practice medicine. The license to practice medicine should be made of a board of medical examiners that manages a system of testing to which all medical applicants must pass. Similar systems must be established for law, accounting, and others (pp. 640-641).

Moreover, as it stands, a warrant of achievement, such as certification or a license to practice based on university certification might not be valid if the assessments in the awarding institution lack sufficient rigour. A related issue might occur in courses assessed through 100% coursework. The need for innovativeness, authenticity and formative purpose may be at odds with the quality assurance requirements of rigour and alignment. If the standards for rigour and alignment are not enforced, questions can be raised about the validity of the warrant. Further concerns might also be raised about the assessment of what Knight (2007b) has called “wicked competencies.” These generic skills are often highly valued in the real world and include competencies such as creativity, teamwork and emotional intelligence (World Bank, 2008). These areas are not easily or rigorously
measured using current assessment methods in higher education institutions even if they are at the core of what some might consider employability.

Trust in warrants of achievement might also be misplaced if there is significant academic cheating within an institution or across a country’s higher education system, as now happens in many former countries in the Soviet Bloc. According to Osipian (2008), in these countries, plagiarism is often regarded as the normal way of writing papers. The problem is also common in several other countries. For example, in India, Chattopadhyay (2008) has noted that:

"Copying in examinations by students is only the tip of the iceberg; faculty also participate in corrupt practices, including plagiarism in dissertation, and manipulating data and case records. Similarly, the administration becomes dishonest when it falsifies staff strength, recruitment criteria, etc., prior to an inspection by regulatory/statutory/supervisory bodies, in order to meet the requirements of recognition of a college (p. 1509)."

Examining academic cheating
To ensure rigorous assessment, academic cheating must be minimized. Academic cheating is a violation of academic integrity (Kitahara, Westfall, & Mankelwicz, 2011). Academic cheating can occur at either the institutional or individual level. In institutional cheating, a higher education institution might attempt to inflate scores, perhaps to ensure that its students do well. This might happen on transnational programmes where the awarding body is an external service provider. In such a case, it is in the interest of the local service provider to inflate scores so as to maintain market share. However, the negative impact on quality will be significant if the awarding body or the accrediting body does not have a rigorous quality assurance system to limit such practices in the provider countries.

This paper focuses on individual cheating, which refers to acts by students in an institution. In its most basic form, academic cheating involves students attempting to pass off someone else’s work as their own (Jensen et al., 2002). Cizek (2004) has provided an expanded definition of academic cheating that covers the complexity of the behaviour along with the measurement implications. This definition highlights the intentional nature of the action, the possible motive behind the act, as well as the impact on validity and fairness. He defined academic cheating as:

...any intentional action or behavior that violates the established rules governing the administration of a test or the completion of an assignment, gives one student an unfair advantage over other students on a test or an assignment, or decreases the accuracy of the intended inferences arising from a student’s performance on a test or an assignment (p. 308).

There are several categorizations of individual cheating behaviour (Stephens, 2008). These are summarized in Table 2. As shown, academic cheating may range from the use of unauthorized materials in an examination to presenting a false medical to gain an advantage. Common in distance learning programmes or systems where there are high levels of coursework is plagiarism and fabrication. Students may work together to cheat on both examinations and coursework, or they may be non-cooperative in group-based assignments. It is likely that there are different reasons for these different forms of
cheating behaviour and the reasons may not always relate to moral or ethical issues. For example, academic procrastination might be a common cause of fraudulent excuses for a late assignment (Roig & Caso, 2005).

Table 2. Classification of cheating behaviours.

| Cheating-Use of unauthorized materials as in Crib sheets | Plagiarism | Traditional/conventional cheating |
| Fabrication of information including references and results | Collaborative cheating | Digital or Internet-based cheating |
| Plagiarism-Copying verbatim work without proper attribution | Collusion in Examinations |
| Facilitating-Helping other engage in academic cheating | Lying to gain an advantage (e.g. Medicals) |
| | Non-collaboration in Group Assignments or Examinations |

Solely using a moral or ethical lens to analyze academic cheating will provide limited insight because of the nature of the issue. It is always best to consider also factors such as general awareness of the issue, personal values, and context. For example, although some studies have found a correlation between religiosity and cheating (Rettinger & Jordan, 2005), other studies suggest that moral values have limited impact on the incidence of cheating behaviour. For example, Semerci (2006) noted that although medical students in Turkey thought that cheating was unlawful and a sin, they were still able to cheat. Importantly too, there may be differences in the level of academic cheating among students from different disciplines, with business studies students more likely to cheat. This might be because business students are more motivated by self-interest or they might be exposed to stronger academic pressures (McCabe, Butterfield, & Trevino, 2001).

Notably, differences in academic cheating might occur across cultures. These differences are possibly related to the variation in personal value systems founded on characteristics such as idealism, opportunism, and tolerance (Rawwas, Al-Khatib, & Vitell, 2004). Lupton and Chapman (2002) found that Russian students were more likely to define cheating narrowly and to report a higher incidence of dishonesty compared with American students. Similarly, Teixeira and Rocha (2006) found that students in Spain were more prone to dishonesty compared with those in Portugal. The age of the student might also be a factor because most studies suggest that younger children are less likely to cheat, whereas cheating behaviour among adolescents is more common. Younger adults, however, are more likely to cheat than older adults in a higher education context. Although cheating may be considered an epidemic in the secondary school, the frequency of such behaviour may have increased in the higher education environment with the increase in numbers of students and the use of online modalities. Academic cheating remains a threat to all higher education modalities, however.

From the above, it is clear that academic cheating must be regarded as complex, multidimensional behaviour not easily explained by any single framework or perspective (Gallant & Drinan, 2006). Thus, using different analytical lens can provide greater insight into analyzing and remediating complex behaviour. For example, from a psychological
perspective, cheating is likely to impinge upon learning, motivation, and development (Anderman & Murdock, 2007). In terms of a motivation perspective, individuals cheat for a variety of reasons, including maintaining face and assuring self-efficacy on difficult and complex or high stakes tasks. Cheating may be considered somewhat of a cognitive shortcut precluding the use of complex self-regulatory strategies often favoured in mature learners. From a developmental perspective, cheating will likely occur in various quantities dependent on individual and contextual actors.

One of the flaws of past research on academic cheating was the tendency to focus on cheating as a unitary construct (Passow, 2006). However, there is no single behaviour that captures cheating fully and consequently neither will a single strategy work. Although there might be multiple behaviours involved in cheating, individuals may have different understandings of what actually constitutes cheating. This means that it is important to survey what students believe or do not believe to be cheating. Some recent research has paid attention to modelling the variables involved. For example, Passow (2006) developed a model based on the theory of planned action and included predictor variables at different levels, including moral obligation not to cheat; attitudes about cheating; evaluation of the costs and benefits of cheating; perceived, social pressures to cheat or not to cheat; and perceived effectiveness of academic dishonesty policies. Likewise, Murdock and Anderman (2006) developed a motivational model that focused upon the propensity to cheat. They included both individual and motivational variables along with different guiding motivational questions such as: (1) what is my purpose, (2) can I do this, and (3) what are the costs? Thus, a useful strategy in studying academic cheating is to consider a variety of understandings, motivations and intentions.

**Different perspectives on the role of academic cheating in quality**

Brimble and Stevenson-Clarke (2005) provided an explanation of the threat to quality posed by high levels of academic cheating, noting that:

> Firstly, it threatens the equity and efficacy of instructional measurement, so that students’ relative abilities are not accurately evaluated; and secondly, students who cheat probably reduce their level of learning so they are less prepared for advanced study or application of the material presented in a course. At the broader, societal level, it is likely that students who do not respect academic integrity while at university will not respect integrity in their future professional and personal relationships (p. 19).

The wider society would also experience the impact of high rates of cheating because of the reduced value of the certification or earned award. Thus, the match between the award and the promised skills will not be valid or warranted. From this perspective, academic cheating undermines the value of the assessment data as an indicator of student learning. Such an issue therefore must be a significant concern for quality assurance agencies and the standards that they promulgate.

To understand fully the threat of academic cheating to quality in higher education institutions, it is useful to analyze the phenomenon from different lenses of theoretical perspectives. The three useful analytical lenses on cheating and quality are from the viewpoint of the (1) assessment warrant, (2) construct irrelevant variance (CIV), and (3) corruption. The concept of assessment warrants is a useful perspective because it focuses
on the impact to the employer and the wider society, highlighting the limited value of an award where there is a high or undetermined level of individual cheating within an institution. To illustrate, an employer might expect a graduate to be able to demonstrate some specific skills as attested to in the description that accompanies the certification, but if that graduate has achieved the certification only because of cheating, then that legitimate expectation would remain unfulfilled. Moreover, in the future, questions of trust would arise for that particular certification, the awarding institution, and even the local institution in the transnational arrangement. Invalid assessment warrants might be a significant problem in online courses, if there is little verification and monitoring of student assessment. It may also be a problem in professional courses making use of virtual delivery with little opportunity to validate the development of practical competencies.

Construct irrelevant variance (CIV) is a concept that provides a useful measurement perspective on the impact of cheating. Haladyna and Downing (2004) considered CIV to be the error variance in test scores that arises from systematic error. CIV implies that something other than the construct is being measured and is one of the more notable threats to validity in a high stakes setting. Following Messick’s (1989) model and definition of validity, high construct irrelevant variance means that stakeholders will not be able to make meaningful interpretations for that the construct based on the obtained test scores or designated awards. This is important because from the standpoint of a validity argument, it is interpretation of the test score that must be assured (Kane, 1992; Downing & Haladyna, 2004). Thus, both individual and institutional cheating will lead to a lack of trustworthiness in achievement data from an institution.

From a third perspective, both individual and institutional cheating are essentially forms of corruption in education (Hallack & Poisson, 2007). Hallack and Poisson (2002) defined corruption as “the systematic use of public office for private benefit, whose impact is significant on the availability and quality of educational goods and services, and, as a consequence, impacts on access, quality or equity in education” (p. 58). Examinations and certifications are an important target area for corrupt practices, both for individuals and institutions. On the one hand, institutions might engage in several practices such as nepotism, favouritism and the selling of information. On the other hand, individuals may engage in several types of academic fraud including the purchase of coursework and final examination grades (Heyneman, Anderson, & Nuraliyeva, 2008). The cost of corruption in education can be high, especially impacting upon stakeholder’s perceptions of quality. Ospian’s (2009) study of corruption in higher education in the former Soviet bloc suggests that corruption may also have far reaching effects on the magnitude of inequalities and on the generation of high-quality human capital.

Responding to the threat of academic cheating
The complexity of cheating behaviour requires that multiple strategies be used to monitor and respond to the threat. Currently, local institutions face an upsurge in cheating possibly because of larger class sizes, the increased use of technology, the diversity of student populations and the widespread use of cross-border education through virtual environments. There is a need, then, not only for appropriate institutional responses but also for explicit quality assurance standards in accreditation that support and recognize these institutional responses. Quality assurance must acknowledge institutions that are attempting to deal with the problem of academic cheating by implementing a variety of strategies to reduce or minimize the impact. However, in the event that no such strategy
is employed, the question becomes, can the award from a higher education institution really be trusted?

Strategies aimed at reducing academic cheating might range from the implementation of honour codes to the use of software to detect plagiarism. Honour codes are common in some higher education institutions in the United States. In most honour codes, students promise to abide by a code that captures expectations for desirable and undesirable behaviour. Honour codes may work because they make clear wrongdoing and reduce the possibility of rationalizations, which are often a part of cheating practice. An important feature of honour codes is that it shifts the focus from Faculty to students. Honour codes are not common locally, but some institutions have mounted courses to train students in an attempt to prevent academic cheating. Some institutions have also instituted detection systems (McCabe & Trevino, 1993). The apparent success of honour codes in some contexts point to the need for developing an institutional culture that supports and promotes academic integrity (McCabe, Trevino, & Butterfield, 2001).

The recommended approach would certainly be the development of a coherent institutional policy on academic integrity (Morris, 2010). Such a policy would likely be developmental in intent, designed to create an environment in which students choose to act with integrity. A four-stage process for implementing such a policy might be: (1) recognition and commitment, (2) response generation, (3) implementation, and (4) institutionalization (Bart, 2009). Faculty and student support should be a part of the overall plan since both have an important part in effecting the procedures (WCET, UT TeleCampus, & Instructional Technology Council, 2009).

Designing the exploratory study
The first step towards developing a policy of academic integrity is to assess the situation. Using an action research model, we designed an exploratory study to determine the extent of individual academic cheating in two disciplines within three higher education institutions in Trinidad and Tobago. Action research is focused on social or institutional change and involves four steps: diagnosing, planning, taking action, and evaluating for the next step. In the action research model, education practices are regarded as social practices to be changed through collaborative action in the taking action phase (Kember & Gow, 1992; Yasmeen, 2008). The three researchers collaborated on the data collection exercise in order to gather information that would allow comparison of beliefs and cheating behaviours across the institutions. The information would allow a better understanding of the nature of cheating patterns and the way it relates to the institutional context. The second author designed the study and instrument, which was administered in collaboration with the third author. This paper deals only with the data from the first step (diagnosing) but considers also the alternatives available for taking action.

The three institutions in the sample were very different in size and purpose. Institution A was a large traditional university, which was the target of the survey. Institution A already had some programmes for managing cheating. Institution B was a new university. Institution A and B both offer a broad range of academic programmes. Institution C was a medium sized higher education institution specializing in hospitality and tourism. The total number in the sample was 167 with 57 from institution A, 92
from institution B, and 14 from institution C. Nineteen were male and 142 were female. 26.4% were between 16-21 years of age, 21.5% (22 to 25 years), 21.5% (26-30 years), 19.6% (31-40 years), and 10.4% were 40 and over. 84% belonged to a religion, with 85.8% attending more than once per month.

The main data collection tool was a survey instrument designed by one of the team members and organized into three parts. The first part of the questionnaire collected demographic and institutional data. The second part required the student to assess selected cheating behaviours and also measured attitudes and motivations that might lead to cheating. Sample items included statements such as “It is important to me that my classmates think that I am good at my work” and “One of my goals is to show others that I am good at my class work”. The third part of the questionnaire focused on judgments of cheating behaviour either by self or peers. Sample items included “I helped someone else to cheat on a test” and “I copied from another student during a test”.

Three scales were used in sections 2 and 3, a three-point scale of yes, not sure and no, a five-point scale, and never, once, and more than once in the academic year. The five constructs measured in sections 2 and 3 of the questionnaire were as follows:

1) The students’ definition of cheating with higher scores indicating a broader understanding of what constitutes cheating behaviours
2) The acceptance of rationalizations for cheating with higher values indicating greater rationalization
3) The perceived level of cheating at the particular institution
4) A self report of the student’s reaction to cheating, with higher values indicative of greater concern for the act of cheating
5) A self-report measure of cheating behaviour by the student

Both descriptive and inferential statistical analyses were used including One-Way Analysis of Variance (ANOVA) used to determine group differences and OLS Regression.

Table 3. Items in scale for measuring definition of cheating.

<table>
<thead>
<tr>
<th>Statements in Definition</th>
<th>Yes</th>
<th>No</th>
<th>Not Sure</th>
</tr>
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<tbody>
<tr>
<td>1) Allow other students to copy my work.</td>
<td>64.4</td>
<td>6.7</td>
<td>25.8</td>
</tr>
<tr>
<td>2) Turn in work that I copied from another student.</td>
<td>83.4</td>
<td>0.6</td>
<td>14.9</td>
</tr>
<tr>
<td>3) Work on assignments with other students when the lecturers asked for individual work.</td>
<td>38.6</td>
<td>11.4</td>
<td>50.0</td>
</tr>
<tr>
<td>4) Copy a few sentences from a site on the internet without writing the source in a paper or assignment that I submit.</td>
<td>74.5</td>
<td>3.7</td>
<td>21.7</td>
</tr>
<tr>
<td>5) Copy almost word for word from a book or magazine without writing the source of the information in a paper or assignment that I submit.</td>
<td>84.7</td>
<td>17.7</td>
<td>0.0</td>
</tr>
<tr>
<td>6) Turn in a paper that I paid someone else to do.</td>
<td>82.2</td>
<td>0.6</td>
<td>16.7</td>
</tr>
<tr>
<td>7) Get answers to questions from someone who took the test in an earlier class.</td>
<td>72.0</td>
<td>5.0</td>
<td>23.0</td>
</tr>
<tr>
<td>8) Help someone else cheat on a test.</td>
<td>82.0</td>
<td>1.2</td>
<td>16.1</td>
</tr>
<tr>
<td>9) Copy from another student during a test.</td>
<td>85.2</td>
<td>0.6</td>
<td>14.2</td>
</tr>
<tr>
<td>10) Use secret notes in a test.</td>
<td>85.1</td>
<td>1.2</td>
<td>13.0</td>
</tr>
</tbody>
</table>
Findings

What do students consider cheating?

Table 3 shows the items in the define cheating scale with the percentage responding yes, no, not sure to each of the items. Overall, most students in the sample agreed that nine of the ten actions could be described as cheating. However, more than one-fifth of the students were not sure that cheating applied to practices such as allowing others to copy their work, copying a few sentences from the internet without acknowledging the spruce, and getting answers from someone who took the test earlier. It was noticeable that some students differentiated between copying a few words from the internet with acknowledgment and copying word for word from a book or magazine. This could be reflective of a technology detachment problem. The majority of students were unsure that working collaboratively with other students when the task explicitly required individual work counted as cheating. In this instance, it might be that the respondents saw this collaboration as beneficial rather than unethical.

Cheating across the institutions

Table 4 shows differences between the institutions on motivations and perceptions of academic cheating. As shown, there were statistically significant differences between the institutions on definitions of cheating, perceived cheating incidence, and self-reported cheating behaviour. The broadest definition of cheating was held by students in institution A (17.4), followed by those in institution B (15.34) followed by students in institution C (10.14). The differences were statistically significant with a medium effect size. A similar pattern was seen for students’ reactions to cheating, with students of institution A reporting the highest score (7.71) and students from institution C the lowest (6.36). The magnitude of the difference as measured by the effect size, however, was small. The differences in perceived cheating incidence was also statistically significant and medium sized, but showed the reverse pattern, with institution C having the highest rate (17.93), followed by institution B (12.42) and institution A (10.05). This pattern was also seen in the medium sized difference for self-reported cheating behaviour; with students from institution C having the highest scores (3.71). Thus, it appears that students in institution C had the most restrictive definition of cheating, smallest reactions to cheating, and highest incidence of self-reported cheating behaviour.

Relationship among variables

Table 5 provides the size and statistical significance for Pearson’s correlation coefficient of the key variables in the study. As shown, self-reported cheating behaviour was moderately correlated with perceived cheating incidence. This meant that students who perceived a climate of dishonesty in the institution also tended to report a higher incidence of personal misconduct. Perceived cheating incidence was also negatively correlated with definitions of cheating, indicating that students holding to broad definitions of academic dishonesty were less likely to report cheating among peers. Reactions to cheating were positively correlated with cheating rationalizations, indicating that students who provided many rationalizations for academic misconduct also reported a greater reaction to cheating incidents.
Table 4. Differences across institutions on selected cheating variables.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Motivation to Cheat</th>
<th>Definition of cheating</th>
<th>Cheating Rationalizations</th>
<th>Perceived Cheating Incidence</th>
<th>Reaction to Cheating</th>
<th>Self-Reported Cheating Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution A (Large)</td>
<td>64.60</td>
<td>17.14</td>
<td>10.89</td>
<td>10.05</td>
<td>7.71</td>
<td>.96</td>
</tr>
<tr>
<td>Institution B (Large Prog.)</td>
<td>65.32</td>
<td>15.34</td>
<td>9.92</td>
<td>12.42</td>
<td>7.01</td>
<td>2.25</td>
</tr>
<tr>
<td>Institution C (Medium)</td>
<td>66.21</td>
<td>10.14</td>
<td>8.79</td>
<td>17.93</td>
<td>6.36</td>
<td>3.71</td>
</tr>
<tr>
<td>Total</td>
<td>65.14</td>
<td>15.51</td>
<td>10.16</td>
<td>12.08</td>
<td>7.20</td>
<td>1.92</td>
</tr>
<tr>
<td>Statistical Significance</td>
<td>.803</td>
<td>.001</td>
<td>.755</td>
<td>.000</td>
<td>.061</td>
<td>.003</td>
</tr>
<tr>
<td>Effect Size</td>
<td>.003</td>
<td>.089</td>
<td>.004</td>
<td>.126</td>
<td>.035</td>
<td>.071</td>
</tr>
</tbody>
</table>

Effect Size benchmarks: Small-0.01. Medium-0.06. Large-0.138

Table 5. Intercorrelation matrix for variables in study.

<table>
<thead>
<tr>
<th></th>
<th>Motivation to Cheat</th>
<th>Definition of cheating</th>
<th>Cheating Rationalizations</th>
<th>Perceived Cheating Incidence</th>
<th>Reaction to Cheating</th>
<th>Self-Reported Cheating Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation to Cheat</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definition of cheating</td>
<td>-.158*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cheating Rationalizations</td>
<td>.165*</td>
<td>.052</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Cheating</td>
<td>-0.24</td>
<td>-.171*</td>
<td>-.105</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incidence</td>
<td>.130</td>
<td>.152</td>
<td>.188*</td>
<td>.035</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Reaction to Cheating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Reported Cheating</td>
<td>-.046</td>
<td>-.136</td>
<td>-.053</td>
<td>.362**</td>
<td>-.084</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Effect Size benchmarks: Small-0.01. Medium-0.06. Large-0.138

Influence of individual and demographic variables on self-reported cheating

Tables 6 and 7 provide information from the OLS regression of nine individual variables on self-reported cheating and the definition of cheating. The nine variables only explained 14% of the variables in self-reported cheating. The only statistical variable was age (BETA=-.380, $p=.002$), with younger students reporting higher levels of cheating. The same set of variables explained 18.9% of the variance in the definition of cheating, with the only statistically significant variable being the level of the programme. Students who were in postgraduate classes tended to have a broader definition of cheating.

Table 6. Regression of individual variables on self-reported cheating.

<table>
<thead>
<tr>
<th>Dependent Variable: Self Reported Cheating</th>
<th>R-SQUARE= 0.140; F=2.289; $p=.021$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Variable</td>
<td>Beta</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>1) Gender</td>
<td>-.141</td>
</tr>
<tr>
<td>2) Age</td>
<td>-.380**</td>
</tr>
<tr>
<td>3) Marital Status</td>
<td>.016</td>
</tr>
<tr>
<td>4) Number of Children</td>
<td>.036</td>
</tr>
<tr>
<td>5) Religiosity (Freq of church attendance)</td>
<td>-.010</td>
</tr>
<tr>
<td>6) Prior Education</td>
<td>.078</td>
</tr>
<tr>
<td>7) Time in Institution.</td>
<td>.027</td>
</tr>
<tr>
<td>8) Level of Programme Enrolled</td>
<td>-.139</td>
</tr>
<tr>
<td>9) Progress in Programme</td>
<td>.194</td>
</tr>
</tbody>
</table>
Discussion
The exploratory study highlighted a number of useful areas for further study. Perceptions of cheating were lower in the more traditional higher education institution, which offered a range of awards, from undergraduate to postgraduate degrees. This might have been because of the implementation of several safeguards and the greater degree of awareness in the student population. The understanding of academic cheating was lowest in the medium sized higher education institution, which also reported the highest incidence of self-reported academic cheating. This institution catered for graduates from high school and offered certificate and diploma-level courses. These younger students did not always agree with the older students from the other institutions and indeed, the younger students admitted that they freely practiced some of the cheating behaviours. The new higher education institution with the large numbers of students was positioned midway between these two institutions in terms of cheating incidence.

The wide variation in self-reported academic cheating behaviour in the three institutions suggests the need for explicit training at all three sites. This might be approached through an awareness programme. However, safeguards and academic integrity codes are also viable options, especially for the medium sized institution. Academic cheating behaviour was not easily explained given standard personal and individual variables with only age and level of programme having explanatory value. In the religious oriented societies of the Caribbean, religiosity might have been expected to have greater impact. These findings suggest the need to better study cheating behaviour in the local context. Could there be a backlash from the secondary school, with its alleged high rate of fraud in the School-Based Assessment (a component of the Caribbean Examinations Council examinations)? Is plagiarism fully understood by young students entering higher education institutions? Do administrators and staff share these perceptions? Studying academic cheating at the secondary school level should be an important focus in future research.

Educational implications
Quality assurance schemes cannot simply ignore the implications of high rates of cheating within academic higher education institutions. Such practices are real threats to quality because they limit the usefulness and credibility of marks and awards. The implications of this kind of corruption must be made clear and institutions should be encouraged to

Table 7. Regression of individual variables on self-reported cheating.

<table>
<thead>
<tr>
<th>Individual Variable</th>
<th>Beta</th>
<th>B</th>
<th>SE</th>
<th>Part Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Gender</td>
<td>.033</td>
<td>.187</td>
<td>.494</td>
<td>.0309</td>
</tr>
<tr>
<td>2) Age</td>
<td>.185</td>
<td>.857</td>
<td>.537</td>
<td>.126</td>
</tr>
<tr>
<td>3) Marital Status</td>
<td>.051</td>
<td>.650</td>
<td>1.34</td>
<td>.038</td>
</tr>
<tr>
<td>4) Number of Children</td>
<td>.050</td>
<td>.638</td>
<td>1.36</td>
<td>.037</td>
</tr>
<tr>
<td>5) Religiosity (Freq of church attendance)</td>
<td>-.024</td>
<td>-.119</td>
<td>.405</td>
<td>-.023</td>
</tr>
<tr>
<td>6) Prior Education</td>
<td>.160</td>
<td>.938</td>
<td>.520</td>
<td>.142</td>
</tr>
<tr>
<td>7) Time in Institution</td>
<td>.021</td>
<td>.228</td>
<td>.933</td>
<td>.019</td>
</tr>
<tr>
<td>8) Level of Programme Enrolled</td>
<td>.219*</td>
<td>3.61</td>
<td>1.24</td>
<td>.1964</td>
</tr>
<tr>
<td>9) Progress in Programme</td>
<td>-.044</td>
<td>-.391</td>
<td>.976</td>
<td>-.035</td>
</tr>
</tbody>
</table>
develop practices that foster and develop academic integrity among students. Academic cheating has a cultural dimension and it is quite possible for this malpractice to be significant to the local culture given the relative newness of many institutions, the modes of delivery chosen, and the nature of the alliance between cross-border service providers and local institutions.

The higher education regulation system in Trinidad and Tobago must pay greater attention to important issues such as academic cheating, which may impact on the quality of outcomes. Perhaps, this is already captured in the current standards used to evaluate collaborative transnational programmes by the Accreditation Council of Trinidad and Tobago (ACTT). Criterion 3.5 of the Application for Recognition of Transnational Qualifications states, “The awarding institution is responsible for the assessment of students and award of qualifications” (ACTT, 2010, p. 4). The criterion implicitly points to the need for assuring academic integrity in credentialing. However, it would have been more helpful if the instruction were explicitly stated. A guide to best practice is the United Kingdom’s quality assurance Code of Practices which explicitly considers the issue of cheating in student assessment, states that institutions must “encourage students to adopt good academic conduct in respect of assessment and seek to ensure they are aware of their responsibilities” (QAA, 2006, p. 27).

It is important that quality assurance frameworks and standards in the Caribbean are both evidence-based and relevant to the context of the higher education environment. In this regard, the lack of support of a research community in higher education is worrying. Without the inputs of indigenous research, it is possible for quality assurance frameworks to become corrupted, mechanical or stylized. Attention should also be paid to developing greater collaboration between institutions as well as facilitating the sharing of best practice. This might require the development of systems similar to the Centre for Academic Integrity in the United States (Drinan & Gallant, 2008). Perhaps, however, the real issue is that not enough attention has been paid to the role and impact of educational assessment in the provision of a quality learning experience and even less has been paid to issues such as plagiarism and other forms of academic cheating. A robust external quality assurance system is a critical element in preventing corruption and this can only be achieved through high quality staff, continuous training and a supportive research programme that identifies issues and obstacles in the achievement of quality.

References


Integrating culture into digital learning environments: studies using cultural educational games

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The research presented in this paper focuses on the importance of culture as a design feature in educational learning environments. The significance, benefits and barriers of adopting culturally-oriented approaches are discussed together with recommendations from the literature for overcoming challenges. In this paper, we describe the details of an exploratory study and an experimental study undertaken using culturally-oriented educational games built in accordance with the recommendations for enculturated learning systems. The results and findings of both studies are outlined, and evidence is presented in support of the viability and utility of cultural inclusivity in educational game-based learning environments.

Keywords: cultural inclusivity, digital educational games, e-learning, software design, student engagement

Introduction

Increasing numbers of mobile devices capable of accessing the Internet have propelled e-Learning forward such that deficiencies in cultural-awareness can no longer remain unattended. Originally, e-Learning content and online tools were considered to be more usable if they were designed without any culture-specific features. However, developing culturally neutral content and tools is virtually impossible since cultural tendencies pervade every design choice. The design of user interfaces, the selection of teaching strategies, the format and content of the educational material all vary depending on the cultural background of the developers (McLoughlin & Oliver, 2000). Subtle cultural influences seep into the final product and this can be counter-productive to learning when these effects clash with the practices and beliefs of the students. So, by internationalizing or localizing e-Learning products (Young, 2007), certain users may be included and others left out thereby working against the e-Learning goal of providing individualized instruction to any learner at any time. This happens largely because the cultural background of a learner plays a significant role in shaping his/her learning habits, and cultural appropriateness can no longer be treated as an optional personalization factor.

The influence of culture on learning experiences

What constitutes culture?

According to Savard, Bourdeau, and Paquette (2008), a person’s culture can be considered as individual and collective. Here, individual culture concerns the “set of general knowledge acquired by an individual” (Savard, Bourdeau, & Paquette, 2008, p. 84) whereas collective culture refers to the “set of usages, customs, artistic, religious, and intellectual expressions that define and differentiate a group, and a society” (Savard, Bourdeau, & Paquette, 2008, p. 84). Therefore a student’s individual culture, formed by his/her typical interests, peculiar beliefs, misconceptions, and specific inclinations, is
biased by his/her collective culture which is in turn dependant on his/her ethnic identity, religious and societal practices, regional history, and geographic location. These inherent influences give rise to an understanding of the factors that can motivate a student to learn.

Significance of culturally-oriented instruction

Based on the arguments made earlier, culture is of great importance because of its impact on the learning style of a student (Subramony, 2004). Since a learning style typifies an approach to learning, the cultural heritage of a student would certainly affect which approaches he/she tends to prefer. Work done in the area of cultural inclusivity and culturally-oriented instruction reveals that students are more motivated and they exhibit increased self-regulated learning when elements of their culture are reflected in their curriculum and used in their learning experiences (McLoughlin & Oliver, 2000; Robbins, 2006).

A student’s cultural background also has an effect on what type of instructional method the student is more comfortable with. Zhu, Valcke and Schellens (2008) report that Chinese culture is exceedingly teacher-centered and consequently Chinese students in their study did not favour a social constructivist e-Learning environment since there was very little teacher-presence compared to their Flemish counterparts who were accustomed to blended learning approaches.

Expectations concerning instructional feedback are also defined by one’s cultural background. For example, Hudley and Daoud (2007) found that students with a Latino background were more receptive when a positive interpersonal relationship was formed with their teachers compared to students with an Anglo background who valued academic validation more than a warm relationship. Assessment modes also differ across cultures because different cognitive styles are often adopted. Fleer (1989) shows that Aboriginal learning cultivates strong skills in visual, spatial, and long-term learning whereas the test procedures in educational software available to students are not designed to test these skills. Consequently, Aboriginal students are considered to be underperformers and this is solely because of the inappropriate test procedures. These dimensions of learning style, teaching approaches, reward allocation, and feedback requirements show that cultural influences cannot be separated from the learning process since culture is an integral part of the identity of an individual.

Barriers to developing culturally-oriented e-learning environments

Despite the compelling connections between culture and learning, culturally-oriented e-Learning environments are limited in practice. This is due to several factors, such as the fact that current instructional designs may not pay attention to issues of cultural sensitivity (Young, 2007), because of the perceived decrease in reusability of content and tools that are culture specific (McLoughlin & Oliver, 2000) but mostly because of the difficulty in representing culture computationally (Blanchard & Mizoguchi, 2008).

Culture is an ill-defined domain; this means that it is difficult to define what comprises culture, since culture is shared by members of a group or society and very often members vary in their embodiment and expressions of aspects of their culture (Blanchard & Mizoguchi, 2008). E-Learning environments are in essence pieces of software and therefore application features and desired software functionality must be expressed in a well-defined, unambiguous manner. As a result, many developers have shied away from cultural representations because of the complexity in reliably representing various aspects
of a particular culture. In addition, developer partiality towards stereotypes and personal interpretations compromises the authenticity of any cultural representation. This can be detrimental to learning if it is offensive to the learners hence it has been avoided altogether by many developers. Young (2007) points out that the dearth of culturally-oriented ICT systems can also be attributed to the lack of guidance regarding the integration of culture-specific elements into present-day instructional design.

Above all, e-Learning has as one of its advantages, the possibilities for reuse of content and tools and resources; hence by meeting the cultural needs of one user, another user’s needs may not be met unless the design of the content or tool is reworked. This is costly and time-consuming. All of these reasons contribute to the general notion that paying attention to culture may be a challenge in the development of e-Learning environments.

Recommendations for representing and using culture

Different recommendations for representing culture in software systems appear in the literature. These range from simple user interface design guidelines to learner profiling and inclusion of tangible cultural elements. The most common recommendation made by researchers is the consideration of the learner’s background from a pedagogical perspective. Young (2007) and Fleer (1989) suggest examining the dependency between a learner’s cultural background and his/her skill and ability levels. McLoughlin and Oliver (2000) prescribe the use of instructional techniques that compliment the learning style(s) dominant to a particular culture. Economides (2008) advocates all of the above and argues for the use of a learner cultural profile based on mainstream cultural models, however no implementation details are given.

Another common recommendation involves the use of symbols, familiar contexts, customs and traditions belonging to the culture that one wishes to integrate into the e-Learning environment. For example, Fleer (1989) uses illustrations of flora and fauna indigenous to Australia, and incorporates examples of the local beliefs, life experiences and symbols native to Aboriginal culture in an educational (reading and writing) software package called Tinja developed for Aboriginal students. Robbins (2006) makes use of analogies and local metaphors in a collaborative digital scrapbook built for South Pacific students, and goes a step further by giving the users the power to customise the tool with their own content and cultural elements.

By having a person native to the culture provide cultural content, the authenticity of cultural representation is greater and more recognisable. This point was also stressed by many of the researchers as a means of addressing the stereotypical and biased viewpoints that may be introduced by developers who are not native to the culture for which the tool or content is being developed. Interesting work is being done by Blanchard and Mizoguchi (2008), and Savard, Bourdeau and Paquette (2008) on the development of holistic cultural learner models that are represented computationally and that can be shared by e-Learning tools. These models incorporate the pedagogical and cultural aspects of the learner and show great promise for bolstering the spread of culturally-oriented e-Learning.

Experimental studies using culturally-oriented software: digital educational games

Background to the studies

The recommendations outlined in the previous section can be accommodated through digital game-based learning (DG BL) environments (Mohammed & Mohan, 2008). Educational games have been shown to be suitable learning environments because of the many
learning approaches that are intrinsically accommodated (Gee, 2007) such as problem-solving, collaborative learning, constructivism, and situated learning. Incidentally, these instructional strategies have been regularly mentioned by proponents of culturally-sensitive instruction (Economides, 2008; Fleer, 1989; Henderson, 2007; McLoughlin & Oliver, 2000; Young, 2007) owing to the easier integration of cultural elements through context. Tangible representations of culture through images, dialogue, game-feedback, storylines, character designs and so on have been proposed by Mohammed and Mohan (2008) because of the fundamental use of graphics, audio, and textual content in games. Educational games that aim for balanced, principled pedagogy must provide some form of student modeling (Mohammed & Mohan, 2007) which consequently provides a suitable integration point for cultural learner models. Blanchard and Frasson (2006) give further support for the integration of cultural backgrounds into intelligent learning environments such as games, adding that it is useful for stimulating student motivation through self-directed learning.

Two studies were conducted using cultural educational games at The University of the West Indies (UWI), St. Augustine campus. The first study was exploratory and investigated student attitudes towards student-developed games which featured some of the cultural recommendations expressed earlier. The second study focused on evaluating a cultural game prototype that advanced the findings of the exploratory study and incorporated more of the cultural recommendations expressed earlier. The details of each study are described below. The vernacular used in the games is formally referred to as Trinidadian English Creole (TEC) by linguists and historians involved in the study of Caribbean people and their languages. When TEC is used to describe the customs and everyday events characteristic to Trinidad, the local culture can be represented as a narrative that has comedic appeal. Rich story-based scenarios can be easily put together by describing simple events using TEC phrases and by including Trinidadian cultural twists related to these events.

**Exploratory Study of Student Attitudes towards Cultural Educational Games**

An exploratory study was conducted at UWI, St. Augustine campus, which focused on using humorous aspects of Trinidad and Tobago culture in an attempt to improve undergraduate student attitudes towards their introductory programming course (Mohammed & Mohan, 2009). Students from the third-year game programming course COMP 3000 produced educational programming games for their coursework assignment based on cultural game designs, described in Mohammed and Mohan (2009), including the use of comical phrases expressed in TEC language and references to local events and items which have amusing names. Two of the games produced by the students were used as the basis for the exploratory study. These games were Caribbean Conquest and Lazy Jim.

Caribbean Conquest is a single-player, turn-based game, which features two islands of the Caribbean, where the player (representing Trinidad and Tobago) must conquer unsettled islands before the enemy (Barbados), by sending people to settle the island within a specific time. Players must solve the programming problems during the game and if they succeed, their island defenses are strengthened, otherwise the enemy gets a boost in defense. The problems test the player’s skill in error detection and correction of C code where the player must select the line of code with an error and then type in the correction.

Lazy Jim is a single-player game where players pose questions to shopkeepers in the market, the grocery and the hardware store in order to get items on a shopping list. In the game, questions are asked when the player wants an item, wants to know where
to find an item, or wants to know the price of an item. TEC language features strongly in this game, together with images of local food items as per the requirements given to the COMP 3000 students. The learning exercises in Lazy Jim are similar to those of Caribbean Conquest, where the player must identify the line of code with an error and then suggest the correct substitution.

Twenty four students evaluated the two games. Questionnaires were administered to gauge their interest in digital game based learning, to find out what they thought about using culture and games, and to get their opinion concerning the effectiveness and utility of the culturally-oriented game prototypes. Demographic data and details about the students’ gaming behaviour were also collected.

Twenty three students indicated that they played games several times monthly confirming the digital native prevalence among our students. When asked about using educational games in their programming courses, 25% did not want to use games at all, 50% opted for games as a supplement to lectures and tutorials, 21% wanted to use games to replace everything, and 4% gave no response. Over 80% of the students appreciated the use of culture in the games, and they were especially engaged when humour was involved. Enriching learning experiences, national pride, and humour were the top reasons cited by students for which they would use a culturally-oriented educational game. Mohammed and Mohan (2009) found that the local culture did play an important role in promoting a positive student attitude towards learning, and had an impact on student motivation and interest in the subject.

**Trinbago Adventures of L. Macawell (TALM): a cultural educational game for increasing programming proficiency**

Based on the encouraging results of the exploratory study, an advanced culturally-oriented educational programming game was built in accordance with principled game design guidelines. These included believable game physics, understandable gameplay, entertaining characters, proper saving mechanisms, well-defined game goals and achievable challenges (Oxland, 2004). The game, Trinbago Adventures of L. Macawell (TALM), is a two-dimensional, single-player adventure game set in the context of typical scenarios in Trinidad and Tobago. Dillon (2004) and Gee (2007) advocate an adventure genre for educational games because of the range of learning styles and activities that are supported particularly problem-solving and experiential learning through storytelling. TALM is based on an adventure game theme for these reasons however more so because it promotes meaningful use of cultural elements through narrative devices such as engaging characters and interesting plots. Furthermore, we believe that situated learning, bolstered using concrete cultural references, has the potential to create greater interest in abstract subject areas such as computer programming. As such TALM focuses on developing deeper analytical programming proficiency in students, a necessary and severely underdeveloped computer science skill (Gray, Edwards, Lewandowski, & Shende, 2005).

Appelman (2007) comments that educational games should have more reusable content than entertainment games. TALM was designed with reusability at its core so that the educational activities–programming exercises in this case–were not coupled tightly to the game’s implementation. New exercises can be exchanged with old ones without affecting the game as long as the exercises match the context of the storyline. A student model was used to direct instructional events such as changing an exercise, recording student activity such as time spent on an exercise, and for evaluating student progress. A tutoring component was used to evaluate the student’s answers and change the learning
activities while coordinating to match the game plot. Cultural elements were showcased through game objects, character dialogue and the storyline. Trinidad English Creole (TEC) was used in the character dialogue, game feedback and game object design.

Figure 1 shows screenshots of TALM. In the game there are two phones as shown in Figure 1(b), one belonging to the main character/hero and the other belonging to a non-player character (NPC). The storyline involves a lazy, technologically-savvy young boy, L. Macawell, who has to go shopping for his mother (the main NPC). His mother has stored the shopping list on her phone in an attempt to encourage the boy using technology.
Unfortunately, the boy’s phone does not work properly because of faulty computer code and he has to repair the code on his phone in order to receive the list through a successful data transfer. At the start of the game, players have to locate the NPC phone as shown in Figure 1(a), and then they must figure out how to send the shopping list located on the NPC phone to the hero’s phone. Controls for initiating the transfer and receipt of the list are on the NPC phone and the hero’s phone. Transfers cost money and when the NPC phone credits are used up, players have to search for a top-up card for the phone before another transfer can be done. This is shown in Figure 1(e) where the NPC presents the hero with a card from behind the beaded curtain when he steps on the welcome mat. There are a limited number of top-up cards available in the game.

The programming code controlling the hero’s phone contains errors which prevent the receipt of the list and players have to detect, repair the errors and check for code correctness – these are essentially the programming exercises. Incrementally, the code snippet increases in functionality and difficulty as the player corrects the errors until the functionality required for sending the list is completed as shown in Figure 1(b) and (c). Parts of the list are displayed on the hero’s phone as the code snippet expands thereby giving the players feedback on their progress. Using the features of the hero’s phone drains the battery as shown in Figure 1(d), and when the battery is depleted players have to locate the charger and recharge the phone battery since the screen goes blank. Throughout the game, players are teased with TEC cultural idioms and expressions when different events occur such as the hero thinking “pressure does buss pipe” in frustration when the phone discharges. At the end of a successful game, the player is rewarded with the completed shopping list and they are allowed to add on something of their choice as shown in Figure 1(f). The shopping list is generated randomly and consists of local objects and items. Figure 1(f) shows an example of such a list with items such as “alloo pies” and “callaloo bush”. High scores are displayed with the number of chargers used and the number of top-up cards used.

Experiment design and results: TALM prototype evaluation

TALM was evaluated to determine whether usage results in any increase in analytical programming skill, and to gauge student opinion and interest in the culturally-enhanced approach taken. Student awareness of cultural expressions commonly used in Trinidad and Tobago was assessed as well. Thirty-five (35) students, 21 males and 14 females, enrolled in the second year object-oriented programming course at UWI voluntarily participated in the experiment. Aged between 20 and 35 years (mean=21.9, s.d. = 5.262), 56% were of African descent, 26% were of East-Indian descent, and 18% were of mixed ethnicities. Three of the students were native to St. Lucia, and St. Vincent and the Grenadines while the remaining majority was from Trinidad and Tobago.

Research method

The students were given a ‘cultural’ questionnaire, i.e. a questionnaire containing a series of cultural expressions common to Trinidad and Tobago and they were asked to indicate their familiarity with the expressions. Next, a timed pre-test was administered to the

¹TEC saying (High pressure can burst pipes) used when problems or hard work become intolerable (Mendes 2007)
²Local East Indian delicacy of fried soft dough filled with potato and curried chick peas (Mendes 2007)
³TEC name for either Amaranth (spinach) or the leaves of the Taro plant. It is used in a popular Caribbean soup dish called callaloo (Mendes 2007)
students after which they were allowed to play with the TALM game for 20 minutes in the Computer Science laboratory at U.W.I. An equivalently timed post-test was subsequently administered, followed by an evaluation questionnaire and demographic survey. At the end of the experiment, gameplay logs were retrieved from the student machines. The educational materials used in TALM and for the pre- and post-tests were based on part of the programming curriculum for the object-oriented course.

**Results**

The cultural questionnaire was used to find out whether students in the sample were familiar with the cultural expressions and examples used. The expressions supplied in the questionnaire ranged from local names for everyday objects and foods such as “baylna” and “crocus bag” to common TEC idioms such as “to try all how”. Two participants failed to complete their questionnaires and were omitted from the results. 330 responses were collected and the breakdown of the responses based on student familiarity is shown in Figure 2. The large majority of students were very familiar with the expressions.

![Figure 2. Student familiarity with cultural Trinidad English Creole expressions.](image_url)

The students spent an average of 11.17 minutes playing the game, and an average of 9.14 minutes time-on-task with the programming exercises. Initial examination of the pre- and post-test scores indicated a positive change in the post-game performance of 77% of the students as illustrated in the graph in Figure 3 below. The average pre-test score was 3.286, the average post-test score was 4.943 and the average difference between the pre- and post-test scores was 1.657. It should be noted however, that the difference is modest and not statistically significant (p=0.3920).
Figure 3. Graph showing modest increases in student test scores after playing TALM.

In the subjective assessment survey, 60% of the students rated the game as ‘really good’ and ‘pretty good’. The remaining 40% rated it as ‘good’ and ‘ok’. The most popular reasons for liking the game were the use of cultural slang, the humour of the character dialogues, the gameplay – specifically the depletion of the battery and phone credit, interesting problem-solving context, and the storyline. The most common reasons for disliking the game included poor usability, bugs in the game, insufficient gameplay instructions, and lack of hints for the programming exercises. It is interesting to note that use of culture was not mentioned by any of the students as being an impediment or irritating but rather an incentive. The difficulty of the exercises received mixed reviews: 38% of students found them fairly or very easy, 31% were neutral and 31% described the exercises as challenging. In spite of this, 50% of the students indicated that they enjoyed solving the problems using TALM, 34% were neutral, and only 16% did not enjoy the problems.

TALM was built to reinforce analytical skills and the students became aware of this after playing the game. 40% felt that their skills improved and singled out specific strengths such as error detection and syntax precision, and specific topics related to the course such as array declaration, string handling, objects and constructors. 40% felt that there was little or no improvement and 17% were neutral. With respect to their proficiency in object-oriented programming 34% of the students rated themselves as very or somewhat strong, 49% considered themselves neither weak nor strong, and 17% indicated that they were weak. Logged gameplay data revealed positive correlations between the time spent on the programming exercises in the game and the increases in student post-test scores. Table 1 shows that these correlations became stronger as the student’s proficiency weakened. Weak positive correlations were also found between time spent on programming exercises and increases in post-test scores for female students ($r=0.0925$) and male students ($r=0.0476$) However, these relationships were not statistically significant ($p>0.1$).
Table 1. Correlation between time spent on programming exercises and increases in post-test scores for students categorized by programming proficiency.

<table>
<thead>
<tr>
<th>Programming Proficiency</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>0.5253</td>
</tr>
<tr>
<td>Weak to Average</td>
<td>0.2689</td>
</tr>
<tr>
<td>Average</td>
<td>0.1857</td>
</tr>
<tr>
<td>Strong</td>
<td>-0.2242</td>
</tr>
</tbody>
</table>

Note: p>0.1 for all values

Significant positive correlations were found between several other variables and these are summarised in Table 2 below. All of the parameters with the exception of the number of cultural elements seen in the game were extracted from close-ended questions patterned as five-point Likert items in the evaluation questionnaire.

Table 2. Relationships between various parameters extracted from the evaluation questionnaire and game logs

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Game Rating (ok to especially good)</td>
<td>Enjoyment of Programming Exercises (Not at all to very much)</td>
</tr>
<tr>
<td>Perceived skill improvement (none to quite a lot)</td>
<td>Enjoyment of Programming Exercises (Not at all to very much)</td>
</tr>
<tr>
<td>Programming proficiency (very strong to very weak)</td>
<td>Challenge of Exercises (very easy to very challenging)</td>
</tr>
<tr>
<td>Challenge of Exercises (very easy to very challenging)</td>
<td>Number of cultural elements seen in game</td>
</tr>
<tr>
<td>Perceived skill improvement (none to quite a lot)</td>
<td>Number of cultural elements seen in game</td>
</tr>
</tbody>
</table>

Notes: ** p < 0.001; * p< 0.01

Analysis of results
The increases in test scores were minimal largely because of issues with the usability of the game, insufficient instructional guidance, and limited playtime with the game. Matters related to meagre clues in the game for solving the puzzles and locating items, counter-intuitive navigational and help menus, bugs due to inadequate testing prior to deployment, and obscure feedback were understandably frustrating for the participants. We believe that these prevented larger learning gains and will be addressed in the upcoming version of TALM because important game design principles are at stake. In spite of this, the novel storyline and cultural approach were appealing enough for most students to persist beyond these impediments. Although the average time played was 11 minutes, approximately one third of the participants played well-beyond 15 minutes and were disappointed when their 20 minute limit expired.

Overall, the students liked the cultural gameplay primarily because of the reasons outlined in the exploratory study: enriching learning experiences and humour. The use of culture created a familiar setting and it was done in a way that was relevant to the course
content. The results of the TALM experiment confirm the effectiveness of specific types of cultural humour as an incentive for learning and the game’s design illustrates how to effectively incorporate these types of cultural humour into a classical game design. Based on Neulip’s (1991) humour classification, untargeted humour (cultural jokes, puns, expressions), non-verbal humour (game character’s lazy movement) and external humour sources (funny names for objects on shopping list, and phones) were successfully used to create a contextualised learning scenario. Subtle examples were used in the game such as a spoof on a popular phone name, ‘Mokorolla’ (Moko is a local name for a variety of plantain) and these created memorable experiences for the students who enjoyed discovering the understated jokes. This enhanced the significance and realism of the educational content and consequently increased the students’ confidence by diffusing frustration and providing hidden rewards. Support for this claim comes from the strong, very significant positive correlation between the student’s rating of TALM and their enjoyment of the programming exercises ($r=0.553$). Greater enjoyment of the exercises led to higher game ratings.

Habgood (2007) points out that when the most interesting parts of a game are used as the base for instructional activities, players will be engaged and play longer. Although not statistically significant due to the small sample sizes, interesting results came from a fine-grained analysis of the relationships between the time students spent on the programming exercises in TALM and the proportionate increases in their post-test scores. Table 1 shows a trend where greater time spent on the exercises led to better post-test increases as the student’s proficiency weakened. This implies that weaker students benefited more from the time they spent on the game’s exercises while stronger students benefited less and in some cases worsened. Certain students can benefit from educational games and these results hint towards the weaker and average students as the main beneficiaries. The weaker relationship for male students ($r=0.0476$) compared to female students ($r=0.0925$) for the same parameters suggests that females may reap greater learning benefits over males for the time spent with this type of game. These relationships need to be investigated further before concrete claims can be made but they allude to interesting trends for future research.

As expected, there was a linear relationship between students’ programming proficiency and their ratings of the challenge of the programming exercises ($r=0.42195$). The exercises seemed to be more challenging to students with lower programming proficiencies. A greater enjoyment of the exercises led to a perception amongst the students that their programming skills had increased ($r=0.42195$). In addition, more cultural elements seen while playing TALM made the programming exercises seem easier ($r=-0.384$) and increased the perception of skill improvement ($r=0.383$). As the number of elements seen increased, the students rated the exercises as less difficult and felt as though their skills were improving. These relationships indicate that the cultural design of the game was successful in promoting positive student attitude not only towards the programming exercises but also instilled a sense of confidence and created a more relaxed atmosphere. This evidence empirically supports the many statements made throughout the literature that advocate a culturally-sensitive approach (Economides, 2008; Henderson, 2007; McLoughlin & Oliver, 2000; Young, 2007) and confirms the viability and utility of culture in educational game-based learning environments.
Conclusion and future work
Culture is rapidly becoming an important consideration in the design of eLearning software firstly because of the increase in the number of users accessing software over the Internet, and secondly because of the sheer diversity in the cultural backgrounds of these users. Conventional learning has often taken place in a localized setting with a teacher guiding one or more students in their search for knowledge. With the advent of the Internet, this traditional setting has changed drastically since students now have access to teachers and educational material from over wide distances. Consequently, these students are exposed to a variety of educational tools, teaching strategies and learning materials which were not developed with their own personal needs in mind. This has dramatic usability implications especially when the mainstream culture for which e-Learning materials are designed clashes with that of the users.

The research discussed in this paper focused on the value of culture in e-Learning environments. An investigation of how culturally-oriented learning environments impact upon student learning experiences was carried out through two studies. The exploratory study revealed that undergraduate programming students at UWI are receptive and interested in the use of culturally-oriented games for practicing and gaining skill in programming. The students appreciated the use of culture and were especially engaged when humour was involved. Subtle, careful use of cultural semiotics, specifically familiar language and cultural names of objects and foods were used in an advanced educational programming game, Trinibago Adventures of L. Macawell (TALM) which was evaluated following the exploratory study. The game adopted a contextualised approach towards strengthening analytical programming skills in computer science undergraduate students and leveraged the most interesting and attractive parts of the gameplay mechanics with cultural humour that was relevant to the course content and familiar to the students. Modest learning gains in the analytical programming skills of students who evaluated TALM were reported in the experimental study which provides empirical evidence in support of the viability and utility of culture in educational game-based learning environments.

Further refinement, extension and improvements are planned for TALM. Work on a more sophisticated tutoring component which caters for the analytical skill level of the player is currently in progress along with the creation of a larger variety of cultural and instructional assets. Additional features such as cultural player profiling and extended gameplay levels are also part of the plans intended for this research. Future tests include longitudinal studies with larger sample sizes which would give more fine-grained evidence relating specific aspects of culture to any development of positive student attitude and learning gains resulting from the use of a culturally-oriented gaming environment.

References
Integrating culture into digital learning environments: studies using cultural educational games

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International collaboration to align institutional teaching development, learning-centred curricula, and the scholarship of curriculum and pedagogy in higher education

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This paper examines an international collaboration between the Universities of the West Indies, St. Augustine, Trinidad and Tobago, and the University of British Columbia, Canada, to align institutional teaching development, learning-centred curricula, and the scholarship of curriculum and pedagogical practice. Data suggest that despite traditional institutional challenges with respect to curricula and pedagogical development, international collaborations and the strategic range of institutional SoTL leadership initiatives has positively impacted learning-centred curricula, course syllabi and teaching practices, as well as local, national and international SoTL initiatives.

Keywords: institutional teaching development, learning-centred curricula, scholarship of curriculum and pedagogical practice

Context
The University of the West Indies (UWI) is an independent University serving 16 English-speaking territories of the Caribbean region, with four campuses, namely, St. Augustine, Trinidad; Mona, Jamaica; Cave Hill, Barbados and the Open Campus (a virtual campus). The total enrolment in The UWI in 2010 was 40,908, of which St. Augustine had 37%, Mona 35%, Cave Hill 18% and the Open Campus 10%. The focus of this paper is the St. Augustine campus in Trinidad and Tobago.

On the St. Augustine Campus, at the time of this writing, there are five faculties (Engineering, Humanities and Education, Medical Sciences, Science and Agriculture and Social Sciences) with approximately 9,850 undergraduate students, 2,509 graduate students, and 350 academic staff. The UWI’s Strategic Plan 2007-2012 describes teaching and learning as the University’s primary pillar and thus makes reference to providing high quality educational programmes, key graduate outcomes and learning-centred teaching strategies. The UWI St. Augustine’s institutional teaching and learning initiative is being led by its Instructional Development Unit (IDU). In light of this unique academic context and the outcomes-based curricula implications stemming from the Strategic Plan, an international collaboration with external scholars and a strategic initiative with the University of British Columbia (UBC) provided the impetus for a comprehensive needs assessment across all faculties to identify current programming strengths and weaknesses, as well as strategic staff development initiatives to enhance learning-centred curricula and pedagogical practices. It is this background context that provides insight for the following investigation.
Transition toward learning-centred curricula in institutional contexts

Global, national, and regional factors, for example, growing social diversity and economic challenges, accreditation requirements and significant shifts toward learning-centred educational practices, are fuelling profound change with respect to academic development, curricula and pedagogy on university campuses (Bergen Communiqué, 2005; Bresciani, 2007; Gray & Radloff, 2006, 2008; OCAV, 2005). In an attempt to address these critical challenges, research-intensive universities in North America, Australia, the West Indies, Asia, the United Kingdom and Europe are developing learning-centred curricula that focus on explicit student learning outcomes, integrated and strategically sequenced learning experiences throughout key programme phases (including educational technologies), effective teaching methods, authentic assessment practices, and scholarly approaches to curriculum and pedagogy (Chickering & Gamson, 1987; Fish & Coles, 2005; Hubball, Clarke & Poole, 2010; McKinney & Cross, 2007; Poindexter, 2003; Shavelson, 2007).

However, research suggests that implementing learning-centred curricula is a complex, multifaceted, reflective and iterative process (Hubball & Burt, 2004; Hubball & Gold, 2007; Schneider & Schoenberg, 1999). It is shaped by many factors (social, political, economic, organizational, cultural and individual) and involves people at various institutional levels (administrators, curriculum development committee personnel, instructors and learners) in complex settings (Stes, Clement & Van Petegem, 2007). Not surprisingly, therefore, the localised development and implementation of learning-centred curricula poses significant pedagogical, as well as administrative challenges for most institutions and academic units.

Facilitating effective curricula learning communities: Research and practice implications

Various frameworks and models have been proposed in the literature to enhance the development, implementation, and evaluation of learning-centred undergraduate curricula (Diamond, 1998; Fish & Coles, 2005; Hubball & Gold, Mighty & Britnell, 2007; Wolfe & Hill, 2006). Research suggests that curriculum learning communities (CLC’s) are at the heart of learning-centred curricula and pedagogical practices in multidisciplinary settings (Baldwin, 2008; Friedman, 2008; Cox & Richlin, 2004; Harp Ziegenfuss & Lawler, 2008; Hubball & Albon, 2007; Hubball & Pearson, 2010; Knight & Trowler, 2000; Warhurst, 2006). While the literature on CLC’s typically focus on active work groups within institutional or academic unit contexts (Cox, 2004; Hubball & Clarke, 2010), there is a growing recognition that the broader reach of CLC’s extend to the benefits of global and inter-institutional collaborations in higher education. These espoused values are often manifested through efforts to attract international students and to provide students with study-abroad exchange opportunities. However, faculty members are likely to benefit as much as students from the exposure (and adaptations) to different cultural environments, cross-cultural SoTL understandings and responses to common environmental, health, human rights, and other concerns, as well as the opportunity to examine, collaborate and disseminate effective curricula and pedagogical practices that rich international collaborations afford (Wang, Peng, Pearson & and Hubball, In press; Van Hoof & Verbeeten, 2005).

Global and local CLC’s are key for engaging institutions, staff developers and academic units in scholarly approaches to curriculum and pedagogical practices in order to address critical issues. These issues include situational-specific assessments of curriculum needs and best practices; literature sources and theoretical frameworks that are appropriate to inform effective discipline-specific curriculum and pedagogical practices;
indicators of success for responsive, cutting-edge, exciting and dynamic undergraduate curricula; and, potential research questions that are important to enhance learning-centred curricula change.

CLC’s are also key for developing programme-level learning outcomes which are a central component of learning-centred curricula (Benjamin, 2008; Hubball & Burt, 2007). Essentially, learning outcomes can occur at many different levels (e.g., professional accreditation, quality assessment reviews, institutional planning, programme development, individual course design and integrated course alignments) in the form of “top-down” and/or “bottom-up” processing, each of which (and various combinations) can have significant implications for implementing learning-centred educational practices (Hubball & Gold, 2007). Responsive learning outcomes are brought to life in strategically sequenced curriculum learning experiences such as first, second, third and fourth-year fully on-line course modules. They are also brought to life in individual courses through a diverse range of pedagogies such as collaborative projects, student presentations, interactive lecture techniques and authentic assessment practices (Albon & Hubball, 2004; Driscoll & Wood, 2007; Grunert O’Brien, Millis, & Cohen, 2008; Hubball & Levy, 2004; Ruohonieni & Lindblom-Ylanne, 2009; Senge & Scharmer, 2008; Shavelson, 2007).

In the context of CLC’s, research suggests that integrated and stage-specific curriculum and pedagogical support frameworks enhance the development and implementation of learning-centred curricula in multidisciplinary settings (Hubball & Burt; 2006; Hubball, Mighty, Britnell, & Gold, 2007). For example, in the early stages of considering and developing a learning-centred curriculum, institutions and units can benefit from external or international speakers who are presenting research, relevant literature, methodologies and workshops on the scholarship of curriculum and pedagogical practice in diverse disciplinary settings (Hubball & Clarke, 2010).

At mid-stages of learning-centred curriculum change, institutions and units can benefit from expert consultancy support for sub-disciplinary stream leaders. Institutions can also benefit from faculty meetings with respect to developing curriculum learning communities, developing programme level learning outcomes, effective teaching and learning strategies, authentic assessment, and curriculum integration (vertically and horizontally) of collective and individual course offerings. In the advanced stages of learning-centred curriculum change, institutions and units can benefit from workshop and consultancy support on curriculum evaluation and action research methodologies and considerations for conducting the scholarship of curriculum and pedagogical practice in higher education (Hubball, Mighty, Britnell, & Gold, 2007; Hubball & Pearson, 2010; Kreber & Brook, 2001; McKinney & Cross, 2007).

Very little research has investigated international collaborations to align institutional teaching development, learning-centred curricula, and the scholarship of curriculum and pedagogical practice in higher education. This paper represents a preliminary study based on initial findings and reflections. Specifically, the following research questions were designed to facilitate teaching development, learning-centred curricula, and the scholarship of curriculum and pedagogy at the UWI St. Augustine:

1. What is the impact of the international collaborations for advancing the teaching and learning agenda at (primarily) the UWI St. Augustine?

2. Given the institutional context for teaching and learning at the UWI St. Augustine, how did the international collaboration contribute to the enhancement of (a) curricular practices? (b) effective staff development initiatives to enhance learning-centred curricula?
Method

To address the above research questions, a variety of qualitative methods were used to collect data over the period 2005 to 2008. These methods included focus group interviews, workshop evaluation surveys, and analysis of individual teaching portfolios and institutional document reviews pertaining to teaching and learning policies (Bullough & Pinnegar, 2001; Hubball & Clarke, 2010a; Mills, 2000). Four relevant stakeholder groups were consulted to provide critical data to assess campus-wide curriculum practices and support services including: six external visiting scholars and educational developers; two curriculum leader representatives selected by the Dean from each of the five faculties; three groups of fifteen to twenty workshop participants attending the IDU’s faculty seminar series on course design; and a cohort of 15 UWI SoTL Leaders participating in the eight month mixed-mode faculty certificate programme at the University of British Columbia (UBC). With regard to questions 1 and 2(a):

1. External visiting scholars and faculty developers were invited to engage in a critical review of UWI’s institutional mission statement and Strategic Plan 2007-2012 and to report findings and recommendations to the IDU Director.
2. Chaired by the IDU Director, critical data were obtained from campus-wide faculty curriculum representatives (n=10) who met three times per year to engage in a critical discussion about degree programme practices (strengths and weaknesses).
3. Data were gathered from multidisciplinary faculty participants (n=15-20 per workshop) during, and on completion of three specific campus-wide IDU workshops that focused on developing learning-centred curricula, assessment of programme-level learning outcomes, and learning-centred teaching methods.
4. Chaired by the UBC educational developer, focus group interviews were conducted with fifteen UWI SoTL Leaders at the mid-stage of their eight month enrollment in the mixed-mode faculty certificate programme (2007-2008) at the UBC.

In order to address question 2(b), the external visiting scholars and faculty developers were invited to engage in a critical review of UWI’s current and proposed staff development initiatives in order to meet the demand and challenges of campus-wide learning-centred teaching methods. This included:

1. A review of the visiting scholars presentation series, IDU seminars/workshops over one semester, the UWI/Guardian Life Premium Teaching Award, Teaching and Learning Research Day, and the proposed two-year Master in Higher Education (MHEd) Tertiary Level Teaching and Learning programme which began in 2009.
2. Chaired by the IDU Director, critical data were obtained from ten campus-wide faculty curriculum representatives who met three times per year to engage in a critical discussion about the challenges their colleagues faced with respect to learning-centred curriculum practices and the sorts of suggestions each had for responsive staff development initiatives.
3. Workshop evaluation data were gathered from multidisciplinary faculty participants (n=15-20 per workshop) on completion of ten campus-wide IDU workshops that were held throughout the 2006 semester. Workshop feedback focused on participant satisfaction and their perceived abilities to develop learning-centred teaching methods and assess student learning outcomes, as well as further suggestions for staff development initiatives.
4. A critical examination was taken of individual teaching portfolios, as well as focus group interviews with the fifteen UWI SoTL Leaders and five UWI Teaching Award winners (2007-2008). In particular, portfolios were reviewed with respect to an analysis of learning-centred course syllabi, classroom research projects, peer-review of teaching practices, and pedagogical leadership presentations. Follow-up focus group interviews then focused on this cohort’s on-going investigations into diverse educational practices, and the sorts of suggestions each had for responsive staff development initiatives on the campus.

5. Finally, there was, and continues to be, a process of critical reflection on staff development proposals and activities undertaken by the UWI St. Augustine through discourse and commentary between the educational developers from the UWI and UBC (Friedman, 2008; Senge & Scharmer, 2008).

Conversations began in 2005-2006 and have continued with face-to-face discussions and cross-campus exchanges with respect to global perspectives on curriculum and pedagogical practices in higher education. A series of four campus-wide workshop exchanges have taken place on the UWI St. Augustine campus since December 2006, and two cohorts of UWI St. Augustine faculty members have since participated in the SoTL Leadership Program at the UBC. The range of qualitative data thus obtained was analyzed for common and isolated experiences and for major themes (Baldwin, 2008; Huball & Clarke, 2010b; Merriam, 2002; McKinney & Cross, 2007; Patton, 1990; Silverman, 2000).

Results

Q1 Results: Impact of the international collaboration for advancing the teaching and learning agenda at (primarily) The University of the West Indies (UWI), St. Augustine

The concept of SoTL was not exactly new to the work of the IDU. From the inception of its UWI/Guardian Life Premium Open Lecture series in 2001, there had been a focus on teaching scholarship throughout its faculty development initiatives. The lecture series, as well as workshops, were delivered by renowned proponents of SoTL such as Charles E. Glassick (2001), K. Patricia Cross (2003), Keith Trigwell (2005), Daniel Pratt (2007), Eileen Herteis (2005, 2008), and Harry Hubball (2006-2008). Data suggest that these lectures served as a catalyst to heighten interest in SoTL and learning-centred curricula across campus. However, it is clearly unrealistic to expect the systematic adoption of scholarly approaches to curricula and pedagogical change from a guest speaker series and in the absence of strategic institutional and faculty-wide supports and incentives.

The added significance of the strategic international collaboration between educational developers at the UWI St. Augustine and UBC played a critical role in systematically advancing the teaching and learning agenda on the UWI campus, as well as the long-term benefits and partnerships for both the UWI St. Augustine and the UBC in terms of: unique SoTL research opportunities, cultural exchange and opportunities to learn from adaptations and expertise within each other’s teaching and learning context, support for institutional programming, and enhanced global perspectives of SoTL.

Specifically, two consecutive distance cohorts of UWI St. Augustine faculty members participated in an eight month SoTL leadership programme at the UBC. This programme engages faculty members to investigate scholarly approaches to curriculum practice in various undergraduate and graduate programme settings. Graduates of this SoTL leadership programme include over two hundred and fifty faculty members from...
a wide range of institutions (Canadian and International universities). In this context, the UWI St. Augustine graduates have been exposed to key SoTL literature sources and concepts, developed particular methodological expertise in SoTL research, formed the basis for an on-campus SoTL group at UWI, as well as became institutional leaders to contribute to the implementation of The UWI Certificate in University Teaching and the Master in Higher Education (MHEd)Tertiary Level Teaching and Learning.

Spearheaded by the Director of the IDU (and paralleled in the UBC context), a curriculum and pedagogical support service has also been employed on the St. Augustine campus to enhance the development and implementation of learning-centred curricula across all five Faculties. For example, various representatives and faculty members attended IDU workshop facilitated by faculty and external speakers on various SoTL related issues including:

- curriculum learning communities;
- developing programme level learning outcomes;
- effective teaching and learning strategies;
- authentic assessment; curriculum integration (vertically and horizontally);
- curriculum evaluation and action research methodologies.

Thus, localized programmes were strategically established to enhance institutional teaching development, learning-centred curricula, and the scholarship of curriculum and pedagogical practice on the UWI St. Augustine campus.

For UBC personnel, this collaborative invitation formed the basis for a unique and rich research opportunity consistent with UBC’s international reputation, institutional curricular renewal initiatives, as well as shared mutual benefits with respect to on-going partnerships and international scholarship that were integral to the institutional missions at both universities. In addition to the wealth of cultural exchanges and institutional adaptations, the complexities of this two-way international collaboration mostly focused on the challenging logistics of distance and different time zones which had implications for flight travel, as well as the ability to conduct timely video conference meetings. However, both research-intensive institutions are relatively well resourced and key participants were flexible and enthusiastic to accommodate these minor barriers in order to conduct this scholarship in both attractive areas of the world: Vancouver and the Caribbean. Further, the educational developers from both institutions fully engaged in mutual respect to honour, learn about, and fit into respective institutional customs, norms, successes, histories, and challenges that enhance and sustain collegial working relationships in a global context. Thus, the significant success of the collaboration (as already documented) in achieving its objectives is further evident by the evaluation and fifth year continuation plans by the respective organizations at UBC and UWI, St. Augustine to commence the next faculty cohort in September 2011. For example, on-going site visits, review of participant portfolio assignments, critical reflections by educational developers, and interviews with UWI St. Augustine programme participants and the Principal’s Office were used to gauge whether or not the international collaboration was effective in meeting the needs and circumstances of the campus, particularly with respect to enhancing scholarly approaches to curriculum and pedagogical practices within complex disciplinary contexts.

Q2(a) Results: Given the institutional context for teaching and learning at the UWI St. Augustine, how did the international collaboration contribute to the enhancement of curricular practices?
Data from focus group interviews with UWI curriculum and SoTL Leaders, as well as campus-wide workshop participant feedback suggest that in many academic settings, undergraduate programme structures and innovative curriculum strategies were largely invisible on faculty notice boards and on busy departmental meeting agendas. It was also not clear to many students or faculty members within these programmes how, if at all, individual courses and modules were integrated and progressively sequenced throughout multi-year programme learning experiences. Even less clear to students was how individual courses contributed to overall programme-level learning outcomes, if indeed this was explicitly stated. Furthermore, traditional curricular development practices on campus tended to be characterized by the following:

- attention was afforded to adding, modifying, and “tinkering” with individual course offerings within the overall structure of undergraduate programmes;
- curriculum was typically viewed as a means for students to accumulate course “credits” rather than tangible evidence of strategic learning experiences, progressive learning outcomes and student achievement;
- pedagogy was narrowly and almost exclusively viewed as a traditional lecture-format whereby student assessment was often limited to methods such as mid-term and final examinations;
- overall programme structures tended to consist of too many ‘old and tired’ (rather than current, responsive and flexible course offerings that were adaptable to changes in the overall field of study) individual registered course offerings; and
- finally, minimal attention was afforded to on-going and systematic curriculum evaluations consistent with scholarly approaches to curriculum and pedagogical practices.

Data from a representative sample of UWI St. Augustine curriculum personnel, SoTL leaders and campus-wide workshop participants commenting about traditional approaches to curricular practices within units were as follows:

By far the most dominant method for teaching in our faculty is a reliance on the traditional lecture method and brief opportunities for students to pose questions at the end... Since at least 60% of the student assessment has to be based on the final exam, other than a possible mid-term quiz, this tends to be the usual way that student learning is assessed... assessment methods other than the final exam are viewed as too subjective, biased and time consuming...rarely does our unit discuss systematic programme development or evaluation – if anything, it is usually focused on individual course changes or proposals... Curriculum changes in our programme are based completely on pragmatic and situational decision-making without any connection to the higher education literature or best practices...Students tend to just go from one course to the next, and try and get through each one by passing the final exam – ultimately, this is seen to be progressing successfully through the programme!...curriculum evaluation in our faculty, usually involves a mad panic every 5 or so years to assemble and tidy course materials etc but life resumes as normal shortly after!...Faculty mostly have little idea what students are doing in other courses in the programme and largely just concentrate on their own course.

In contrast, data suggest that those units on campus with dynamic curriculum learning communities had developed a stronger sense of ownership, and shared responsibility and
accountability for curriculum and pedagogical practices in undergraduate and graduate programmes. These particular curricular learning communities were characterized by a critical mass of administrators, faculty members, colleagues in the field, and students who were engaged in discourse around consensus building and curriculum visioning. Data from a representative sample of curriculum personnel, SoTL Leaders and campus-wide workshop participants commenting about innovative approaches to curricular practices within units were as follows:

Some of us [faculty] in our unit are experimenting with alternative ways to assess 40% of the students mark by using self-assessment and group projects or presentations… I’m trying to build in more in-class self-assessment opportunities for students in my course…yes, curriculum is now on our [department’s] agenda with visual and verbal reports from various working groups at meetings… our students are increasingly active in voicing positive and negative things about the programme which is changing things, albeit slowly…we’ve some faculty doing some really interesting things by combining their coursework with students’ field experiences or learning technologies…we’ve got a committee working on developing graduate portfolios with links to various coursework activities within our programme…although far from set and without controversy, we’ve developed a general consensus about our programme learning outcomes which also align with UWI’s graduate outcomes document… We are currently changing our course syllabi in our programme to be more learning-centred…In my leadership role, I’ve been asked to gather and share information on ‘active learning strategies – the workshops, support and resources from IDU have been very useful…a number of us on campus have been asked to present our work on learning-centred course design and teaching methods at Departmental meetings.

Data suggest that effective curriculum learning communities tended to develop and adopt programme-level learning outcomes that were typically expressed through discipline-specific graduate attributes such as [in the context of ‘X’ discipline, students will develop the following]:

- the acquisition, application and integration of knowledge;
- research skills, including the ability to define problems and access, retrieve and evaluate information;
- critical thinking and problem-solving; proficient literacy and numeracy skills;
- responsible use of ethical principles;
- effective leadership, communication and interpersonal skills.

Furthermore, effective curriculum learning communities on campus were also more likely to implement and experiment with a wide array of effective teaching and learning methods including student presentations, self-directed online learning modules, problem-based learning methods, student portfolios, fieldwork assignments, journaling, interactive lecture techniques, and, strategic self, peer and instructor assessment practices. Essentially, data suggested that innovative curriculum learning communities tended to draw upon theory-driven and evidence-based curriculum and pedagogical practices.
Q2(b) Results: Given the institutional context for teaching and learning at the UWI St. Augustine, how did the international collaboration contribute to effective staff development initiatives to enhance learning-centred curricula on the campus?

Data suggest that the following inter-institutional and faculty support strategies were particularly effective for enhancing the development and implementation of learning-centred curricula on campus:

- inter-institutional staff development programmes for curriculum leaders that focused on the scholarship of curriculum and pedagogical practices in higher education;
- attention to curricula and pedagogical contributions through recommended tenure and promotion processes;
- initiation of curriculum grants, curriculum leadership and innovative course design awards;
- providing on-site curricula and pedagogical expertise to support and assist units and faculty members with critical transitions toward learning-centred curricula (e.g., workshops on facilitating curriculum learning communities, curriculum design and integration, learning-centred assessment practices and course design, diverse active learning strategies in the university classroom, and scholarly approaches to curriculum and pedagogy); and
- institutional conferences that celebrate research on, for and about curriculum and pedagogical practices.

Data from a representative sample of UWI St. Augustine curriculum personnel, SoTL leaders and campus-wide workshop participants commenting about effective staff development initiatives on and off the campus were as follows:

The UBC SoTL Leadership programme exposed us to a vast and useful SoTL literature, as well as methodological approaches to investigate our practices, and a wide range of effective teaching and learning strategies... I really appreciated doing the SoTL project whereby I was able to develop a SoTL investigation around the use of on-line student submission practices and hopefully get published... I feel so much more prepared and informed about SoTL although - still lots to learn till I’m totally confident in this field... I now feel like I’ve got the tools to be a confident teacher-researcher and make a better contribution to the programme in our Department... It’s connecting with others on campus that I really learn most from, even though that’s not my initial motivation to attend these [IDU] workshops... the IDU does a great job of keeping us knowledgeable about developments in teaching through these workshops and the teaching-research conference events on campus... really useful workshops and meeting other colleagues on campus to discuss similar issues, challenges and strategies... to see examples from excellent teachers [award winners] around campus, and be able to discuss applications in my field is really useful at these workshops and teaching events.

Data in this study suggest that much work is still to be done with respect to effective staff development. Specific areas needing attention are for example:

- curriculum and pedagogical contributions through all levels of tenure and promotion processes;
• more training provision to develop local expertise with respect to learning-centred curriculum development; and
• greater access to grant funding and curriculum leadership/innovative course design awards).

In spite of the need for improvements, the strategic inter-institutional collaboration and range of SoTL leadership initiatives developed on the UWI St. Augustine campus have positively impacted the following outcomes:

• implementation of learning-centred curricula, course syllabi and teaching practices;
• collegial sharing of information and new voices of expertise, as well as continuing discourse around issues of curriculum and pedagogical practice;
• teaching development and diverse student learning experiences;
• institutional, national and international SoTL collaborations.

Data from faculty perspectives generally suggest there is increasingly (albeit slow and disparate in many units) incremental change toward learning-centred curricula and pedagogical practices on the UWI St. Augustine campus. However, there are no data from students (or about them) to suggest the extent to which programme-level learning outcomes were being implemented. Thus, further studies are required to investigate the full scope and impact of curriculum change over time on the St. Augustine campus, as well the growth of collaborative research and publications pertaining to the scholarship of curriculum and pedagogical practices.

Conclusions
This is a preliminary study based on initial findings and reflections from on-going collaborations commensurate with campus-wide curriculum and pedagogical development initiatives at UWI (primarily) and UBC. Specifically, this article examines an international collaboration to align institutional teaching development, learning-centred curricula, and the scholarship of curriculum and pedagogical practice in higher education. Clearly, key two-way scholarship and cultural exchange benefits emerged from this international collaboration between educational developers in two research-intensive institutions. Research in this study suggests that academic units are at critically different stages of curriculum change, and that there are no quick-fix solutions to successfully developing and implementing learning-centred curricula. Learning-centred curriculum change is a labour intensive, time consuming, community-driven process that requires adequate scholarly attention, leadership, expertise, and institutional and faculty-wide support. By drawing on strategic international and inter-institutional collaborations as part of the broader potential for CLC’s, and linking learning-centred curricula with properly aligned teaching development plans within institutions is, therefore, critical for successful implementation. Guiding principles and comprehensive strategies are provided from critical lessons learned in diverse undergraduate and graduate degree programme contexts at the UWI St. Augustine and the UBC.
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A comparison of cooperative learning and traditional lecture methods in the project management department of a tertiary level institution in Trinidad and Tobago

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This study reports on students’ performance after two groups of students were each exposed to different teaching methods; cooperative learning and traditional lecture formats. Knowledge and application of ‘motivation’ as a principle in project management was identified for this study. A pre-test and a post-test were administered and assessed. The differences in individual scores as the change in learning were used to test the null hypotheses. The findings have given sufficient evidence to infer that we accept the null hypotheses and reject the alternative hypotheses. The results of this study infer that there is no significant difference in learning as a consequence of different teaching methods with regard to knowledge and application in a project management course at a tertiary level institution in Trinidad and Tobago, and that there is no silver bullet for teaching and learning.

Keywords: cooperative learning, traditional lecture, heterogeneous students, Bloom’s Taxonomy, project management

Introduction

Project Management is accomplished through the application and integration of the project management processes: initiating, planning, executing, monitoring and controlling, and closing (PMI, 2008). Managers utilise project management tools and techniques to make successful strategic and operational decisions in an effective and efficient manner. Success in the project management process is highly contingent on the manager’s ability to recall, and effectively apply relevant principles in various contexts and stages of a project’s development. Within the cognitive domain, according to Bloom’s Taxonomy of Educational Objectives (Bloom et al, 1956) knowledge is defined as the remembering of previously learned material. It may involve recall or the bringing to mind of appropriate information and it represents the lowest level of learning. Application, on the other hand, is the ability to use learned material in new and concrete situations. The application of rules, methods, concepts, principles, laws, and theories provide examples of this level of learning. To facilitate the learning of project management concepts a lecturer must carefully consider the teaching strategies employed to best align with the range of cognitive demands of the discipline. The approaches used to teach knowledge based course content may differ from those used to teach application content. This study explores the impact of selected teaching methods, traditional lecture and cooperative learning, on student learning in a Project Management course offered at the undergraduate level in a tertiary level institution in Trinidad and Tobago, subsequently referred to as “the College”. The investigation seeks to answer the following question: Are there any differences in the
knowledge and application of project management principles between two groups of students after participating in cooperative learning versus traditional lecture forms of instruction?

This question is considered from an examination of the effectiveness of the two methods in addressing the issues of knowledge acquisition and the application of knowledge in specific contexts. The relevant sub-questions are stated as follows:

1. Is the traditional lecture a more effective method for teaching the knowledge level within the cognitive domain when compared with cooperative learning?
2. Is the traditional lecture a more effective method for teaching the application level within the cognitive domain when compared with cooperative learning?

The results of this investigation can provide further insights into the selection of appropriate teaching methods when addressing specific skills within project management.

**Background to the problem**

The College, located in Trinidad and Tobago, offers a Bachelor of Science Degree in Project Management which prepares graduates to function effectively as project managers in numerous industrial fields. A survey of the first-year project management students at the College reveals that students are not homogenous. There are variations in academic achievements, age, qualifications, number of years out of school, occupation and motivation to study. The range of diversity is unique to this institution because of its mandate. The instructor’s role in the project management programme is primarily to ensure that students have a fundamental understanding of the basic concepts and are able to apply these fundamentals to a realistic project context. The dominant teaching method at the College is the traditional lecture format in which the lecturer positions himself/herself as the sole performer, communicating knowledge to students who listen in rapt attention. It is felt that students may have problems understanding the intricacies of project management concepts because of the method chosen to teach them.

As indicated earlier, the students are diverse in many respects. Powell and Kalina (2009) defined diversity as a combination of ethnicity, identity and biological differences that give varied experiences and understanding to each individual. In addition to the concepts enshrined in the definition, an individual’s prior level of academic achievement is also a key element of diversity in a tertiary level institution. For example, at the College it has been observed that students with higher levels of academic success berate their colleagues from lower level academic backgrounds when the latter group seeks clarification on and further explanation of basic content during class sessions. The lecturer, in pursuit of the creation of an interactive classroom that engages all students, thus faces a peculiar challenge when the relationships and interrelationships amongst students are problematic. Further, selecting an effective teaching method that caters to the diversity of students’ ages, academic qualifications and work experience is a major challenge for educators at the College. The chosen teaching method should not only motivate students but should also allow for application, participation and accomplishment of curriculum objectives. The key consideration for a lecturer is, therefore, his/her responsiveness to the diverse needs of the students. When the lecturer is responsive to the needs of his/her
students he/she will select appropriate teaching strategies and methods that will ensure that students achieve the desired learning outcomes. Being responsive to the academic needs of students can be particularly challenging in a classroom with great diversity, as in the case of the College. The reality is that the dominant teaching method of traditional lecturing employed at the College may not fit some of the students’ learning styles and needs.

The lecture is probably the oldest instructional format and today it is still the most common form of instruction (Hrepic, Zollman & Rebello, 2007). A study by Doucet et al (1998) reported that in the lecture format learners are passive recipients of knowledge in an externally driven process. Using this format at the College students are introduced to learning outcomes, followed by a session of teacher-centred lectures supported by PowerPoint presentations. In my own use of the lecture method students are also encouraged to ask questions for clarification. Nevertheless, the lecturer is seen as “the sage on the stage” and the approach can be clearly classified as very teacher-centered. In this scenario, student efforts and motivation are very individualistic. Peek, Winking and Peek (1995) state that the traditional lecture technique is preferred by many lecturers because it may be perceived as a strategy for establishing and maintaining order in the class and serves as safety net for new teachers who may be unfamiliar with using other methods.

As a teacher aspiring to be effective, it is imperative to find alternative teaching methods that produce statistically significant improvement in students’ performance. My own observations reveal that when students participate in group work, there is a greater impetus for interaction and participation. The new paradigm in teaching which portrays a social constructivist approach to teaching and learning promotes cooperative learning as an alternative to the traditional lecture format. Cooperative learning creates an interactive classroom for all students. This interactivity may alleviate the challenges faced by lecturers and may assist in achieving other organisational objectives. Atkins (2010) mentioned that advocates of collaborative classrooms assumed that students learn better from each other and that the teacher is not the only source of information in the classroom. The introduction of collaboration in the diverse classroom at the College is an opportunity to allow students to meaningfully convey their life experiences. Applying this method in the project management class promotes students’ interaction. They are usually given facts and asked to apply these facts to new situations. This teaching method provides immediate reinforcement of a principle and students’ issues are addressed and understanding clarified. Since project managers need higher level competencies of application and analysis in order to be successful in the field learning to apply rather than simply recall information is believed to be more appropriate for teaching the subject matter. Based on my professional goal to improve student performance and prepare well trained project managers I sought to systematically explore and compare the effects of cooperative teaching and traditional lectures in the context of undergraduate project management programme at the College.

**Literature review**

The concept of system theory as illustrated in Figure 1 sets the foundation for developing the framework for conducting this research. System theory is a set of interdependent and interacting parts. This theory traverses disciplines. One component is the concept of
synergy where the whole is greater than the sum of its parts or where two or more things applied together have a greater or significantly different effect than the sum of effects of the things applied separately.

In the framework illustrated in Figure 1, the environmental components are static whereas the inputs are controllable. The inputs include the heterogeneous student population within learning groups and teacher capability to develop cooperative teaching methods (jigsaw, carousel, think/pair/share and round robin activities as described by Allison and Rehm (2007)). The College provides the resources (suitable classrooms, copying facilities, internet facilities and library facilities) for facilitating the cooperative learning experience. When the various inputs, including the heterogeneous students and the elements of the learning environment, are brought together in a social constructivist classroom, the playing field is levelled through the cooperative learning initiatives. This collaborative and active participation enhances deeper knowledge and application of project management principles which should transform into better performance in examinations. The link of feedback through the lecturer, the students and their peers informs the discipline, other departments and prospective students with a view to continuous improvement.

Powell and Kalina (2009) report that the social constructivist theory, involving individual and cognitive constructivism, is a highly effective method of teaching which all students can benefit from since collaboration and social interaction are incorporated. In the social constructivist classroom there are different approaches: inquiry, discussion, problem solving, conversation, debate, and cooperative learning. Regardless of the approach, engagement is present. The researchers further explain that engaged students have regular opportunities to communicate, collaborate and interact socially. These are critical experiences in the classroom as Atkins (2010) argues that effective communication...
and collaboration are essential to becoming successful learners. Students learn best when engaged in activities that reflect their interests and experiences.

Cooperative learning is a highly structured form of group work that focuses on problem solving that can lead students, when directed by a teacher, to deeper learning and genuine paradigm shifts in their thinking and two givens are positive interdependence and individual accountability (Mills, 2009, p. 17).

Chanchalor and Somchitchob (2007) support the concept of “a highly structured form of group work” as they have suggested that these learning activities must be well planned; instructors effectively managed the learning process in the learning environment and good relations created among learners. The literature has documented positive results regarding the effects of cooperative learning pedagogy which enhances learners’ ability to solve problems that require analysis of the subject matter (Hwang & Tong, 2008).

Of the more than 300 studies that compare relative effectiveness of cooperative, competitive and individualistic learning on individual achievement in college and adult settings, more than 168 of these studies investigated academic achievement and found that cooperative learning promotes higher individual achievement compared to competitive approaches (Lancaster & Strand, 2001). However, it is noted that is has been only under certain conditions that cooperative efforts may be expected to be more productive than competitive and individualistic efforts. Johnson and Johnson (1990), Huss (2006), and Koutselini (2008) identify these ideal conditions as positive interdependence, face-to-face interaction, individual and group accountability, interpersonal and small-group skills and group processing. Individualistic learning exists when the learning or achievement of one student is independent and separate from the achievements of the other students in the class. Competitive learning exists when one student’s goal is achieved but all other students fail to reach that goal. In a diverse setting such as the College, Allison and Rehm (2007) recommend that cooperative learning is an appropriate teaching method to meet the need for developing stronger interpersonal friendships which in turn lead to higher interaction and communication.

Although most of the literature is pointing towards the use of cooperative learning as a method for enhanced and deeper learning, Peek et al (1995) state that cooperative learning is not applicable to all subject matter in all disciplines. They identify the lecture format as a better technique than cooperative learning when:

- a large quantity of information is to be disseminated;
- the teacher wants to establish a class culture that suits his/her delivery style;
- students want to take notes for examination preparations;
- students can use information other than what is presented;
- the learners are auditory.

Enhanced learning is not only to be found in the social constructivist classroom. The traditional lecture classroom can also enhance learning once there is appropriate content and design of teaching/learning. When content is difficult to relate to and the teacher wants to develop critical thinking skills in a didactic lecture Cardoso, Cristiano and Arent (2009) recommend the need for the development and implementation of new educational practices to make classrooms more interesting and interactive even in a lecture format.
Miller (2003) compares student outcomes following the use of problem-based learning versus traditional lectures for teaching in a theoretical graduate pharmacology course over a semester. She found that while the lecture delivery was a more effective way of teaching particular material, the final course averages produced a normal distribution in both groups of students; those exposed to problem-based learning and those exposed to the traditional lecture. The findings infer that there is virtually no difference with respect to student performance.

Learning outcomes such as profession-specific skills, knowledge-creation capacity and theoretical knowledge are bases for teaching using more social constructivist techniques in undergraduate programmes. The findings of Hanson and Sinclair (2008) suggest that lecturers may perceive a positive association between the use of social constructivist teaching methods and the superior development of students’ profession-specific skills and knowledge-creation capacity, but not with the superior development of their theoretical knowledge. Seemingly, lecturers value the development of theoretical knowledge over profession-specific skills. The researchers further report that there is continuing divergence between business practitioners and university lecturers regarding the importance placed on each set of attributes in the educational development of undergraduate students and in the selection of new graduate employees. However, it can be argued that in the project management discipline the development of profession-specific skills are more important for the industry and thus teaching methods that target the development of those skills seem to be more appropriate.

Methodology
This study is primarily quantitative, although there was a small qualitative part that was included to complement the findings of the quantitative aspects. The quantitative component of the study mainly sought to compare the performance of two groups of project management students at the College after having been taught using the traditional lecture and cooperative learning.

For the quantitative aspects of this study two $H_0$ (null hypotheses) were considered:

- That no difference in the understanding of theories will be found with different methods of instruction.
- That no difference in the application of theories will be found with different methods of instruction.

The corresponding $H_1$ (alternative hypotheses):

- That difference in the understanding of theories will be found with different methods of instruction.
- That difference in the application of theories will be found with different methods of instruction.

To identify students’ perceptions of their learning, a core course entitled Managing Project Teams in which motivation is a topic was selected. Students who registered for the course in Semester 1 of the academic year 2010/2011 were placed into two groups (A and B) as opposed to allowing them to form their own groups. This was done following
recommendations made by Herreid (2009) who pointed out that when people self select their group they tend to choose companions that are much like themselves. The preference is to have learning groups that are as heterogeneous as the student population. Each group consisted of 25 students. The characteristics of the groups were similar as it related to age range and prior academic level attained:

Instructor-selected, diverse groups increase the likelihood that students will face challenges to their assumptions and the diverse approaches to problem solving needed for critical thinking. Students also learn to work with people unlike themselves, an important workplace skill (Mills, 2009, p.18).

Based on the work of Allison and Rehm (2007), students of Group A were exposed to cooperative learning techniques using a combination of think-pair-share, carousel (round robin), jigsaw and discussion methods. Think-pair-share involves a three-step cooperative structure. During the first step individuals think silently about a question posed by the instructor. Individuals pair up during the second step and exchange thoughts. In the third step, the pairs share their responses with other pairs, other teams, or the entire group. The carousel technique is a method in which the class is divided into small groups of four to six students with one person appointed as the recorder. Questions are posed and students are given time to think about the answers. After the “think time”, members of the group share responses with one another round robin style. Each group member writes down the answers they arrive at, then passes along his/her sheet with recorded responses to the next group member until they have all contributed to the various questions. The jigsaw technique is a method in which base groups with a small number four or five students are set up. Each group member is assigned some unique material to learn and then teach to his group members. Students across the class working on the same sub-section get together in an expert learning group to decide what is important and how to teach it to others in the base group. After practice in these “expert” groups the original groups re-form and students teach one another. There are other teaching techniques of cooperative learning such as case studies, problem based learning, and social networks, but for this study the focus is on the think-pair-share, carousel (round robin) and jigsaw techniques.

Students in Group B students were also taught the topic of motivation using the traditional lecture format. The researcher conducted both approaches to teaching to minimise perceived bias if another lecturer participated. In addition, this was a means of control to guarantee that the lesson plans were strictly adhered to.

Prior to both sessions and immediately following teaching, the pre- and post-test below was administered:

The College
PRM 230 Managing Project Teams

Pre/Post-test: Time: 30 minutes

Name of Student: .................................

Instructions: You are to attempt both questions. Both questions carry equal marks.
1. Describe the contemporary approaches to motivation that are available to the project manager.

2. Suggest how the project manager can motivate project team members

The pre-test informed the student level of achieving the objectives prior to instruction and the post-test informed the level after the instruction.

Separate lesson plans for both approaches were prepared with the same learning outcomes. The classroom sessions were of 180 minutes duration – 30 minutes for the pre-test, followed by 120 minutes for teaching, and another 30 minutes for the post-test. Both the pre- and the post-tests carried a maximum of 24 marks. The responses were assessed by a single independent faculty member with the standardised grading rubric (Appendix 1). The score of the post-test accounted for 10% of the coursework mark. This created an increased level of students’ commitment toward the learning process.

The other component of the study was conducted at the end of the pre- and post-test sessions. The students were asked to complete a questionnaire (Appendix 2) that was used to triangulate the data obtained from both tests. This questionnaire contained both quantitative and qualitative elements. Data obtained by this method were used to identify students’ perception of their learning via the different teaching methods. This latter was used to indicate whether the students felt comfortable and whether the learning outcomes were achieved with the different teaching methods. This information on students’ perception assisted in answering the research questions because the results from the primary pre- and post-tests can be compared with the responses from the students as a form of triangulation.

**Constraints**

Four likely constraints were identified. Firstly, the study required a minimum of 60 students participating in order to use the z test, however only 50 students participated. As such the F ratio was used to test the hypotheses. The number of students registering for the course determined the student population. Secondly, the cooperative learning method entails high student interaction which could be perceived as disruptive to the adjacent classes because the acoustics of the classrooms at the College do not facilitate interactive classes. Thirdly, effective learning in a cooperative class is dependent on the degree of trust and sharing done by the students. This cannot be guaranteed. Fourthly, these students were taught previously in two different courses by the researcher and the perception of familiarity can be a limiting factor towards the findings.

**Results**

The students’ individual scores were analysed and differences in learning from the pre- and post-test were used to test the null hypotheses. The scores from question 1 were used to test hypothesis 1 and the scores from question 2 were used to test hypothesis 2. As N (sample size) was 25 the F Test was used to test both hypotheses at the significance test of 1% level. The one-way ANOVA examines the two sets of data, scores of post-test minus scores of pre-test (differences in learning) and test the null hypotheses $H_0$ that they were drawn from the same set of data through the comparison of means.
Calculations were done by the researcher and reviewed by a colleague for accuracy. The F ratio for question 1 was 3.68 and the coordinates for the F matrix degrees of freedom were for the numerator 1 and for the denominator 48. At the 1% level of significance the critical value was 7.31 which provides sufficient evidence to infer that the $\text{H}_0$ (null hypothesis) for question 1 cannot be rejected as the ANOVA variation is less than the test statistic at the predetermined level of significance of 1%. The critical value at a 5% level of significance is 4.08 which further infers that the $\text{H}_0$ (null hypothesis) for question 1 cannot be rejected as the ANOVA variation is less than the test statistic at the predetermined level of significance of 5%.

The F ratio for question 2 was determined as 0.13 and the coordinates for the F matrix degrees of freedom for the numerator was 1 and for the denominator 48. At the level of significance of 1% the critical value is 7.31 which provides sufficient evidence to infer that the $\text{H}_0$ (null hypothesis) for question 2 cannot be rejected as the ANOVA variation is less than the test statistic at the predetermined level of significance of 1%. The critical value at a 5% level of significance was 4.08 which further infers that the $\text{H}_0$ (null hypothesis) for question 2 cannot be rejected as the ANOVA variation was less than the test statistic at the predetermined level of significance of 5%.

**Questionnaire Findings**

An analysis of the results of the questionnaire indicates that 92% of the students from the lecture format class reported that the lecturer’s preparation for the session was good to very good, whilst 96% from the cooperative format class reported the same. Of the lecture format class, 84% of the students reported that the lecturer was good to very good in helping to develop their self confidence in the class topic, whereas 92% of the students from the cooperative learning class reported the same.

For the extent to which the lecturer developed in-class interaction, 88% from the lecture format class reported a good to very good response, whilst 97% reported the same from the cooperative format class. 80% of the students from the lecture format class reported a good to very good response on the effectiveness to which the lecturer created a comfortable learning environment, whilst 92% reported the same from the cooperative format class. 100% from both classes agreed or strongly agreed that the learning outcomes were clearly defined and articulated. When students were asked to evaluate if the teaching method was appropriate for the learning outcome of understanding, 75% from the lecture format class agreed to strongly agreed and 88% from the cooperative learning format class gave the same response. On the subsequent question ‘The teaching method was appropriate for the learning outcome of application’ 84% from the lecture format class agreed to strongly agreed and 92% from the cooperative learning format class gave the same response. 92% of the students rated the lecture format class as good to very good whilst 96% of the cooperative format class gave the same response.

When students were asked to compare the teaching method used in their particular session to another teaching method, the responses from the cooperative classroom included preferences for the cooperative session because it caters for interaction, participation, and discussion. They reported that the method allows for clarification and benefitted from the varying points of view within the classroom. However, some students found the noisiness created by their interactions with each other disturbing and this affected their learning. Responses from the lecture format class included their preference for the lecture because this method allows the teacher to lead in a structured way as compared to
the group work where discussion among students may lead to unnecessary chatter. Some students reported that they learn more from what they see and hear, and rated the lecture format as being effective.

**Analysis**

The F ratio of the means of the differences in learning for question 1 is 3.68 and the critical value at the 1% is 7.31. The critical value at 5% was 4.08. As the F ratio was within the critical values of both the 1% and the 5% level of significance there was sufficient evidence to infer that we accept the $H_0$ (null hypothesis) that no difference in the understanding of theories was found with different methods of instruction and reject the $H_1$ (alternative hypothesis) that difference in the understanding of theories was found with different methods of instruction. The F ratio of the means of the differences in learning for question 2 is 0.13 and the critical value at the 1% is 7.31. The critical value at 5% was 4.08. As the F ratio was within the critical values of both the 1% and the 5% level of significance there was sufficient evidence to infer that we accept the $H_0$ (null hypothesis) that no difference in the application of theories was found with different methods of instruction and reject the $H_1$ (alternative hypothesis) that difference in the application of theories was found with different methods of instruction.

As the $H_0$ for question 1 and question 2 cannot be rejected, the research question “Are there any differences in the understanding and application of project management theories by undergraduate students at the College after participating in cooperative learning versus traditional lecture forms of instruction?” can be answered with the inference that there was no difference in the understanding and application of project management theories by undergraduate students at the College after participating in cooperative learning versus traditional lecture forms of instruction based on the analysis of the pre- and post-test results. The secondary questions can also be answered in the negative as the results infer that in the project management department at the College there was no significant difference between cooperative learning and didactic (traditional lecture) formats of instruction.

An analysis of students’ responses from the questionnaire reveals that at both the traditional lecture and the cooperative classroom session, the lecturer was prepared for the session, the sessions catered for in-class interactions, the learning outcomes were clearly defined and articulated, the teaching method was appropriate for the learning outcomes and the learning outcomes were achieved. These responses from the students provide sufficient evidence to infer that in their opinion there was no difference in the method of instruction towards the same learning outcomes in the project management department at the College. These findings support the findings of the ANOVA of the means of the differences of the pre- and post-test scores that were presented earlier.

However, a significant percentage (60% from the lecture format class and 52% from the cooperative classroom session) reported that the time allotted for teaching the content was inadequate which suggests that they were overwhelmed by the amount of content that was covered during the sessions. This may have contributed to the lower than expected scores from the post-tests of both groups of students.

**Discussion and implications**

The findings suggest that there is no statistical difference in students’ understanding and application of the project management principle of motivation after being exposed to
different methods of instruction. With regard to students’ perceptions, there may be a disconnect between the existing literature which suggests that cooperative learning can be more effective in enhancing students’ ability to acquire knowledge and application of that knowledge than the traditional lecture at the College. The results support Peek et al (1995) who surmise that cooperative learning is not applicable to all types of content or subject matter.

Possible causes for this deviation from the previously cited literature could have arisen as a consequence of varying factors such as: the quantity of information to be disseminated, students’ familiarity with the lecturer, students previous exposure to both teaching methods, students’ preparedness to learn in a cooperative classroom, students’ educational cultural context, students’ past experience with the rudiments of motivation, and the nature of the subject content. Another legitimate explanation for the findings could be that the traditional lecture is a more effective way of teaching when a large quantity of information is to be disseminated Miller (2003) and Peek et al (1995). As a lecturer striving for excellence, I previously taught these same students two different courses using a variety of methods, thus, the concept of familiarity as well as students’ exposure to different teaching methods prior to this research could be contributing factors to the findings. The question needs to be asked: What would the findings have been if the student population was new?

In the survey conducted after the sessions only 9% of the lecture format class and 16% of the cooperative class strongly agreed that the time allotted for learning was adequate. This suggests that the sessions were overloaded with content, which may have contributed to the findings. The duration of the sessions was three hours and the findings suggest that this is too long. Another scenario to consider is if the findings would have been different if the research had only focused on a sub-topic of motivation.

The acoustics of the classroom at the College do not facilitate cooperative learning as the interactions amongst students tend to distract students in adjacent classrooms. This factor could have limited the amount of and confidence in the interaction amongst students in the cooperative classroom resulting in the findings. As Johnson and Johnson (1990) state, the conditions for cooperative learning are positive interdependence, face-to-face interaction, individual and group accountability, interpersonal and small-group skills, and group processing, these conditions may have been lacking in the cooperative classroom at the College because of its infrastructure.

Although the lecture was planned to be a broadcast, where the lecturer delivered the content uninterrupted, it was not a total broadcast as some students sought clarification during the lecture, even though the lecturer did not encourage interaction, he responded to the queries raised during the lecture. This interaction which was very limited could be aligned with constructivism and can be a factor towards the findings. The development of appropriate teaching material for use in the traditional lecture format (Cardoso et al (2009)) could have helped the teacher keep the attention of students.

At the College, lecturers must consider all inputs in the learning process to achieve effective teaching and learning. In reflecting on their practice and the findings of this study the use of Brookfield’s (2006) critical incident questionnaire at the end of each face-to-face class session is recommended as espoused by Glowacki and Barnett (2007). The responses from that questionnaire when analysed will inform practice with a view of finding the most appropriate methodology for each class session based on the diversity of the student population. Age, previous educational attainment, time elapsed since attending structured classes, and the particular content are factors for consideration in
determining an appropriate teaching method. Future studies focusing on these factors may present findings that significantly differ from this study.

Conclusion

The findings of this study infer that there is no silver bullet for teaching and learning. Literature only provides a guide to educators, but since teaching and learning takes place in diverse learning environments with diverse learners the approaches to teaching should be based on the context of both factors. The results of this study infer that there is no significant difference in learning as a consequence of different teaching methods with regard to knowledge and application in a project management course at the College.

The disconnect that exists between the literature and the findings suggest that educators at the College must consider all factors of effective teaching: the learner, the learning process, the content (subject matter), the learning environment, time constraints for learning, and the lecturer. The findings suggest that the learning environment must be suitable and accommodating to the variety of approaches to teaching and that the time allotted for a particular session must be appropriate for effective learning to take place. In addition, the lecturer must be able to use a variety of teaching methods to cater to his diverse students’ needs.

There may be factors, such as, age, prior academic level attainment, and educational culture that may have contributed to the findings. Future research on these factors may contribute towards finding a teaching method that facilitates effective learning at the College. Additionally, this study can be replicated using a first-year/first-semester course to determine whether familiarity with the lecturer and his approaches to teaching may have contributed to the findings.

References


Appendix 1. Marking scheme for pre- and post-test

Q: Describe the contemporary approaches to motivation that are available to the project manager.
A: Motivation refers to the internal drives within a person that causes that person to willingly devote extra effort in a specific, goal directed manner. A theory is a system of ideas explaining something based on general principles. Contemporary motivational theories are grouped into three categories; content, process and reinforcement.

Content theories attempt to determine the link between intrinsic factors and certain behaviour. The recognised content theories of motivation are:

- Hierarchy of needs theory: Maslow suggested that within every human being exist a hierarchy of five types of needs; physiological, safety and security, social, esteem and self actualisation.
- ERG needs theory: A theory based on the concept that the individual has three sets of basic needs: existence, relatedness and growth.
- Two-Factor (Motivator/Hygiene) theory: This theory stresses that some job factors lead to satisfaction whereas others can only prevent dissatisfaction. The hygiene factors relate to work environment and if provided prevent dissatisfaction, whilst, if not provided create dissatisfaction. Motivators increase job satisfaction and are more permanent.
- Acquired Needs theory: This theory suggest that there is a correlation between achievement, power and affiliation motives and the overall motivation and performance achieved in a project. (any 3 content theories x 2 = 6 marks)

Process theories attempt to explain how employees select behaviours with which to meet their needs and determine if their choices were successful. Employees analyse how personal and intrinsic factors interact and influence each other to produce certain types of behaviour. The well known process theories of motivation are:

- Equity Theory: This theory focuses on individuals’ perception of how fairly they are treated relative to others. People evaluate equity by a ratio of inputs to outcomes. Inputs include education, experience, effort and ability. Outcomes include, pay, recognition, benefits and promotions. When the ratio is compared to another person in the work group and the ratio is perceived to be equal the employee believes his treatment is fair and equitable and that equity exists. When the ratios are not equal inequity exists. When there are inequities employees change input, change outputs, distort perceptions or leave the job.
- Goal setting theory: This theory proposes that specific, challenging goals increase motivation and performance when the goals are accepted by subordinates who receive feedback to indicate progress toward goal achievement. Goal-setting theory includes four key components.
  a. Goal specificity—the degrees to which goals are concrete and unambiguous.
  b. Goal difficulty—the notion that hard goals are more motivating than easy ones.
  c. Goal acceptance—employees must “buy into” the goals and be committed to them.
  d. Feedback—people get information about how well they are doing in progressing toward goal achievement.

Expectancy theory: This theory suggests that motivation depends on individuals’ expectations about their ability to perform tasks and receive desired rewards. The focus is on the thinking process of individuals to get rewards. This assumes that people think seriously about how much effort that they should put into a task before doing it and that motivation takes place if the expectation is favourable. (any 2 process theories x 2 = 4 marks)

Reinforcement theory looks at the relationship between behaviour and its consequences with the focus on changing or modifying behaviour on the job through immediate rewards and punishment. Reinforcement is defined as anything that causes certain behaviour to be repeated or inhibited. (1 theory x 2 = 2 marks).

Q. Suggest how the project manager can motivate project team members.
A: Suggestions to motivate team members include:
1. The use of reinforcement theories.
   
a. Positive reinforcement is the application of a pleasant and rewarding consequence following a desired behaviour. Praise for a job well done increases the likelihood the excellent work behaviour will occur again. Studies show that positive reinforcement improves performance.

b. Avoidance learning is the removal of an unpleasant consequence following a desired behaviour, sometimes called negative reinforcement. Employees learn to do the right thing by avoiding unpleasant situations. An example would be when a supervisor stops criticizing an employee once the incorrect behaviour has stopped.

c. Punishment is the application of unpleasant consequences following undesirable behaviour. The use of punishment in organizations is controversial because it fails to indicate the correct behaviour. Almost all managers find the need to impose punishment occasionally, from reprimands to employee suspensions or firings.

d. Extinction is the withdrawal of a positive reward following undesirable behaviour. Extinction involves withholding pay raises, praise, and other positive outcomes with the idea in mind that behaviours that are not positively reinforced will be less likely to occur in the future. (any 3 x 2 = 6 marks)

2. In addition the project manager can adopt the following:
   
   - Establish goals using a participative style of management
   - Ensures goals are realistic and attainable
   - Ensures that tasks assigned are interesting, varied, and involve some challenge, responsibility and learning opportunities.
   - Emphasise that everyone’s contribution is important to the project.
   - Provide enough information, support and authority to do the job.
   - Recognise individual differences
   - Individualise rewards
   - Link rewards to performance
   - Check the system for equity
   - Don’t ignore the importance of money (Any 6 = 6 marks)

Appendix 2. Lecturer Evaluation Form

The College
Lecturer Evaluation Form
Lecturer: ……………………………… Teaching Method: ……………………………… Date: ……………

Rate each item by ticking the appropriate box using the scales below.

4 – Very good, 3 – Good, 2 – Satisfactory and 1 – Unsatisfactory.

About the lecturer

<table>
<thead>
<tr>
<th>To what extent did the lecturer:</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prepare adequately for the workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Display sound knowledge of the subject</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Was approachable for discussing problems</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Was open to opposing points of view</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Was helpful in developing your self confidence in the session topic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How effectively did the lecturer:

<p>| 6. Structure the presentations | 4 | 3 | 2 | 1 |
| 7. Explain material covered |   |   |   |   |
| 8. Create a comfortable learning environment |   |   |   |   |</p>
<table>
<thead>
<tr>
<th>General:</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Your overall rating of the class session:</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Please answer (10-19) using the scale below.
4 – Strongly agree, 3 – Agree, 2 – Disagree, 1 – Strongly Disagree

| 10. The lecture learning outcomes: (Understanding) |
| Explain what is motivation |
| Describe the categories (content and process) of motivational theories |
| were clearly defined and articulated |
| 11. The teaching method was appropriate for the learning outcome of understanding |
| 12. The lecture learning outcome of understanding motivation was achieved |
| 13. The time allotted for learning the understanding of the topic was adequate |
| 14. The pre test was aligned to the learning outcomes |
| 15. The learning outcome: (Application) |
| Apply these theories towards project task |
| was clearly defined and articulated |
| 16. The teaching method was appropriate for the learning outcome of application |
| 17. The lecture learning outcome of application was achieved |
| 18. The time allotted for learning the application of the topic was adequate |
| 19. The post-test was aligned to the learning outcomes |

Please respond to the question in the spaces provided.
Compare the teaching method used in this session to another teaching method.

……………………………………………………………………………………………………………………
……………………………………………………………………………………………………………………
……………………………………………………………………………………………………………………
………………………………………………………………………………………………………………...
Using B.L.O.G.S.: the deployment of blended learning to orient graduate study

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This paper is a proposal for the strategic and structured blending of online and face-to-face learning modalities in higher education. It specifically explores the possibilities for the effective use of web logs or blogs in combination with classroom sessions at the level of graduate study. The paper posits the application of blogging as a practice for enabling graduate research writing, as a practice for supporting the development of research writing skills among new/first-year graduate students. The paper looks at a marriage of 1) blogging, 2) classroom active learning sessions that focus on research writing and 3) assessment for development strategies. In doing so, the paper makes a dual case: a case for using blogs, and simultaneously, a case for using B.L.O.G.S., that is, for the deployment of Blended Learning to Orient Graduate Study.

Keywords: assessment for development, blended learning, blogs, higher education

From the vantage point of learning

Asking a colleague about a problem in his or her research is an invitation; asking about a problem in one’s teaching would probably seem like an accusation...How might we think of teaching practice, and the evidence of student learning, as problems to be investigated, analyzed, represented, and debated? (Bass, 1999, para. 1).

It takes a deliberate act to look at teaching from the perspective of learning. (Against the Grain, Section, para. 1).

This paper makes use of the case study tradition of inquiry. It shares the discovery of a problem in teaching and learning practice by positioning that problem at the centre of intellectual engagement and investigation. The paper aligns itself with the philosophy of the scholarship of teaching and learning by serving as an embodiment of what the University of Illinois describes as the “systematic reflection on teaching and learning made public” (McKinney, n.d.). The problem presented here did not surface by viewing classroom practice from the angle of teaching, for, as Grant Wiggins (1996) writes: “teaching, by nature, is an egocentric profession in the sense Piaget used the term: we find it difficult to see when our teaching isn’t clear or adequate. We don’t easily imagine how what is so obvious and important to us cannot be equally so to novices.” The problem, therefore, only became apparent by daring to take another point of view – by venturing to look deliberately at teaching through the lens of student learning. What follows is a conceptual response to a need to enhance the learning experience at the graduate level by way of a blended approach.

The problem

The words of Wiggins, that is, his observation that what is obvious and important to us is not equally so for neophytes, resonate here, for my teaching and learning problem arose
in the context of novice learners: the teaching of first-year graduate students of a Cultural Studies programme. These were students who, after their first year of compulsory coursework, would embark on independent research to explore their individual theses. In September 2008, I inherited a year-long or two-semester course and I soon confronted the questions: How were compulsory first-year classes preparing new graduate students to tackle research, communicate their lines of argument, justify their research design and effectively share analyses and research outcomes? How might I effectively facilitate learning among new graduate students?

The course was handed over to me with established content outline, learning outcomes and assessment methods. One assessment method, a 5000-word research paper to be submitted by the students at the end of the academic year, would become the stimulus for reflecting on my students’ learning and the impetus for conceptualising a blended approach to orienting graduate study. How could I issue the task of writing a research paper without facilitating opportunities for students to learn to write at the graduate level? I questioned the assumption that my students, having left undergraduate study, a domain traditionally characterised in many aspects by the consumption of knowledge, were equipped to deal with the rigor of graduate study, where students are expected to be proficient producers of knowledge? How could I presume that these new graduate students were prepared to articulate their research arguments, rationalise their viewpoints, review the literature, present conceptual frameworks, support their claims and offer conclusions in a 5000-word paper?

My concerns about student preparedness led me to identify the characteristics of graduate study. The transition of undergraduate to graduate expectations can be summarised by the following four areas:

**More self-directed learning:** Student takes initiative to identify resources for learning, formulate goals and set priorities; student assumes primary responsibility for identifying challenges, assessing outcomes and reformulating strategies for learning.

**Greater/deeper engagement in scholarly activity:** Chris Hart (1998, p.8) observes that scholarship is an activity that involves reading critically, interpreting and analysing arguments, synthesising ideas and making connections across disciplines, writing and presenting ideas clearly and systematically.

**Greater/deeper participation in conversation:** Through research papers and the dissertation, students are expected to develop their own ideas and enter the debate/discourse of a chosen research topic. Students are expected to contribute their own perspectives to statements made by other scholars and to make their contributions public through avenues like conference presentations and publications.

**Student as a producer:** Greater expectation of student to produce knowledge that makes us rethink what we have taken as unquestionable knowledge; to produce knowledge that advances our understanding of the world.

The quality of smaller writing assignments submitted by students allowed me to see the need to address what John Biggs (1999) calls an “emergent learning outcome.” In contradistinction to learning outcomes that are intentional or calculated, an emergent outcome is that which surfaces in our work with our students. It is an unanticipated outcome but one we come to recognise as significant. What I saw emerging as a valuable learning outcome was for my students to be effective communicators in the writing of
Using B.L.O.G.S.: the deployment of blended learning to orient graduate study

research papers. Guided by Biggs’ notion of “constructive alignment,” I sought to realign learning outcomes with teaching and learning activities as well as with assessment so that there was consistency or agreement in the relationships among outcomes, teaching, learning and assessment. More specifically, I consciously made “effective communication in research paper writing” an intended outcome and worked to align or synchronise this outcome with active classroom sessions on research writing. I also attempted to align the new outcome with the assessment for development strategy of student self-assessment.

I designed a rubric with target performances for writing which would allow my students to reference criteria for effective communication, reflect on their own writing, chart their own development and award themselves scores for drafts of the work that they were expected to do outside class sessions (see Figure 1). It was anticipated that the students and I would meet in class on given dates to review their drafts and examine reflections on the development of their writing communication skills. Yet, I soon discovered that my students were not writing outside of the classroom – many were waiting to write shortly before the due date of the assignment. My students were giving me feedback that classroom active learning sessions were valuable to them but their learning remained invisible. How then, could an inquiry-based, student-driven approach to writing be nurtured? How could a spirit of inquiry be fostered outside of class sessions? How could students become connected to each other in a way that created a community of inquiry? How could their thinking and learning processes become visible? How could students’ metacognition be developed? And, how might students be stirred to sustain their writing, producing plans and drafts, as opposed to writing at the last minute? I needed to incorporate an appropriate and effective time-out-of-class structure that could address these questions. I turned to online or e-learning approaches for answers.

This paper is a proposal for the strategic and structured blending of online and face-to-face learning modalities in higher education. It specifically explores the possibilities for the effective use of web logs or blogs in combination with classroom sessions at the level of graduate study. The paper posits the application of blogging as a practice for enabling graduate research writing and for supporting the development of research writing skills among new/first-year graduate students. It describes how blogging facilitates research writing outside the classroom; connects graduate students with each other (a crucial element because graduate study can be a lonely journey); is a vehicle for posting drafts of research writing; aids reflection on the writing process and; engenders peer feedback. The paper looks at the marriage of 1) blogging, 2) classroom active learning sessions that focus on research writing and 3) assessment for development strategies. In doing so, the paper makes a dual case: a case for using blogs, and simultaneously, a case for using B.L.O.G.S., that is, for the deployment of what is now being called here, Blended Learning to Orient Graduate Study.
Theoretical framework
Garrison & Vaughan (2008, p.10) observe that: “addressing the relevance and quality of the learning experience demands that higher education take a fresh look at how it approaches teaching and learning and utilises technology.” Therefore, in an effort to revisit my approach to teaching and learning; and to incorporate the possible advantages of technology, I constructed a dual framework drawing on two concepts: 1) A Community of Inquiry and 2) Visible Knowledge. Both concepts suggest that distinct benefits are derived from using technology in education and embracing e-learning approaches.

The notion of a community of inquiry was created by Garrison and his colleagues in 2000. The use of technology facilitates “two ideas that are essential to higher education – community and inquiry. Community, on the one hand, recognises the social nature of education and the role that interaction, collaboration and discourse play in constructing knowledge. Inquiry on the other hand, reflects the process of constructing meaning through personal responsibility…” (Garrison & Vaughan, 2008, p.9). Inquiry involves action: exploration, application, practice and reflection. The establishment of a community

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### Self-Assessment Rubric for Research Paper

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Target Performance</th>
<th>Student Comments Feb/2009</th>
<th>Score</th>
<th>Student Comments Mar/2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic and Thesis</td>
<td>Introduction shows clearly defined topic (neither too broad nor too narrow) which is supported by a sound rationale for its study; topic is well-focused into a primary research question; writer clearly expresses own thesis/point-of-view about the topic; thesis is well-located within a conceptual framework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Strategy</td>
<td>Within the given topic there is strong evidence of coverage of relevant sources of data/literature of the field; clear acknowledgment and critique of differing points-of-view; clearly develops convincing support for thesis in body of paper; conclusion is logical based on evidence presented</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documentation</td>
<td>Clear evidence of acknowledgement of material taken from others; citations are consistent with MLA style</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing Skills</td>
<td>Strong control over organization of paper; paragraphs work together well; thoughts are clear; transitions between thoughts/thoughts are clear; sentences have been checked for grammar, spelling, punctuation; language use is appropriate for an academic audience</td>
<td></td>
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</tr>
</tbody>
</table>
of inquiry requires three kinds of presence: a) social, b) cognitive, and c) teaching. Social presence involves affective/personal connections or camaraderie among students. Cognitive presence entails an understanding that the community of inquiry is more than a chat space, that the community is also a formal academic space for the purposeful exchange of ideas and solutions. Teaching presence “is the means by which to bring together social and cognitive presence in an effective and efficient manner” (Garrison & Vaughan, 2008, p.24). Teaching presence is important for articulating expectations, guiding tasks, focusing discussions and providing structure for the inquiry process. Incorporating technology in teaching and learning gives the possibility of creating and preserving a community of inquiry outside of the classroom.

The notion of visible knowledge comes out of the visible knowledge project, which is a collaborative project of the Center for New Designs in Learning and Scholarship at Georgetown University. The project aims at improving university teaching by “focusing on both student learning and faculty development in technology-enhanced environments” (Visible Knowledge Project, 2002). Randy Bass, Director of the Visible Knowledge Project, explains that the word “visible” has three definitions in the context of the project. Of these definitions, what are important for this paper are the ways in which technologies can make visible the thinking and learning processes of students as well as the ways in which technology can make teacher practice in the classroom visible.

Dovetailing the concepts of a community of inquiry and visible knowledge therefore offers a useful theoretical structure in which “to shape [my] practice [and] reflect upon and make sense of outcomes” (Garrison & Vaughan, 2008, p.13).

Blending in context

How might technology be incorporated in the teaching and learning context as I have described it? Blended learning is the strategic “convergence of two archetypal learning environments” (Graham, 2006, p.5), that of the traditional face-to-face classroom environment and the e-learning or online learning environment. “Blended learning combines the properties and possibilities of both [environments] to go beyond the capabilities of each separately. It recognises the strengths of integrating verbal and text-based communication…[of integrating] direct and mediated modes…” (Garrison & Vaughan, 2008, p.6). The practice of blending is more than enhancing learning; it is about enabling learning. This means that blending goes beyond adding course resources to the Web to involving the development of “challenging and engaging learning activities that occur within and outside of the classroom” (Garrison & Vaughan, 2008, p.177). Graham (2006) also identifies four levels at which blended learning can occur: the activity level, the course level, the program level and the institutional level.

In my context, I see a blended design functioning at the level of a course and more precisely at the level of the research paper writing activity. What I am proposing here is a solution that incorporates the possibilities of the combined advantages of verbal and text-based communication; of direct and mediated communication as well as the integration of engaging classroom and time-out-of-class activities. With a want to facilitate the development of my students’ ability to effectively communicate in the writing of a research paper, I consider the strengths of the classroom and online environments and how might I integrate them. Various studies (Heckman & Annabi 2005; Meyer 2003; Weigel 2002) show that online written communication facilitates reasoning, that is, written work is logical and well rationalised. Writing in the e-learning space promotes deeper levels of thinking. Written work in this space is also open to all classmates in a way not always possible in face-to-face settings, a factor that allows for peer feedback. The online learning environment also facilitates “reflection in a way that is not possible in...the face-to-
face classroom [where] verbal agility, spontaneity and confidence to express oneself in a group setting” is required (Garrison & Vaughan, 2008, p.31). In contrast, the face-to-face classroom environment is suited to verbal definitions, explanations or clarifications of topics and processes (Garrison & Vaughan, 2008).

In response to such considerations, the web log or blog emerges as an appropriate online platform that can be integrated with classrooms sessions on research writing. A blog is a specialised website that functions as an online journal, keeping a log of dated entries. This journaling feature demands trust. It makes open communication and therefore social presence possible, that is, the documenting of thoughts and feelings. The journaling feature can also accommodate the recording of drafts of segments of a student’s research paper as well as a student’s reflection on his/her own challenges, strengths and weaknesses in the writing process. Furthermore, the comments component of blogs allows for teacher and peer feedback. Blogs therefore also facilitate cognitive presence and ultimately, teaching presence for guidance. Consequently, blogs make a community of inquiry possible and they can make knowledge visible. Blogs are also characterised by their “reflection of a personal style” (Downes, 2004). This inherent nature of the blog can facilitate student functioning in a personalised space; a space that can be useful to new graduate students trying to find their own voice within a larger context of other writings or statements about a subject. Williams and Jacobs (2004, p. 234) say about the blog: “in order to develop and sustain a clear and confident voice of one’s own, one has to carefully formulate and stand by one’s opinions. Writing a blog assists here because it forces a student to confront their own opinions and contemplate how their views might be interpreted and reflected upon by others.” As such, the use of the blog can be empowering for students. The blog has the potential to foster independent and creative thinking among
new graduate students who must learn to think critically, be evaluative and develop their own perspectives or original responses to a topic.

What is conceptualised is the graduate student’s use of two types or categories of blog entries: formal academic-writing entries under the category “my research paper drafts” and informal entries under the category “my reflections”. The blog keeps a dated record of entries and allows the entries to be sorted into categories. The page included below (Figure 2) shows that the student’s blog entries have been organised into two categories: “my research paper drafts” and “my reflections.”

A blended learning cycle
True blended learning requires that the activity of blogging be thoughtfully fused with face-to-face experiences so that student engagement is optimised. What is required to facilitate writing at the graduate level, through an incorporation of the blog, is a blended learning cycle that takes the student from the classroom to the online learning (blogging) space and back to the classroom-learning environment. In the classroom, students can participate in active sessions where such topics as writing introductions, articulating thesis statements, citing and paraphrasing sources as well as critiquing relevant literature are explored. Classroom sessions can be designed for students to work collaboratively to critically examine and verbally discuss published research papers and journal articles. Classroom sessions can conclude with directions, responsibilities and actions for the online environment. The online space of the blog can then become a time-out-of-class site where learning and development can be seen; a space where students can incrementally apply what they are learning in the classroom to drafts of their research papers, assessment of their own work and the work of their peers. Teacher presence is also expected online. The teacher can refocus or bring comment threads back on track. The teacher can also support student-to-student feedback. The next face-to-face session then becomes an appropriate opportunity to discuss and resolve any challenges, unanswered questions and misconceptions articulated in the online space. What can drive a face-to-face–online cycle are questions. “If learning is to be a process of inquiry, then it must focus on questions, not just on answers” (Garrison & Vaughan, 2008, p.15). Classroom-generated questions can direct student action and inquiry outside of the classroom and questions generated in the online space can bring students back to the classroom for face-to-face discussions, clarifications and guidance.

Assessment for development
This blended learning cycle is envisioned as occurring within a context of assessment for development or what is understood as formative assessment, that is, in a context of self and peer review where not only written communication is developed but also where metacognitive skills can thrive – skills of self-awareness, self-monitoring and self-regulation to achieve desired results.

Formative assessment can include asking students to review their own drafts by reflecting on and answering such questions as:

- What do you think is successful about your draft? Why?
- What concerns do you still have about what you have written so far?

Students can also be asked to review the drafts of their peers and respond to such questions as:
• What did you understand from the draft?
• What are the strengths of the draft?
• What constructive recommendations could you offer for improving the draft?

Students can also be asked to respond to comments received from their peers by considering:

• With which recommendations do you agree? Why?
• With which recommendations do you disagree? Please support your answer.
• Do you have further questions or a need for elaboration on feedback given? If so, what are your questions?
• What have you learned from peer comments?
• Have comments/recommendations changed or enhanced your writing?

In contrast to a summative assessment approach, which places emphasis on certifying final achievement, a formative assessment strategy, that is, one that focuses on development, is important for graduate students who must develop the skills necessary to function largely as self-directed researchers/learners after their first year of mandatory graduate-level classes.

A word about publishing and content privacy
Publishing or posting drafts of student research online raises the issue of content access and content privacy. Many companies offer blog sites on the internet, but there is concern about using such services in that work posted to such sites is stored on those companies’ servers. One way to allay anxieties about the protection of student work is to consider the use of university or college servers. Open Source applications such as Moodle and WordPress can be installed on university servers and utilised for blogging activities. Access can also be further customised. For example, Moodle has the option to restrict access so that students can only see blogs for people with whom they share a course or group.

Conclusion
Blended learning demands strategic design, implementation and evaluation so that the face-to-face and online learning environments are optimally integrated to create rich, engaging learning experiences wherein learning outcomes are realised. To facilitate deep learning, student orientation to blended learning and an orientation to the technology (blogs) must be planned and executed. Expectations for student performance must also be articulated, perhaps in the form of a blogging rubric that details the number and quality of blogs and feedback comments expected. While students know how to use technologies in a strictly social/recreational milieu, it cannot be assumed that students know how to use the technology in the way that is anticipated in education. Ways to collect information about students’ perceptions and the affective dimension of the blended learning experience must also be addressed. Above all, a commitment to teaching practice that entails constant investigation, analysis and transformation is required; one needs the courage to see problems not as flaws to be concealed but rather as opportunities to grow. The problem of facilitating the development of effective communication in the written work of my first-year graduate students led me to reflect on my practice and also brought to light the possibilities of deploying, what I call, Blended Learning to Orient Graduate Study: B.L.O.G.S.
References


