



GRADUATE
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MEDICAL
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Enhanced Basic Life Support Skill for Medical Students: An E-learning Intervention in first year GEM's Students at U.L

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September 2012

Profile of typical GEM's Student

- * Highly-motivated, committed... self-directed, challenging, demanding and questioning'
 - * McCrorie P. Graduate Students are more challenging, demanding and questioning. *British Medical Journal*. 2002;325(676)
- * Exceptionally low attrition rates are well documented in GEM students
 - * Garrison G, Mikesell C. Medical School Graduation and Attrition Rates. *Association of American Medical Colleges Analysis in Brief*. 2007;7(2)
- * The underperformance in the skill B.L.S therefore needed detailed analysis

'Underperformance' Unique to U.L GEMS ??

- * A literature review revealed that **internationally** medical students perform poorly in the skill of B.L.S was
 - * Behrend T, Heineman J, Wu L. Medical Student Research Journal. 2011;1(1)
- * A further report revealed a significant **deterioration in the retention of the skill of B.L.S** amongst pre-clinical medical students over time
 - * Fossel M, Kiskaddon RT, Sternbach GL. Journal of Medical Education 1983;58(7):568-75
- * A wider literature review highlighted that first aid related knowledge, skill acquisition and retention remains **inadequate amongst a range of health care professionals**
 - * Alspach G. CPR—the vanishing competency. Critical Care Nurse. 2005;25:8-12

Alternative Teaching Methods

- * **Background:**

The European Resuscitation Council recommended in 2010 that computer self-instruction courses, with minimal instructor coaching, combined with hands-on practice should be considered an effective alternative to instructor lead Basic Life Support (B.L.S) courses

- * The objective of this study was to test the validity of this recommendation

Methodology

- * The 2010/11 cohort were designated as the control group, traditional instruction (47 students)
- * The 2011/12 cohort were designated as the experimental group, E-Learning (66 students)
- * Any student with previous B.L.S experience was eliminated from the study

Methodology continued

- * Each student was assessed twice during the academic year- February and June respectively
- * **Experimental Design**
 - * Single Subject Design
 - * Within this study each student was his or her own control

Strengths of Single Subject Design

- * It removes any possible bias in group allocation- gender, age etc.
- * It overcomes the difficulties inherent in repeated measures analysis
- * It is commonly used in repeated measures analysis in Education and Psychology

Natural Maturation

- * In any analysis of repeated measurement data '*natural maturation*' may be a significant contributor to the differences in performance identified between the two intervals in question
- * To address this *potential bias* the natural maturation associated with the acquisition of B.L.S. was quantified

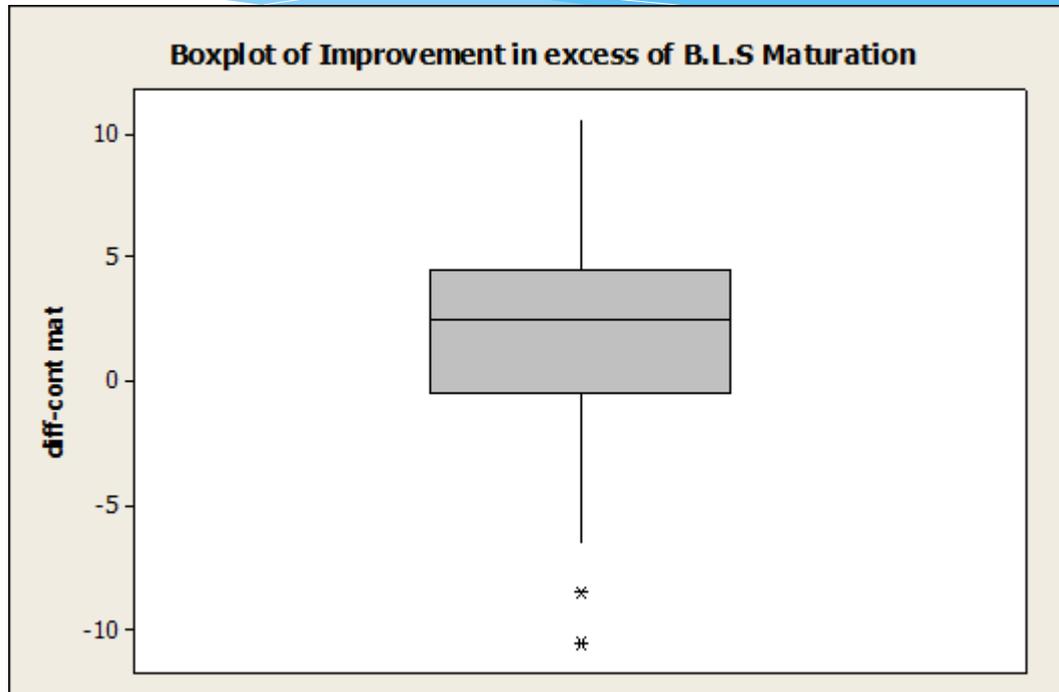
Estimate of the Maturation Effect

- * The difference between the control students' results in February and June 2011 was calculated
- * The average difference provides an estimate of the maturation effect **(+1.5)**
- * Analysis of 2009/10 and 2008/09 cohorts confirms the stability of this **(+1.5)** maturation score

The Null Hypothesis

- * The E-learning February results (2012) were adjusted to reflect the natural maturation effect (+1.5)
- * H_0
 - * There is no significant difference between the adjusted February 2012 results and the actual June 2012 results
- * i.e. The E-learning intervention was not effective

Results



There was a highly significant improvement in the retention of the skill ($P < 0.0001$)

Red Flags

- * **Red Flags**
- * Control Group, traditional instruction
 - * 1 student 'red flagged' out of the group of 47
- * Experimental Group, E-learning instruction
 - * 5 students 'red flagged' out of the group of 66
- * **P-Value = 0.203**
 - * No significant difference between the two groups

Student Satisfaction Survey

- * Student satisfaction is inextricably linked to the success of any E-learning course
- * This study identified if those participating in the E-learning course were satisfied
- * A 17 item questionnaire assessed the GEMS' students satisfaction with the PHECC B.L.S E-learning course

Survey Results

- * There was an **80% response rate** to the survey
- * Demographics:
 - * Both genders were equally represented (45% male and 54% female)
 - * 92% of students were aged between 20-29 years
 - * Only 35% of students had taken a course or module in E-learning previously
 - * 14% of students had not heard of the term E-learning prior to this study
- * **73% of students agreed that:**
 - * *'in conjunction with the face to face demonstration taking the E-course improved their overall performance in the skill of B.L.S'*
- * **In excess of 60% of students agreed or strongly agreed that:**
 - * *'the E-course served their needs well'*

Summary

- * As a result of this study it is **strongly recommended** that E-learning be incorporated into the teaching of B.L.S for all medical students
- * Given the success of the PHECC B.L.S E-learning course on the students' performance it is not surprising that overall **satisfaction rates** with the E-learning course were **high**