Academic integrity in the online learning environment for health sciences students

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SUMMARY

Background: The online learning environment not only affords accessibility to education for health sciences students, but also poses challenges to academic integrity. Technological advances contribute to new modes of academic dishonesty, although there may be a lack of clarity regarding behaviors that constitute academic dishonesty in the online learning environment.
Objective: To evaluate an educational intervention aimed at increasing knowledge and improving attitudes about academic integrity in the online learning environment among health sciences students.
Design: A quasi-experimental study was conducted using a survey of online learning knowledge and attitudes with strong reliability that was developed based on a modified version of a previously developed information technology attitudes rating tool with an added knowledge section based on the academic integrity statement.
Setting: Blended-learning courses in a university health sciences center.
Participants: 355 health sciences students from various disciplines, including nursing, pre-medical, and exercise physiology students, 161 in the control group and 194 in the intervention group.
Method: The survey of online learning knowledge and attitudes (SOLKA) was used in a pre-post test study to evaluate the differences in scores between the control group who received the standard course introduction and the intervention group who received an enhanced educational intervention about academic integrity during the course introduction.
Results: Post-intervention attitude scores were significantly improved compared to baseline scores for the control and intervention groups, indicating a positive relationship with exposure to the information, with a greater improvement among intervention group participants ($p < 0.001$). There was a significant improvement in the mean post-intervention knowledge score of the intervention group compared to the control group ($p = 0.001$).
Conclusion: Recommendations are provided for instructors in promoting academic integrity in the online environment. Emphasis should be made about the importance of academic integrity in the online learning environment in preparation for professional behavior in the technologically advancing health sciences arena.

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Background

The increase in online-based learning not only facilitates educational advances, but also poses challenges to academic integrity. Violations of academic integrity such as cheating and plagiarism and other dishonest behaviors are a concern for faculty, students, and the public who trust graduates to have the requisite knowledge for their earned degree (Bassendowski and Salgado, 2005; Harper, 2006; Kenny, 2007). Plagiarism is defined by the online Merriam-Webster Dictionary (2012) as "to steal and pass off (the ideas or words of another) as one's own; use

(another's production) without crediting the source." Estimates of the prevalence of engagement in academic dishonesty in university students are consistently above 40% (Aggarwal et al., 2002; Bates et al., 2005; Arhin, 2009). Research studies suggest that students are generally confused about what actions constitute plagiarism and other questionable behaviors associated with completion of academic assignments (Allmon et al., 2002; Arhin, 2009), as were identified in a pilot study of nursing students (Arhin, 2009). An additional concern is that advances in technology create new modes and avenues of cheating.

In the specific area of health sciences education, academic dishonesty is an especially serious issue because of the patient care aspect (Kenny, 2007). Health sciences students may include a broad range of students from various disciplines such as those who directly provide patient care as in nursing to those in adjacent and impacting fields such as biomedical sciences. Research suggests that students who have engaged in

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dishonest behavior in the past, have an increased likelihood of engaging in workplace dishonesty (Harper, 2006). Despite the implications for poor patient outcomes, academic dishonesty is prevalent among health science students (Aggarwal et al., 2002; Arhin, 2009). Researchers examining academic integrity in the online environment have sought to identify the areas of students' perceptions of academically dishonest behaviors. Academically dishonest behaviors were more accurately identified regarding examinations than behaviors related to classroom, written, or laboratory work (Aggarwal et al., 2002; Arhin, 2009).

Academic integrity is particularly difficult for faculty to ensure in online learning environments (Spaulding, 2009; Toprak et al., 2010). For health sciences courses taught in the online learning environment, additional opportunities for violations of academic integrity exist. The Internet enables students to access a multitude of resources, which students may consider to be public knowledge without awareness of the risk of plagiarism (Bassendowski and Salgado, 2005; McCabe, 2009). This perception may be influenced by generational differences between students and faculty (Arhin, 2009). Due to increased comfort with technology, students in online learning environments may engage in academically dishonest behavior by copying-and-pasting from online sources, texting during examinations, using phones or other technology to take photos of exams, and unauthorized use of resources during examinations (Kiehl, 2006; Arhin, 2009). Furthermore, the anonymity of the online learning environment can make it difficult to ensure that the registered student is the person taking assessments and submitting assignments (Anderson and Simpson, 2007; Harper, 2006).

Although the literature points to the increasing issue of dishonesty and violation of academic integrity among health sciences students, there is a lack of tools available for use in evaluation of academic integrity intervention and education. Additionally, there is a dearth of research to support a particular intervention to address academic dishonesty among health sciences students. Suggestions from the literature for interventions include: consistent disciplinary action for academic dishonesty, education of students regarding academically dishonest behaviors and consequences of such behaviors, clarification of policy and expectations of academic dishonesty, implementation of integrity agreements for both faculty and students, elimination or reduction of opportunities for cheating, development of new methods of evaluation that correspond to the advancing technology, and implementation of honor codes (Aggarwal et al., 2002; Arhin, 2009; Bassendowski and Salgado, 2005; Carroll and Appleton, 2001; Harper, 2006; Kenny, 2007).

In a study examining the faculty education of academic integrity, a greater proportion of nursing faculty compared to non-nursing faculty reported that they included cheating and plagiarism information in their syllabi, as well as, reviewed the academic integrity policy with students intermittently throughout the semester (McCabe, 2009). The inclusion of an academic integrity statement in syllabi or other programmatic educational materials may or may not be required by a university, college, or department, which may lead to lack of clarity and communication of behavioral expectations. The behaviors of academic dishonesty can become normalized or developed into acceptable student culture if they are not addressed by the faculty and academic community (Arhin, 2009; Bates et al., 2005).

The purpose of the study was to evaluate the effectiveness of the educational intervention aimed at increasing students' knowledge and improving students' attitudes about academic integrity, especially as

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*Consider the following statements and decide whether each should be considered a dishonest act by a health sciences student.

Rate the following statements regarding its permissibility, circle a number from 0 *(absolutely not permissible)* to 3 *(absolutely permissible)* indicating the level of permissibility.

　　0 = *Absolutely Not Permissible*

　　1 = *Moderately Not Permissible*

　　2 = *Moderately Permissible*

　　3 = *Absolutely Permissible*

1. Student accesses a paper online and submits as own paper.

　　0　　　　1　　　　2　　　　3

2. Student copies and pastes material from the Internet into an assignment and submits as own material.

　　0　　　　1　　　　2　　　　3

3. Student copies material from a friend in a different class and submits as own work.

　　0　　　　1　　　　2　　　　3

4. Student copies and pastes one sentence from an online source without acknowledging the source.

　　0　　　　1　　　　2　　　　3

5. Student copies and pastes two lines from an online source without acknowledging the source.

　　0　　　　1　　　　2　　　　3

6. Student copies and pastes an image (graphs, tables, pictures, etc.) from an online source without acknowledging the source.

　　0　　　　1　　　　2　　　　3

7. Student changes a few words of a paragraph that were copied and pasted from the Internet so that the material does not have to be cited.

　　0　　　　1　　　　2　　　　3

8. Student changes a few lines of a paper that he/she wrote for one class and submits it for a different class.

　　0　　　　1　　　　2　　　　3

Fig. 1. Survey of online learning knowledge and attitudes (SOLKA) tool.