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THE IMPACT OF GROUP WORK ENHANCED LEARNING MODEL IN HIGHER MATHEMATICS EDUCATION

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Abstract
Most learning models have been relied on students' individual studying activities. In those models, the efficiency of learning varies among different students, and thusis limited. In this paper, we propose a systematic group study model to improve the learning efficiency for diversity students. By using instructed in-class and out-of-class group work, the group study model has the advantages to overcome the shortages of the individual study modelsand can improve the study efficiency for diversity students. Furthermore, in this model, students can learn from the group as well as from the instructors, thus the teaching performance can be improved. In experimental results, we use statistical analysis to show the improvement of teaching performance and study efficiency for the proposed group study model.
Keywords: Group Study model, diversity students, in-class and out-of-class group work.

1. Introduction

In recent years, with the rise of economic uncertainty and increasing unemployment rates, university enrollment has been on the upswing. Unfortunately, many students (nearly 40%) are unprepared for the college-level mathematics courses required for a degree(Boylan, 2011). Although many courses typically have prerequisite courses designed to ensure that students possess the necessary knowledge and skills to be successful in a higher-level course, not all students meet prerequisite skill levels. Since some students took prerequisites long time ago, or students transfer their courses from a previous institution, the lacking ofrequired content or rigor could affect a student's success in those courses(Ciampa & Revels, 2013). Levin and Koski et al(Levin & Koski, 1998)proposed identity ingredients to be central for designing successful interventions for underprepared students in higher education. These essential ingredients clearly focus on enforcing underprepared students' academic and social growth by means of individual and group works.

In addition, the student population in higher education is much more diverse than that in previous years (Gurin, Dey, Hurtado, & Gurin, 2002; Levin & Calcagno, 2008). Whether or not diversity benefits the group performancestill remains a debatable topic.Dreifus and Hong (Dreifus, 2008; Hong & Page, 2004)proposed that diversity among a group of problem solvers is more important than individual.In their experiments, diverse groups of problem solvers outperformed the groups of the best individuals at solving problems. The reason is that the diverse groups got stuck less often compared to the smart individuals, who tended to think similarly. They furtherprovided an abstract proof to show that collections of diverse agents can locate optimal solutions to difficult problems, even if agents' abilities are bounded. While, in Page's book (Page, 2008), he explained why difference beats out homogeneityinthat identity-diverse groups in particular have a mixed record, sometimes performing better than homogenous groups and sometimes worse.In this study, students flexibly choose their group members(families, classmates, tutors and others), they may start to work in a diverse group and go along with it; or they may choose to change to a homogeneous group thatmake them feel more comfortable. In this way, most students would be able to search and join a suitable, productive group and maintain a long term cooperation relationship with their team members.In addition, working in a well-functioning group may avoid knowledge-sharing errors (Edmondson, 1996; Gupta, 2012; Hollingshead, Brandon, Yoon, & Gupta, 2011). In a well-functioning group, co-workers have a close personal relationship which may rely on one another or information,

advice and help; co-workers may arrange their group problem solving tasks in a group-organizable, group-adaptive and group-repairable way; co-workers are rewarded based on overall team performance rather than on each member's individual contribution.

It's generally accepted that group study is more effective than individual study (Bonwell & Eison, 1991; Springer, Stanne, & Donovan, 1999).Group theorists have espoused multiple benefitsof participating in a group as a member including: empathizingwith future group members, enhancing leadership abilities, experiencingthe power of group, and promoting self-awareness (Corey, 2011; Klein, 2003; Yalom & Leszcz, 2008). The discussion of class participation and its assessment is broadened by the work of Vandrick et al(Vandrick, 2000), noting thatclass participation requires students to speak in class by asking and answering questions, making comments and participating in discussions.

In a traditional learning-studying process, students work on their studies individually. Even though sometimes they go for help, they struggle on their own most of the time. Although a necessary process, individual study limits how students digest the knowledge and how much they can achieve their studying goals. While, during group study process, students can not only learn knowledge and skills but also borrow learning method from each other; difficult problems can be divided into relatively simple sub-problems and conquered by the team members; eventually more results will come out by the team work. Thus, students will learn more and obtain stronger confidence in their studies when they achieve more in their group studies. Furthermore, it will be easier for an instructor to detect common errors and representative problems by seeing thefeedback from the group work, and the teaching quality can be improved based on these correspondents.

Several group study strategies have been discussed in(Barton, 1995; Brown & Palincsar, 1989; Chan, 2012; Pilkington, Bennett, & Vaughan, 2000; Rajan & Marcus, 2009; R. Rohfeld & Hiemstra, 1995; R. W. Rohfeld & Hiemstra, 1994). In (Barton, 1995; Rajan & Marcus, 2009), effective classroom discussion techniques are proposed to create interactive learning atmosphere for students. In(Brown & Palincsar, 1989; R. W. Rohfeld & Hiemstra, 1994), the instructors' roles in group discussion are discussed to further promote learner participation. In (Chan, 2012; Pilkington et al., 2000), an evaluation is conducted on how the use of information and communication technology can support group discussion and flexible learning. However, there is a lack of systematic study on these strategies from Science Educators, and very little research testing this argument has appeared in educational journals.

In this paper, we propose a systematic group study model and evaluate the teaching performance using statistical analysis to demonstrate the successful application of the proposed model.

2. Group Study Model

A group study is a collection of individuals who cooperate on the same tasks via various ways to obtain their individual goals. In this model, the people who participate in the group discussion are not limited to the students or the instructors. Students are encouraged to search for any kinds of resources such as their supervisors, relatives, or tutors. That is, to meet their individual study goal, if necessary, students need to work with any available cooperators.This is especially important to those students who couldn't get sufficient support from their group members and instructors.

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Several strategies are conducted in the group study model through the students consistently participating in and out of class group studies. For students, their activities may include reporting in-class group discussion results, submitting out-of-class group assignments, giving in-class presentations, and working on related research topics. For instructors, their activities may include organizing and attending group discussions, assessing, implementing, and improving group work performance. It's very important that an instructor need to attend student's group discussion. It not only helps instructor to get instant feedback and provide immediate instructions, but also encourages the attendance of the out-of-class group homework discussions.

Figure 1 shows the pathways of the multi-way communication among an instructor, the students, and other potential participants in a group study model. In this illustration, a group consists of 2 to 4 members (no more than 4 members are allowed in a group). The black double-arrowed lines indicate the feedbacks and instructions between instructors and the students. The black double-arrowed lines indicate interactions among groups. Different colors of the group members represent different groups of participants. For example, in doing out-of-class group assignments or research, three students with green colors are in the same group. However, during in-class group discussion or presentation, these three students may select to join different groups. As you can see in our example, two "green" students are still in the same group during in-class discussion but the third "green" student has selected to partner with another "red" student. This means participants can select to join different groups during different phases of group studies.

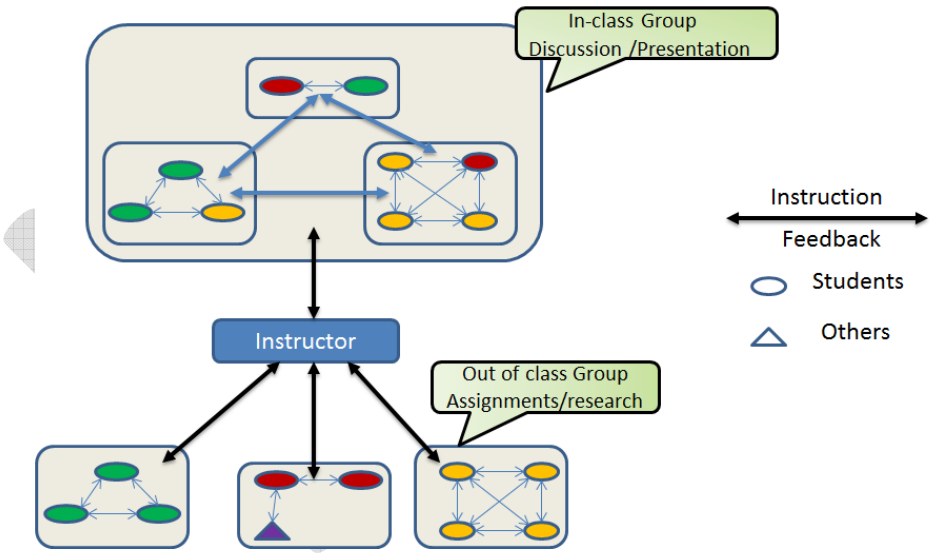

Figure 1. The pathways of the multi-way communication among participants in a group study model.

Aswe know that the traditional teaching methodsencourage one-way communication.Therefore, students are placed in a passive role and the instructorhas difficulties inobtaining instant feedbacks, especially verbal feedbacks.Group study model can help overcome the disadvantages of such traditional teaching methods. For example, during the in-class studies, students constitute small groups with 2 to 4 people in each group and do the group discussions refer to the new learning, followed by a whole class discussion from all the groups by comparing and accessing results with other groups(see interactions among groups

in Fig 1). In this way, students have the opportunities to actively study their new knowledge and develop learning skills. At the same time the instructor can get an integrated and representative feedback from all the students and give niche targeting instructions.Last but not least, instructor and students can also have one-to-one communications during the group work.

Learning in a group can fulfill the diverse needs from diverse student audiences.Group study model makes the class offered as a combination of instructor lead and self-paced study process(Schoen, 1976). Generally, students can find suitable group members and become co-learners in discovering what work the best for them individually and as a group. For the students who either have trouble following instructor's lecture, or have no problem grasping the main points of the lecture, they can enhance their understanding on the new knowledge and correct the misunderstanding of their old knowledge by attending group discussions.For students who want to develop their leadership ability, they can act as managers during their group discussions. By working with people of the same or different backgrounds and the same or different study goals, the same questions can be observed from different views and the group study results are more productive than individual study results.

Group study model improves teaching and learning performance. To improve the quality of group study model, the complementary strategies should be used in the same class. For example, in-class discussions may occupy a significant amount of lecture time;students who couldn't digest the new knowledge well would have trouble to be involved into the in-class discussions; there are only limited comprehensive and advanced questions which are fit for individual homework. For However, these shortcomings can be overcome by adopting effective group discussion techniques (Barton, 1995; Rajan & Marcus, 2009; R. Rohfeld & Hiemstra, 1995) and by the extended out-of class homework discussions. In the teaching-learning process, the more the learners are involved, the better they will learn. The in-class group studies can be extended into out-of-class studies. For out-of-class group studies, students are assigned with suitable group homework questions, presentation tasks, or research projects. By this method, the teaching-learning process has been extended beyond the classroom. Furthermore, some students set up long-term co-learner relationship such that they can not only actively work on assigned group work but also be self-motivated on other group work such as group reviews before tests. Figure 2 shows the survey results about group homework on students' understanding and grades assigned at the last day of the college algebra class.According to the survey results, the group homework has positive effects on those who are actively involved in the group discussions; for those who are merely involved in the group discussions, the effects are limited or unclear. This is why it is important for the instructors to attend student's group discussions to promote students' involvement in the group discussions.

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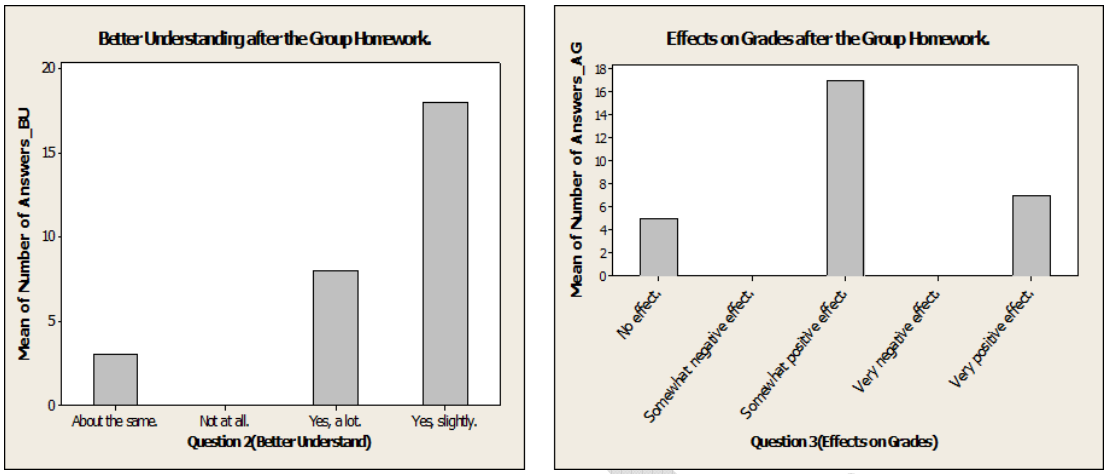

Figure 2.The effects of group homework on students' understanding and grades. Data resource: "Survey on Group Assignment-College Algebra".

3. Experimental Methods and Quantitative Results

The Randomized Controlled Trial (RCT) (Clearinghouse, 2008; Puma, Olsen, Bell, & Price, 2009; Torgerson & Torgerson, 2003) method is widely used in the areas of educational research, particularly in effectiveness research. In this method, participants are assigned to study groups at random and procedures are controlled to ensure that all participants in all study groups are treated the same except for the factor that is unique to their group. The unique factor is the type of intervention they receive. The primary goal of conducting an RCT is to test whether an intervention works by comparing it to a control condition, usually either no intervention or an alternative intervention.

Students are randomly assigned as Before-Treatment students (BF)as the control group, and after-treatment students (AF). In the following, AF students are those who are required to do in-class group discussionand finish their group homework; BF students are those who are required to finish all of their homework problems individually. To maximize validity and minimize bias(Bernstein, Rappaport, Olsho, Hunt, & Levin, 2009; Graham, 2009), the instructor designs and publishes course plan at the beginning of each semester when the students and the instructor have limited knowledge of each other's. In this way, a performed double blind study (Pope Jr, Hudson, Jonas, & Yurgelun-Todd, 1983) could ensure the random assignment. To ensure that all participants in all study groups are treated the same except for the factor(group work) that is unique to their group, the following steps are applied:

- Step 1,the instructor converts partial lecturing contents into in-class group discussion topics;
- Step2,the instructor converts or implements some individual homework questions into group homework questions and assign regular classes forstudents to finish their group homework.
- Step 3, to encouragestudents in participating the group homework, a group work assessment rubric(http://ed.fnal.gov/trc_new/rubrics/group.html)is provided to and used optionally by students.The grades of these participants are compared to those in the control group to determine if the treatment has an effect on teaching and learning performance.

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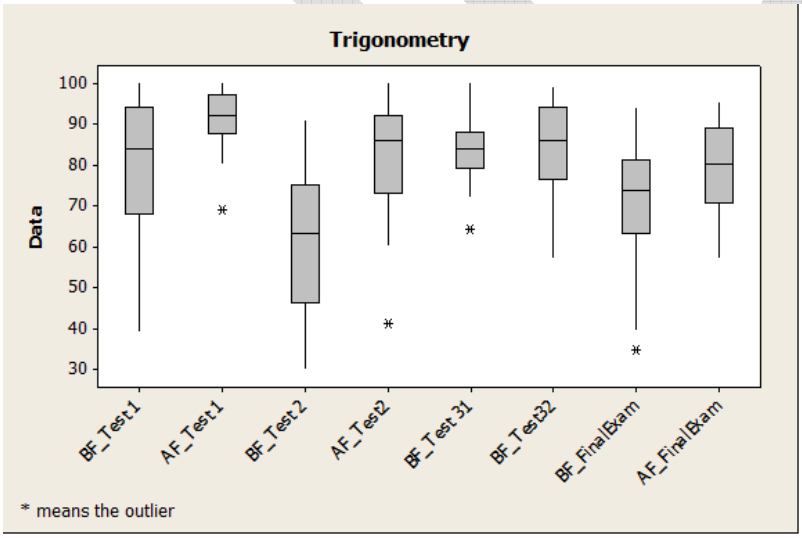
3.1 Grade comparison between AF students and BF students for Trigonometry

In one Trigonometry class, studentsare required to finish all their homework individually. This class is used as control group. In the other Trigonometry class, students are required to do in-class discussions related to instructor's lectures and finish a portion of their homework in a group before takingthe midterm testsand the final exam, except for midterm test 3. This class is used as experimental group. Both classes have more than 20 participants. The textbook, lecture notes, assigned homework questions,and exam questionsare identical for both classes. Students from the experimental group work on the lecture questions with in-class discussions; and they use regular class time to finish one of their out-of-class homework questions and earn credits; the students in a group will get the same grades for the group homework. On the other hand, students from the control group obtain explanations from the instructor on all the lecture questions.To better compare the results, for midterm test 3, both groups use the same individual study strategy without using group study model.

Figure 3 shows the grade comparisons from all the exams between the experimental group and the control group respectively. The analysis is conducted using the Minitab (Meyer & Krueger, 2001) statistical analysis tool. The comparison shows that the AF medians/means of midterm test 1, midterm test 2 and final exam are significantly higher than those of BF. The differences between the two groups in mean values are significant ($p<0.05$). Also there are substantially variances in experimental groups. Outliers appear in control groups and disappear in experimental group after test 3.

There exists an inconsistent result for midterm test 3 grades ($p>0.05$ shown in red color in Figure 3). This is because there is no assigned group homework before the test for the experimental group. This result again shows strong evidence that doing group problems in and out-of class can improve students' grades.



$H_0: \mu_{BF} = \mu_{AF}$

$H_1: \mu_{BF} \neq \mu_{AF}$

Test Names	P-value
Test 1	0.006
Test 2	0.000
Test 3	0.966
Final Test	0.073

Figure 3. Comparison of student grades between the experimental group and the control group. Left: grade comparison charts; Right: p-values for each of the midterm tests and final exam. BF_Test31 and BF_Test32 represent the grades from the two groups for test 3 without using group study model.

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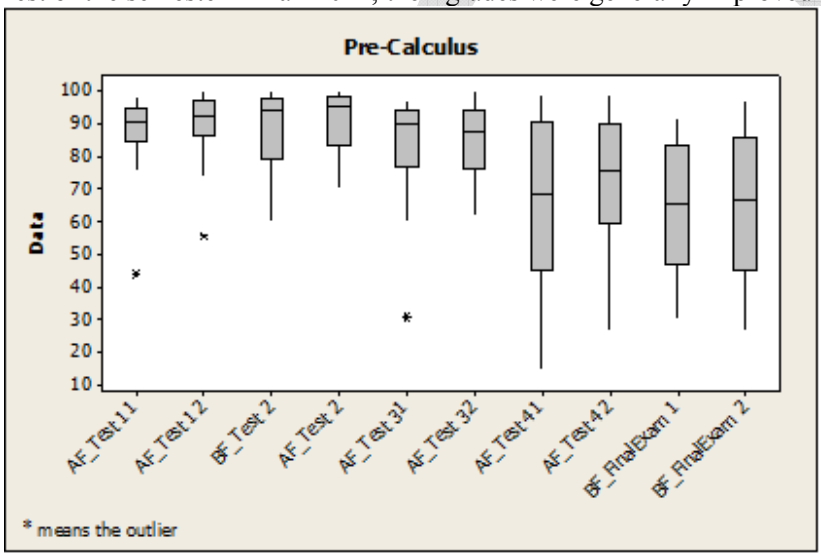
3.2 Grade comparison between AF students and BF students for Pre-Calculus

This experiment is designed as follows. All classes have more than 20 participants. In Spring 2010 Pre-Calculus class, in-class discussions and three out-of-class group assignments are carried out before the midterm test 1, test 3, and test 4; no group study is used before test 2 and final exam. In Fall 2011 Pre-Calculus class, in-class discussion and out-of-class group assignments are carried out before all the tests except final exam. Also enhanced online individual homework is assigned except the hand in individual homework. Figure 4 shows the grade comparison from all the exams between the two classes respectively. The analysis is carried out using the Minitab tool.

Figure 4 shows that the AF median/ mean of midterm test 2 in Fall 2011 is higher than that of BF in Spring 2010. For the rest, the differences between the two semesters grades in mean values are not significant ($p>0.5$). This is due to that the same study model is used for both classes before those tests except for midterm test 2. Outliers disappear after test 3 in both classes.

In Fall 2012, in-class discussion and out-of-class group assignments are carried out before and after all of tests after test 1. From the grades of the first three tests, the level of Fall 2012 students were below those of the students in Fall 2011. However, as students work together after test 1 in groups throughout the rest of the semester in Fall 2012, their grades were generally improved and exceeded those in Fall 2011.



$$H_1: \mu_{BF} \neq \mu_{AF}$$
$$H_0: \mu_{BF} = \mu_{AF}$$

Test Names	P-value
Test 1	0.532
Test 2	0.325
Test 3	0.699
Test 4	0.588
Final Test	0.986

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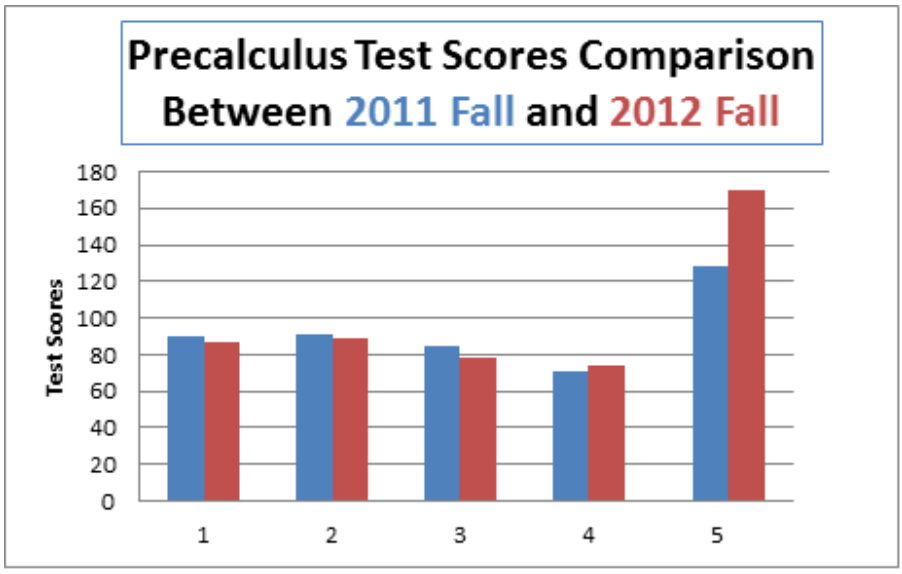

Figure 4.Comparison of student grades for all exams between two Pre-Calculus classes in Spring 2010 and Fall 2011, respectively. Top-Left: grade comparison charts; Top-Right: p-values for each of the midterm tests and final exam. AF_Test11 and AF_Test12 represent the grades from the two groups for test 1 using group study model. Bottom:Comparison of student grades for all exams between two Pre-Calculus classes in Fall 2011 and Fall 2012, respectively.

3.3 Grade comparison between AF and BF for Calculus Class

In this experiment, we compare the students' grades of two Calculus II classes in Fall 2009 and Fall 2012 respectively. Both classes have more than 19 participants. In Calculus II class of Fall 2009, the group homework is used for test 3 only. In Calculus II class of Fall 2012, in-class discussion and out-of-class group assignments are carried out before all the tests except test 4. Figure 5 shows the comparison of student grades for all exams between the two classes. From the grades of test 3 and 4, the level of Fall2012 students were below those of the students in Fall 2009. From the comparison it is clear to see the improvements of grades of the AF students over the BF students, for test 1, 2, and final exam. All variances of the experimental group are less than those in the control group.

$$H_0: \mu_{BF} = \mu_{AF}$$

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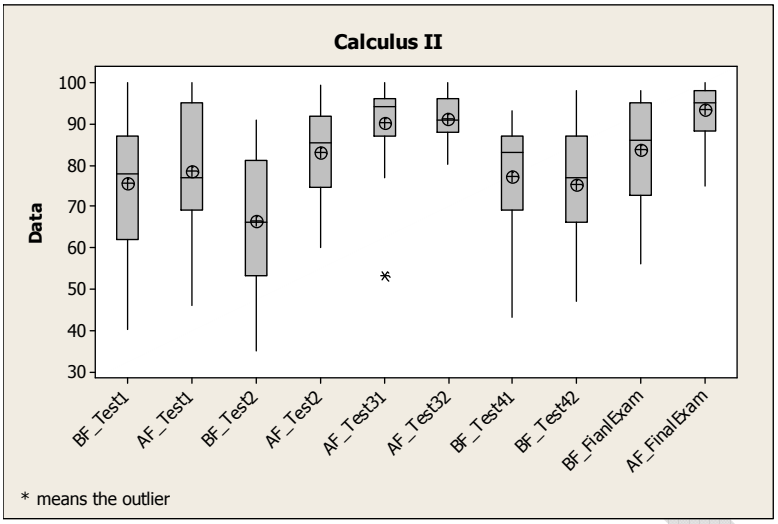

$H_1: \mu_{BF} \neq \mu_{AF}$

Test Names	P-value
Test 1	0.519
Test 2	0
Test 3	0.643
Test 4	0.692
Final Test	0.003

Figure 5. Comparison of student grades for all exams between two Calculus II classes. Left: grade comparison charts with mean symbols; Right: p-values for each of the midterm tests and final exam. AF_Test31 and AF_Test32 represent the grades from the two groups for test 3 using group study model. The same labeling method is used for other grades.

3.4 Grade comparison between AF and BF for Probability Class

In this experiment, we use a probability and statistics class with 10 enrollments. 9 of them do their research projects in small groups (3 people in each group). One student selects to work on his own for the project. In two of three groups, students have the same majors and it is relatively easy for them to find a common interesting research topic to work on and yield productive results. For example, one group publishes their work in an undergraduate research journal at the end of the project. In the group whose students have different majors, they have hard time determining a research topic. Even though finally they could find a topic and finish it on time, theyshow less interests on their work compared to the other two groups. The student who works on his own has no problem finding a research topic and has strong desire to finish the project. However, the student needs to work on all the details by himself and needs more help from the instructor. Apparently his research work takes much longer time comparedto others. This experiment shows that group work is more efficient than individual work. Aproper combination of group members can perform their work more efficiently and creatively.

4. Conclusions

In this work, we demonstrate that the undergraduate mathematics education in a group setting is more effective than thatin an individual setting. Data analysis shows: 1. In addition to the in-class group works, the out of class group homework play an important role in the proposed group study model. 2, Instructed group work can not only facilitate the process of students group work, but also favor instructor's improvement by offering more targeting instructions.Group study model uses a student-oriented interactive teaching and learning method. This allows students to take active roles in their studies, encourages multi-way communications, helps instructors work more effectively and equitably with diverse students, enriches the learning for students with diverse needs, and improves studying effectiveness compared to individual study models.

5. Future Research

Future studies are needed in order to improve the attendance of out-of–class homework, since not every student couldbe effectively involvedin all group studies due to personality, time conflicts, or other reasons. Further research will focus oninvestigatingthe relationship between students'performance in the experimental group with their degree of participation. Other research may includeimproving individual student's group working skills to make the group work more productive.

References

Barton, J. (1995). Conducting effective classroom discussions. *Journal of Reading, 38*(5), 346-350.
Bernstein, L., Rappaport, C. D., Olsho, L., Hunt, D., & Levin, M. (2009). Impact Evaluation of the US Department of Education's Student Mentoring Program. Final Report. NCEE 2009-4047. *National Center for Education Evaluation and Regional Assistance*.
Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom*: School of Education and Human Development, George Washington University Washington, DC.
Boylan, H. R. (2011). Improving Success in Developmental Mathematics: An Interview with Paul Nolting. *Journal of Developmental Education, 34*(3), 20-27.
Brown, A. L., & Palincsar, A. S. (1989). Guided, cooperative learning and individual knowledge acquisition. *Knowing, learning, and instruction: Essays in honor of Robert Glaser*, 393-451.
Chan, E. S. (2012). AN INNOVATIVE LEARNING APPROACH: INTEGRATE PEER-TO-PEER LEARNING INTO BLENDED LEARNING. *International Journal of Global Education, 1*(1).
Ciampa, M., & Revels, M. (2013). The Effect of Self-Remediation Activities on Undergraduate Student Retention. *Kentucky Journal of Excellence in College Teaching and Learning, 10*(2012), 7.
Clearinghouse, W. W. (2008). WWC procedures and standards handbook. *Washington, DC: Retrieved January, 1*, 2009.
Corey, G. (2011). *Theory & practice of group counseling*: Thomson Brooks/Cole.
Dreifus, C. (2008). In professor's model, diversity= productivity. *New York Times*.
Edmondson, A. C. (1996). Learning from mistakes is easier said than done: Group and organizational influences on the detection and correction of human error. *The Journal of Applied Behavioral Science, 32*(1), 5-28.
Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual review of psychology, 60*, 549-576.
Gupta, N. (2012). Team responses to noncontributing members: The effects of attribution and knowledge overlap. *Group Dynamics: Theory, Research, and Practice, 16*(3), 172.
Gurin, P., Dey, E. L., Hurtado, S., & Gurin, G. (2002). Diversity and higher education: Theory and impact on educational outcomes. *Harvard Educational Review, 72*(3), 330-367.
Hollingshead, A. B., Brandon, D. P., Yoon, K., & Gupta, N. (2011). Communication and Knowledge-sharing Errors in Groups. *Communication and Organizational Knowledge*, 133-150.
Hong, L., & Page, S. E. (2004). Groups of diverse problem solvers can outperform groups of high-ability problem solvers. *Proceedings of the National Academy of Sciences of the United States of America, 101*(46), 16385-16389.
Klein, P. D. (2003). Rethinking the multiplicity of cognitive resources and curricular representations: alternatives to'learning styles' and'multiple intelligences'. *Journal of Curriculum Studies, 35*(1), 45-81.
Levin, H. M., & Calcagno, J. C. (2008). Remediation in the Community College An Evaluator's Perspective. *Community College Review, 35*(3), 181-207.
Levin, H. M., & Koski, W. S. (1998). Administrative approaches to educational productivity. *New Directions for Higher Education, 1998*(103), 9-21.
Meyer, R., & Krueger, D. (2001). *Minitab guide to statistics*: Prentice Hall PTR.
Page, S. E. (2008). *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies (New Edition)*: Princeton University Press.
Pilkington, R., Bennett, C., & Vaughan, S. (2000). An evaluation of computer mediated communication to support group discussion in continuing education. *Educational Technology & Society, 3*(3), 349-360.
Pope Jr, H. G., Hudson, J. I., Jonas, J. M., & Yurgelun-Todd, D. (1983). Bulimia treated with imipramine: a placebo-controlled, double-blind study. *Am J Psychiatry, 140*(5), 554-558.
Puma, M. J., Olsen, R. B., Bell, S. H., & Price, C. (2009). What to Do when Data Are Missing in Group Randomized Controlled Trials. NCEE 2009-0049. *National Center for Education Evaluation and Regional Assistance*.
Rajan, N., & Marcus, L. (2009). Student Attitudes and Learning Outcomes from Process Oriented Guided-Inquiry Learning (POGIL) Strategy in an Introductory Chemistry Course for Non-Science Majors: An Action Research Study. *The Chemical Educator, 14*, 85-93.

Rohfeld, R., & Hiemstra, R. (1995). Moderating discussions in the electronic classroom.
Rohfeld, R. W., & Hiemstra, R. (1994). Moderating discussions in the electronic classroom. *Computer mediated communication and the online classroom, 3*, 91-104.
Schoen, H. L. (1976). Self-paced mathematics instruction: how effective has it been? *The Arithmetic Teacher, 23*(2), 90-96.
Springer, L., Stanne, M. E., & Donovan, S. S. (1999). Effects of small-group learning on undergraduates in science, mathematics, engineering, and technology: A meta-analysis. *Review of educational research, 69*(1), 21-51.
Torgerson, D. J., & Torgerson, C. J. (2003). Avoiding bias in randomised controlled trials in educational research. *The British Journal of Educational Studies, 51*(1), 36-45.
Vandrick, S. (2000). *Language, Culture, Class, Gender, and Class Participation*. Paper presented at the TESOL Annual International Convention, Vancouver, Canada.
Yalom, I. D., & Leszcz, M. (2008). *The Theory and Practice of Group Psychotherapy*: Basic Books.

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GLOBAL-READY WORKFORCE LEVERAGING DIVERSITY IN EDUCATION FOR WORKFORCE READINESS IN THE CARIBBEAN

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Abstract
Change has become commonplace in every sphere of life and learners must be taught as part of their formal and informal learning and development indoctrination to deal with many unknowns and interact in diverse environments. Diversity is an important asset in any educational establishment as well as the changing workplace and must be fully leveraged in the every teaching and learning curriculum in the Caribbean. When teaching and learning organizations embrace diversity as an element of their learning and development culture, learners are given a competitive edge, given the level of cultural sensitivity they develop in their interaction with other students who are dissimilar and when the teaching and learning process and content, address the subject of diversity. Thus, when students are prepared to deal with the challenges presented in the globally connected and economically linked society, they are better prepared to succeed in the workplace both locally and globally. Therefore, educators, policy-makers and workplace professionals must be intentional in their chosen inclusion strategies to truly cultivate a learning climate that is safe to learn because students are made to feel valued, recognized and appreciated for who they are and what they bring and share in each learning encounter.
Keywords: diversity; globalization; culturally dissimilar; education leadership, generationally dissimilar; linguistically dissimilar; ideologically dissimilar, biologically dissimilar, Caricom, economically dissimilar, West Indies, globalized teaching and learning, Caribbean, teaching and learning diversely.

Introduction

Globalization has changed the world in ways that are yet to be understood, far less properly managed, especially in the Caribbean (see: Premdas, 2011; Colón, 2010; George & Lewis, 2011; Barker, 2012; Martin &Bray, 2011). But globalization cannot be seen as localized to the Caribbean or some distance nation, but seen as "monumental structural changes occurring in the process of production and distribution in the global economy" (Cogburn, 1998, p.1). Therefore, globalization must be recognized as a phenomenon that involves all nations, all organizations, all communities, and certainly all persons given the changes, opportunities and challenges it brings, the lives transformed by it and the systems, practices, policies and investment patterns that must be changed because of globalization (Hewapathirana and Bowen, 2008; Summer, 2008; Scott, 2000).

These changes have many implications for the transmission of new and globalized quality knowledge that have as a natural derivative the need for congruent job creation and students preparation for competitive placement in the global economy (Carnoy, 2005). However, these opportunities can only be realized if there are changes in the mindsets of the people and the leaders of the Caribbean about their place in the global marketplace and what they need to do to affirm that placement. It is important, however, that changing the mindset includes reaffirming and redefining the Caribbean and its people to

include their own cultural identity and histories instead of hastily trying to live out the histories and experiences of others as they try to find their place in this globally interconnected world.

In their assessment of research capacity in the Caribbean, Lewis and Simmons (2010)pointed out that the Caribbean is in a vulnerable position to the threats of cultural fusion which can downgrade and in some situation marginalize smaller Caribbean states. To mitigate some of these resultant threats, it is important that Caribbean leaders identify the things that make the Caribbean people unique and use this understanding to begin reinforcing the distinctive Caribbean identity as a way of acknowledging the existing mindset, intentionally changing mindsets that need to change, merging mindset and adopting new mindsets where necessary and appropriate in order to move forward. A strong self-identity makes the Caribbean nation and its people better positioned to compete as an equal partner rather than a silent or minority partner in the global marketplace.

Such intentional course of action will help create a new path for globally ready Caribbean people and a new Caribbean economy with global intent and persons who have the ability to compete in the global marketplace with their identity intact, with heighten cultural sensitivity and with the intended purpose of thriving and being successful in the global economy. These measures serve as organizersfrom which Caribbean leaders can earnestly assess their current structures, policies, procedures and practices, evaluate the current economic environment and begin identifying new structures that if adopted will lead to a stronger more global conscious people and a well-positioned Caribbean economy. This self-assessment process ought to result in developing strategies for moving the Caribbean people forward, developing knowledge through collaborative research and knowledge sharing systems that are usable and can be evaluated for impact and needed adjustment, frequently.

According to the International Labour Organization "Global Employment Trends 2011" Report, it has been more than three years since the beginning of the fastest and deepest economic crisis since the great depression. Employment-population ratios, pronounced vulnerable forms of labour, stagnant labour productivity growth, and rising discouragement – particularly among youth still persist with noticeable and ongoing consequences (ILO, 2011). These noted trends are evident in the elevated unemployment and slow job creation globally, especially in developed economies. Like the rest of the world, the Caribbean is affected by the global economic crisis with most noticeable signs beginning with the decline of employment in 2008-2009. These are difficult times for all people and it is critical for leaders of the Caribbean to react less and be intentional and proactively response to these global challenges by developing their people, their infrastructure, policies, procedures and practices to stabilize and reenergized the people of the Caribbean to take advantage of the opportunities globalization presents.

Hence, the changes and challenges brought about by globalization are inevitable phenomenon among all entities and these changes as noticed have immense implications in every aspect of academic and worklife as well as the composition of those who lead these organizations (Eagly & Chin, 2010; Karoly &Panis, 2004). As a matter of speaking "almost, if not all, social life facets are affected by the globalization process: culture, politics, economy and social relations are all deemed to be transformed by this process" (Vaira, 2004, p. 483). Therefore, Caribbean leaders must avoid the natural impulse to reaction and to think about globalization in both specific and general terms, as to do differently results in many new behaviors that are incongruent to the existing structure and may very well derail individuals, organizations and nations from forging ahead with the right attitude and sense of responsibility, strategies and purpose to be successful in this global economy (Carnoy, 2005).

In a global economy, nations are connected and interconnected even if they don't want to be connected or be interconnected that is why individuals, communities, organizations and nations must come to expect that diversity will be a part of their existence and will change them whether they like it or not. Guillen (2000) pointed out that "globalization encourages diversity rather than homogeneity" (p18) as people move freely within and among nations. Each movement brings persons who are dissimilar to the

Caribbean and people of the Caribbean must increase their level of sensitivity to these individuals and what they bring, but they should not view their own cultural heritage as subordinate to those persons. The Caribbean's culture is not inferior to another culture; it is simply different and should be celebrated and respected, especially by the people of the Caribbean in ways that encourages tolerance and inclusion of others. It is therefore necessary for Caribbean educational leaders to understand the international interaction requirements in order to operate in a global business environment and ensure that their students and workers acquire these skills as diversity and complexity increase (Jokinen, 2005; Neves& Caetano, 2009).

However, there are instances where employers are having a difficult time filling certain positions because many available workers lack credentials, attitude, work habits and social skills employers prefer (Kirk, Woody, Burns, Howard and Rice, 2001) and must resort to hiring persons who are not of the Caribbean. Therefore, Caribbean leaders must be premeditated in their chosen policy positions about human resource development strategies to include those ideas that are, not only, creating discourse about diversity, but also generating meaningful strategies for changing the existing education approach to fit a global operational market place. However, despite the noted changes and challenges, "proponents have been cautious about advocating significant change" within respective nations and organizations (Richardson & Skinner, 1990, p. 486). Truly, a cautious approach is necessary, but to be cautious in the Caribbean should not be equated with doing nothing as to do nothing ignores the changes that are happening right here in the Caribbean today and are creating all kinds of dysfunctional consequences because of lack of foresight, planning, structure, leadership and movement.

Furthermore, in the case of work and worklife, the last decade has seen many changes, in the way work is performed and measured, the people performing the work and the reward and work arrangement systems. Hence, the way these changes are perceived, conceptualized and managed and the way students in the Caribbean are educated should also change, given the increased diversity and complexity these changes bring and support (Jokinen, 2005). These changes are manifested in predictable ways, as well as, unanticipated ways (Dollard & Winefield, 2002). Regardless of how these changes manifest, they appear to be constant occurrences in every aspect of workers' readiness-requirements, professional identity as well as individuals' personal lives and should be taken seriously. Because the world is becoming smaller and more complex, it means that diversity has to be a factor in the way educators in the Caribbean teach and the way students learn and are evaluated.

The purpose and outline of this paper

The purpose of this paper is to highlight the global trends and how the Caribbean can take advantage of the benefits it beings and mitigate some of the challenges it presents. To accomplish both political, educational and workplace leaders are to incorporate strategies into their policies, curriculum and workplace learning and development endeavors that leverage aspects of diversity from the local cultures as well as globalized diversity patterns. To elucidate this, this paper explores eight main areas and provides some key definitions. The first section presents key definitions. The second sections examined global trends and the Caribbean. In the third session, behavioral requirements for Caribbean workers of all kinds working in a changing global economy which may require them to work alongside foreign workers, work as part of a global team or be an expatriate working in another country. The forth explores issues of diversity and some of the challenges posed. The fifth discusses some of the ways people think about diversity. The sixth examined effective ways of teaching and learning in a diverse, learning community. The seventh examines strategies for preparing students for the boardroom and beyond. The eighth section explores strategies for leveraging diversity in education. The sections are presented in such a way as to illuminate the link between the changing operational environment and the need to have cross-cultural acumen, world knowledge and to teach and learn diversely. Following this, the implications for

educational leaders and workplace professionals are considered, together with some concluding remarks and learning and development professionals possibilities for collaborating with educators.

Key definitions

Like the rest of the world, the Caribbean has distinctive communities and sub communities, many ways of interacting and communicating face-to-face and through different electronic modalities. All these elements of culture are influenced by and are instrumental in helping to shape the values, beliefs, practices and expressions that make the Caribbean people unique and deserve equal respect and dignity (UNESCO, 2008). Because of this, it is important to establish some common definitions that are useful in thinking about and responding to the challenges teaching and learning diversely presents. The definitions considered in illuminatingthe ideas presented in the document are as follows:

Table 1: key definitions

Term to be defined	Definition
Cultural diversity	A set or sets of distinctive spiritual, material, intellectual and emotional features of the Caribbean people.
Teaching and learning diversely	Creating a learning environment that is physically and psychologically safe, socially aligned to tap into the deepest human need to be themselves, where creative learning is encouraged and errors are seen as opportunities for further exploration of one's potential and not as a marker of defeat or failure.
Globalization	"Economic "globalization" is a historical process, the result of human innovation and technological progress. It refers to the increasing integration of economies around the world, particularly through the movement of goods, services, and capital across borders" (International Monetary Fund, 2008).
Generation difference	"It is the theory that people born approximately 20-year time period share a common set of characteristics based on the historical experiences, economic and social conditions, technological advances, and other societal changes they have in common" (Reeves and Ho, 2007, p. 295). The groupings are traditionalist, veteran or silent generation (1925-1943), baby-boomers (1943-1960), generation X (1961-1981) and the millennium generation (1982-2000) (see chart in appendix A).

GLOBAL TRENDS IN THE CARIBBEAN

Population density is high in some Caribbean countries with some harmful effects on deforestation and fresh water availability (Free World Academy). But despite the challenging global economic environment in the Caribbean, the ILO (2006) reported that over 85 million people still migrate to developing nations like the Caribbean for employment opportunities which present its own diversity for Caribbean leaders, including educators. For instance, Thomas-Hope (2002) reported that "the Caribbean have always been part of the global network of production and labour transfer" (p. v) but the rate at which this is happening today warrants deeper understanding and purposeful attention by Caribbean leaders.

However, the intensification of globalization has accelerated the rate at which information becomes available, reformulated and the ease at which both skilled and unskilled Caribbean residents are hired by foreign nations, especially developed nations (Thomas-Hope, 2002). The evidence of this assertion is supported by the liberalization of immigration policies by a number of developed nations to attract the movement of skilled professionals (Thomas-Hope, 2002). This free movement of workers between nations is fueling a brain drain in the Caribbean which requires prompt redress by Caribbean leaders.

Clearly, globalization and internationalization are creating a context for Caribbean nations and organizations to redefine themselves and their people by re-engineering their curriculum and teaching and learning practices for better positioning and for global competitiveness. This is largely true because the changes experienced are rapid, unpredictable and pervasive (Burnes, 2004). Furthermore, the ILO (2006) reported that global economic growth is increasingly failing to create new and better jobs that are meaningful and sustainable that would lead to reduction in poverty.

These changes present many opportunities and challenges for the people of the Caribbean but changes must be made in the curriculum to fully realize the opportunities presented and to mitigate unsuspecting threats that are before the Caribbean nations. In many situations, globalization has not met the simple and legitimate aspirations for decent jobs and a better future for workers and their children (ILO, 2011). The failings of globalization are evident in the Caribbean as well and since one size does not fit all, the people of the Caribbean must become a more close-knit community to solve the problems they face in this global economy. Any intervention must be intentional in that they are pivotal in creating "an economy that generates opportunities for investment, entrepreneurship, skills development, leadership development, job creation and sustainable livelihood" because the current model of jobs creation is not producing sufficient jobs nor are the jobs diverse enough (ILO, 2006).

In spite of the way changes are experienced in the Caribbean, these changes warrant swift and decisive actions to mitigate the impact they are having on students' preparedness for the workplace and their readiness to interact with other students and workers who are diverse with the right level of cultural sensitivity and world knowledge to avoid being left behind. Consequently, educational leaders in the Caribbean must set direction from the top and engage people from all levels of the organization (Beer and Nohria, 2000) in reshaping the educational system to do business with a global mindset, world knowledge and in a borderless economic environment (Karoly and Panis, 2004). These leaders must also be willing to take on the role of change agents who are not afraid to "encourage risk-taking and nontraditional ideas, activities, and actions" (Kotter, 2007, p.3).

Most of all, these changes are catalytic events resulting from a flood of new and evolving technological tools, work options, multilingualism, world disasters and conflicts, insidious deregulation, diverse abilities, demographic shifts, multiculturalism, blurring of the lines between work and personal time, internationalization, multigenerational workforce, knowledge-information sharing methods, work arrangements, cross-cultural interactions among other things (Karoly and Panis, 2004; Black, Mendenhall and Oddou, 1991). These changes are experienced all over the world, including the Caribbean, with both direct and proximate consequences. As a matter of fact, internationalization and the globalized interchange have affected every aspect of policy-making, governance, communication, organization, academic and work identities (Vaira, 2004). Moreover, given the projected shortage for skilled and unskilled labour, most governmental agencies want to welcome foreigners, not scare them away (Stopford, 1998-1999), therefore more immigrants entering the workforce increase the level and complexity of diversity. Because of the freedom of movement in this borderless economy, Fairl (2009) believed that "valuing diversity and fostering inclusion produces diversity of thought and improves potential for recruiting and retaining highly qualified employees" (p. 20).

Despite one's placement in this storm of change, there are some important behaviors and practices that must become part of the futurist teaching and learning process in the Caribbean to best equip the next generation of students to function in multicultural, multilingual, multigenerational and multi-ideological interconnected work environments. As students develop their world knowledge, team building capabilities, language skills, cross-cultural communication, global ethics and specialized skills with a cross-cultural emphasis and are encouraged to find and tap their creative capacity, they will be better able to function in a global economic environment. Guillen (2000) argued that as students become mutually more aware of others in the global economy, new knowledge will multiply the chances of linkages with others and generate possibilities for exchange.

Umbach & Kuh (2006) contended that "the very act of experiencing diversity during college helps students develop the habits of the mind and heart that enlarge their capacity for doing so after college" (p. 170). Therefore, it is imperative that educational leaders in the Caribbean put in place those teaching and learning systems that will help students learn and grow holistically in readiness to work in a diverse work environment with a tolerant and creative mindset. It is also necessary to set clear pathways to prepare educators to teach diversely in every Caribbean classroom. This is an urgentand needs serious consideration because to do differently, not only, places students at a competitive disadvantage, but it also leaves the Caribbean region lagging behind and waiting for handouts from other nations which usual have incongruent requirements attached to them and many times launch the Caribbean backward instead of forward which is needed for proper global positioning.

globalization, creativity and learning

Human beings have the ability to grow and be creative and society cannot achieve economic and cultural progress without supporting human growth and development (Charan, Dotter & Noel, 2001). That is why it is so important for Caribbean educational leaders to find the right mix of leadership, instruction, supports, staffing and environmental appropriateness to prepare students to work in a complex intercultural, globally-influenced operational environment. However, Caribbean leaders must be mindful that as a result of increased internationalization and globalization many challenges have surfaced, especially with "the need to design effective multinational organizations, to identify and select appropriate leaders for these entities and to manage organizations with culturally diverse employees" (Northouse, 2007, p. 301). Furthermore, the changing world is, not only, challenging, but ill-defined, misunderstood, and has no clear pathway for addressing these concerns given the uniqueness of each; the rate at which these challenges evolve; the lackluster responsiveness to these challenges by major leaders; and the lack of congruent training and preparedness of Caribbean educators (Mark, 2008; Lewis and Simmons, 2010) to research and address these concerns in meaningful, yet in sustainable ways that are still to be attained.

The changes have landed in the Caribbean are creating a level of diversity as never seen before and educators in the Caribbean need to take note of these changes and modify their teaching and learning models, education commitment, funding and evaluation methods, recruitment and promotion practices and futuristic planning and developing methods, accordingly.

Arsenault (2003) acknowledged that "today's workforce is more diverse than ever" (p. 124). With the increasing richness of diversity in the world and in the workforce, we need to expand our outlook in the Caribbean and encourage creative thinking and use creative strategies to be successful (U.S. Department of Commerce and Former Vice President Al Gore National Partnership for Reinventing Government, 1996).Clearly, the issues of diversity are crucial as the interconnectedness of people today is astounding given internationalization influences, globalization and the pervasive use of technological tools to interact with diverse peoples and in multiple settings.

Cogburn (1998) pointed out that knowledge is becoming increasingly important factor of production and in some cases even more important than land, labor and capital. However, the ease at which information can be attained and it pervasiveness is putting pressure on the education and learning paradigm around the world in order to better meet the demands of the knowledge and information-incentive global economy (Cogburn, 1998). For instance, in the Caribbean the ways in which students learn have become indistinct, in that, much what is learned in the classroom from primary school to university lack Caribbean relevanceor students lack the creative drive to make the knowledge useful in solving challenges in the Caribbean, especially socioeconomic disparities, misaligned issues of diversity and inclusion, educational transformation and alignment, economic stagnation and repressed creativity, socio-psychological issues and leadership and followershipdynamics (Lewis and Simmons, 2010). Also, students are exposed to real-time information at the touch of a button and must be taught the rudimentary knowledge, skills and abilities to be functional in such environments with the appropriate cultural competencies to be effective and with the ability to use such knowledge, skills and abilities constructively in nation building activities. The level of diversity seen, presents many opportunities for Caribbean students to learn and grow with global mindsets, but the differences also increase the level of vulnerability for those who are different and live, learn and work in predominantly homogeneous areas where there isn't much appreciation for diversity or understanding of the powerful benefits diversity brings.

the diversity challenge

Lippin (2008), reported that each year faces "more than 125 very diverse students, who are hungry to relate to each other across the boundaries that society has setup. Hungry, yes, and curious, and also terrified" (p. 24). Evidence has shown "from freshman to senior year, students become less authoritarian, dogmatic, and ethnocentric" and they are more apt to develop greater social, racial, ethnic, and political sensitivities and show greater support for individual rights (Pascarella, Edison, Nora, Hagedorn &Terenzini, 1996, p. 175) when they are exposed to a diverse teaching and learning environment. Promoting this level of sensitivity in a changing world poses many challenges for educational leaders and policymakers but they must be intentional in the way they manage these challenges by responding to the requirements of the changing educational and work environmental.

Challenges usually surface given the advancement in information technology, coupled with deregulation and market liberation globally which has created increased presence of multinational organizations and these entities must rely on "human skills to promote growth and remain competitive" (Stopford, 1998-1999, p. 15). Consequently, Caribbean leaders "who are unaware of their own racial/cultural social identity, and unaware of differing worldviews of culturally diverse [students] risk perpetuating insensitive behaviors and unconscious exclusion" (Lippin, 2008, p. 25). Subsequently, "failing to accept diversity can result in negative feelings and consequences for both educators and learners" (Manning, 2000, p. 127). Overtime, this posture stagnates any human resource development strategy in the Caribbean; thus leaving many students lagging behind their peers in other countries and the Caribbean operating with a colonial model of existence and development that has outlived its usefulness in a global economy.

Lanier (2004) held that "in today's competitive environment, diversity is a key element in succession planning process" (p. 273) at all levels of organizations and organizations are "reinventing themselves in diverse ways" (Stopford, 1980, p. 12). But Caribbean leaders must not miss the opportunity to begin their own self-assessment journey and reinvention process. Gunter (2006) held that diversity is an inseparable attribute of humanity, but it is constructed as a positive or negative dependent on political, economic and social structures in the Caribbean. Looked at another way, diversity can be beneficial and advantageous to both the individual and the organization, especially when properly acknowledged and aligned with other dimensions of the organization's operations (Lanier, 2004). However, a point worth

noting is that "while people do share the same basic human needs, encounter many like work issues, and experience similar life events, our differences do matter" (Gardenswartz & Rowe, 2003, p. 31-32). Yet, the existence of these differences requires proper self-awareness, application and mastery of emotional intelligence and self-management to allay some not so pleasant consequences diversity presents, however, this must be taught for it to be learned.

Walton (2009); Kandola (2004) noted that poor interpersonal relationships at work, especially those between the boss and their colleagues, continue to be a challenge in the Caribbean and become the basis for why people tend to quit or are fired from their jobs. Studies on "employee well-being continues to point to poor interpersonal relations with 'key others' as a prime source of stress, tension, poor performance and organizational disruption" (Walton, 2009, p. 8). These kinds of problems can persist especially when there are incongruent expectations that stems from the era in which one was born, personality, linguistic, cultural and ideological differences presented.

Furthermore, Caribbean students can be expected to "interact with others in ways that are friendly, courteous, and tactful and that demonstrate respect for individual and cultural differences and for the attitudes and feelings of others" (U.S. Department of Labour, 2002, p. 21). Therefore, the challenges for the private and public sectors in the Caribbean include improving educational outcomes through collaborative efforts at all the levels of the educational system while developing opportunities for career-long cultural sensitive learning through formal and informal learning opportunities. Roach (2009) believed that the issues about accountability and the importance of learning outcomes and assessing what those outcomes have been are important elements in shaping the workforce of tomorrow in the Caribbean.

BEHAVIORAL REQUIREMENTS FOR CARIBBEAN WORKERS TO BEHAVE DIVERSELY

Surviving in a global and international operational environment in the Caribbean calls for some novel approaches by Caribbean educational leaders and policymakers if the Caribbean people are to be adequately equipped to function in a diverse interconnect economic operational environment. For instances, "if [Caribbean nations] are to survive and thrive, they must be able to change themselves continuously and fundamentally" (Medley and Akan, 2008). Some changes are already visible in the way people in the Caribbean interact, conduct business, the products and services sold and consumed, the meaning ascribed to work and certainly change should be seen in the way students learn, what they are taught and the efforts employed in facilitating skill transfer from the classroom to the workplace (Fenwick, 2001). This paradigm shift has redefined what workers are required to do, in that, workers are expected "to perform multiple tasks, learn new skills and self-manage to meet competitive demands" (Dollard and Winefield, 2002, p. 5).

Because students are expected to function in an ever-changing global operating environment, it is crucial that they are able to attend to, encode, store, and retrieve culturally sensitive information that exists in the surrounding environment (Aleksander, Ellis, Porter, West & Moon, 2003). Therefore, Caribbean nations must take a critical look at their strategies for building a workforce that can work with a global mindset, work on global teams, or work in other nations. Such a strategy can help to translate most economic activities in the Caribbean in ways that will increase their capabilities to compete in a global interconnected economic environment and provide additional revenue sources. This is a required measure because according to the ILO (2010), globally there is an estimated 630 million people who are considered the working poor; women still earned 10-30 percent less than men; young people are more than three times as likely to be unemployed as adults; Latin American and Caribbean unemployment rose from 7 percent in 2008 to 8.2 percent in 2009, thereby adding 4 million jobless (ILO, 2011).

Furthermore, Caribbean nations must proactively take steps to understand the new global operational environment and define the specific knowledge, skills and abilities students must have to work with a global mindset, work on a global team and work in or for other countries without leaving the

Caribbean. All these skills are important competencies for students to have to increase their competiveness, not only in the Caribbean region, but in a wider global economy environment that is ruthless and fast. Subsequently, it is also necessary for Caribbean leaders and policymakers to be aware of the vocational shortage areas and prime their students to fill those positions with the specific competencies and with the appropriate cross-cultural orientations.

It is also important for educators in the Caribbean to be supported by educational leaders and policymakers and be encouraged to recalibrate their teaching and learning strategies and their curriculum to best equip students for global citizenship, work and family life in a changing and diverse world where tolerance and creativity are fundamental requirements (Couch, 2006). In fact, Barceló (2010) believed that in these revolutionary times of staggering economic, demographic, and cultural change, mission-driven investments in diversity are more important than ever. In the same breath, institutions must show their commitment and priorities through meaningful and sustainable curriculum reconstruction, support for faculty training and development efforts and for establishing the pertinent pathways for meaningful collaboration and information sharing that will help align the curriculum to the workforce knowledge, skills and abilities needs in the Caribbean (Mayhem & Grunwald, 2006).

As the pace of globalization and internationalization intensifies, educators need more than ever to draw on the talents, knowledge, and abilities of work, human capital, human resource development, and workforce planning professionals in collaborative exercises to discern the competencies required and to develop competency-based learning models that will equip students to compete in an evolving global and international workplace.

Furthermore, it is therefore necessary for educational leaders and policymakers to be intentional in removing the behavioral, financial and other organizational impediments that stand in the way of cultivating a diverse teaching and learning environment where students can sharpen their cultural intelligence skills, world knowledge and level of diversity awareness for success in a global economic work environment.

Barceló (2010) contended that it is imperative to continue investment in diversity to avoid perpetuating opportunity and achievement gaps. Caribbean educational leaders and policymakers must be careful not to ignore the need to diversify their curriculum as to do differently perpetuate existing racial/ethnic, socioeconomic, educational and gender disparities. As such, Caribbean educational leaders and policymakers must develop those structures that articulate connections between new behaviors and the institution's success (Kotter, 2007) as those following their lead may have different mores, beliefs, and entirely different ways of understanding and responding to the world (Eagly and Chin, 2010).

Equally, educational establishments are required to be responsive to the major shifts in the demographics of their student population, the globalized and international influences and the cultural changes before them. This is important as these changes are pronounced and are most noted in areas of race, ethnicity, gender proportions, socioeconomic disparities, learning and work styles, generational differences, abilities, religious affiliation, language proficiency, sexual orientation, other aspects of culture and many more.

The perverseness of diversity calls for creating learning and work environments that are culturally sensitive and promotes inclusion across broad areas of organizational life in the Caribbean. This can only happen by creating inclusive spaces where diversity is fundamentally embraced, celebrated, affirmed, reaffirmed, and where responsibility for creating a culturally intelligent work and learning environment across all levels of Caribbean organizations are seen as important attributes of a healthy organization that is striving to be best-in-class (Barceló, 2010). The days when people resisted interventions to diversify Caribbean organizations has to be a thing of the past. The issues of today demand a different approach and educational leaders in the Caribbean must ensure that their institutions are not promoting behaviors of exclusion because an environment of inclusion prepares "students for life and leadership in an

increasingly diverse society" (Whitt, Edison, Pascarella, Terenzini and Nora, 2001, p.172). As a matter of fact, to do differently, not only lead to deeper brain drain issues but far greater such actions will lead shortages of viable workers given the high mortality rates reported before age 60 (73%) in the Caribbean if some students continue to be marginalized because of their differences (United Nations Department of Economic and Social Affairs, Population Division, 2010).

strategies for developing Caribbean workers to behavior diversely

Students in the Caribbean must be taught to work with and manage encounters with people who are dissimilar from as early as kindergarten and all the way through post-secondary learning (Lippin, 2008). Therefore, students must be taught in a culturally sensitive environment where they can become aware of their own Caribbean cultural history, develop and master cross-cultural intelligence, develop stronger academic and social self-concept and other behavioral skills necessary to communicate cross-culturally and to be able to engage others in healthy interchanges as members of diverse teams or as consumers in a global marketplace (Kim, 2002; Terenzini, Cabrera, Colbeck, Bjorklund & Parente, 2001; Lippin, 2008). Some of these competencies or attributes can be developed through meaningful business-education partnerships geared toward creating growth-related internships, job shadowing, concentrated mentoring and coaching, take-your-child-to-work day, business speeches about cross-cultural engagements, focused developmental summer jobs, businesses developing and participating in meaningful career development or career day activities at a local school and by adopting a school, especially a school in underrepresented communities (Karoly and Panis, 2004; Dollard and Winefield, 2002). By developing core cross-cultural competencies, students in the Caribbean become more versatile, which makes them more competitive because these skills are portable and can be transferred from one job, organization or nation to another and thus enhance students' creativity and employability rather than job, organization, nation-specific skills (Kim, 2002; Dollard and Winefield, 2002).

Furthermore, educational establishments in the Caribbean must be so structured to provide students with erudition about the many differences that the changing world presents. And educators must try not to "allow their feelings to interfere with their social interaction with learners and also with their implementing appropriate teaching-learning experiences" (Manning, 2000, p. 127). Also, students in the Caribbean must be taught through experiential learning activities, students exchange opportunities, reading of international publication, pen pals' correspondent, teacher exchanges, cross-cultural research, multimedia materials and programming, cross-nation collaboration, language training and collaborative teaching and learning in a global distance educational environment how to manage these relationships as well as their own behavior in those situations. However, it is vital for Caribbean educational leaders and policymakers not to get so fixated on outcomes, but must be equally committed to supporting the right kinds of interventions that reflect the uniqueness of the Caribbean people that will produce those outcomes that will put the Caribbean on the right footing in the global marketplace and command a place in the global workplace for "ALL" Caribbean people.

THINKING DIVERSELY

Umbach and Kuh,(2006) reported that "diversity-related experiences benefit individual students, institutions, and society at large" (p. 169). Still there are noted areas of resistance to diversity despite the potential for enriching students' educational experience, positioning students for a globalized work environment and building communities and nations in the Caribbean (Umbach and Kuh, 2006). Part of the issue of diversity is the persistent discomfort some individuals have with the role equity plays in creating a diverse teaching and learning environment and this discomfort continues to perpetuate a range of disparities/gaps (Clark, 2010). This discomfort most likely stems from the ways diversity is defined and

perceived. Supporting this assertion is a report by the U.S. Department of Commerce and Former Vice President Al Gore National Partnership for Reinventing Government which found that:
Frequently, diversity is viewed in a limited fashion, primarily addressing issues of race, ethnic or gender differences, and linked to the laws providing protected status to certain groups. We have used a very broad definition of diversity, to encompass most characteristics that individuals possess that affect the way they think and do things (1996).

In the past, "diversity has been mostly about developing awareness of differences rather than about developing leadership skills from the perspective of diversity" (DiTomaso & Hooijberg, 1996, p. 164). Hofstede (1994) argued that "the effective way of leading people and organizations can differ depending on a national environment" (p. 4). Therefore, "as businesses expand into new markets, they will face an increasingly complex Human Resource environment, particularly as they try to recruit and retain foreign talent and integrate diverse cultures" (Krink & Strack, 2008, p. 31).

Similarly, Schaefer (2004) argued that globalization and internationalization have created situations in the workplace where: More and more, the workforce reflect the diversity of the population as ethnic minorities enter the Labor force and immigrants and their children move from marginal jobs or employment in the informal economy to positions of greater visibility and responsibility(p. 205).

Because of these trends, Caribbean nations can expect to experience many shifts in the in the composition of the population in ways that reflect a level of diversity as never been experienced before. Cohen (1998) argued that "individual human beings differ in myriad ways, and each specific difference may be important" (p. 30). Besides, "what we see as racial differences in behavior may reflect that people have different cultures "grammars" and categorize things (and therefore think) in different ways" (Cohen, 1998, p. 2). Moreover, "races, as imagined by the public, do not actually exist. Any attempted definition of "race" produces more exceptions than sound classifications. No matter what system we use, most people don't fit" (Cohen, 1998, p. 30). That is why, to think of diversity only in terms of race leaves many aspects of diversity, such as culture, language, ability, religious affiliation, values, divergent viewpoints, gender composition, economic and other disparity gaps, ideas, generational difference, information sharing and nationality by the wayside and out of the public discourse, policymaking positions and the teaching and learning curriculum in the Caribbean. As a matter of fact, if diversity is narrowly defined, students are taught less and not more by ignoring the richness other aspects of diversity add to the teaching and learning process, the workplace esprit de corp and global positioning requirements.

strategies for thinking diversely

Creating a diverse learning environments in the Caribbean must start with developing an understanding of what diversity is and what diversity is not and learning how to use the knowledge about diversity to teach students how to engaged and interact with others who are different in a myriad of ways in the learning environment. By creating such a diverse learning environment, educators by their behavior are "creating greater equity and parity in the experience and outcomes of individuals from diverse backgrounds" (Kezar, 2008, 407).

Additionally, Caribbean educational leaders in their quest to diversify the educational system must be careful to encourage equity and parity by building "top-down momentum, developing and communicating an accessible theme and build bottom-up momentum by enlisting employees who already embrace change" (Hirschhorn, 2002, p. 23). However, when educational leaders in the Caribbean redesign their teaching and learning environment to accommodate diverse interactions and align the curriculum, they must also be intentional in redistributing learning and other opportunities among a greater number of students and educators without discrimination, while building capacity within educators to cope, given the rate of change to the nature of work (Dollard, and Winefield, 2002).

Caribbean nations must begin to think about the possibilities of their students working in global markets or being sought by other nations and must rearrange their approaches to educating students to function effectively in such environments. It is therefore necessary for Caribbean leaders to think about diversity in the broadest context as "culture influences the way people behave in organizations" (Charles, 2000, p. 62). Therefore, Caribbean educational leaders and policymakers will have to anticipate "change, through managing demographics, managing change and cultural transformation, and managing globalization" (Krink and Strack, 2008, p. 30) if their students are to be suitably positioned to function competitively in a global work environment.

It is therefore necessary for educators to help Caribbean students develop a sense of awareness of how their own cultural and racial backgrounds and life content, attitudes, values, and biases influence their interaction with those who are different as to do differently put students at a disadvantage in the global economic environment (Association for Multicultural Counseling and Development, 1991).

EFFECTIVE TEACHING AND LEARNING IN A DIVERSE LEARNING COMMUNITY

In today's globally interconnected, internationally-focused world, citizens have become used to events like Libyan leader is dead, European economic crisis "the war on terror; made in China; Blue flu; and technical support in Bangalore" (NASFA, 2006, p. 1). All these events together with the sporadic unrest in different parts of the world and economic crisis need to become part of the Caribbean students' world knowledge that we are living in a period where what happens in one part of the world deeply affects what happens in another, thereby making the world smaller, more complex, more interconnected and certainly more diverse. Hence, in this globally connected environment students must become internationally competent and culturally aware, not only, of their own culture but the culture of others, even though they may be unrelated. Caribbean educators must be at the forefront in helping students become proficient in these competencies if students are to have the skills employers are seeking (NASFA, 2006).

Camden (2008) declared that diversity is a critical issue, and the practices, procedures and ways of interaction hinge in part on how well educators leverage diversity. Marquardt (2002) recognized that "we live in a world in which technology and globalization affect every part of our lives" (p. ix). These changes are creating the need for a new kind of worker and educators, policymakers and education leaders must reflect this knowledge in how they approach teaching and learning.

> *The centrality of technology and technological development entails a greater emphasis on: knowledge production and information processing for competitive purposes; the wider and faster flow of communications; the shift in the occupational structures from manual workers to highly educated and flexible knowledge workers; and, consequently, on the role of educational institutions to form the human capital fitted to these developments (Vaira, 2004, p. 488).*

Futuristically speaking, students must be job-ready upon graduation to fit into organizations that are constantly evolving linguistically, biologically, generationally, ideologically, genderlyeconomically and culturally and must be so prepared. For that reason, learning cannot be seen as a separate activity that occurs either before one enters the workplace or in remote classroom settings; instead learning must be seen as a constant activity and should evolve so that it is congruent with the changing work requirements.

Ashton, Sung, Raddon & Riordan (2008) pointed out that "a lack of adequate formal training is frequently viewed as a "market failure" and thus as something that governments can legitimately take action to rectify" (p. 3). It follows that given their leadership positions and compensation, educational leaders and policymakers in the Caribbean have a significant impact on the depth and breadth of

classroom educators' preparation and how well students are equipped to become productive contributors in the changing workplace (Kaplan, Klebanov & Sorensen, 2007).

Moreover, the new workplace calls for workers who have the capacity to engage in identifying and solving problems that are products of a changing globally-influenced workplace. In order for students to become that type of worker, they must become committed life-long learners who are able to grow, improve and achieve goals through empowerment and experimentation in a diverse work environment that is constantly evolving (Draft &Marcic, 2001).

Lewis (2010); Stevens and Campion (1994) pointed out that team-work is a frequently used work design in organization of all types globally and if students are not taught how to work in teams, then they may encounter many challenges with team members, especially those who are dissimilar and those who have a different life history or those with whom they must work with virtually.

Cummins (1997) noted that despite the benefits diversity offers, "issues related to equity and education have been fiercely debated in many countries during the past 30 years" (p. 105) without any clear indication of what should be a universal standard to ensure that every student has a safe place to learn and grow unobstructed. What is more, diversity plays an important role in students' overall development and when properly incorporated in the teaching and learning activities, creates opportunities for students to cultivate different aspects of their personality and provide a basis for enriching the socialization process.

To some, diversity is a problem because it forces them to challenge their own assumptions of others and in some ways may change their perceptions of their predetermined status. Many resisters to diversity fail to see that resisting attempts to meaningful inclusion stifle students' growth and development, cheat students of a rich learning opportunity, in many ways hinder students' identity formation and stagnate a whole community and eventually a nation.

Furthermore, Miller and Sessions (2005) make the claim that "diversity should be considered the very patchwork of our society. It is through diversity that the many gifts and talents we possess enrich and touch our lives" (2005, p. 3). Yet, "some educators do not accept rapidly changing demographics, different cultural and ethnic differences, and interactions with people who speak a native language other than English" (Manning, 2005, p. 125). Such attitudes negate the purpose of education since the main thrust of education is to transfer knowledge from the culture to the individual (Pea, 1987).

Therefore, "in any given situation, an individual has a vast storehouse of prior knowledge that could be related analogically to the present occasion" (Pea, 1978, p. 47). However, the "lack of acceptance of unfamiliar customs, languages, and traditions can be lessened by learning about actual people and gaining firsthand familiarity with their characteristics" (Manning, 2002, p. 126).For instance, "there are many classrooms today where teachers have students who can speak …different languages" (Cohen, p. 3), and may belong to religious groups that are not Protestant, Hindu or Muslin. These dimensions of diversity, if embraced, can add richness to the teaching and learning process and challenge educators to deepen their understanding of diversity and to augment their teaching and learning practices to bring about a richer learning experience for all students.

strategies for effective teaching and learning in a diverse learning community

A World Bank Report (2000) stated that "international markets offer a huge opportunity for job and income and growth in agriculture, industry, and services" (p.8). The recognition of these trends suggests that if students are to participate in these opportunities, Caribbean educators would have to acknowledge the diversity presented and the importance of such knowledge in aligning the curriculum because of the importance of diversity. It follows that Caribbean educators and policymakers must institute proper diversity policies, social policies, training, accountability and benchmarking systems as

well as evaluation structures that are tailored to the specific needs of the Caribbean people that will achieve equality in opportunities to help "All" persons realize their capabilities (ILO, 2006).

Moreover, Caribbean educators must, not only, emphasize their own work culture, but must be intentional in teaching students about cultural values and the meanings members of different societies attribute to work from culture-level value (Schwartz, 1999). To accomplish the task of preparing students to function in a global-operation environment, educators must be prepared to train, coach and counsel students in rudimentary knowledge, skills, abilities and attitudes while modeling culturally sensitive behaviors so students learn how to appropriately respond to the diversity in the classroom and beyond if their preparation for worklife is to be considered adequate. Caribbean leaders must also be intentional in actively working to create a more inclusive and responsible learning-type community where students despite their ability, economic standing and generational placement feel as if they fit (Lippin, 2008; ILO, 2006).

Consistently, this is period in Caribbean history where "ALL" persons "MUST" matter and should be given the best chance of being productive contributors to nation building but they can only become meaningful contributors if the teaching and learning that takes place in the classroom is equitable irrespective of the students' cultural heritage or life content. The days where a student is put to sit to the back of the class or intentionally excluded from the mainstream teaching and learning activities because the educator don't understand or care to understand has to be a thing of the past as to do differently places that student at a disadvantage socioeconomically and promote perpetual illiteracy which can potentially lead to displacement from the new workplace and from legitimate participation in the global economy.

Displacement from the global economic activities can lead to all kind of antisocial behaviors, low self-esteem and sometimes stagnation, not only, on an individual level, but on a national level, as well. Therefore, what is modeled in the classroom about equity has a direct relationship with how students view equity in their personal and professional lives. As a matter of fact, research indirectly shows that there is relatedness to college students' openness to racial, cultural, and value diversity, which tends to alter students' openness and tolerance to the dissimilarities of others (Pascarella, Edison, Nora, Hagedorn & Terenzini, 1996). This is necessary because according to Karoly & Panis (2004) only "[students] who can exploit diversity to generate new knowledge about customers, suppliers, products, and services will be more likely to succeed in a competitive global environment" (p. 201).

Without a doubt, it is necessary for Caribbean educators to structure students' learning to reflect the knowledge, skills, abilities and attitudes (KSAA) that will best prepare them for interaction in a globally interconnected world. Indeed, transforming the teaching and learning curriculum is extremely important because ultimately, today's students will become part of tomorrow's workforce, if they are not already so enjoined and must be able to relate to others who might be dissimilar. Therefore, any diversity policy must be all-encompassing, promote tolerance and respect for "ALL" people through persistence attention to these details that make each individual unique and fit where they find themselves (Miller & Sessions, 2005).

Therefore, educational leaders and in particular curriculum specialist and policymakers must seek ways to collaborate with local and international human resource development professionals, business leaders and congruent professional organizations to gleam from them what is the required knowledge, skills and abilities potential employees must have if they are to be considered for employments by those entities. Additionally, the curriculum development process should not be done without the proper broad boundary spanning to discern what are the fundamental knowledge, skills, abilities and attitude (KSAA) needed for potential workers to be competitive in a global economy environment. However, this is not to say that Caribbean educational leaders and policymakers should ignore the fundamental KSAA that are required but use these as the foundation for developing the new knowledge, skills and abilities that will give students increase opportunities in a borderless global economy.

In spite of this, educators can't teach what they don't know so it is imperative for educational leaders and policymakers to get on a path of enhancing the teaching and learning preparation curriculum to help teachers reflect, not only, on their own cultural history and its evolution, but the culture of others in the Caribbean and elsewhere (Gay, 2002). This understanding empowers teachers to better teach diversely as they are more knowledgeable of their own socialization process, protocol for interacting with students who are different and can leverage their own gender and other identities in helping students understand their gender, cultural diversity, identities and other socialization processes (Gay, 2002). When educators can express their own vulnerability, they encourage students to do likewise and by so doing, not only cultivate an inclusive learning environment but inspire students to venture into new areas of learning and exploration that serves to heighten their level of creativity, world knowledge and competitive standing.

Like educators, students must be aware of their own racial and cultural heritage and how this knowledge shape their understanding of what is normal and what is abnormal (Association for Multicultural Counseling and Development, 1991). Hence, it is important that educators teach students how to work with others in diverse settings and with diverse activities by creating a learning environment where students feel respected, valued and are intellectually challenged congruently despite their overt and less overt differences. It is probable, that when students interact in such an environment, that they begin to learn more about themselves, their propensities and others and are better able to manage relationships with a level of cultural sensitivity that teaches them how to behave in work and other social interactions. Through these experiences Caribbean students learn how to manage conflicts constructively, practice collaborative problem-solving, communicate respectfully, engage in self-management, become less repressed socially and most of all, they develop the appropriate cultural intelligence as differences in values, orientation and objectives can be potential sources of conflict. By the same token, "individuals must be trained to acquire skills, and [teachers] must decide how to use an endowment of training time" (Jones, 2008, p. 4) to improved their effectiveness and impact.

Moreover, by heightening their level of cultural awareness, educators are better able to align their teaching and learning strategies with diversity trends in education with congruency to the requirements of the workplace. This is extremely important so students that can develop the cultural intelligence acumen and other competencies if students are to be adequately prepared for the changing world of work. This is especially proper because education and training systems in the Caribbean must evolve to better meet the needs of the twenty-first century workforce (Jones, 2008). Hence, it is critical for educators to partner with business, trade organizations and other stakeholders to better understand the workplace requirements and to accurately forecast the knowledge, skills, abilities and behaviors students must know and be able to reproduce if they are to be successful in their worklife. When educators are armed with this piece of information, they are better able to align their curriculum and help students develop the needed competencies that will prepare them to live and work in a globally interconnected society.

On the other hand, if those who champion diversity can better understand why people resist attempts at creating an environment of inclusion from an objective point of view and come to understand it for what it is, we may be able to adopt a more sensible course of action to promote a climate of inclusion in the Caribbean (Skinner, 2005). And since the individual's behavior explains the group phenomenon, if we can change the way in which people in general think about diversity, it can result in a more inclusive learning environment for all students. So by getting to know the students and their backgrounds, educators are going to be more likely to help the student integrate and feel accepted among their fellow students in their learning environment, even where difference exist (Hodgkinson, Dec 2000/Jan 2001). Besides, if Caribbean educators can help students effectively apply the concepts, skills, and strategies students have acquired in everyday life and work situations in an integrated manner that matches the demands of

everyday problem solving, then educators can get closer to creating a diverse teaching and learning environment and helping their students form healthy self-identity.

When educators incorporate more inclusive ways of teaching and learning, students will be given the best chance of living and working in a diversely interconnected society with a level of sensitivity that prepares them to connect and operate in their academic and vocational pursuit with global mindsets and greater level of cultural sensitivity. By enriching the socialization process for students, educators are helping them improve their self-image and image of society as a precursor to formulating their professional identities in a global operational environment.

PREPARING STUDENTS FOR TOMORROW'S BOARDROOM AND BEYOND

People of the Caribbean have a very rich history that encompasses experiences from slavery, indentureship, colonialization, inventions and the present which have influences of the French, Spanish, Dutch, British, Africans, Indians, Chinese, the United States and elsewhere. All these experiences have some relevance to the Caribbean people and should inform the present and help chart a new future. Still, how students are prepared for the future workforce is crucial as their past should become the bedrock for helping students better understand their own Caribbean identity in relation to the rest of the world. This is a very important first step as students' self-knowledge and their experiences are important elements in teaching tolerance for others and for their involvement in nation building.

As the world changes Caribbean students will find themselves supervising and being supervised by people who are dissimilar and should be prepared for those realities (Schaefer, 2004). Accordingly, Charan, Drotter &Noel (2001) recognized that "just about every major organization is attempting to hire "stars" offering enormous compensation to entice the best and the brightest" (p.1). However, organizations' most desperate attempts to recruit outsiders reflect the inadequacy of the current employee pool (Charan, Drotter and Noel, 2001). Some of these challenges stem from the failure of the teaching and learning to adequately align their teaching and learning to meet the changes in technology, biology, medicine, engineering, economic and finance, social values, demography, the environment and international relations which continue to challenge our collective abilities to adequately deal with them (Senge, Kleiner, Roberts, Ross, Roth & Smith, 1999). This is particularly proper, given the wave of technological advancements, internationalization and globalization which have created borderless societies in which the rules for being successful has changed and remain undefined.

Similarly, Hall (2002) argued "that work is a fundamental area in which to achieve social equity, workplace diversity and personal liberation" (p. 13). It follows that the Caribbean workplace is an area which is heavily impacted by what students learn in the classroom and students must be prepared to enter the workplace equipped to function in a diverse work and interconnected environment with a level of sensitivity to differences and a sense of responsibility for lifelong learning and productive activity as well as an awareness of their role in nation building. Workers who are increasingly expected to interact in a global and international marketplace and participate in global work teams, will require the skills needed to collaborate and interact in diverse cultural, linguistic, economic and dissimilar geographical settings (Karoly and Panis, 2004). As a matter of fact:

> *Workplace diversity has been a topic of growing interest to the world of business and management in the past decades, emerging from merely a sentence in some corporations' mission statement to complete departments, managerial positions, and courses in higher business education" (Marques, 2010, p. 435).*

Accordingly, "diversity, at its most basic level, is simply all the ways in which people are different" (Resurreccion, 2008). Senge (2006) believed "diversity is about our ability to understand and

appreciate how [others] think, communicate, and relate. It is about living together" (p. 312). Additionally, the workforce is anticipated to continue to evolve along the lines of age, gender composition, and the racial and ethnic makeup. That is why, it is important to think of each classroom in the Caribbean as representing the boardrooms and the varied workforce of tomorrow and students must be primed for those roles.

Pea (1987) believed that "students need to acquire skills of analogical thinking, of generating analogical connections from knowns to unknowns as a means of understanding" (p. 48), therefore permitting students to be better able to transfer what they have learned in the classroom to the workplace and in other social context is of paramount to overall nation building initiatives.

Consequently, when the world changes, the way educators see and educate students must also change so as to give students the best learning opportunities for the future realities. "Workers who increasingly interact in a global marketplace and participate in global work teams will require the skills needed to collaborate and interact in diverse cultural and linguistic settings" (Karoly and Panis, 2004, p. xxxvi). As a matter of fact, the International Labour Organization (ILO) Facts on Decent Work reported that "the labour migration is on the rise. There are more than 85 million migrant workers in the world, 34 million of them in developing region." Since the Caribbean is part of the developing world, they too are affected by these migration patterns as Caribbean people must interact with persons who are dissimilar from them as migrants and as locals students and workers. Furthermore, the ILO Global Employment Trends 2010 added that there are "45 million young men and women entering the global market every year." Therefore, when workers have the freedom to work globally, it means that they bring everything about them to the host country, including their customs, nationality, language, history and influences of their birth to the host country and must be aware of what they bring to that work situation and be able to manage their propensities in that global context.

Furthermore, students themselves are connected and interconnected in a myriad of ways and are exposed to varied experiences and people that have helped shaped their thinking and the way in which they respond to the world but these experiences must be harnessed as part of the teaching and learning process. The complexities presented by these exposures enrich students' lives and learning and should not be discounted in the teaching and learning process. The days when diversity was seen through narrow lenses that displayed only race and ethnicity has to be a thing of the past because students are diverse because of their life content which include their country of origin, life experiences, family constellation, people they have met, information received and shared, conversations they would have had, places they have been, books they have read, the way they learn, the neighborhood they live in and those they have visited, and the way they were taught and the entities to which they were and are associated. All these connections help to shape students' lives and they bring these diverse attributes of their lives to the classroom and the workplace and there should be a place where these attributed are celebrated, respected and learned through healthy engagements.

strategies for preparing students for tomorrow's boardroom and beyond

Hewapathirana and Bowen (2008) argued that "the continuous improvement of education systems from the primary to higher education and life-long learning are the keys to sustaining healthy socio-economic conditions in a global society" (p. 7). Without such universal intervention, some students might move from grade to grade with very noticeable deficiencies that become a problem as students move through the system, therefore, throughout the education system educators must be fully aware of what students should know and be able to do as they move through the system and intervene early when deficiencies are noticed.

It is therefore incumbent on businesses, educational systems and other entities in the Caribbean to collaboratively seek ways to forecast workforce needs and to increase workers' success in the workplace

by developing a system for creating alignment among these systems. Hence, students must be taught to live and work with people who are different because the increasingly networked way in which work is getting done is of greater consequence to organizations today than in the past (Senge, 2006). What's more, Caribbean educators must become more intentional in incorporating teaching and learning strategies that will build more inclusive learning communities to best prepare students to function with a greater depth of cultural sensitivity in a networked world of work (Senge, 2006).

In the same manner, students must be taught to confront those things that are destructive to the richness diversity offers in the teaching and learning process in constructive ways. By giving students opportunities to increase their level of cultural sensitivity, they are better able to deal with issues of diversity, prepared to think diversely and work with others who are dissimilar beyond their classroom experience. Thus, each student must be seen as being part of the new workforce and must be equipped for the realities of the world where people are connected and interconnected in ways that create a unique level of complexity that remains elusive.

That is why it is so important for educators to think about how to enrich the learning experience of each student by harnessing the many experiences students have had in the teaching and learning process. Consequently, the issues of diversity must become part of the mainstream discussion and decision-making with real policy implication for the unbiased teaching and learning of all students if there is to be any meaningful transfer of knowledge beyond the classroom and into the workplace.

ENRICHING STUDENTS' LEARNING FOR TOMORROW'S WORKPLACE

Tomorrow's workplace is being shaped mainly by the precipitous infusion of technology in multiple areas of life, globalization and internationalization. One of the significant challenges facing employers everywhere is finding a suitable labor pool (Resurreccion, 2008). In some circumstance, Cerna, Hollifield, & Hynes (2012) said policy-maker narrowly doing what necessary to protect jobs and native workers and this weakens competitiveness the economies in the Caribbean who are falling prey and losing their best and the brightest.

Diversity has varying expectations, modification of one's behavior and deepening of one's understanding of diversity should be a likely consequence (Becker &Useem, 1942). The requirements for increasing one's sensitivity to diverse ideas, people and customs are crucial given the increased unemployment and complexity that resulted from a shrinking global economic activities and the ease at which people move from country to country seeking congruent employment opportunities (ILO, 2006; 2011; United Nations 2005). Because of this free movement of people in the borderless global economy, to get suitable workers, employers may have to consider hiring people who they might otherwise not have hired such are more women, foreign nationals, senior citizens and persons with disabilities to meet their work requirements in some sectors such as healthcare, education, infrastructure development in the Caribbean (Karoly and Panis, 2004). These actualities also present many opportunities for foreign workers to fill the gaps created by increased unemployment for skilled and unskilled workers in some sectors or regions where certain skills maybe underutilized or obsolete in one region, but needed in another region. The evidence of this can be seen in the healthcare system in Trinidad and Tobago which has attracted doctors and nurses from across the globe, mainly various parts of Africa, Indian, Philippines and other parts of the Caribbean (UNDepartment of Economic and Social Affairs/Population Division, 2010). Therefore, if students are to be able to take advantage of opportunities in these sectors and other sectors, they must learn the core knowledge, skills, abilities and attitude required for healthcare workers and they must be prepared to work alongside workers of varied backgrounds both locally and globally as jobs may require them to interact with workers from other countries on a daily basis in a borderless global society and they will need to know the protocol for interacting with dissimilar workers.

Marques (2010) recognized that "workforce diversity is a broader concept that includes all the ways that people can be different" (p. 436). Diversity, as understood by Davis, Smith and Sorenson (2004) encompasses an understanding and appreciation of the depth and variety of how human beings group themselves, and find themselves grouped by others. Accordingly, diversity in education has no real right or wrong answer or approach as to how it should manifest because the way diversity unfolds in one context will be different in another. However, differences in the way diversity manifest is no reason to do nothing to ensure that each Caribbean student has a safe place in the classroom and there is a forum for the unique voice and experiences of each student because such interactions broaden students' world knowledge and cross-cultural competencies and increase their versatility. This is more than ever true because people are different, sometime with little influence over their differences since the things that define students are enmeshed in genetic tendencies, learned behaviors, values, mores, geographical origins, life experiences and expectations. "Equally, culture structures our behavior, thoughts, perceptions, values, goals, morals, and cognitive process just as language is more than vocabulary, culture is more than art and music" (Cohen, 1998, p. 2). Hence, the attributes that students bring to the classroom are what make them who they are, even in the classroom and this is why the issues of diversity in education need to be given more than mere lip-services because of the implications they have beyond the classroom. As students learn the rudimentary behaviors and practices of a safe diverse learning environment, they become more aware of differences and develop a level of sensitivity that equips them to learn and work with persons who are dissimilar in and interconnected.

Terenzini, Cabrera, Colbeck, Bjorklund and Parente (2001) pointed out that problem-solving and group-skill development were found to be the same for classroom diversity and reported learning. This kind of result makes diversity in Caribbean education so important that it requires understanding and proper management to ensure that there is a place for students' differences and there are meaningful injections of intentional strategies to leverage the rich body of knowledge and experiences each student brings to the learning environment. Some educational establishments "are increasingly recognizing the need for diversity in the classroom and its positive effects on student's learning outcomes" (Mayhew and Grunwald, 2006, p. 148).

Mayhew and Grunwald (2006) reported that research show that diversity in the classroom positively affects learning outcome, yet some educators resist the idea of integrating diversity-related material into their course content. The idea that some students may celebrate events and may engage in activities unknown to those who must teach them specialized content or those who sit beside them is a great learning opportunity for both Caribbean students and educators.

strategies for enriching students' learning for tomorrow's workplace

Identity formation is a known derivative of students' learning, so by increasing students' knowledge and understanding of their own cultural history in the riches ways possible is an important first step in enriching students learning for tomorrow's workplace. This can be done by adding a rich set of cross-cultural materials and experiences to the curriculum and assignments on different cultures, including the Caribbean and encouraging students to become more introspective about their own tendencies with regard to dealing with diversity so they can learn what these are and develop ways to manage those inclinations from multi-culture contexts.

To further facilitate a more globalized and internationalized teaching and learning environment, Caribbean educational policymakers must ensure that their policies and consequences reflect the realities of a diverse student population that include students who reside in local communities, those from faraway nations and those learning the local language as a second, third or even a fourth language. In addition students learn from parents, fellow students, peers and teachers, therefore, members of these groups are pivotal in "providing structure and corrections between their experiences, highlighting task-relevant

information in a situation and establishing continuity to functional learning contexts in which students can come to take over part activities of a whole problem-solving task" (Pea, 1987, p. 50).

Incorporating students' experiences into the teaching and learning process can help other students grasp a concept by connecting some experiences to the content being taught or even learn about a new culture. As a matter of fact, diversity that is part of the broader society needs to be reflected in the student body, faculty and staff and certainly in the approaches to the teaching, learning and the curriculum (Mayhew and Grunwald, 2006). Broadening the curriculum content to include diversity themes provide, not only, opportunities for students to interact with their classmates, but these diverse learning experiences prime them for living and working with individuals who are differently dissimilar in a globalized and internationalized work environment.

Regardless of what students bring to the classroom, whether it is their race or ethnicity, abilities, language proficiency, culture, prior learning or life content, there has to be a place for all students to learn and grow in a facilitated teaching and learning environment that reflects the realities of diversity in a changing global environment. The rights of any one student should never be trampled upon under the guise that they are different or that they are not proficient in the local language and mores. In some cases these students might be better equipped to deal with challenges of an interconnected, global, socioeconomic environment than those who reflect the sameness of the local community. That is why, educators in the Caribbean must commit themselves to better understanding each student's situation so that they are better equipped to teach each student and help them to make the best of their education in a culturally dissimilar environment and thus transition to a successful work life with the level of cultural intelligence mastery that will make them competitively positioned in a globalized work environment (Hodgkinson, Dec 2000/Jan 2001).

IMPLICATIONS FOR EDUCATIONAL LEADERS AND WORKPLACE PROFESSIONALS

In a world where everything is changing and moving very fast there is need for new knowledge, skills, abilities and behaviors in the Caribbean. This is the only meaningful way to engage in the much needed nation building that is required to be competitively position in this global economy. Because, these changes are expected to transform the way work is organized, performed, and rewarded and the mix of people making up the workforce. Caribbean students will have to be taught how to interact in healthy ways with workers who are dissimilar and respond to the changing demands of an evolving workplace (Pascarella, Edison, Nora, Hagedorn, and Terenzini, 1996; Jokinen, 2005). If the projected shifts in the demographic realities persist then it is likely that future college graduates will be challenged by a society that is increasingly diverse in terms of race, culture, age, ideas, and values (Pascarella, Edison, Nora, Hagedorn, and Terenzini, 1996).

Kim (2002) believed that "changes in skill demand or skill requirements have been investigated in a wide range of academic fields from sociology, economics and education to psychology over the long period dating back to the turn of the century" (p. 89). Many knowledge, skills, abilities and behaviors have been identified as being important requirements for success in the undulating work environment where the primary operation environment is domestic, international or global (Jokinen, 2005). This is mainly the case because workers are expected to interact cross-culturally and in some situations to live in other countries and take up assignments (Black, Mendenhall and Oddou, 1991). Black, Mendenhall and Oddou, (1991) noted that "research show many Americans do not succeed in their overseas assignments" (p. 291) suggesting that they lack the required competency for the assignment which cost companies thousands of dollars. Therefore, the main thrust of Human Resource Development and other workplace professionals in the Caribbean is to ensure that workers perform their jobs effectively and in healthy ways within the environment. As a result, these professionals can be pivotal in identifying work requirements for the future

and helping workers succeed in a changing workplace while shaping workforce/workplace policy position and discourse about workplace and workers skill requirement needs (Russ-Eft, 2002; Jokinen, 2005).

The issues of diversity transcend institutions in many ways, but if we can begin to prepare students to work in a diverse society, we would have to equip them for success in an evolving work environment where organizations are more global and transnational focused (Jokinen, 2005). Barcelo (2010) forecasted that diversity will be so deeply embedded in the ethos of organizations that it will permeate everything they do, in every space they inhabit, "from classrooms and research centers to faculty and administrative offices to campus services and facilities to meeting spaces in partner communities" (p. 20).

Given this, if longitudinal studies can be done to explore what might be the right combination strategies and content that might best prepare students to work with others who are dissimilar with a level of cultural sensitivity and world knowledge, they will have many healthy workplace experiences. Thus, education and workforce researchers must attempt "to identify the specific college experiences that influence changes in values, attitudes, and the ways in which individuals relate to their external world" (Pascarella, Edison, Nora, Hagedorn and Terenzini, 1996, p.75). Information from this kind of research can provide invaluable information for educational leaders to devise targeted strategies for aligning the teaching and learning curriculum with workplace knowledge, skills, abilities and behavioral requirements for students' success in the workplace.

Most specifically, Brooks and Normore (2010) "suggest that contemporary educational leaders must develop glocal literacy in nine specific knowledge domains: political literacy, economic literacy, cultural literacy, moral literacy, pedagogical literacy, information literacy, organizational literacy, spiritual and religious literacy, and temporal literacy" (p. 52) to be able to adequately instruct Caribbean students in the rudimentary requirements to function in a globally and internationalized influenced workplace. It is therefore, prudent that educational leaders work collaboratively with Human Resource Development (HRD) and other workforce professionals to set systematic and planned activities designed to provide students with opportunities to congruently learn the necessary skills, abilities, knowledge and behaviors to meet current and future job demands (Russ-Eft, 2002).

CONCLUDING REMARKS

In the coming years, work is expected to continue to be transformed and "shaped by demographic trends, technological advances, and economic globalization" (Karoly and Panis, 2004, p. xiv) and migration patterns. It also follows that "the workforce will continue to evolve along these same lines in terms of age, gender- composition, and the racial and ethnic makeup" (Karoly and Panis, 2004, p. 30) and students are expected to develop and apply a level of cultural competencies that make them suited to work in such diverse environments. This is especially so, since persistent change and increase in globalization and "international competition place the spotlight on the skills and preparation of the workforce, particularly the ability to adapt to changing technologies and shifting product demand" (Karoly and Panis, 2004, p. xiv). These anticipated changes illuminate the need to prepare students to function in a knowledge-based workplaces that favors students with "strong non-routine cognitive skills, such as abstract reasoning, problem-solving, communication, and collaboration" (Karoly and Panis, 2004, p. xiv) and educators must take the lead to ensure that students acquire these skills and are able to use them in a diverse global work environment in creative ways.

Hodgkinson (Dec 2000/Jan 2001) maintained that the shifting demographics around the world affect every aspect of teaching and learning and it therefore, necessary for Caribbean educators to better understand their students in holistic ways to best teach them and prepare them for the world of work. For those reason, accepting and respecting diversity help build a more comprehensive understanding of the

human experience and a better learning environment, workplace, communities, and society over time but we must start somewhere to begin to effect change (Miller and Sessions, 2005). Thus, "higher education institutions as well need to create curricular and co-curricular opportunities for students to experience integration - to-interact in meaningful ways and to learn from each other - if diversity is to have a positive educational impact" (Gurin, Nagda & Lopez, 2004, p. 18). Such activities will help students develop the norms, attitudes, values, knowledge and skills needed to actively participate in a globally connected economic environment with a level of cultural sensitivity that will make them stand out among their peers and over time influence the way their peers think in the classroom and in their work lives about diversity.

Workplace changes will persist; the way they appear or are presented, will vary. However, to deal with the challenges of changing operational environments, educational leaders and policymakers must find new and practical ways of doing business and change themselves in various ways so they can take control and shape their organizations in ways better suited to the ever-changing environment (Schruijer & Vansina, 1999). In spite of this, the choices made and the responsiveness to them will determine the extent to which these choices will continue to impact the workplace and in some cases render leaders helpless. Hence, advocating for improving the K-16 curriculum will ensure that there is some congruency between the needs of the workplace and what students are being taught and what they learn. Next, if leaders equip their Human Resource Development team, other workplace professionals and educators with the tools and other resources needed and provide clear pathways to the halls of power, many of the human resource development issues affecting the organization in the Caribbean will be met with meaningful solutions and measurable results that will be reflected in students readiness for the workplace and in the organization's bottom-line.

Furthermore, in creating a diverse operational environment, educators and organizations must be willing to move beyond the urge to meet quotas or to be politically correct in their quest to prepare a distinct learning environment and begin to embrace the benefits of having a diverse populace, given the many benefit variation brings. Equally, students must also be encouraged and trained to increase their understanding and appreciation for diversity and be encouraged to embrace the benefits it offers because the cost of homogeneity is too great to forgo the opportunities diversity offers. Thus, educators and organizations have an important part to play in advancing a culture that makes people feel connected despite their differences; empowered because their abilities are recognized; safe because they are respected and valued; as if they are treated fairly because the standards they must meet are the same as their peers; challenged intellectually and are allowed and encouraged to interact with others who are dissimilar.

However, educational leaders and policymakers must go beyond their written and spoken words and be intentional in their commitment to diversity through their policy positions, implementation strategies, the accountability systems instituted, their openness to benchmarking and to the evaluation of their practices, global learning and collaboration, level of financing and adjustments in their own mindsets and behaviors if the people of the Caribbean are to be suitably positioned to take their placement in this global economy. But no change can take place until the people of the Caribbean believe that change need to take place or that the promises ahead are good for them as it is good for others, therefore, educational leaders and policymaker must be careful how they craft the message for inclusion and tolerance as to convey the wrong message only create resistance, stagnation, regression and sometimes multiple dysfunctions which are all counterproductive for proper positioning of the Caribbean people in this global economy.

What must be clear, nonetheless, is that diversity is about people – different people – living, working, studying, playing and engaging each other in a place of their choosing where they feel that they fit; where they feel they can achieve; where they feel they can be more and do more for themselves and their families; where they see a place for their differences and creative drive; and where the quality of life

is enhanced because differences are respected and celebrated despite overt and less overt differences. That should be the message of educational leaders and policymakers if they are to cultivate a place for "ALL" Caribbean people in this global economy where nation building is paramount and where everyone must be involved in this endeavor and should matter. The days where we can choose to push some forward at the expense of others can no longer exist or be tolerated. We need everyone and everyone needs the other to move forward to build the best global workforce ever if the Caribbean is to compete globally. It is therefore crucial for educational leaders and policymaker in their pursuit to create diverse organizations that they response with truth, understanding and determination to get it right the first time as diversity represents who we are in the Caribbean and outside the Caribbean and it is how diversity is managedthat will determine the placement of Caribbean people in this global economy.

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References

Aleksander P. J. Ellis, A. P. J., Porter, C. O. L. H., West, B. J. and Moon, H. (2003). Team learning: Collectively connecting the dots. Journal of Applied Psychology, 88(5), 821-835.

Arsenault, P. M. (2003). Validating generational differences A legitimate diversity and leadership issue. The Leadership and Organization Development Journal, 25(2, 124-141.

Ashton, D., Sung, J. Raddon, A. and Riordan, T. (2008). Challenging the myths about learning and training in small and medium-sized enterprises: Implications for public policy. Employment Sector working paper. International Labour Office, Geneva: ILO, 1-65. (Employment Sector – Employment Working Paper No. 1; 2008).

Association for Multicultural Counseling and Development (1991). Cross-Cultural Competencies and Objectives. Retrieved March 9, 2011 from www.amcd-aca.org.

Barcelo, N. R. (April, 2010). Reimagining Diversity in Our Institutions. Diverse: Issues in Higher Education, 27(6), 20.

Barker, D. (2012). Caribbean Agriculture in a Period of Global Change: Vulnerabilities and Opportunities. Caribbean Studies, 40(2), 41-61.

Becker, H. and Useem. R. H. (Feb, 1942). Sociological analysis of the dyad. American Sociological Review, 7(1), 13-26.

Beer, M. and Nohria, N. (May-June, 2000). Cracking the code of change. Harvard Business Review, 13-23.

Black, J. S., Mendenhall, M. and Oddou, G. (1991). Toward a comprehensive model of international adjustment: An integration of multiple theoretical perspectives. Academy of Management Review, 16(2), 291-317.

Brooks, J. S. and Normore, A. H. (2010). Educational leadership and globalization: Literacy for a global perspective. Educational Policy January 2010 24(1), 52-82.

Burnes, B. (December, 2004). Kurt Lewin and complexity theories: Back to the future? Journal of Change Management, 4,(4), 309-325.

Camden, C. (July, 2008). U.S. Job market: Employment diversity. Address by CARL CAMDEN, Chief Executive Officer, Kelly Services Delivered to the Cleveland City Club, Cleveland, Ohio, 415-419.

CaribSeek Encyclopedia. Caribbean Population and Languages 2001. Retrieved November 22, 2011 from http://encyclopedia.caribbean_Population_and_Languages.

Caribbean Epidemiology Center (Carec/PAHO/WHO) (2011). All CAREC member countries: Population distribution by age group and sex (1990 – 2010).

Cerna, L., Hollifield, J., & Hynes, W. (2012). Globalization Backlash? The Influence of Global Governance in Trade and Immigration. The Influence of Global Governance in Trade and Immigration.

Charan, R., Drotter, S. and Noel, J. (2001). The leadership pipeline: How to build the leadership-powered company. San Francisco: Jossey-Bass.

Charles, K. R. (2000). Unity in diversity: A study of work values, attitudes and motivation in multicultural society. Inter-American Journal of Psychology, 34(1), 61-79.

Clark, C. (Feb, 2010). Just how important is diversity? Diverse: Issues in Higher Education, 27(1), 16.

Cogburn, D. (1998). Globalization, knowledge, education and training in the information age. Retrieved November 1, 2011 from http://unesco.org/webworld/infoethics_2/eng/papers_23.htm.

Cohen, M. N., (April 17, 1998). Culture, not race, explains human diversity. The Education Digest, 64(2) p30, 5p.

Colón, A. J. A. (2010). Globalization and the Post-Creole Imagination: Notes on Fleeing the Plantation (review). Caribbean Studies, 38(1), 216-219.

Cook, L. D. and Bastick, T (2009). Teachers professional growth: Examining the effect of teacher maturity on LOC orientation. Caribbean Curriculum, 16(1), 93-104.

Cornoy, M. (2005). Globalization, educational trends and the open society (Conference Paper). Open Society Institute (Ed). OSI Education Conference 2005: "Education and Open Society: A critical look at new perspective and demands" (pp.XX-XX)Budapest, Hungary.

Couch, B. (2006.). A Plan of Education for a Global Economy: How South Carolina is using the Career Cluster approach to prepare students for a global economy.

Cummins, J. (Jun 1997). Cultural and linguistic diversity in education: A mainstream issue? Educational Review, 49,(2) 105-114.

Davis, A. M., Smith, M. J., Sorenson, T. C. (2004). Embracing Diversity in Pursuit of Excellence: Report of the President's Commission on Diversity and Equity. Retrieved from the University of Virginia President's Commission on Diversity and Equity. Web site: http://ucareva.org/resources/uva/EmbracingDiversityReport_04.pdf.

DiTomaso, N. and Hooijberg, R. (1996). Diversity and the demands of leadership. The Leadership Quarterly, 7(2), 163-187.

Draft, R. L. and Marcic, D. (2001). Shift: The learning organization, Understanding Management, NY: Harcourt College Publishers.

Dollard, M. F. and Winefield, A. H. (2002). Mental health: over employment, underemployment, unemployment and healthy jobs. Australian e-Journal for the Advancement of Mental Health (AeJAMH), 1(3), 2-26.
Eagly, A. H. and Chin, J. L. (2010). Diversity and leadership in a changing world. American Psychologist, 65(3), 216-224.
Fairl, B. (2009). Diversity in supporting our nation. Diverse: Issues in Higher Education, 26(23), p20-20, 1p.
Fenwick, T. (Winter 2001). Tide of change: New themes and questions in workplace learning. New Directions for Adult and Continuing Education, (92).
Gardenswartz, L. and Rowe, A. (2003). Diverse teams at work: Capitalizing on the power of diversity. Alexandria, VA: Society for Human Resource Management, 32-33.
Gay, G. (2002). Preparing for culturally responsive teaching. Journal of Teacher Education, 53(2), 106-116.
Generational difference chart (2011). Retrieved November 18, 2011 from http://doc.google.com/viewer?pid=bl&srcid=ADGEESjDYz22-NY21CFnJkMJVmtpN3...
George, J., & Lewis, T. (2011). Exploring the global/local boundary in education in developing countries: the case of the Caribbean. Compare: A Journal of Comparative and International Education, 41(6), 721-734.
Hall, D. T. (2002). Careers in and out of organizations. Thousand, CA: Sage Publications, Inc., 13.
Harvey, C. (2000). The EFA Assessment Process in the Caribbean and the quest for inclusion and quality: Implications for adult and teacher education [Monogram Series 25] In L. Quamina-Aiyejina, series ed. Education for all in the Caribbean: Assessment 2000.
Hewapathirana, G. I. and Bowen, M. M. (2008). Globalization cannot be ignored in Human Resource Development (HRD): European Union (EU) case study findings. Unpublished Manuscript, Department of Work and Human Resource Education, University of Minnesota.
Hirschhorn, L. (July 2002). Campaigning for Change. Harvard Business Review, 23.
Hodgkinson, H. (October, 1998). Demographic of diversity for the 21st century. Education Digest, 64(2) p4, 4p.
Hodgkinson, H. L (Dec. 2000/Jan. 2001). Educational demographics: What teachers should know. Educational Leadership, 58(4) 6-11.
Hofstede, G. (January, 1994) Management scientists are human. Management Science, 40(1), 4-13.
Gunter, H. M. (2006). Educational leadership and the challenge of diversity. Educational Management Administration and Leadership, 34(2) 257–268.
Guillen, M. F. (January, 2000). Diversity in globalization. Organizational change in Argentina, South Korea and Spain: Discussants: Evelyne Huber and Michael Mosher, Paper, 6 (unpublished), 1-41.
Gurin, P., Nagda, B. R., and Lopez, G. E., (2004). The benefits of diversity in education for democratic citizenship. Journal of Social Issues, 60(1), 17-34.
International Labour Organization (July 2006). Facts on decent work.
International Labour Organization Decent Work Team for the Caribbean (2011). ILO Global employment trends 2010. Retrieved October 28, 2011 from http://www.ilocarib.tt/index.php?option=com_contentandview=articleandid=1330:ilo-gl.
International Labour Organization Decent Work Team (2011). Caribbean Countries and Territories. Retrieved October 28, 2011 from http://ilocarib.org.tt/index.php?option=com_contentandview=articleandid=1146anditemi..
International Labour Organization (2011). Global employment trends: The challenge of a job recovery. International Labour Office.
International Monetary Fund (2008). Globalization: A Brief Overview. Retrieved November 2, 2011 from http://www.imf.org/external/np/exr/ib/2008/053008.htm.
Jokinen, T. (2005). Global leadership competencies: A review and discussion. Journal of European Industrial Training, 29(3), 199-216.
Jones, B. F. (June 2008). The knowledge trap: Human capital and development reconsidered. NBER Working Paper No. 14138.
Karoly, L. A. and Panis, C. A. W. (2004). 21st century at work: Forces shaping the future workforce and workplace in the United States. The RAND Corporation, Labour and Population, 1-258.
Kezar, A. (July/August, 2008). Leadership strategies and the politics of diversity. The Journal of Higher Education, 79(4), 406-441.
Kim, Y. (2002). A state of art review on the impact of technology on skill demand in OECD countries. Journal of Education and Work, 15(1), 89-109.
Kirk, J. J., Woody, C., Burns, N., Howard, S. and Rice, M. (2001). Workplace counseling tools. ERIC, 1-29.
Kiser, A. I. T. and Scobey, B. (October, 2010). Assessing Diversity Awareness in University Business Students at Hispanic Servicing Liberal arts Institution. Journal of Hispanic Higher Education, 9(4), 294-300.
Krink, P. and Strack, R. (June, 2008). The talent crunch:. People Management, 30-31.
Kotter, J. P. (January, 2007). Leading change: Why transformation efforts fail. Harvard Business Review, 2-12.
Lanier, L. T. (2004). Building a reservoir of high-potential women and diverse groups. In L. A. Berger and D. R. Berger The talent management handbook: creating organizational excellence by identifying, developing and promoting your best people. New York: McGraw-Hill, 273.

Lewis, T. (2010). Assessing social identity and collective efficacy as theories of group motivation at work. The International Journal of Human Resource Management, 22(4), 963-980.
Lewis, T. and Simmons, L. (2010), Creating a research culture in Caribbean universities. International Journal of Educational Development, 30(4), 337-344.
Lippin, L. B. (2008). Are we really appreciating Difference? Themes for a more responsible participation in a multicultural world. APTi Bulletin of Psychological Type, 31(3), 23-26.
Manning, M. L (Winter 2000). Understanding diversity, accepting others: Realities and directions. Educational Horizons, 78(2), 125-127.
Mark, P. (2008). Enhancing quality assurance in the education systems of the Caricom States. The Caribbean Council for Education and Teacher Education.
Marquardt, M. J. (2002). Building the learning organization: Mastering the 5 elements for corporate learning, 2nd Ed. Palo Alto, CA: Davies-Black Publishing, Inc., ix.
Marques, J. F. (Winter 2010). Colorful window dressing: A critical review on workplace diversity in three major American corporations. Human Resource Development Quarterly, 21(4), 435-446.
Martin, M., & Bray, M. (2011). Tertiary education in small states: planning in the context of globalization.UNESCO International Institute for Educational Planning (IIEP). Retrieved June 24, 2013 from http://hdl.voced.edu.au/10707/179846.
Mayhew, M. J. and Graunwald, H. E. (2006). Factor contributing to faculty incorporation of diversity-related course content. The Journal of Higher Education, 77(1), 148-168. Retrieved from http://www.jstor.org/stable/3838735.
Medley, B. C. and Akan, O. H. (Summer 2008). Creating positive change in community organizations: A case for rediscovering Lewin. Nonprofit Management and Leadership, 18(4), 485-496.
Miller, K.J. and Sessions, M.M. (2005) Infusing tolerance, diversity, and social personal curriculum into inclusive social studies classes using family portraits and contextual teaching and learning. Teaching Exceptional Children Plus, 1(3) Article 1.
Mayo Foundation for Medical Education and Research, July, 6, 2005.Workplace generation gap: Understand differences among colleagues. Mayo Clinic.com Special to CNN.com.
NAFSA: Association of International Educators (2006). Americans call for leadership on international education: A national survey on preparing for a global society. NAFSA: Association of International Educators, 1-3.
Neves, P. and Caetano, A. (2009). Commitment to change: Contributions to trust in the supervisor and work outcomes. Group and Organization Management, 34(6) 623–644.
Northouse, P. G. (2007). Leadership: Theory and practice. Thousand Oaks, CA: Sage Publications, 301.
Pascarella, E. T, Edison, M, Nora, A, Hagedorn, L. S. and Terenzini, P. T (March-April, 1996). Influences on students' openness to diversity and challenge in the first year of college. The Journal of Higher Education, 67(2), 174-195.
Pea, R., D. (1987). Socializing the knowledge in transfer problem. In E. De Corte Special issue on "acquisition and t r a n s f e r of knowledge and cognitive skills. International Journal of Educational Research, pp. 38-62.
Premdas, R. R. (2011). Identity, ethnicity, and the Caribbean homeland in an era of globalization. Social Identities, 17(6), 811-832.
Premdas, R. R. (December 1998). Ethnicity and identity in the Caribbean: Decentering and myth. Working Paper #234.
Raabe, B., Frese, M. and Beehr, T. A. (2007). Action regulation theory and career self-management. Journal of Vocational Behavior 70, 297–311.
Reeves, T. C., and Oh, E. J. (2007). Generation differences and educational technology research. In J. M. Spector, M. D. Merrill, J. J. G. van Merrienboer and M. P. Driscoll (Eds.), Handbook of research on educational communications and technology (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
Resurreccion, P. (December, 18, 2008). Diversity and globalization. Retrieved March 12, 2011 from http://EzineArticles.com/?expert=Paul_Resurreccion.
Roach, R. (Jan 2009). The new era of diversity. Diverse: Issues in Higher Education, 25(25), 11-13.
Russ-Eft, D (2002). A typology of training design and work environment factors affecting workplace learning and transfer. Human Resource Development Review, 1(1), 45-65.
Schaefer, R. T. (2004). Sociology matters. Boston, MA: McGraw-Hill, 205.
Schruijer, S. G. L. and Vansina, L. S. (1999). Leadership and Organizational Change: An Introduction. European Journal of Work and Organizational Psychology, 8(1), 1-8.
Schwartz, S. H. (1999). A theory of cultural values and some implications for work. Applied Psychology: An International Review, 48 (1), 23–47.
Scott, P. (2000). Globalisation and higher education: Challenges for the 21st century. Journal of Studies in International Education, 4 3-10.
Senge, P. M. (2006). The fifth discipline: The art and practice of the learning organization. NY: Doubleday, 312.
Senge, P., Kleiner, A., Roberts, C., Ross, R., Roth, G. and Smith, B. (1999). A fifth discipline resource: The dance of change: the challenges to sustaining momentum in learning organizations. New York: Doubleday/Currency.
Skinner, B. F. (2005). Science and human behavior. The B.F. Skinner Foundation.

Stevens, M. J. and Campion, M. A. (1994). The knowledge, skills and ability requirement for teamwork: Implications for human resource management. Journal of Management, 20(2), 503-530.
Summer, J. (November, 2008). Governance, globalization, and political economy: perspectives from Canadian adult education. Adult Education Quarterly, 59(1), 22-41.
Stopford, J. (Winter, 1998-1999). Multinational corporations. Foreign Policy, 113, 12-24.
Terenzini, P. T., Cabrera, A. F., Colbeck, C. L., Bjorklund, S. A. and Parente, J. M. (2001). The Journal of Higher Education, 72(5), 509-531.
Thomas-Hope, E. (2002). Skilled labour migration from developing countries: Study on the Caribbean region. International Labour Office, Geneva: International Migration Programme
Tolbize, A. (August 2008). Generational differences in the workplace. University of Minnesota, Research and Training Center on Community Living.
United Nations Educational Scientific and Culture Organization (UNESCO) (2008). Culture; What is cultural diversity. Retrieved November 1, 2011 from http://portal.unesco.org/culture/en/ev.php-URL_ID=13031andURL_DO=DO_PRINTPAGE...
United Nations, Department of Economic and Social Affairs, Population Division. Population Estimate and Projection Section(2010). World Population Prospects, the 2010 Revision. Retrieved November 1, 2011 from http://esa.un.org/unpd/wpp/index.htm.
Department of Economic and Social Affairs, Population Division of the United Nations (August, 2010). Population facts: Sex differential in mortality, (No. 2010/4). Location: United Nations,
Population Division Department of Economic and Social Affairs, United Nations Secretariat (November 30 – December 2, 2005). Expert group meeting on international migration and development in the Latin American and the Caribbean. Location: Mexico City.
Population Division Department of Economic and Social Affairs, United Nations Secretariat, World population prospects: The 2010 revision. Retrieved http://esa.un.org/unpd/wpp/index.htm.
Umbach, P. D. and Kuh, G. D. (2006). Student experiences with diversity at liberal arts colleges: Another claim for distinctiveness. The Journal of Higher Education, Special Issue: Moving into the Next 75 Years, 77(1), 169-192.
U.S. Department of Commence and Vice President Al Gore National Partnership for Reinventing Government (1996.) Benchmarking study: Best practices in achieving workforce diversity.
U.S. Department of Labour (2002). Build to work: A common standard for skill standards. National Skills Standard Board, 1-41.
Vaira, M. (2004). Globalization and higher education organizational change: A framework for analysis. Higher Education 48: 483–510.
Walton, M. (Winter 2009). Avoiding career wrecking behavior: Michael Walton presents his view of reducing executive risk. Assessment and Development Matters 1(4),8-9.
Whitt, E. J., Edison, M. I., Pascarella, E. T., Terenzini, P. T. and Nora, A. (2001). Influences on students' openness to diversity and challenges in the second and third year of college. The Journal of Higher Education, 72(2), 172-204.
World Bank (September, 2000). World Development Report 2000/2001 review: Attacking poverty. Washington, DC: The International Bank for Reconstruction and Development/The World Bank, 1-13.

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Appendix A: generation differences

Work Preference	Generations Traditionalist	Baby boomers	Generations X	Millennial
Birth year	1900-1945	1945-1964	1965-1980	(1977-1994) 1981-2000
Education	• A dream	• A birthright	• A way to get there	• An incredible expense
Training and Development	• Training should contribute to the organization's goals	• Training is a contribution to the organization's goal, but is also a path to promotion and add formal compensation	• Training enhances their versatility in the marketplace and investment in their future. Not necessarily loyal to the company who trained them	• Willing and eager to take risk, don't mind making mistakes – they consider this a learning opportunity.
Work Ethics/Style	• Dedicated • Pay your dues • Work hard • Respect authority • Hard work • Age-seniority • Company first	• Driven • Workaholic – 60 hr work week • Work long hours to establish self • Work ethic – worth ethics • Quality	• Balance • Work smarter and with greater output, not work long hours • Eliminate the task • Self-reliance • Want structure & direction • Skeptical	• Ambitious • What's next • Multitasking • Tenacity • Entrepreneurial
Preferred work Environment	• Conservative • Hierarchal • Clear chain of command • Top-down management	• Flat organization hierarchy • Humane • Equal opportunity • Warm friendly environment	• Functional, fun, positive • Efficient • Fast paced and flexible • Informal • Access to leadership • Access to information	• Collaborative • Achievement-oriented • Highly creative • Positive • Diverse • Fun, flexible, want continuous feedback
Attitude towards authority/rules	• They value conformity, authority and rules, and a top-down management approach • 13% included authority among their top values	• Some may still be uncomfortable interacting with authority figure • 5% included authority among their top 10 values	• They are comfortable with authority and are not impressed by titles or intimidated by them • They fine it natural to interact with superiors	• They believe that respect must be earned • 6% included authority in their top 10 values

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Work Preference	Generations Traditionalist	Baby boomers	Generations X	Millennial
			• 6% included authority in their top 10 values	
Business Focus	• Quality	• Long hours	• Productivity	• Contribution
Work Ethics and values	• Value honor • Value compliance • Value sacrifice • Value dedication • Value good attitude • Value attendance • Value practical knowledge	• Value personal growth • Value team work • Value youthfulness • Want respect from younger workers • Want flexibility routines into retirement • Willing to take risk • Work efficiently	• Move freely between jobs and criticized for no attachment to a particular employer/job • Output focused • Outcome oriented • Prefer diversity, technology, informality and fun • Rely on their technology and acuity and business savvy to stay marketable • Want to get in, get the work done and move on to the next thing	• Goal oriented • Looking for meaningful work and innovation. • May be the first generation to accept that readily accepted older leadership • Looking for career and stability • Mentoring is important to them • Obsessed with career developments • Prefer diversity, technology, informality and fun • Recognized that people make the company successful • Tolerant • Thrive in a collaborative work environment • Training is important to them • Understand the importance of great mentors • Want to enhance their skills by continuing their education
Top Development Areas	• Skills training in my areas of expertise • Computer training • Team building	• Skill training in my areas of expertise • Leadership • Computer training	• Leadership • Skill training in my areas of expertise • Team building	• Leadership • Problem solving, decision making • Skill training in areas of expertise

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TOTAL PRODUCTIVITY GROWTH IN THE FACULTIES OF ANBAR UNIVERSITY USING MALMQUIST PRODUCTIVITY INDEX

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ABSTRACT
The aims of this study is to evaluate the productivity growth of nineteen Faculties of Anbar University (FAUs) in Iraq. The FAUs performance is determined on the change in total factor productivity (TFA) and technical efficiency. We used the output orientated DEA-Malmquist index in estimating the productivity growth from panel data of 19 of FAUs in two periods of time 2010-2011 and 2011-2012 academic years, the model calculated using two educational outputs and two inputs. The results showed that (14) FAUs or or 73.6% are efficient. In terms of total factor productivity, FAUs obtained an index score of 0.879, which means that (7) FAUs or 36.8% remarkable productivity growth. The technological index shows that (2) FAUS or 10.5% only shows a technological progress.
Keywords: Total Productivity Growth, Malmquist Productivity Index ,Technological index

1-INTRODUCTION

In recent years, Higher Education Institutions (HEIs) have been increasingly studied. In nowadays ‘‘knowledge economy’’ their importance for economic development, social equity, mobility, social cohesion and integration is widely acknowledged (Brennan & Teichler, 2008). Furthermore, given the difficult situation of public finances, considerations about resources allocation have been raised in many countries, calling for more evaluations and accountability (Agasisti et al ,2011)

Productivity management in (HEIs) is one of the major sources of sustainable organizational effectiveness and a systematic understanding of the factors that affecting productivity is very important. The measurement and analysis of productivity change in (HEIs) is always a controversial topic and has enjoyed a great deal of interest among (HEIs) (Mohammadi & Ranaei, 2009).

Productivity growth in (HEIs) is one of the major sources of economic development and a thorough understanding of the factors affecting productivity is very important. In recent years the measurement and analysis of productivity change has enjoyed a great deal of interest among researchers studying firm performance and behavior (Rayeni et al, 2010).

This study aims to measures the productivity growth of nineteen Faculty of Anbar University (FAUs) in Iraq by using the output orientated DEA-Malmquist index in estimating the productivity growth from panel data of 19 of FAUS in two periods of time 2010-2011 and 2011-2012 academic years.

2-METHOD

2-1 Data Envelopment analysis

Data envelopment analysis (DEA) has been a technique for measuring the relative efficiency of decision making units (DMUs) with multiple inputs and multiple outputs (Charnes et al., 1978 ;

Banker et al., 1984). The method has become popular in university performance measurement (Prichard , 1990; Youn & Park, 2009). In fact, there are literally various kinds of DEA methods such as constant return to scale, variable return to scale, (Cooke & Zhu 2005). DEA is a mathematical linear programming approach based on the technical efficiency concept (TE), it can be used to measure and analyze TF of deferent entities : productive and non productive, public and private, profit and nonprofit seeking firms. It is non parametric approach that calculate efficiency level by doing linear program for each unit in the sample (Al- Delaimi & al-Ani ,2006).

DEA measures the efficiency of the decision making unit (DMUs) by the comparison with best producer in the sample to drive compared efficiency. DEA submits subjective measure of operational efficiency to the number of homogenous entities compared with each other, through a number of samples unit which form together a performance frontier curve envelopes all observations. So, this approach called Data Envelopment Analysis.

2-2 DEA-Malmquist productivity index

The Malmquist productivity index, as a kind of consumer price index was first proposed by the Sweden economist and statistician Sten Malmquist (1953). Later it is developed into the index to appraise the department productivity progress for multi-inputs and multi-outputs by Fare et al. (1985). Here after Fare et al. (1994) have consummated this index unceasingly, established the Malmquist productivity index which can be used to estimate the total factor productivity (TFP) growth in 1994, and decomposed this index into the technical change and the technical efficiency change by using the Shephard distance function . The essence of Malmquist index analysis method is to appraise the productivity. The productivity appraisal may analyze the fountainhead of the economic growth (Hu & Liang,2008). The Malmquist index analysis is to utilize the directional output or the input method to define the distance function, and then appraises the efficiency change of each decision-making unit.

The total factor productivity (TFP) approach provides the most comprehensive summary of school's performance. The Malmquist productivity index typically measures the TFP growth change between two data points: period t technology (observation) and the other period t + 1 technology.

Equation 1 shows the Malmquist productivity change index (Fare et. al 1994 p. 71) as stated:

$$M_o(x^{t+1}, y^{t+1}, x^t, y^t) = \frac{D_0^{t+1}(x^{t+1}, y^{t+1})}{D_0^t(x^t, y^t)} \mathrm{X} \left[\frac{D_0^t(x^{t+1}, y^{t+1})}{D_0^{t+1}(x^{t+1}, y^{t+1})} \times \frac{D_0^t(x^t, y^t)}{D_0^{t+1}(x^t, y^t)} \right]^{1/2} \quad (1)$$

Mo = Malmquist productivity Index
Do = Distance function
(xt+1, yt+1) = represents the production point of the productivity
(xt, yt) = relative production point of the productivity
t = period of benchmark technology

t+1 = the next period of technology

Equation 1 presents the components of the Malmquist index. The first equation on the right represents the efficiency change, which is the distance function from period *t* technology to period *t+1* technology, using input and output quantities. The equation inside the bracket represents the technical change from period *t* to period *t+1*. The Malmquist index is composed of geometric means of two output-based Malmquist index from period *t* to period *t + 1*. Geometric means are used because DEA does not account for measurement noise. In the Malmquist index, all values are ranged from 0 to

1. DEA-Malmquist captures the performance relative to the best practice in a given sample of educational institutions (Castano & Caband,2007) , whose best-practice institutions are operating on the efficient frontier. A value greater than one (>1) using Malmquist index indicates a positive improvement while a value lesser than one (<1) indicates a decline in an institution's performance over the period or denotes deterioration in performance. A constant 1 value means no improvement in performance.

3-DATA AND RESULTS

The data which have been used in this paper have been taken from the data base of department of planning in Anbar University for the two academic year 2010-2011 and 2011-2012. Input variables used are (1) academic staff, (2) general staff. The output variables are (1) number of graduates, (2) number of research. (appendix 1 & 2). DEAP software has been used for analyzing the information.

DEA-Malmquist (output-orientated) method is employed to decompose the total factor productivity change (TFPCH) into technological change (TECHCH) and technical efficiency (EFFCH). Technical efficiency is further decomposed into scale efficiency (SECH) and pure efficiency change (PECH).

Table (1) shows the list of FAUS with five Malmquist indices . fig (1) show total factor productivity change

From the table (1) We see that the mean SECH (1.006) of FAUS is slightly lower than the mean PECH (1.066), but both obtained values greater than one. This result indicates the presence of better management and also operations at optimal scale.

Table (1) Malmquist productivity Index of FAUs

Faculties	TFPCH	TECHCH	EFFCH	SECH	PECH
Education for Girls	1.239	0.622	1.482	0.836	0.77
Education for the Humanities	1	0.507	1	1	0.507
Engineering	1.176	0.807	0.906	1.299	0.949
Sciences	1.223	0.743	1.279	0.956	0.909
Medicine	1.259	0.852	1.418	0.888	1.073
Dentistry	1.756	0.888	1.886	0.931	1.56
Agriculture	1.338	0.921	1.233	1.085	1.232
Administration and Economics - Fallujah	0.896	0.762	0.974	0.92	0.683
Computer	1	1.169	1	1	1.169
Law – Fallujah	0.762	0.803	1	0.762	0.612
Arts	1.181	0.776	1.148	1.029	0.917
Law and Political Science-Ramadi	1.233	0.781	1.307	0.943	0.963
Administration and Economics - Ramadi	0.816	0.847	0.934	0.874	0.691
Islamic Sciences - Ramadi	1.319	0.842	1.042	1.267	1.111
Physical Education	1.512	0.83	1	1.512	1.255
Veterinary Medicine	0.899	1.141	0.828	1.085	1.025
Islamic Sciences - Fallujah	0.777	0.958	0.884	0.879	0.744
Education - Qaim	0.498	0.85	0.44	1.132	0.423
Education for Pure Sciences	1.345	0.693	1.297	1.036	0.932
Geometric Mean	1.076	0.818	1.066	1.009	0.879

Source: The output of DEAP software ver 2.1

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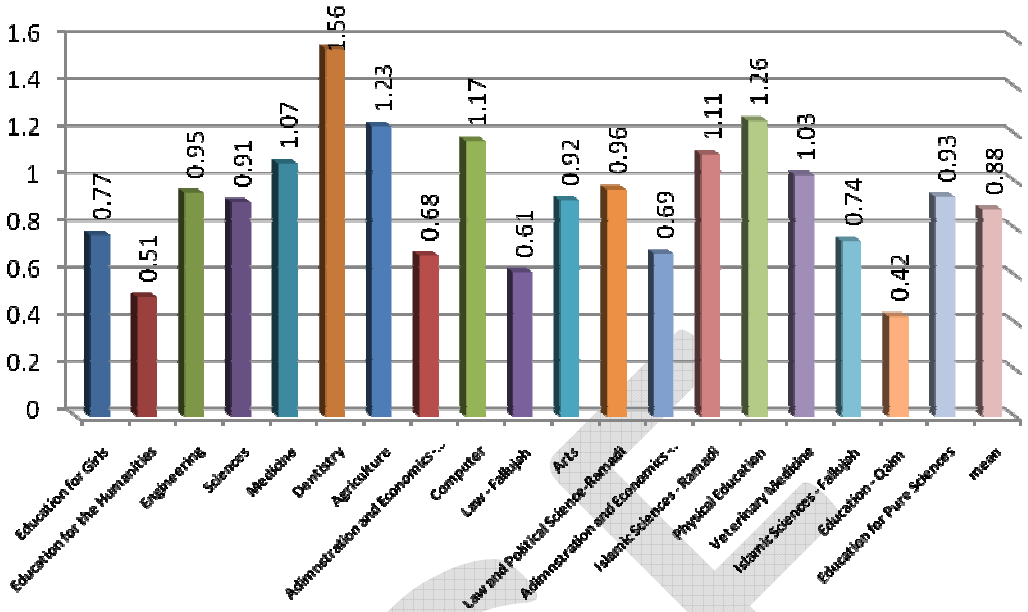

Fig 1: total factor productivity change in FAUs

The TFPCH index of FAUs (0.879) decomposed into managerial or technical efficiency index (1.076) and technological change index (0.818). The decline in TFPCH was brought about by a decrease in technological change index of 18.2 percent per year. In short, FAUs have managed efficiently their resources (inputs); although, technological innovation is a factor, which has to be improved further to reach the frontier of 1.0. The TFPCH of FAUs was achieved more due to the optimal use of given resources than innovations. On average, FAUs lack more technological innovation and need additional 18.2 percent to reach the technological frontier. The technological change shows that 2 out of 19 FAUS or 10.52 percent scored above the frontier level. The institution, which scored the highest is the Faculty of Computer (1.169).

There are 5 out of 19 FAUs, or 37.6 percent of the educational institutions are technically (managerial) efficient led by faculty of Dentistry. This means that the majority of FAUs have managed their inputs (academic and general staff) efficiently and productively so that there is productive growth in their outputs (graduate students and research). Most of the growth in the FAUs productivity during the period of study stemmed from catching up or best management practices rather than technological progress.

4-CONCLUSIONS

The aims of this study is to evaluate the productivity growth of nineteen Faculty of Anbar University (FAUs) in Iraq. The FAUs performance is determined on the change in total factor productivity (TFA) and technical efficiency. using DEA –Malmquist Productivity Model. The results showed that (14) FAUs or 73.6% are efficient. In terms of total factor productivity, FAUs obtained an index score

of 0.879, which means that (7) FAUs or 36.8% remarkable productivity growth. The technological index shows that (2) FAUs or 10.5% only shows a technological progress.
The important finding in this paper is that (2) out of 19 FAUS are showing technological progress and the rest are experiencing technological regression. This may call for the FAUs to give considerable attention to technological progress, the enhancement of existing applications and the development of more technology-oriented systems and procedures that will enable the educational institutions to remain effective and competitive. The Ministry Higher Education in Iraq and Anbar University should exert more efforts to provide modern teaching and learning faculties in every college to improve its deteriorating technological performance. Thus, the new findings in this paper may give impetus to Anbar University , and the faculty administrators to adopt measures that would be beneficial to the improvement Faculties of Anbar University in terms of inefficiency and unproductive growth.

REFERENCES

- Agasisti T., Dal Bianco A., Landoni P., Sala A., Salerno M., (2011) Evaluating the Efficiency of Research in Academic Departments: an Empirical Analysis in an Italian Region , Journal of Higher Education Quarterly 65 (3): 267–289,
- Al- Delaimi, Khalid Shahooth Khalaf and Al-Ani, Ahmed Hussein Battall. 2006. "Using Data Envelopment Analysis to Measure Cost Efficiency with an Application on Islamic Banks" Scientific Journal of Administrative Development, Vol: 4. pp. 134-156.
- Banker, R.D., Charnes, A., Cooper, W.W. (1984). Some models for the estimation of technical and scale inefficiencies in Data Envelopment Analysis. Management Science, 30, 1078–1092.
- Brennan, J., Teichler U., (2008), The future of higher education and of higher education Research, Higher Education, 56 :259–264.
- Charnes, A., Cooper, W.W., Rhodes, E. (1978). Measuring the efficiency of decision making units. European Journal of Operational Research, 2, 429–444.
- Cooke W, and Zhu J. (2005) Modeling Performance Measurement : Applications and Implementation Issues in DEA , Springer, New York,
- Fare R, Grosskopf S, Logan J (1985). The relative performance of publicly-owned and privately-owned electric utilities. Journal of Public Economics, (26): 89–106
- Fare R, Grosskopf S, Norris M, Zhang Z (1994). Productivity growth, technical progress, and efficiency change in industrialized countries. American Economic Review, (84): 66–83
- Hu Yongmei, Liang Wenyan (2008)Malmquist index analysis of the dynamic changes in scientific research productivity of some Chinese universities before and after merger , Front. Educ China 2008, 3(3): 429–447
- M.M. Rayeni, G. Vardanyan and F.H. Saljooghi, 2010. The Measurement of Productivity Growth in the Academic Departments using Malmquist Productivity Index. Journal of Applied Sciences, 10: 2875-2880.
- Malmquist, S. (1953),"Index Numbers and Indifference Surfaces," Trabajos de Estadistica 4, 209-42.
- Mohammadi, A. & Ranaei, H. (2011). The Application of DEA based Malmquist Productivity Index in Organizational Performance Analysis. International Research Journal of Finance and Economics, 62 (6): 68-76.
- Castano , Mary Carolin and Emilyn Cabanda, (2007) Sources Of Efficiency And Productivity Growth In The Philippine State Universities And Colleges: A Non-Parametric Approach , international Business & Economics Research 6 (6) :79-90
- Prichard, R.D. (1990). Measuring and Improving Organizational Productivity. Praeger Publishers. New York
- Rahimian M and Soltanifar M. (2013) An application of DEA based Malmquist productivity index in university performance analysis , Management Science Letters 3 : 337–344
- Youn, J. W., & Park, K. (2009). University development models and efficiency analysis. Journal of Service Science, 1, 9-30.

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EXPLORING THE INTERNATIONAL KNOWLEDGE OF STUDENTS IN A COLLEGE OF EDUCATION

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ABSTRACT
Knowledge of important international events and conditions seemingly enables professional personnel to effectively serve multicultural student populations and to guide their growth of global competence. Prior studies found young US adults generally display less knowledge of international issues than their age peers in other industrialized countries, with education majors demonstrating relatively lower knowledge levels compared to their peers in other majors. This study examines the degree of international knowledge displayed by 259 undergraduate education and non-education students. The two groups of students display similar yet low levels of international knowledge. Our findings reinforce the need for continued international education initiatives.
Keywords: international knowledge; international education; undergraduate students; education in the United States

INTRODUCTION

Knowledge of important international events and conditions has become vital to understanding and guiding commercial and professional policies in the 21st Century. The increased demands from government, business, and education sectors for employees who have international knowledge, skills, and experience requires students to be prepared to engage in international work (Council of Chief State School Officers, 2006). From this context, one of the principal roles of educators must be assisting children in the development of their understanding of international affairs. This role requires educators to have working knowledge that gives them the capacity to adequately discuss and transmit globally complex ideas and events (Holm & Farber, 2002). Numerous prominent organizations (American Council on Education, 1997; Committee for Economic Development, 2006; National Association of State Universities & Land-Grant Colleges, 1997) have underscored the importance of preparing students for international roles and called on schools and university leadership to increase international knowledge and expand general internationalization to all levels of education, with the goal to prepare students for further globalization.

International Knowledge in Young US Citizens

Despite this need for international knowledge, young US citizens generally lack international knowledge (Barrows, 1981; Eicher, Piersma, & Wood, 1975; Hayward & Siaya, 2001; Holm & Farber, 2002; Roper ASW, 2002; Roper GfK, 2006). A 1981 survey of 3000 U.S. undergraduate students on 13 global issues found that seniors correctly answered only 51% of the 113 multiple choice items (Barrows, 1981). Students who were males, older, from higher SES families, had higher GPAs, travelled internationally, and read newspapers regularly displayed higher levels of knowledge. The authors concluded that few US undergraduate students have adequate understanding of global issues (Barrows, 1981). This survey was replicated at a large public university in 1985 with similar results (Woyach, 1988).

A 2000 study by the American Council on Education involving approximately 500 US 18 year-olds focused on four international domains each assessed by 15 multiple-choice questions: people and places, political issues and events, economic issues and events, and overall international trends (Hayward & Siaya, 2001). The mean correct response rate remained meager, at approximately 50%. Respondents who had higher levels of education and had travelled internationally displayed higher levels of international knowledge. In 2002 and 2006

the National Geographic Society assessed the international knowledge and geography of representative samples of approximately 500 US young adults ages 18 to 24. The findings again showed that most young American adults display a limited awareness of the world beyond their country. Young adults in other industrialized nations generally performed higher than those in the US (Roper ASW, 2002). For example, 58% of the US respondents knew that the Taliban and al Qaeda movements were based in Afghanistan versus 84% in Great Britain and Sweden, 82% in Italy, 79% in Germany, and 75% in Canada. Respondents who were male, had higher levels of education, had travelled internationally, and obtained news information from the Internet displayed higher levels of knowledge (Roper GfK, 2006).

International knowledge and students in colleges of education

The classroom of the twenty-first century increasingly is affected by globalization (Commission on International Education, 1998). Its student body will become increasingly diverse in ethnicity, language, and developmental levels while requiring more complex forms of knowledge and skills to competently succeed in the globalized society. Educational personnel are responsible for promoting an understanding of global issues to students as well as for encouraging them to understand and accept diversity among their peers-a major goal of multicultural education (Banks, 1993, Merryfield, 1996; Olson, Evans, & Shoenberg, 2007). Today's educators should display a high degree of knowledge and awareness of international constructs to guide their students toward a greater understanding of the world (Commission on International Education, 1998).

During the last two decades, individual teacher educators and numerous organizations (e.g. American Council on Education, 1997; National Council for Accreditation of Teacher Education, 2000; National Education Association, 2010) have responded to these themes by advocating for and supporting efforts to promote international knowledge. Nevertheless, colleges of education reportedly are among the least internationalized units in higher education (Longview Foundation, 2008; Merryfield, 2000; Quezada, 2010; Schneider, 2004). The increased focus on achievement in light of state and federal mandated standards may have narrowed the focus of teacher education programs, thus limiting courses and other experiences needed to prepare internationally knowledgeable, competent teachers (McMurrer, 2007; Zhao, 2010). Furthermore, many education majors do not participate in or become otherwise exposed to international content either in their private lives, through broader university course work, or in overseas study or work opportunities (Mahon, 2010; Merryfield, 2000; Schneider, 2004; Sutton, 1999; Zhao, 2010).

The lack of focus and support in preparing globally competent and knowledgeable educators may have contributed to low levels of international knowledge in both students and professionals in education. In the aforementioned 1981 survey of 3000 US undergraduate students, education majors displayed the lowest level of international knowledge among the seven major college disciplines surveyed (Barrows, 1981). Education majors were ranked six out of the seven after controlling for the possible confounding effects of grades, standardized test scores, gender, and foreign travel (Torney-Purta, 1982). A 1985 study found pre-service teachers displayed little knowledge of geography (Herman, Hawkins, & Berryman, 1985). In 1996, a study of the levels of knowledge and understanding about Africa found pre-service social studies teachers demonstrated little awareness of basic geopolitical facts about its people, culture, and geography (Osunde, 1996). Similarly, a 2001 study of international knowledge and awareness displayed by approximately 150 pre-service teachers attending a large university education program found very low levels of knowledge, summarized by "…widespread inattention to and ignorance of geopolitical and global realities" (Holm & Farber, 2002, p. 143).

Purpose of this study

Numerous researchers and organizations have demonstrated the need for increased global focus and preparation in international studies, particularly in colleges of education (American Council on Education, 1997; Merryfield, 2000; National Education Association, 2010). The purpose of

this research is to describe the general level of international knowledge displayed by undergraduates who are taking classes in a college of education and to determine whether knowledge displayed by education and non-education majors differ. The content for this knowledge assessment comes from domains commonly found in prior prominent national and international studies. Findings from this study also are compared with data from prior studies assessing similar content.

METHOD

Participants

Data were gathered on 259 undergraduate students enrolled in a large public university in southeastern United States. Within this sample, 40% majored in education and 60% in other academic areas. Participants were predominantly female (92% in education versus 76% in non-education majors), with an average age of 20 years in both groups. Upperclassman (juniors and seniors) represented 63% of education majors and only 30% of non-education majors. Ninety-four percent of education majors were born in the US versus 86% of non-education majors. Five racial/ethnic groups were represented in the overall sample: Anglo-Americans (63%), Hispanics (12%), African-Americans (17%), Asian (5%) and Middle Eastern (.5%). GPAs of 3.0 or above were reported by 90% or education majors and 78% of non-education majors. On average, both education and non-education majors had visited two foreign countries and spoke one foreign language; only 17% spoke that language proficiently. Only six percent in each group had studied abroad. The two student groups were found to differ on gender, college year, race, GPA, and the proportion of students born in the US.

Procedure

The primary investigator recruited undergraduate students in courses in the College of Education. Participants were read and given an informed consent form that included a statement regarding the anonymous and voluntary nature of participation and noted that completion of the questionnaire implied consent. Participants were asked to complete the instrument and return it to the investigator.

Instrument development

An instrument was developed to assess general international knowledge. The instrument was developed using a framework which incorporated structures and domains from previous surveys of international knowledge, thus providing content validity and performance standards for the current study (Barrows, 1981; Holm & Farber, 2002; Roper ASW, 2002; Roper GfK, 2006). The five initial domains of international relations, global demographics, current events, international economics, and geography align with the theoretical framework specified by the American Council on Education (Olsen, Green, & Hill, 2005), Committee for Economic Development (2006), and the National Education Association (2002). Each domain is described briefly below. Several questions were removed in the analyses due to psychometric inconsistencies. Readers are referred to Table 5 for detailed list of questions. Information on the participant's demographic characteristics also was acquired.

Knowledge of international relations

Knowledge of international relations was measured initially by 8 multiple choice items designed to assess the respondent's general awareness and recognition of international affairs and conflict. Questions focus on large international organizations (e.g., the UN and NATO) as well as current areas of international disputes, defense, and nuclear proliferation. Two questions were removed later.

Knowledge of global demographics

Knowledge of global demographic characteristics was assessed through 12 multiple choice questions that focus on international populations, religions, languages, and education.

Knowledge of current events

Knowledge of current events was measured initially by 10 multiple choice questions designed to evaluate the respondent's ability to recognize important names, organizations, and events that

are discussed somewhat frequently in international news. Two questions were removed later.

Knowledge of international economics

Knowledge of international economics was measured initially by 11 multiple choice questions that focus on the importance of petroleum resources, international commerce, poverty, and national competitiveness. Three questions were removed later.

Knowledge of geography

Knowledge of geography was measured by assessing respondent's ability to identify 20 globally influential countries on a world map unmarked except for national boundaries. The respondent was given a numbered list of 20 countries and asked to place the corresponding number on the appropriate location on the map.

Statistical analyses

Data were analyzed in two stages. First stage analyses examined the psychometric characteristics of the newly developed measure of international knowledge. Exploratory factor analysis (EFA) and Pearson correlation were used to provide evidence of its characteristics. The Kuder-Richardson (KR #20) formula was computed to assess internal consistency of the total scores. Descriptive statistics (e.g. means, standard deviations, skewness, and kurtosis) also were examined to understand the score distributions. Results of the first stage analyses are described after first describing the second stage analyses.

Second stage analysis addressed the primary intent of this paper, that is, to examine knowledge of international relations, global demographics, current events, international economics, and geography held by a sample of undergraduate U.S. students. Statistical procedures yielded descriptive statistics on these domains. Multiple regression analysis also was used to determine the influence of demographic factors on the participants' overall international knowledge. T-tests, chi-squares, and univariate analysis of variance were used to examine between-group differences on possibly confounding variables based upon the research literature. Results of the second stage analysis are reported in the results section. SPSS v. 19.0 was used for all analyses.

Exploratory factor analysis (EFA)

Exploratory factor analysis used item parcels to determine the factorial validity of the international knowledge measure. Item parcels instead of individual items were constructed and used to help overcome the problem of diminished variances when relying on data from individual items (Nunnally & Bernstein, 1994). Item parcels are formed by combining items into meaningful groupings that produce larger variances than obtainable from single items (Zwick, 1987). Thirty-four individual items measuring knowledge of international relations, global demographics, current events, and international economics were subjected to item parceling by combining randomly three to four items within each of these domains, resulting in the formation of 9 item parcels. The geography domain was excluded from factor analysis because its item structure (i.e. placing numbers that designate countries on the correct location on a map) differed from that of other items (e.g., 4 to 5 option multiple choice items).

Exploratory factor analysis for the 9 item parcels was conducted using principal component analysis with varimax rotation. The intercorrelation matrix of the item parcels was analyzed using Bartlett's Test of Sphericity (Bartlett, 1954) and the Kaiser–Meyer–Olkin (KMO) statistic (Kaiser, 1974) to ensure the data were suitable for factor analysis. The number of components to be extracted was based on two criteria: Kaiser eigenvalues greater than 1.0 and results from the Cattell's scree test (Schultz & Whitney, 2005). Moreover, the inclusion of item parcels within a factor was based on a communality of .32 or higher for each item parcel retained. A factor loading of .50 or higher was utilized as a criterion for adequate variance of item parcels to a factor (Tabachnick & Fidell, 1996).

The EFA yielded a significant Bartlett's test of sphericity, χ^2 (36, N = 259) = 309.52, p < .001. The Kaiser–Meyer–Olkin measure of sampling adequacy (KMO =.78) indicates that the data are satisfactory for factor analysis (Hutcheson & Sofroniou, 1999). Two factors emerged

with eigenvalues above 1.0, accounting for 42% of the variance. Results of the varimax rotation further supported a two-factor model with significant and distinct loadings for all item parcels on their hypothesized factors (Pett, Lackey, & Sullivan, 2003). Factor 1, subsequently labeled geopolitical knowledge, combined the item parcels of international relations and economics, resulting in an eigenvalue of 2.75 and explaining 31% of the variance of international knowledge. Factor loadings ranged from .55 to .78. Factor 2, subsequently labeled global awareness, combined the item parcels on current events and global demographics, resulting in an eigenvalue of 1.07. It explained about 12% of the variance of international knowledge. Factor loadings ranged from .49 to .64. The three-factor model of international knowledge, comprised of the two factors that emerged in the EFA plus geography, is found in Table 1.

Table 1. Final three factor international model

Factors	Factor 1	Factor 2	Factor 3
GEOPOL	DEM-P2		
	CVS-P1		
	DEM-P1		
	DEM-P3		
	CVS-P2		
GLOBAW		ECO-P1	
		INR-P2	
		ECO-P2	
		INR-P1	
GEO			GEO-P1

Note: GEOPOL=Geopolitics, GLOBAW=Global Awareness, DEM=Global Demographics, INR=International Relations, CVS=Current Events, ECO=International Economic, GEO=Geography

Descriptive statistics, inter-correlation, and internal consistency of scores

Two hundred fifty-nine participants completed the multiple choice portion of the measure that contributed to the two domains (i.e., geopolitical knowledge and global awareness), 251 participants completed the country identification geography measure, and 248 completed both the multiple choice and the geography measures. Data from all measures were distributed normally. Skewness and kurtosis values of all domain and total scores fall between ±1.00, thus indicating that the distribution of data is very good for psychometric purposes (George & Mallery, 2009). Inter-correlations of domain scores were moderate, ranging from .38 to .44 (an average of .42), suggesting a distinct and unique contribution of each factor. Moreover, the correlations between the domain and total scores are significant, ranging from .70 to .83 (with an average of .78), thus indicating that total score can be considered a valid and reliable estimate of the qualities measured by the five domains. Lastly, an estimate of internal consistency of the total score is moderately high (KR#20 = .76).

Table 2. Descriptive statistics of the domain and total scores of international knowledge

Domains	# of items	Minimum	Maximum	Correct Response Rate	Mean	SD	Skewness	Kurtosis
GEOPOL	14	1	14	62%	8.80	2.28	-0.46	0.40
GEO	20	2	20	58%	11.54	3.76	-0.29	-0.18
GLOBAW	20	1	19	54%	10.95	3.27	-0.29	-0.06

TOTAL	54	14	51	58%	31.41	7.37	-0.08	-0.34

Note: GEOPOL=Geopolitics, GLOBAW=Global Awareness, GEO=Geography, TOTAL =Total International Knowledge Score

Multiple regression analysis

Prior research identified various personal demographic qualities that may be associated with knowledge of international issues and events. The analysis only included demographic variables that have at least a 70% response rate. This study continues this effort by examining the possible impact of age, gender, college year, college major discipline (education and non-education), GPA, travel experience, number of internationally focused courses taken, frequency of international issues discussion in courses, and languages spoken on international knowledge. The test's total score, derived from its 54 items, was used as the dependent variable. Multiple regression analysis was used to determine the association of the above independent predictors. Pearson's correlation coefficients between subtests also were determined to examine relationships between measures. Alpha levels of .05 were established for all analyses

RESULTS

Influence of college major on international knowledge

International knowledge (including individual factors of geopolitical knowledge, geography, and global awareness) of students who majored in education or other areas do not differ, $F(1, 243) = 0.02$, $p > .05$. International knowledge displayed by students majoring in education ($M = 31.50$, $SD = 6.41$) and those in other academic areas ($M = 31.36$, $SD = 7.98$) is comparable. Interactions between demographic qualities (e.g. gender, age, GPA, and class year) and group membership (education vs. non-education majors) are not significant.

Table 3. Summary of college major comparison

	Education Majors (N=103)		Non –Education Majors (N=154)		
Domain	M	SD	M	SD	F
GEOPOL	8.72	1.96	8.84	2.46	.18
GLOBAW	11	3.29	10.96	3.29	.01
GEO	11.76	3.38	11.41	4.01	.53
TOTAL	31.5	6.41	31.36	7.98	.02

Note: GEOPOL=Geopolitics, GLOBAW=Global Awareness, GEO=Geography, TOTAL =Total International Knowledge Score

*p <.05, **p <.01, ***p <.001.

Level of international knowledge

University undergraduate students generally display a broad range of international knowledge (Tables 4 and 5). Their level of knowledge, as reflected in their mean test data, is highest on geopolitical knowledge (62%), followed by geography (58%), and global awareness (54%).

Table 4. Country identification geography questionnaire response rates (N = 251)

Country	Correct Response Rate	Country	Correct Response Rate
U.S.	99%	South Africa	62%
Canada	98%	Japan	58%
Australia	96%	United Kingdom	54%
Mexico	94%	South Korea	37%
Brazil	83%	Indonesia	24%
Cuba	81%	Iran	18%
China	80%	Iraq	16%

Russia	77%	Sudan	14%
India	74%	Pakistan	12%
France	64%	Afghanistan	12%

Note: No significant differences found between Ed and Non-Ed scores

Table 5. Correct response rates by item

Multiple Choice Question	Correct Answer	All (N=259)	Ed (N=103)	Non-Ed (N=151)
Geopolitical Knowledge				
The country that exports the highest amount of manufactured products	(China)	90%	92%	88%
The only communist country in the Western Hemisphere is*	(Cuba)	89%	94%	85%
The region that is the largest exporter of oil internationally*	(Middle East)	88%	93%	85%
The euro is the common currency in these countries	(European Union)	88%	87%	89%
The country not member of the North American Free Trade Agreement	(Costa Rica)	69%	74%	66%
During the last 60 years, the gap in income between the richest and poorest countries	(has widened)	66%	68%	64%
The country that spends the largest amount of money on its military*	(U.S.)	64%	56%	69%
The country U.S. supports despite negative international political consequences	(Israel)	55%	52%	56%
The country not a NATO member*	(Russia)	51%	42%	56%
The % of the world's oil the U.S. consumes	(25%)	50%	56%	48%
Major reason for inadequate nutrition	(low income)	48%	44%	52%
The two countries that have a longstanding conflict over the Kashmir region	(India and Pakistan)	41%	36%	45%
The % of the U.S. federal budget spent on foreign humanitarian aid	(0.5%)	14%	13%	15%
Global Awareness				

The name of the President of the United States	(Barack Obama)	96%	98%	95%
The region of the world with the highest percentage of its population infected with HIV	(Africa)	95%	97%	93%
The region and country that recently has had widespread deaths due to genocide	(Darfur, Sudan)	86%	89%	84%
The most popular sport worldwide	(Soccer)	83%	86%	81%
The principal language in Latin America	(Spanish)	72%	72%	72%
The country in which Al Qaeda movement originated	(Afghanistan)	68%	69%	69%
The predominant religion in India	(Hinduism)	64%	67%	62%
During the last two years, most immigrants to the U.S. came from	(Latin America)	64%	64%	66%
The religion with the largest number of followers	(Christianity)	62%	59%	63%
The predominant religion in Saudi Arabia	(Islam)	60%	58%	62%
The current sectarian violence between Iraqi citizens is due to the following conflict	(religious groups)	60%	59%	62%
The name of the U.S. Secretary of State	(Hillary Clinton)	56%	53%	58%
A country with a population more than 1 billion	(India)	53%	54%	52%
The approximate world population	(7 billion)	49%	45%	52%
The approximate United States' population	(150 – 350 million)	42%	40%	44%
The language with the highest number of native speakers	(Chinese)	39%	44%	35%
The name of the Prime Minister of Great Britain	(Gordon Brown) [a]	31%	33%	29%
The fastest growing religion	(Islam)	29%	31%	28%
The country with lowest scores from the 2007 Trends in International Mathematics and Science Study	(El Salvador)	24%	24%	25%
The country with the most advanced system of higher education is	(U.S.)	14%	12%	17%
The Secretary General of the United Nations is	(Ban Ki-moon)	10%	8%	12%

Note: *p <.05, **p <.01, ***p <.001.
[a] At the time of the survey.

Geopolitical knowledge

The majority of undergraduates are aware that China exports the highest amount of manufactured products (90%) and that Cuba is the only communist country in the Western Hemisphere (89%). Fewer recognized that Costa Rica is not a member of NAFTA (69%) and that the US spends the largest amount of money on its military (64%). Half (50%) recognize that the US consumes 25% of oil production worldwide while fewest (14%) recognize the percentage of the US federal budget spent on foreign humanitarian aid.

Geography

On a world map, the countries of North America including the US (99%), Canada (98%), and Mexico (94%) were most identifiable. Fewer students identified the location of major countries in East Asia and Europe, namely Japan (58%) and the United Kingdom (54%). Geographic location of Middle East countries was low: Iran (18%), Iraq (16%), Pakistan (12%), and Afghanistan (12%).

Global awareness

Most undergraduate students recognize the name of the US President (96%), that Africa has the highest rates of HIV infection (95%), and that Sudan has had widespread deaths due to genocide (86%). Fewer are aware that Hillary Clinton is US Secretary of State (56%) or of the approximate world population (49%). The name of the Secretary General of the United Nations is least known (10%).

Influence of demographic variables on international knowledge

Results of the multiple regression analysis indicate that the nine demographic variables collectively explains 23% of the variance in overall international knowledge (Adj $R^2 = .23$), F (9, 226) = 8.80, $p < .001$. Among these variables, only gender (i.e., being male), the number of foreign countries visited, and grade point average (GPA) significantly influence international knowledge. Multiple regression analyses were performed separately on education and non-education majors; both identify gender, number of foreign countries visited, and GPA as being related to international knowledge.

Table 6. Summary of the multiple regression analysis predicting international knowledge total score from demographic variables

Predictors	*B*	SE *B*	β	T
International Knowledge Total Score N=235				
Age	0.39	0.26	0.11	1.51
Gender	6.72	1.21	0.35	5.56***
College year	-0.02	0.46	0.00	-0.04
College Major (Education and Non-Education)	-0.50	1.01	-0.03	-0.49
Grade Point Average	1.87	0.53	0.21	3.54***
Number of countries visited	1.03	0.24	0.27	4.34***
Number of internationally focused courses	0.60	0.41	0.09	1.46
Frequency of international discussion in courses	0.36	0.59	0.04	0.61
Number of non-English languages spoken	0.91	0.60	0.09	1.52

Note: *p <.05, **p <.01, ***p <.001.

Comparison with previous studies

Comparative levels of knowledge displayed by undergraduate students on three international domains are displayed in Table 7. The use of items common to prior domestic (Roper ASW, 2002; Roper GfK, 2006) and international (Roper ASW, 2002; Roper GfK, 2006) studies allow us to use data from other students as benchmarks and thus to compare the knowledge displayed by education undergraduate students with their domestic and international age peers. Undergraduate students taking courses in colleges of education display a higher level of international knowledge than other young US adults and are similar to age peers in other industrialized nations.

Table 7. Comparison of group domain and total correct response rates

Domains	No. of common items used	Comparison Group		Undergraduate Students [a]	χ^2
Geopolitical	4	US age peers	57%	78%	31.45***
Knowledge	4	International Peers	76%	78%	0.33
Global	4	US age peers	56%	66%	8.00**
Awareness	4	International Peers	63%	66%	1.14

Geography	12	US age peers	56%	70%	13.90***
	9	International Peers	74%	71%	1.12
International Knowledge Total Score	20	US age peers	56%	71%	15.23***
	17	International Peers	72%	71%	0.04

Note: US age peers (N=500), International peers (N=2120). The group response rates per domain represent an average of the correct response rates for all items included in the comparison domain.
[a] The response rates vary slightly for undergraduate students due to the number of items included in the domain comparisons across groups.
*p <.05, **p <.01, ***p <.001.

DISCUSSION

The purpose of this research is to describe the general level of international knowledge displayed by undergraduates who are taking classes in a college of education and to determine whether knowledge displayed by education and non-education majors differ. The level of understanding of international knowledge displayed by undergraduate students is higher than their average US peers and similar to their international peers. The undergraduate students in our sample outperformed nationally representative samples of US 18-24 year-olds on common international knowledge multiple choice and country identification items (Roper ASW, 2002; Roper GfK, 2006). Higher correct response rates were demonstrated on questions pertaining to economics, health, and sports.

Factors related to international knowledge

The main demographic predictors of international knowledge largely support previous research findings (Barrows, 1981; Cogan, Torney-Purta, & Anderson, 1988; Roper GfK, 2006; Torney-Purta, 1982). Being male was found to be the strongest predictor of knowledge followed by having had more international travel and a higher GPA. This study and others (e.g. Barrows, 1981; Cogan, Torney-Purta, & Anderson, 1988) found fluency in a foreign language to be unrelated with international knowledge. Although previous research with large sample sizes demonstrated that college juniors and seniors displayed higher levels of international knowledge than their underclassmen (Barrows, 1981; Cogan, Torney-Purta, & Anderson, 1988; Roper ASW, 2002), the current study did not find this relationship. Also, with regard to their internationally focused university coursework, 54% reported no international coursework experience and only 9% reported taking more than two international courses. This result may support previous findings of minimal internationally focused course requirements, particularly in colleges of education (Lambert, 1989; Quezada, 2010, Schneider, 2004).

Education and non-education majors display similar levels of international knowledge

The level of international knowledge displayed by majors in education and their university peers majoring in other areas was very similar. Thus, these data do not support previous findings of significant differences in international knowledge between education and non-education major undergraduates (Barrows, 1981; Torney-Purta, 1982). Furthermore, few between group differences were apparent at the individual item level. This apparent equality between education and non-education majors may represent an increase in the relative levels of international knowledge of education students.

Significant international knowledge deficiencies remain

Although the results are comparative to their age peers, the undergraduate students displayed a less than desirable level of important international knowledge. The percent of correct items (see Table 5) is lower than may be expected from an educated population,

particularly on multiple choice items that could be answered correctly 20% to 25% of the time by chance. Consistent with previous studies (Holm & Farber, 2002), dramatic knowledge deficiencies were demonstrated in areas of geography, demographics, and world leadership. Knowledge of Middle East geography was extremely low despite continuous wars and media saturation in this region over the last decade. Population estimation also was low, with 55% believing the number of inhabitants of the United States to be over 500 million and 20% believing the number to be above 1 billion. More students identified Vladimir Putin and Ehud Olmert, former prime ministers of Russia and Israel respectively, as the current Secretary General of the United Nations rather than Ban Ki-moon. Over 40% could not identify the predominant religion in arguably the most vital country in the Muslim world, Saudi Arabia. One-third could not locate South Africa on a world map. Almost half of the respondents did not know the name of the current Secretary of State. Somewhat ironically, given their presence in high education, a mere 14% correctly identified the U.S. as having the most advanced system of higher education.

When viewed against the increased need for international knowledge and awareness due to the accelerating force of globalization, the results of this study are disconcerting. Current and future educators need to possess basic international knowledge in order to adequately prepare students for the demands and opportunities of the global economy and society. Researchers and policy makers stress the need for educational initiatives in teacher preparation and professional development programs that facilitate international understanding. US colleges and universities express the desire to graduate future teachers with abilities and knowledge to incorporate international understanding into their lessons. However, despite this recent attention to internationalization in higher education, teacher preparation programs in US universities remain among the least internationalized. This study contributes to a body of work consistently demonstrating international knowledge deficiencies in future educators and US youth in general. The need for international knowledge initiatives in higher education appears to continue.

Limitations

The study should be interpreted in the context of several qualities that may limit the generalizability of the findings. First, the sample was limited in size and breath. Participants attended the same university. Thus, the sample is less nationally representative than some previous research (Barrows, 1981; Roper ASW, 2002; Roper GfK, 2006). Second, comparisons between education and non-education majors may not have been equitable due to sampling limitations. Third, although the measure constructed for the study demonstrated a statistically promising domain structure and drew from previous measures of international knowledge constructs, its comparison with previous measures and studies may not be equitable. Lastly, comparisons between our participants and domestic and international peers did not control for possibly confounding demographic variables. For example, compared to samples in other groups, our undergraduate students are likely to be more highly educated, a quality associated with higher levels of international knowledge. Thus, although these group comparisons were examined accurately, they may not be equitable.

REFERENCES

American Council on Education. (1997). *Educating for global competency: America's passport to the future.* Washington, DC: Author.

Banks, J. A. (1993). Multicultural education: Historical development, dimensions, and practice. *Review of Research in Education*, *19*, 3-49. doi:10.2307/1167339

Barrows, T. (1981). *College students' knowledge and beliefs: A survey of global understanding.* New Rochelle, N.Y.: Change Magazine Press.

Bartlett, M. S. (1954). A further note on the multiplying factors for various x2 approximations in factor analysis. *Journal of the Royal Statistical Society, 16*, 296−298.

Cogan, J., Torney-Purta, J., & Anderson, D. (1988). Knowledge and attitudes toward global issues: Students in Japan and the United States. *Comparative Education*

Review, 32, 282–297. doi:10.1086/446778
Committee for Economic Development. (2006). *Education for global leadership.* Washington, DC: Author. Retrieved from http://www.ced.org/projects/educ_forlang.shtml
Commission on International Education. (1998). *Educating for global competence: America's passport to the future*. Washington, DC: Author. Retrieved from ERIC database (ED421940).
Council of Chief State School Officers. (2006). *Global education policy statement.* Washington, DC: Author. Retrieved from: http://www.ccsso.org/content/pdfs/Global%20Education%20FINAL%20lowrez.pdf
Eicher, C. E., Piersma, M. L., & Wood, R. W. (1975). *An investigation of elementary children's perceptions of selected countries of the world: A technical report.* Vermillion, SD: Educational Research and Service Center.
George, D., & Mallery, M. (2009). *SPSS for windows step by step: A simple guide and reference (9th ed.).* Boston, MA: Pearson A & B.
Hayward, F. M., & Siaya, L. M. (2001). *Public experience, attitudes, and knowledge: A report on two national surveys about international education.* Washington, DC: American Council on Education. Retrieved from ERIC database. (ED475087)
Herman, W. L., Hawkins, M., & Berryman, C. (1985). World place name location skills of elementary pre-service teachers. *The Journal of Educational Research*, *79*, 33-35.
Heyl, J. D., & McCarty, J. A. (2005). International education and teacher preparation in the US: The looming crisis. *The Journal of Public Affairs, 8,* 100-116.
Holm, G., & Farber, P. (2002). Teaching in the dark: The geopolitical knowledge and global awareness of the next generation of American teachers. *International Studies in Sociology of Education, 12,* 129–144. doi:10.1080/09620210200200087
Hutcheson, G. D., & Sofroniou, N. (1999). *The multivariate social scientist: Introductory statistics using generalized linear models*. Thousand Oaks, CA: Sage.
Lambert, R. D. (1989). *International studies and the undergraduate*. Washington, DC: American Council of Education.
Longview Foundation (2008). *Teacher preparation for the global age: The imperative for change.* Silver Springs, MD: Author.
Mahon, J. (2010). Fact or fiction? Analyzing institutional barriers and individual responsibility to advance the internationalization of teacher education. *Teaching Education, 21*, 7-18. doi: 10.1080/10476210903466893
McMurrer, J. (2007). *Choices, changes, and challenges: Curriculum and instruction in the NCLB era*. Washington, DC: Center on Education Policy.
Merryfield, M. (1996). *Making connections between multicultural and global education*. Washington, DC: American Association of Colleges for Teacher Education.
Merryfield, M. (2000). Why aren't teachers prepared to teach for diversity, equity and global connectedness? *Teaching and Teacher Education, 16*, 429- 443. doi: 10.1016/S0742-051X(00)00004-4
McKibben, B. (2000). A special moment in history. In P. O'Meara, H. Mehlinger, & M. Krain (Eds.), *Globalization and the challenges of a new century* (pp. 383–405). Bloomington, IN: Indiana University Press.
National Association of State Universities and Land-Grant Colleges (1997). *The global university for the twenty-first century: A strategic plan*. Washington, DC: Author.
National Council for Accreditation of Teacher Education. (2000). *Professional standards for the accreditation of schools, colleges, and departments of education*. Washington, DC: Author.
National Education Association. (2010). *Global competence is a 21st century imperative*. NEA policy brief. Washington, DC: Author. Retrieved from http://hin.nea.org/assets/docs/HE/PB28A_Global_Competence11.pdf
Nunnally, J. C., & Bernstein, L. H. (1994). *Psychometric theory (3rd ed.).* New York, NY: McGraw-Hill.
Olson, C., Evans, R., & Shoenberg, R. F. (2007). *At home in the world: Bridging the gap between internationalization and multicultural education.* American Council on Education Washington, DC.
Olson, C. L, Green, M. F., & Hill, B. A. (2005). *Building a strategic framework for comprehensive internationalization.* Washington, DC: American Council on Education.
Osunde, E. (1996). Persisting and common stereotypes in U.S. students' knowledge of Africa: A study of pre-service social studies teachers. *Social Studies*, *87*, 119-124.

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research.* Thousand Oaks, CA: Sage.

Quezada, R. L. (2010). Internationalization of teacher education: Creating global competent teachers and teacher educators for the 21st century. *Teaching Education, 21*, 1-5.

Roper ASW (2002). *National geographic Roper 2002 global geographic literacy survey*. Washington, DC: National Geographic Society. Retrieved from http://www.nationalgeographic.com/geosurvey/download/RoperSurvey.pdf

Roper GfK (2006). *National geographic Roper public affairs 2006 global geographic literacy survey*. Washington, DC: National Geographic Society. Retrieved from http://www.nationalgeographic.com/roper2006/pdf/FINALReport2006GeogLitsurvey.pdf

Schneider, A. I. (2004). What can be done to internationalize teacher training? A research report on the undergraduate training of secondary school teachers. *International Studies Perspectives*, *5*, 316-320. doi:10.1111/j.1528-3577.2004.00176.x

Sutton, M. (1999). Fostering global awareness in teacher education programs. *Michigan and Ohio Journal of Teacher Education*, *12*, 234-256.

Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics (3rd ed.)*. New York, NY: HarperCollins College.

Torney-Purta, J. (1982). The global awareness survey: Implications for teacher education. *Theory into Practice, 21,* 200–205. doi:10.1080/00405848209543006

Woyache, R. B. (1988). *Understanding the global arena: A report on the Ohio State University global awareness survey.* Columbus, OH: Ohio State University.

Zhao, Y (2010). Preparing globally competent teachers: A new imperative for teacher education. *Journal of Teacher Education*, *61*, 422-431.

Zhao. Y., Lin, L., & Hoge, J. D. (2007). Establishing the need for cross-cultural and global issues research. *The International Education Journal, 8,* 139–150.

Zwick, R. (1987). Assessment of dimensionality of year 15 reading data. In A.E. Beaton (Ed.), *Implementing the new design: The NAEP 1983-1984 technical report* (pp. 245–284). Princeton, NJ: Educational Testing Service.