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## EXTENDED ABSTRACT

Textbooks play an important role in student course outcomes. As the cost of university and college textbooks continues to escalate, however, students increasingly cannot afford to purchase them. Inevitably, students purchase fewer texts and hence do poorly in courses, take fewer courses or drop out of programmes of study altogether. While textbook costs are a burden to all students, students from low income families are particularly impacted. Simply put, when costs increase access is reduced. The population of The Bahamas is spread over 700 islands and cays, the majority of whom live in the nation's capital city, Nassau, on the island of New Providence. The geography of The Bahamas poses an additional hurdle in the delivery of education at all levels to residents of Family Islands - those islands outside New Providence. Even if Family Island residents could afford expensive texts, lack of delivery options further limits access. Open Educational Resources (OER), in particular OER textbooks, are a promising alternative to traditional, closed license commercial textbooks and availability of OER is expanding (Wiley, Bliss, & McEwen, 2014).

Availability, while necessary, is not a sufficient condition for OER textbook adoption, however. Several factors may inhibit OER adoption including relevance (Albright, 2005), "findability" (Larson & Murray, 2008), existing teaching practices (Hatakka, 2009) and quality (Albright, 2005; D'Antoni, 2006). Quality here refers not only to accuracy and correctness of content, but also to a question of instructor trust (D'Antoni, 2006). Importantly, texts must be, or at least must be perceived to be, of a certain quality to even be considered as replacements for existing texts. Moreover, unless texts and courses are sufficiently introductory or general, content matches are unlikely. Despite the cost savings, perceptions about quality, ease of use, ease of access, may discourage faculty from making the effort to find, review and use OER textbooks. At present, the rate of adoption of OER at post-secondary institutions in The Bahamas is low. This study rates OER textbooks for quality and match and explores possible reasons adoption rates are low at University of The Bahamas.

The objectives of this evaluation are to determine the match between OER content and post-secondary courses, the pedagogical quality of OER textbooks and faculty perceptions of OER and the effectiveness of an OER training course. Specifically, the study attempts to answer the following questions:

1. How well do OER score on a simple scale of textbook quality?
2. How well do existing OER textbooks align with post-secondary course content at tertiary institutes in The Bahamas?
3. What factors impact faculty use and/or reuse of OER in their courses?

Textbooks can play an important role in student course outcomes. With students paying as much as $1200 annually on average for books and supplies in the United States (Ma, Baum, Pender, & Bell, 2015), increasingly, students cannot afford to purchase textbooks and purchase fewer texts, take fewer courses or may even drop out altogether (Florida Virtual Campus, 2016). Few local texts are available to Bahamian post-secondary students, and the cost of importing texts means that costs in The Bahamas are even higher. Clearly textbook costs are a burden and can serve as a barrier. Added to which, Family Island students are further disadvantaged because in addition to high costs, they are hampered by no local access to books and have to wait for books to be shipped from Nassau or directly from the USA (Bethel, n.d.).

Open Educational Resources (OER), defined simply as "those teaching and learning materials that are available either in the public domain or under an open licence" (Butcher & Moore, 2015), would seem to be a viable and affordable alternative to traditional, commercially licensed textbooks. In addition to the cost-savings, the convenience of access through electronic download immediately lowers barriers to access for students in Nassau and the Family Islands alike. Despite over a decade in research and development of OER, increasing availability and ease of locating OER, and despite The Bahamas being one of the few countries in the Caribbean with an ICT in education strategy that promotes OER, their use as primary or even supplementary textbooks in post-secondary Bahamian education is rare. The reasons for slow adoption in The Bahamas have not been researched, but in other locations have included questions of quality, concerns about content match, lack of awareness of OER, difficulty in locating appropriate OER, lack of recognition for faculty efforts to adopt, adapt and reuse OER, and complicated textbook approval processes (Hilton, 2016; Allen & Seaman, 2016; Mishra, 2017). Specifically, Wiley, Bliss and McEwen (2014) identify several challenges to the adoption and reuse of OER: discovery, concerns about quality, localization to meet local needs, and lack of skills to adapt and remix content.

This ongoing study seeks to test OER textbooks for quality and content match and to explore faculty willingness or otherwise to adopt OER for their courses.

This evaluation is being completed in three phases at University of The Bahamas (UB). For Phase 1, textbook evaluation:

1. TEXTBOOK IDENTIFICATION - Two OER repositories were used to access texts: cnx.org (https://cnx.org/) and BCCampus OpenEd (https://open.bccampus.ca/). Sufficiently general or introductory texts were selected for evaluation as these were more likely to match UB course content.
2. TEXTBOOK QUALITY ASSESSMENT - Textbooks were evaluated on two measures of quality: pedagogical completeness and course match.
   a. PEDAGOGICAL COMPLETENESS - Two coders rated each text on a variety of quality items including use of learning objectives, unit activities, diagrams and charts, practice exercises, and unit pre-assessments and post-assessments. Item ratings were totalled to give an overall quality score for each textbook. Textbooks with significant disagreements were noted and reevaluated. Coders could add optional comments as well.
   b. COURSE MATCH - Textbooks were identified that might be suitable for specific UB courses. UB course outlines were used to detail specific topics, subtopics and learning objectives to be taught. Textbooks were then evaluated on how completely they covered each learning objective from the course outlines using a three level scale (2 = completely, 1 = partially, 0 = not at all). For each textbook a match score was calculated by summing the coder ratings then dividing by the

highest possible score. Coder totals were compared and where significant differences were noted, textbooks were re-evaluated.

3. FACULTY SURVEY - UB teaching faculty will be surveyed to determine their views on using and creating open text for use by their students. The survey will contain items on the following:

   a.    Knowledge of OER and open textbooks;
   b.    Attitudes towards OER and open textbooks;
   c.    Experience using OER for their classes;
   d.    Attitudes toward the creation of OER;
   e.    Experience creating OER.

OER Textbooks were located in two repositories, cnx.org (https://cnx.org/) and BCCampus OpenEd (https://open.bccampus.ca/). Coders were upper-level undergraduate students who participated in a training workshop and were anonymously assigned texts to evaluate. All coding was done online using document sharing facilities of Google Drive. Survey respondents will be drawn from full-time and part-time faculty and faculty administrators (Deans, Chairs, Heads of Departments) of a tertiary institution in The Bahamas.

Results from the textbook identification showed that to this point 73 textbooks have been identified in the two repositories. Some titles are cross-listed resulting in some degree of duplication. In total, 30 texts were listed in both repositories, meaning that in total, 43 unique textbooks were identified. These textbooks were classified by discipline as indicated in Table 1:

Table 1. Distribution of OER Textbooks by discipline

| Discipline | # of Texts |
|------------|------------|
| Business | 22 |
| Hospitality | 1 |
| Mathematics | 12 |
| Science | 8 |
| TOTAL | 43 |

In terms of textbook quality assessment, with regard to pedagogical completeness, scores ranged from 1 to 9 out of a possible 9. The mean was 5.4 (s.d. 2.2) while the mode was 7, indicating a non-normal distribution with a large variance.

Textbooks were also evaluated against 14 different courses. Two coders rated the texts. Where there were disagreements, the author acted as a third coder to resolve the disagreement. The results were as indicated in Table 2. The average rate of match was 74% indicating that textbook content is well-aligned with UB courses in general. This justifies further study for potential adoption by UB's academic units.

The faculty survey is currently still in development.

Table 2. Rate of OER Textbook match to UB courses

| Course | Textbook | Final |
|---|---|---|
| PSYCH100 | OpenStax Introduction to Psychology | 70% |
| ECON200 | OpenStax Principles of Economics | 100% |
| ECON211 | OpenStax Principles of MacroEconomics | 100% |
| ECON211 | Lryx Principles of MacroEconomics | 86% |
| ECON212 | OpenStax Principles of MicroEconomics | 98% |
| ECON212 | Lryx Principles of MicroEconomics | 100% |
| BIOL071 | OpenStax Concepts of Biology | 76% |
| BIOL071 | OpenStax Biology | 83% |
| BIOL100 | OpenStax Concepts of Biology | 82% |
| BIOL100 | OpenStax Biology | 89% |
| BIOL109 | OpenStax Concepts of Biology | 72% |
| BIOL109 | OpenStax Biology | 81% |
| SOC100 | OpenStax Introduction to Sociology | 78% |
| SOC100 | OpenStax Introduction to Sociology 2e | 80% |
| MATH046 | Fundamentals of Mathematics | 81% |
| MATH046 | PreAlgebra | 85% |
| MATH047 | Fundamentals of Mathematics | 55% |
| MATH047 | PreAlgebra | 66% |
| MATH047 | Elementary Algebra | 44% |
| MATH048 | Elementary Algebra | 54% |
| MATH140 | OpenStax College Algebra | 91% |
| MATH140 | OpenStax Algebra and Trigonometry | 91% |
| MATH140 | OpenStax PreCalculus | 14% |
| MATH167 | OpenStax College Algebra | 73% |
| MATH167 | OpenStax Algebra and Trigonometry | 73% |
| MATH167 | OpenStax PreCalculus | 50% |
| MATH168 | OpenStax College Algebra | 6% |
| MATH168 | OpenStax Algebra and Trigonometry | 87% |
| MATH168 | OpenStax PreCalculus | 87% |

On the whole, educational costs are increasing, and though fees are low at most post-secondary institutions in The Bahamas, students still have difficulty financing their education. Expensive, commercially licensed textbooks present a significant cost barrier, particularly for the traditionally underserved students of the Family Islands. OER textbooks could significantly reduce barriers and facilitate alternative delivery mechanisms such as online learning for all students. Concerns about quality and content match must be explored. Results to date show great promise both in terms of pedagogical quality and match with UB courses. OER textbooks present a realistic option to address a persistent problem.

**Keywords**: *Open Educational Resources, textbooks, open licensed text, access to higher education, cost*

# References

Albright, P. (2005) Final forum report. In International Institute for Educational Planning, *Internet discussion forum: Open educational resources, open content for higher education*. Retrieved from https://www.hewlett.org/wp-content/uploads/2016/08/IIEP_OER.pdf

Allen, I. E., & Seaman, J. (2016). Opening the textbook: Educational resources in U.S. higher education, 2015-16. Babson Park, MA: Babson Survey Research Group. Retrieved from http://www.onlinelearningsurvey.com/reports/openingthetextbook2016.pdf

Bethel, E. C. (n.d.). Strategic plan for the Department of Distance Education. Unpublished manuscript.

Butcher, N., & Moore, M. (2015). Understanding open educational resources. Vancouver, BC: Commonwealth of Learning. Retrieved from http://oasis.col.org/bitstream/handle/11599/1013/2015_Butcher_Moore_Understanding-OER.pdf?sequence=1&isAllowed=y

D'Antoni, S. (2006, June). Open educational resources: Deliberations of a community of interest. Presented at International Council for Open and Distance Education Standing Conference of Presidents meeting, Lillehammer, Norway. Retrieved from http://educationdocbox.com/Distance_Learning/66070858-Icde-scop-lillehammer-norway-june-open-educational-resources-deliberations-of-a-community-of-interest.html

Florida Virtual Campus. (2016). *2016 student textbook and course materials survey: Results and findings*. Tallahassee, FL: Florida Virtual Campus. Retrieved from https://florida.theorangegrove.org/og/items/3a65c507-2510-42d7-814c-ffdefd394b6c/1/

Hatakka, M. (2009). Build it and they will come? Inhibiting factors for reuse of open content in developing countries. *The Electronic Journal of Information Systems in Developing Countries, 37*(1), 1-16. https://doi.org/10.1002/j.1681-4835.2009.tb00260.x

Hilton, J. (2016). Open educational resources and college textbook choices: a review of research on efficacy and perceptions. *Educational Technology Research and Development*, *64*(4), 573-590. https://doi.org/10.1007/s11423-016-9434-9

Larson, R. C., & Murray, M. E. (2008). Open educational resources for blended learning in high schools: overcoming impediments in developing countries. *Journal of Asynchronous Learning Networks*, *12*(1), 85-103. Retrieved from https://files.eric.ed.gov/fulltext/EJ837471.pdf

Ma, J., Baum, S., Pender, M., & Bell, D. (2015). *Trends in college pricing 2015*. New York: College Board. Retrieved from http://trends.collegeboard.org/sites/default/files/2015-trends-college-pricing-final-508.pdf

Mishra, S. (2017). *Promoting use and contribution of open educational resources*. New Delhi, India: Commonwealth Educational Media Centre for Asia. Retrieved from http://oasis.col.org/bitstream/handle/11599/2659/2017_Mishra_Promoting-Use-Contribution-of-OER.pdf?sequence=1&isAllowed=y

Wiley, D., Bliss, T. J., & McEwen, M. (2014). Open Educational Resources: A review of the literature. In J. Spector, M. Merrill., J. Elen, & M. Bishop (Eds.) *Handbook of research on educational communications and technology* (pp. 781-789). New York: Springer. https://doi.org/10.1007/978-1-4614-3185-5_63

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Dr. Edward Bethel is the Director of UBOnline at the University of The Bahamas.  Dr. Bethel recently completed his doctorate in Education Technology at Concordia University in Montreal, Quebec. The topic of Dr. Bethel's dissertation was the impact of one to one computing in K-12 classrooms. His areas of specialization and research include: technology integration in education, distance education, Massive Open Online Courses (MOOCs), cognition and multimedia learning, e-learning, human performance technology and research synthesis. Dr. Bethel has authored and co-authored several articles and conference presentations in the areas of distance education and technology-enhanced learning. Dr. Bethel has spent his entire twenty-five-year career in education at the secondary and tertiary level both as an administrator and as an instructor, in face to face and online learning settings.