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# Developing a university-wide academic integrity E-learning tutorial: a Canadian case

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## Abstract

Academic integrity has become a significant point of concern in the post-secondary landscape, and many institutions are now exploring ways on how to implement academic integrity training for students. This paper delineates the development of an Academic Integrity E-Learning (AIE-L) tutorial at MacEwan University, Canada. In its first incarnation, the AIE-L tutorial was intended as an education tool for students who had been found to violate the University's Academic Integrity Policy. However, in a discourse of the academic integrity process, the University reimagined it from only emphasising the increased understanding and strengthened commitment of students found to have committed academic misconduct to a proactive focus with education for all students. The purpose of the present paper is three-fold: first, describe the development of the AIE-L tutorial as an experiential case study; second, improve the content of the AIE-L tutorial through students' quantitative and qualitative feedback; third, calibrate the pre and post-test questions for content validity for a forthcoming large-scale measurement of the AIE-L tutorial effectiveness.

**Keywords:** Academic integrity, Canada, E-learning, Post-secondary, Students, University

## Introduction

The post-secondary landscape has seen a tremendous growth in both the number of institutions and programs but also a rise of a wide variety of different delivery formats. These drastic changes have fueled discussions around assurance of learning and the rigor of academic programs and how to signal this internally and externally. In this discourse, academic integrity has been identified as a significant point of concern (Bretag et al. 2011; Caldwell 2010; Macfarlane et al. 2014; Manly et al. 2015), and many post-secondary institutions are now exploring ways to protect and cultivate a culture of academic integrity. This endeavor can use combinations of punitive approaches, honor codes, and preventive awareness education (Gynnild and Gotschalk 2008; McCabe and Treviño, 1993).

With this study, we describe the development of an Academic Integrity E-Learning (AIE-L) tutorial at MacEwan University, Canada. In the first iteration, the AIE-L tutorial was envisioned and strictly used as part of an educational tool with a requirement for students who had been found to violate MacEwan University's Academic Integrity Policy to take the module. Through the University's internal discourse, views came



forth to switch focus from an education tool for offenders and instead use an enhanced version of the AIE-L tutorial for the general advancement of academic integrity awareness and education among students. This new orientation means the University embraces e-learning as a way to educate students who have committed academic misconduct as well as informing and educating students who have not committed academic misconduct on what scenarios constitute academic misconduct. This gradual change of focus toward preventive education among institutions and faculty has been noted in the literature (Chew et al. 2015; Groark et al. 2001; McCabe et al. 2001).

The main objectives of this study are to improve the content and design of the academic integrity e-learning tutorial through students' quantitative and qualitative feedback and calibrating the pre and post-test questions for a forthcoming large-scale measurement of the effectiveness of the AIE-L tutorial in terms of students' knowledge about academic integrity and misconduct. In itself, this study also constitutes a case study on the experiences of developing an e-learning tutorial on academic integrity. We hope that our experiences so far will serve as a source of inspiration and a guide for other post-secondary institutions as they develop e-tutorials on academic integrity.

In studying the development and implementation of the AIE-L tutorial, the point of departure is the definition of the scope and elements of academic integrity, followed by a review of the literature on e-learning tutorials on academic integrity for university students. In the next section, some of the important design aspects and considerations of the AIE-L tutorial will be identified.

The methodology section outlines how quantitative and qualitative student feedback was collected and how the pre and post-test for improving the content validity of the multiple choice questions were conducted. In the results section, the outcome and implications of the pre and post-tests and student feedback are presented. In the discussion section, we discuss and contextualize our findings and present some recommendations for development of e-tutorials on academic integrity. The final section concludes.

### **Understanding academic integrity and academic misconduct**

Academic integrity is understood as the commitment to six fundamental values: honesty, trust, fairness, respect, responsibility, and courage. In this vein, academic misconduct constitutes a participation in acts by which a person gains or attempts to gain an unfair academic advantage. Academic misconduct therefore comprises incidents of cheating, fabrication, falsification, improper collaboration, multiple submissions, plagiarism, and helping another person to obtain an unfair academic advantage (MacEwan University Academic Integrity Policy 2019).

In light of the ease by which information and material can be shared through Web 2.0 and digital technologies, it is perhaps easier now than ever before to participate in academic misconduct activities. As an example, contract cheating is now a reality through paper mills which will author student assignments in exchange for money and also facilitate the sharing of assignments by students. An additional problem stems from the time commitment and the resulting fatigue when faculty members are dealing with academic misconduct activities (Hodgkinson et al. 2016; Ison 2015).

From a university administrative perspective, it is disconcerting that some estimates suggest that as many as in the magnitude of 70% of undergraduate students

in North America have committed some form of academic misconduct (McCabe 2005; Stephens et al. 2010). In spite of the many years of collective activities aimed at protecting academic integrity, it still remains a problem at many universities (Altbach 2015; Colella-Sandercock and Alahmadi 2015; Leonard et al. 2015).

As to the underlying reasons which may impact students' decisions to engage in academic misconduct, it has been reported that students are unaware of the scope of plagiarism (Ellery 2008; McCabe et al. 2006; Stephens and Nicholson 2008), students assess the perceived shame (Ogilvie and Stewart 2010), time constraints (Ellery, 2008; McCabe et al. 2001), a perception of magnitude of formal sanctions (Ogilvie and Stewart 2010), perceived certainty of being reported by peers (McCabe et al. 2006) pressure to achieve high grades (McCabe et al. 2001; Stephens and Nicholson 2008), and laziness (Ellery 2008; McCabe et al. 2001).

### **Academic integrity E-learning training for university students**

In the past few years, post-secondary institutions have started to create and implement academic integrity education activities for their students. These interventions often take the form of school-wide mandatory online tutorials such as the one required by all first-year students at the University of Auckland (Stephens 2015). However, a variety of other approaches exist, including the creation of websites with academic integrity information, the hosting of academic integrity workshops, and individual courses on academic integrity (Dee and Jacob 2012; Hodgkinson et al. 2016; Stagg et al. 2013). In cases where the institutions do not have its own academic integrity education, external MOOCs on academic integrity are readily available (Stephens, 2015). At MacEwan University in the AIE-L tutorial, the topics include a general introduction to academic integrity, plagiarism and citation basics, and misconduct beyond plagiarism. In the last module, students learn about what will happen in a case of a suspected violation. With this information provided, students can no longer defend academic misconduct activities due to limited awareness and understanding of the scope and definition of academic integrity.

In a review of over 1000 articles, Stoesz and Yuditseva (2018) examined the quality of academic integrity training across the delivery modes of blended learning initiatives, e-learning tutorials, and face-to-face workshops. All initiatives were assessed against the Medical Education Research Study Quality Instrument (MERSQI). In evaluating the quality of research, the instrument considers the approach of the experimental, quasi-experimental, and observational research across six domains. Based on this assessment, only 21 articles met the MERSQI criteria. Out of these 21 articles, 10 articles described face-to-face instruction, 3 articles specifically used blended learning approaches, and 8 articles studied e-learning. The e-learning tutorial was defined as 'a brief self-paced instructional program with step-by-step information about a concept'.

A juxtaposition of the academic integrity content summary of these 21 articles with MacEwan University's Academic Integrity Policy (2019) is provided in Table 1. As shown, most articles dealt with the two areas of plagiarism and institutional policies and procedures. What is clear is that institutional e-learning tutorials for preventing academic misconduct have received limited attention in the literature. From Table 1, it is also evident that many areas of MacEwan's Academic Integrity Policy (2019) were not addressed in the various institutions' e-learning tutorials. These two gaps in the

**Table 1** Academic integrity content: MacEwan University vs. Academic integrity review

MacEwan	E-Learning	F-2-F	Blended
Gain Personal Advantage		X	X
Cheating	X	X	
Fabrication		X	
Falsification			
Improper collaboration		X	
Multiple submissions			
Plagiarism	X	X	X
Helping others obtain unfair advantage			
Other forms of obtaining unfair advantage			
Restorative practices			
MacEwan Policies	X	X	X
Transition to University	X	X	X

literature are noted because MacEwan’s e-learning modules were designed to address all areas of MacEwan University’s Academic Integrity Policy (2019).

**Designing the academic integrity E-learning tutorial**

With more and more course content being delivered online, the need to design engaging and effective online learning rooted in current scholarship is important. The AIE-L tutorial at MacEwan University has several design features that distinguish it from the text-heavy online modules of the past. In particular, the AIE-L tutorial has been designed using the Articulate 360 software suite, specifically Articulate Rise, which offers several embedding features and pre-built interactions such as card sorting, flashcards, knowledge checks, click-through processes, and pre-built timeline features. In deciding upon the software, the versatility of Articulate 360 was a key feature as it can be inserted in all forms of media and also be hosted by MacEwan University’s learning management system (LMS), Blackboard Learn.

The team involved in developing the AIE-L tutorial were primarily the AIE-L tutorial designer and the authors of this paper with support of the Academic Integrity Office. The AIE-L tutorial designer is part of the University’s Student Success Services unit, which delivers a range of student success and writing programming. She is a university instructor, online as well as face-to-face, with significant experience in the interdisciplinary humanities, a PhD in Philosophy, and training in mobile learning and educational technologies.

**E-learning pedagogy**

In the early days of e-learning, the modules replicated lecture content to a great extent and featured extensive reading and a complex language (Gros and García-Peñalvo 2016). In contrast, the AIE-L tutorial uses an informal conversational tone and veers away from using texts longer than one paragraph. This is a deliberate design choice as it builds upon students’ existing schemas in both tone and content. As an example, one of the first sections in the AIE-L tutorial presents material on how academic integrity norms are different from high school to university. For instance, in high school the use

of another person's ideas does not necessarily require a citation, whereas in university everything that is not one's view or common knowledge requires a citation. Other differences are that in high school students can freely share notes and past assignments and work together on most assignments, whereas in university there are strict guidelines on what can be shared and collaborated upon. In high school there are also opportunities to redo assignments, but in university students typically only have one try on an assignment. This bridging addresses those students who may find the academic integrity concept challenging to understand.

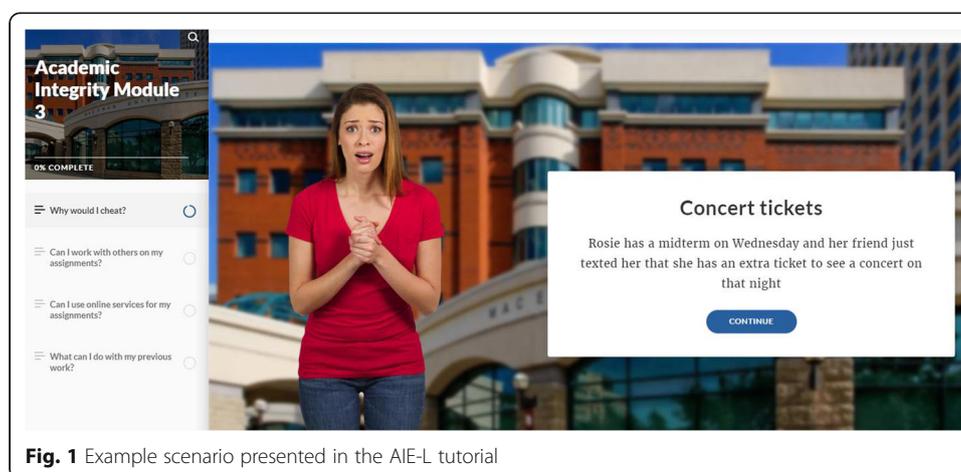
Figure 1 presents a screenshot of a scenario presented to students in the AIE-L tutorial as an example of the tone and content.

The AIE-L tutorial's delivery format is self-enroll/self-pace/no instructor, and the four modules within the AIE-L each contain a summative quiz which requires a passing score of 80% to complete before proceeding to the next module. These tests allow unlimited retries but avoids immediate levels of guessing as both the question and the answer orders are shuffled. The AIE-L design includes principles of shaping and reinforcing. This means that when answers are wrong, the screen flashes 'incorrect' in red and an explanation is provided. Conversely, when the answer is correct, the students are given positive reinforcers through a flashing screen saying, 'good job!'.

After each small step forward in the content, the student is asked to enter a key word as a fill-in-the-blank or answer a multiple choice or matching question. This requires the student to re-read and review the content. While these behavioural barriers tell what students must do to proceed, they do not provide solid evidence of students' thought processes behind their responses. The quizzes' feedback slides offer explanations behind the questions along with color shaping. In trying and retrying the quizzes, the students are engaging in a form of automated instruction rather than simple shaping of responses.

### Use of an anchoring figure

Throughout the AIE-L tutorial an anchoring figure is used. An anchoring figure is a recurring 'person' or narrator in the tutorial who provides continuity throughout the course and, to some extent, constitutes a replacement for the instructor in the



**Fig. 1** Example scenario presented in the AIE-L tutorial

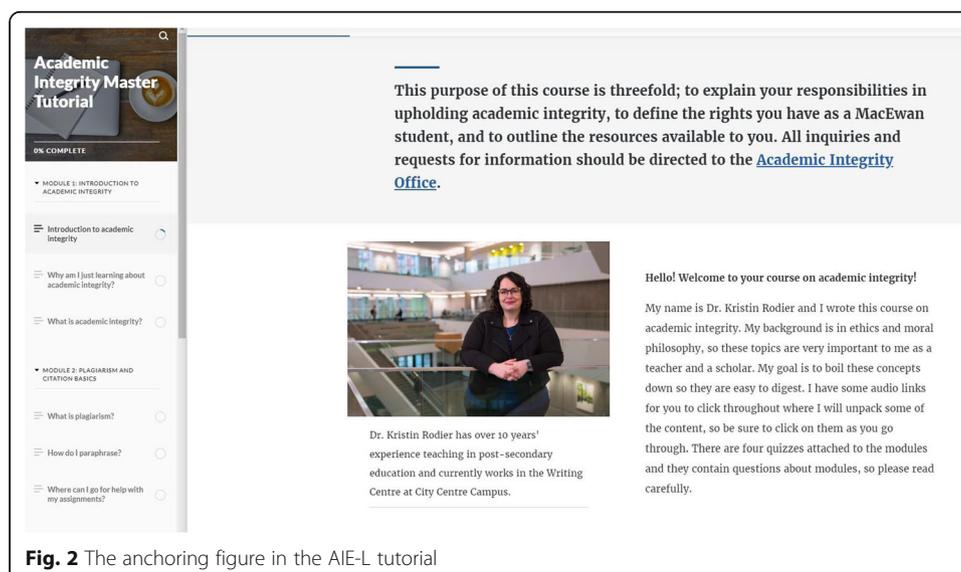
classroom by providing information and cues to students as they complete the tutorial. This is executed through photos of a real person, with words, and voice recordings woven throughout the tutorial. The decision to frame the AIE-L tutorial with an anchoring figure was made because it enhances retention and comprehension by providing continuity through the course (Bates 2015).

In the AIE-L tutorial, the MacEwan AIE-L tutorial designer is used as the anchoring figure. She is introduced to the students as a philosophy instructor who specializes in moral philosophy and a writing specialist who works at the MacEwan University Writing Centre. While it is true that students need to find the anchoring figure relatable—‘If she can do it, so can I’—they also need to think they can learn from the anchoring figure as she knows more—‘She has a doctorate, so I should listen to her’ (Schunk 2012). Figure 2 presents a screenshot of the presentation of the anchoring figure in the AIE-L tutorial.

The AIE-L tutorial is written in the first-person directly to the individual student through the means of the anchoring figure. In doing so, she tells stories of students who visit the Writing Centre, her experiences as a philosopher who teaches integrity, and her own experiences with learning in a post-secondary environment. While delivering the AIE-L tutorial in plain language and inserting stories about herself, the anchoring figure uses her official title throughout the AIE-L tutorial for modeling prestige. To enhance the impression of the anchoring figure, Articulate 360’s ‘quote’ function was used. This function enables presenting a picture with a person’s words that look like they are being quoted. The anchoring figure chimes in to alert learners to ‘things to watch for’ ahead of videos which is linked to better retention (Bates 2015).

### Use of anchoring ideas and advance organizers

The module on plagiarism and avoiding plagiarism, the largest module, begins with an exhibit which demonstrates the relationships among ideas in the module as a whole. The mental map acts as a cognitive structure for students to see how paraphrasing and



**Fig. 2** The anchoring figure in the AIE-L tutorial

citation skills relate to academic integrity, and the contained relationship that the mental map visualizes acts as a hierarchical ordering, something which has been found to be effective (Schunk 2012). The ordering and arrangement of these concepts shows students how to classify, organize and identify where they are in the course and how to slot in new information (Schunk 2012). Beyond the messages from the anchoring figure, the AIE-L tutorial uses first and second person language in a conversational tone. The AIE-L tutorial also contains inserted student questions such as ‘I already know about integrity’, or ‘Why do I need a special course?’ or ‘Why should I ...?’ This approach of activating a student’s prior learning through questions draws on their existing cognitive structure and connects learning to anchoring ideas.

Anchoring ideas are specific and relevant ideas in the learner’s cognitive structure that provide entry points for new information to be connected (Driscoll 1999). Questions that activate anchoring ideas act as advance organizers that activate the learner’s pre-existing concepts and allow them to subsume new information under them more easily (Ausubel 1960). The advance organizers are plain language questions in the first person that stand in for a question that a student who is unfamiliar with these topics might have. The modules are titled using advance organizers, but the modules contain questions throughout like ‘Why am I just learning about academic integrity?’ or ‘Why is citation so important for my professors?’ These questions are motivating and serve as an attempt to activate prior meaningful knowledge (Ausubel 1960).

In Table 2, the four AIE-L tutorial modules and subsections are presented. As shown, students are first exposed to a general introduction to academic integrity which will answer questions such as the reason to learn about it and how it is defined. Subsequently, the material becomes more specific, with topics such as plagiarism and working with others on assignments. The last module then educates students on the provisions of MacEwan’s Academic Integrity Policy, and specifically, what will happen in the case if a student is caught violating the policy.

## Methodology

In evaluating the AIE-L tutorial, the primary purpose was to receive student feedback on the four modules so that they could be improved before the University-wide roll out. Before conducting this evaluation, an application was submitted to the University’s

**Table 2** AIE-L tutorial modules and subsections

Module	Subsections
1. Introduction to Academic Integrity	Introduction to Integrity Why am I just learning about academic integrity What is academic integrity?
2. Plagiarism and Citation Basics	What is plagiarism? How do I paraphrase? Where can I go for help with my assignments?
3. Misconduct Beyond Plagiarism	Why would I cheat? Can I work with others on my assignments? What can I do with my previous work?
4. What happens in a violation?	Where do I find the policy? What will happen if, WHEN, I am caught?

Ethics Board, but after an initial meeting between the principal investigator and the University's Ethics Officer it was determined that Ethics approval was not required for this evaluation as it constituted a program and project-related study. Altogether, the evaluation of the AIE-L tutorial encompassed two distinct components: (I) pre and post-test completion by students for improving the content validity of the test for a future large-scale assessment of the effectiveness of the AIE-L tutorial and (II) gathering students' quantitative and qualitative feedback on the four modules to improve the content and the design of the AIE-L tutorial.

Participants in this process were 3rd year students who volunteered to participate in the evaluation as a basis for improvement to the four modules. These students were voluntarily recruited from a convenience sample of the principal investigator's three courses which had a total of 105 students. All 34 volunteer students first signed a consent form which informed the students of a 2% bonus on their final course grade for full completion of the pre-test, AIE-L tutorial, post-test, and a feedback form on the AIE-L tutorials with both quantitative and qualitative questions.

In the pre-test, students faced general questions pertaining to the nature and scope of academic integrity. The students then completed the four AIE-L tutorial modules, followed with a post-test with the same set of questions. In designing the questions, the University's Academic Integrity Policy and the AIE-L tutorial were carefully reviewed which resulted in 25 multiple choice questions which were deemed to cover the content of both the policy and the AIE-L tutorial. The 25 multiple choice questions for the pre and post-test is presented in [Appendix A](#). Note that the order of the questions differed in the pre and post-test.

In the final step, students provided both quantitative and qualitative feedback on the modules.

During the development and testing phase of the AIE-L tutorial by MacEwan University staff, it was noted that it would likely take students one hour to complete all four modules. On this basis, it was determined that a student would not provide meaningful feedback if the student had to comment on all four modules. For this reason, it was decided that students would be randomly selected to provide feedback on one of the four modules only.

The feedback questions for each module had both a quantitative and a qualitative component. In responding to the five statements in the quantitative questions, students used a 5-point Likert scale, anchored by 1, strongly disagree, and 5, strongly agree. The qualitative feedback, in turn, allowed the students to provide open-ended feedback on the modules in terms of whether the content was easy to understand, instructions were clear, it was easy to navigate, and design and layout made the content interesting. In addition, students provided open-ended feedback on what academic integrity content they found most useful, what academic integrity content they would like more information about, and what changes they would suggest to the modules. Two additional feedback questions were asked to establish whether students have had any previous engagement with the official MacEwan University Academic Integrity Policy. These questions had a binary response format of 'Yes' versus 'No'.

Of the 34 students completing the pre and post-tests, 33 students completed the AIE-L tutorial feedback forms. These students were distributed across the four modules with 8 students providing feedback on Module 1, 10 students on Module 2, 9 students on Module 3, and 6 students on Module 4.

The module feedback forms were evenly distributed among the students who initially volunteered to participate in the study. Subsequently, however, many students, after working their way through the first modules, thought that the 2% incentive was not sufficient to warrant the effort required to participate in the study and withdrew; this explains the lower number of students providing feedback on Module 4.

## Results

The main purpose of the pre and post-tests was to assess and develop the 25 multiple choice questions in terms of their content validity in preparation for the forthcoming large-scale study to assess the effectiveness of the AIE-L tutorial. As the evaluation featured a convenience sample of 3rd year students, some students may have had previous exposure to the Academic Integrity Policy. Nevertheless, based on this small sample, the pre-test correct average of the questions for the 34 students was 69.4%, and the post-test correct average of the questions for the 34 students was 78.9%; this constitutes an increase of almost 10%.

Validity, in general, is an assessment of the degree to which a test measures what it purports to measure (Gall et al. 1996). Face validity, in turn, constitutes a subjective appraisal that the test item appears to be testing what it purports to be testing (Gall et al. 1996). Whereas face validity is a subjective assessment, content validity is assessed through an objective comparison of the test items with the curriculum (Gall et al. 1996). Specifically, content validity is high when the test questions are representative in both the type and content presented in the course (Gall et al. 1996).

For the purpose of enhancing content validity of the 25 multiple choice questions in the pre and post-tests, it was decided that a percentage of 75% would be the decision criteria standard by which each of the 25 questions within the pre and post-tests would be assessed. Consequently, any question that had an average of less than 75% correct answer across participants would be reviewed and reworded. This double validity analysis increased the content validity of the test, and it was found the same questions failed both the content validity pre-test correct questions criteria of greater than 75% and the content post-test correct questions criteria of greater than 75%. The implication is that many students who gave an incorrect answer on the pre-test question also gave an incorrect answer on the same post-test question. This resulted in 9 out of 25 questions being reviewed and reworded. The revised versions of the pre and post-test questions will be used in the upcoming large-scale assessment of the AIE-L tutorial effectiveness in furthering students' knowledge of academic integrity.

Table 3 provides a breakdown of the quantitative feedback students provided. For the top five statements listed, students used the 5-point Likert scale, whereas for the two bottom two statements students used a simple binary response of 'Yes' or 'No'. Deliberations lead to the decision to put a percentage score of 90% for the five Likert statements as the standard by which the overall quality of the AIE-L tutorial should be assessed and by which the four modules within it would be judged. To illustrate how each module was scored, for Module 1 and the statement 'Module was written in plain language', there were 8 student responses. This could result in a maximum possible score for this statement of 8 times the maximum rating of 5 ('strongly agree'), equalling 40. With the actual total score for this statement within Module 1 amounting to 37, a percentage of 92.5% could be established. The total percentage for each statement

**Table 3** Quantitative student feedback on the AIE-L tutorial

Questions	Total	M1	M2	M3	M4
Module written in plain language	33R	8R	10R	9R	6R
	149/165	37/40	41/50	42/45	29/30
	90.3%	92.5%	82.0%	93.3%	96.7%
Module content easy to understand	33R	8R	10R	9R	6R
	152/165	39/40	43/50	41/45	29/30
	92.1%	97.5%	86.0%	91.1%	96.7%
Module instructions clear	32R	7R-1NA	10R	9R	6R
	151/160	33/35	46/50	43/45	29/30
	94.4%	94.3%	92.0%	95.6%	96.7%
Module easy to navigate	33R	8R	10R	9R	6R
	144/165	34/40	41/50	40/45	29/30
	87.3%	85.0%	82.0%	88.9%	96.7%
Module layout/design made content interesting	32R	7R-1NA	10R	9R	6R
	140/160	30/35	42/50	41/45	27/30
	87.5%	85.7%	84.0%	91.1%	90.0%
Column Totals	736/815	173/190	213/250	207/225	143/150
	90.3%	91.1%	85.2%	92.0%	95.3%
Before taking AIE-L Tutorial I had read MacEwan University Academic Integrity Policy	Yes-24	Yes-6	Yes-6	Yes-8	Yes-4
	No-6	No-2	No-1	No-1	No-2
	ICR-3	ICR-0	ICR-3	ICR-0	ICR-0
Since taking AIE-L Tutorial I have read MacEwan University Academic Integrity Policy	Yes-25	Yes-6	Yes-8	Yes-7	Yes-4
	No-8	No-2	No-2	No-2	No-2
Responses (R)					
Missing responses (NA)					
I cannot remember (ICR)					

across modules is then simply found by averaging the percentages across the four modules.

In assessing the tutorial, the total column indicates that the total score was over 90%, showing success in terms of students’ perception of the AIE-L tutorial concerning its plain language, having content which was easy to understand, having instructions which were clear, being easy to navigate, and having a layout and design which made the content interesting. All in all, these results indicated that students would generally be able to follow the AIE-L tutorial and understand its content. As Table 3 shows, the student feedback comments were generally positive. Based on the percentage criteria of 90%, however, it was decided that an in-depth analysis was needed for all aspects of Module 2 (85.2%) and for all four modules with regards to easy of navigation (87.3%) and module layout/design (87.5%) to seek to improve the AIE-L tutorial further.

Students’ qualitative feedback comments were also reviewed to improve the AIE-L tutorial modules in terms of plain language, understandability, instructions, navigation, and content. Table 4 exhibits sample verbatim feedback statements. As seen, comments related to confusion, clarity, and consistency were prevalent.

In addition to the general qualitative student feedback, content questions related to what students found most useful, what they would like to find more information about,

**Table 4** Sample verbatim qualitative student feedback on the AIE-L

M1	M2
Some words could have been simpler.	Some words are confusing. Could be misinterpreted.
The first voice clip causes some confusion as it mentions the policy, but the actual policy is difficult to locate.	Some confusing language used.
Yes, but in quiz 1 I was not used to getting so many questions with "select all that apply." I made an error in just reading it too quickly.	Most instructions were clear. There were a few spots where I was unsure what to click on but figured it out.
The major downside was the amount of links within the content. These links made it difficult to smoothly read through and understand the content. The most effective link to information was the ones that could be expanded or hidden as required.	One format for navigating page would be suitable.
A little bit slow when downloaded or when to navigate to the next link.	
Didn't like that certain parts only loaded after you scrolled down.	
Always having the written in a different form or place was a bit distracting.	
M3	M4
Though content was clear, could have been shorter.	On part 2 "What will happen to me if I am suspected?" The timeline which explains the procedure helped a lot.
The styles of the text changed and so did the sizing. It wasn't easy to adjust.	Continuous scrolling made for a seamless module, better than "next page" type.
The bands to move to the next topic could be bigger/more obvious. I found them ok, but others may struggle.	
Good idea to mention there will be questions on the video so people will actually watch it.	
Just a bit confusing on how to scroll down on an iPhone.	

and recommended changes were asked for all four modules. Sample verbatim answers to these questions are presented in Table 5 below.

Looking specifically at the suggestions related to what students would like to see more of in the modules, it seems as illustrative examples and definitions related to the different forms of academic integrity misconduct were requested. In the comments related to suggestions for improvement, students suggested enhanced clarity in terms of language and recording and a more decluttered module interface.

Upon receiving the student feedback comments, the AIE-L tutorial designer reviewed them in detail and discussed the findings with the Coordinator of Student Conduct, Community Standards, and Values. This resulted in a decision to revise the AIE-L tutorial modules. The following revisions were made: in Module 4, the subsection title 'Where do I find the policy' was changed to 'Where do I find the misconduct procedure'; in Module 4, the subsection title 'What will happen if, WHEN, I am caught?' was changed to 'What will happen to me if I am suspected?'; in Module 3, a new subsection entitled 'Can I use online services for my assignments?' was added. The reason for adding this section is that internet-facilitated cheating is on the rise and students need to be aware of the kinds of services that the University permits.

**Table 5** Sample verbatim qualitative student feedback on the AIE-L

M1	M2	M3	M4
What academic integrity content did you find most useful?			
The definitions/summary	I found the section on paraphrasing most interesting and most useful.	The rules around collaboration on assignments when it is not specified by the prof or their assignment outline.	Outlining the actual steps taken if academic integrity is violated.
Seeing the different types (8 of them) of academic misconduct.	Defining what each type of academic misconduct was.	I found information about cheating useful because it deepens my understanding how to avoid it.	Resources if assistance is needed.
How do I spot academic misconduct?	Plagiarism of all kinds.	Defining collaboration. It was interesting learning about individual vs. group work when it comes to academic integrity.	Knowing what happens if you violate the policy.
The quick review sheet of the Academic Integrity Policy that includes definitions.	The scanned examples with explanations were the most useful as it showed content using real examples.	Clearly defining and specific examples of improper collaboration and using previous work were very helpful. They show realistic examples that a student may encounter at MacEwan.	
What it is {Academic Integrity} and a link to the policy.	Citations and when it becomes a plagiarism.  Different method to paraphrase and where to find help for assignment.  Falsification and multiple submissions.		
What Academic Integrity content would you like more information about?			
More examples of definitions.	Defining plagiarism, seeing examples of it, and how to avoid it.	The only area I was unsure of in this module was collaboration. This area could be elaborated on in this module.	Maybe a bit more in regard to school. What will happen if you are suspected, such as applying to other schools.
I feel that cheating was not given enough attention.	I would like to see more information on unintentional assistance of others.	The only area I was unsure of in this module was collaboration. This area could be elaborated on in this module.	Whether people can be falsely accused.
As well, the consequences of cheating/violating academic integrity need to be emphasized more.	Would like to see more examples of citations for additional references (videos, radio) when doing assignments.	More info about different possible situations when a student is "cheating."	
How to spot academic misconduct.	Examples of different degrees of academic integrity.	It mentions differentiating helping friends and assisting with misconduct. The module gives examples of assisting with misconduct but does not mention how we can help friends.	
To improve any aspects of the module, what changes would you suggest?			
Don't repeat things; make it harder to read.	Make it more interactive in the slides.	Make the "next lesson bar" at bottom of page more obvious.	

**Table 5** Sample verbatim qualitative student feedback on the AIE-L (*Continued*)

M1	M2	M3	M4
Put a much larger focus on the consequence's students will face if they are caught violating academic integrity.	I would improve the audio recordings because they sounded a bit far away and a little too casual.	Too much little quizzes for module 3.	
Add how to report violations of academic integrity.	Changing language to be less confusing in some questions.	Make the test a bit longer.	
There are too many links to follow, sometimes the internet does not work fast, it is difficult to load the reading.	More scenarios for proper explanations.	Should suggest how we can properly help friends. The only suggestions the module gives is for counselling and SAMU Peer Support, these both involve getting help from people other than your friends.	
Provide more specific examples of academic misconduct.	More examples of citing and/or links to more resources that may not be created by MacEwan. Give more examples.	The quiz. Sometimes, depending on a response the "check marks" for answers that are incorrect. Not sure about the responses requiring a typed answer. Would the system take into account spelling mistakes or would it mark an answer as incorrect due to a small typo? Monopoly examples was a little confusing. Written question after the "Truth about dishonestly" video does not accept the spelling "rationalize" used in the video.	

## Discussion

This paper took its starting point from a general concern about academic integrity and a subsequent development of an academic integrity e-learning tutorial at MacEwan University, Canada. As a framework for addressing problems with academic integrity among students, Park (2003) identified three possible approaches. In the punitive approach, the disciplinary actions are the centre piece through the belief that students intentionally committed plagiarism (Bilic-Zulle et al. 2008; Blum 2009; Sutherland-Smith 2010), whereas the educational and preventive focus instead stresses information and support to students (Scanlan 2006). In contrast, the restorative justice approach seeks to reach a solution where trust is rebuilt and damage is repaired between the responsible party, the harmed parties, and the community (Karp and Conrad 2005; Karp 2009; Wachtel 2013).

At MacEwan University, the development of the AIE-L tutorial was spurred by the University's belief that preventive academic integrity education for all students was needed. Even so, at MacEwan University, all three of Park's (2003) approaches are found in the Academic Integrity Policy and are also reflected in the AIE-L tutorial, and we maintain that they must coexist. In making this assertion, the three approaches

serve quite different functions, have different audiences, and have different intended outcomes. While the punitive approach focuses on punishment for the offender (student) and acts as a deterrent to would-be offenders (other students), the educational approach instead acts as a rehabilitative process for the offender (student) and as a prevention to would-be offenders (other students). In the restorative justice approach, the main function is the rehabilitative process for the offender (student), and the restorative process to the injured party (faculty).

Although at MacEwan University there were few barriers for the development and implementation of the AIE-L tutorial, several potential threats to the management of a project of this kind exist. At the immediate level, a buy-in is required from faculty members as they constitute the frontline interface between students and the University. At the next level comes the necessary endorsement from department chairs and deans, and beyond this, engagement by university-wide support departments such as academic integrity offices and technical support from the staff responsible for maintaining Learning Management Systems such as Blackboard. In addition, institutional champions are needed to take on the important role of communication and dissemination of project status and progress and, most importantly, to develop a realistic work plan with distinct goals and objectives. An important activity for the institutional champion is also to convey and remind the involved parties of the overarching goals of setting students up for success in their academic endeavours and providing relief to faculty members through the anticipated outcome that there will be fewer academic integrity incidents to administrate.

As was shown in Table 1, within academic integrity, educational institutions were most concerned about plagiarism and policy administration. With this in mind, it is important to note, however, that a one-size-fits-all approach is generally-speaking not desired nor achievable. In other words, while e-learning tutorials of this kind will likely contain some degree of higher-level material, for the e-learning tutorials to be useful and make an institutional impact, it is necessary for them to be firmly rooted in the specifics of the respective institutions' academic integrity policies. We simply believe that this cohesiveness is essential in ensuring a buy-in and a sense of 'walking the talk' on part of students, faculty members, the University, and the greater community. Furthermore, accountability when investing in academic integrity education must be at the forefront of the e-learning tutorial goals. This inevitably means to instill an institutional culture of measurement and evaluation with test metrics to ensure that the initiative leads to a difference and is not just intended to 'check boxes'; this paper has delineated how this can be done.

As noted earlier, post-secondary institutions have slowly started to create and implement academic integrity education activities for their students. These initiatives have taken a variety of configurations depending on the scale of the implementation strategy: university-wide, school-wide, courses, or workshops. Depending on the scale of the roll-out, the delivery mechanisms could be face-to-face, online, or blended learning. An additional aspect for consideration is that the participation in the academic integrity education activity could be voluntary or required. A voluntary open-access tutorial will not have as much impact as a required tutorial (Brown et al. 2008) and for a tutorial to have any value it must be used practically in context such as a course requirement. For these reasons, we recommend that post-secondary institutions implement mandatory

university-wide academic integrity e-learning tutorials hosted on their LMS. This will be the most cost-effective delivery mechanism as a face-to-face delivery to all students will require hiring more staff members. Moreover, having the learning e-tutorial embedded across the whole university curriculum in core 1st and 2nd year courses will ensure that all students receive this training in its natural context.

In a future study, the effectiveness of the AIE-L tutorial will be evaluated through a large-scale study with a control group and an experimental treatment group. In addition, another future study will involve faculty members. Both faculty members and students will also be included in a subsequent longitudinal study to assess the long-term change in awareness of academic integrity knowledge and student academic integrity misconduct incidents.

At MacEwan University, the AIE-L tutorial will still be voluntary; however, the School of Business has made a bold decision to ensure their students have a thorough awareness and understanding of MacEwan University's Academic Integrity Policy. For this reason, the AIE-L tutorial will be embedded in their baccalaureate, diploma, and certificate programs. The AIE-L tutorial, in conjunction with a tutorial on APA citation, will be a required and graded course component for all students. As such, students will complete these two tutorials and receive two certificates of completion in exchange for a 10% course mark. These two certificates for marks must be completed within 3 weeks from the start of the course. As the university-wide rollout of the AIE-L tutorial continues, the consultative process will be replicated with the other faculties at MacEwan University.

In presenting the development of the AIE-L tutorial at MacEwan University, there are noteworthy limitations to the findings presented herein. Specifically, the findings from the development of the AIE-L tutorial in terms of both quantitative and qualitative feedback is based on a small convenience sample of volunteer student participants, and the calibration of the pre and post-test multiple choice questions in terms of content validity also pertain to the same small convenience sample. Nonetheless, the intention of this first analysis was not to ascertain the effectiveness of the AIE-L tutorial but rather to develop the pre and post-test in preparation for an upcoming large-scale study for an in-depth assessment of the AIE-L tutorial in terms of its effectiveness as an education and prevention tool.

## **Conclusions**

This paper is one of the first to document and describe the development of an Academic Integrity E-Learning tutorial at a Canadian university. The evaluation of the AIE-L tutorial has provided invaluable insights for MacEwan University through quantitative and qualitative feedback provided by students. Similarly, the pre and post-test has helped to increase the content validity of the test items. In its revised version, the AIE-L tutorial will become an essential tool for MacEwan University in their endeavor to raise awareness among students about academic integrity. Even so, as noted earlier, the AIE-L tutorial cannot fill all roles in the University's mission to protect academic integrity and must be complemented with both punitive and restorative approaches as each approach plays a unique role in function, audience, and outcome. For this reason, perhaps the new mantra about academic integrity will be 'Academic Integrity: Caring about, Education about, and Preventing.'

## Appendix A

### Pre and Post-Test Questions

Select the best answer for each question. You must select only one answer.

Place the “letter answer” in the “answer form.”

1. Academic integrity
  - a. ensures that a student’s academic success is gained fairly.
  - b. ensures that the instructing faculty give good grades.
  - c. ensures students get good jobs after graduation.
  - d. all of the above.
  
2. Academic misconduct is defined as
  - a. getting caught for lying.
  - b. cheating on an exam.
  - c. any act by which a person gains or attempts to gain an unfair academic advantage for themselves or others.
  - d. contract cheating.
  
3. Academic misconduct
  - a. undermines the efforts and achievements of other students.
  - b. detracts from the university’s reputation and integrity of its credentials.
  - c. threatens the integrity of the broader scholarly community.
  - d. all of the above.
  
4. Academic integrity is a value that primarily concerns your
  - a. registration in the correct program.
  - b. moral code in general.
  - c. behaviour as a student.
  - d. job prospects.

Use the following scenario below to answer questions 5–8.

You are doing an assignment in the hallway, and your classmates are doing their homework at the same table. You ask your friends to watch your things, so you can take a break. You leave your computer on when you take a break. While you are gone, classmate A goes on to your computer and copies parts of your assignment and hands it in as their own. This classmate A then gives your work to their roommate B who turns it in as their own.

5. Who violated the Academic Integrity Policy?
  - a. only you violated the policy.
  - b. only classmate A violated the policy.
  - c. only classmate A and roommate B violated the policy.
  - d. you, classmate A, and roommate B have all violated the policy
  
6. What was the offense for classmate A?
  - a. cheating.
  - b. fabrication and falsification.
  - c. improper collaboration.
  - d. plagiarism.
  
7. What was the offense for roommate B?
  - a. cheating.
  - b. fabrication and falsification.
  - c. improper collaboration.
  - d. plagiarism.
  
8. What was the offense for you?
  - a. cheating.
  - b. fabrication and falsification.
  - c. assisting others in misconduct because you did not take reasonable precautions (closing your laptop).
  - d. no offense for you as you did not do anything wrong.
  
9. In a creative writing course, the assignment asked students to write a vivid description about a sunset they remember or create a vivid description about a sunset. The student was too busy to watch a sunset and made up their 2-page report. Which example of Academic Misconduct is this?
  - a. plagiarism.
  - b. fabrication or falsification.

- c. cheating.
- d. this is not an example of Academic Misconduct.

10. You got sick in the middle of the semester and missed an important assignment deadline. After the assignment's due date, you go to the doctor's office to get a doctor's note. You changed the date on the note and presented it to your instructor, hoping that changing the document is fine since you really were sick. Is this a violation of MacEwan's Academic Integrity policy, and if so, what kind?

- a. no, it isn't a violation since you were still sick during this period.
- b. yes, it is cheating.
- c. yes, it is falsification.
- d. yes, it is gaining an unfair advantage.

11. A student takes a course in "Teams and Leadership" and a second course in "Teams in Business." Both courses ask the student to reflect upon and write a paper about a team situation. The student writes on one team situation, changes the title, and submits the paper to both courses. What type of Academic Misconduct is this?

- a. plagiarism.
- b. fabrication and falsification.
- c. cheating.
- d. multiple submissions
- e. there is no Academic Misconduct because it was the student's own work.

12. You found exactly the information you needed for your paper on a website. Since you put the information into your own words (paraphrased it) you don't put any citations or references for the website into your paper. Is this academic misconduct and if so, what kind?

- a. yes, it is plagiarism because all paraphrases require a citation.
- b. yes, it is plagiarism because you should have quoted instead of paraphrased.
- c. no, it is not plagiarism because you put the ideas in your own words.
- d. no, it is not plagiarism because you don't want the professor to know you used a website for research.

13. You are supposed to write an essay on “The Yellow Wallpaper” and incorporate research from three scholarly articles. You write a body paragraph with several sentences paraphrased from one article, so you just put an in-text citation at the end of the paragraph. Because you gave credit to the original source, your professor should know that all the material in that paragraph came from that one source. Is this academic misconduct and if so, what kind?
- no, because you cited the source at the end of the paragraph.
  - no, because you didn’t quote word-for-word.
  - yes, it is gaining an unfair advantage.
  - yes, it is plagiarism because you used the words and ideas of others but did not cite after each use.
14. You are taking a business course with lots of group assignments; however, there is one individual assignment, so you decide to work with a couple other students with whom you’ve worked with on past assignments. All of you use a Google Doc to come up with the answers, but all plan to slightly change the wording of your answers so they’re not exactly alike. Is this academic misconduct? If so, what kind?
- yes, it is always cheating to work together.
  - yes, it is improper collaboration because you were meant to work individually on the assignment.
  - no, it isn’t academic misconduct because all of you contributed some part of the assignment.
  - no, it isn’t academic misconduct because this professor has permitted you to work together in the past.
15. Your friend asks if she can look over your biology lab report just to get an idea of how to complete the assignment. You finish your report early, so you give her the report to skim over before it’s due. Your friend decided to copy your answers without asking if this is okay. Is this academic misconduct and if so, what kind?
- no, this is not academic misconduct because you didn’t know your friend would copy off you.
  - yes, this is assisting others in misconduct.
  - yes, this is cheating.
  - yes, this is improper collaboration.
16. You have a lot of issues with grammar and often lose a lot of grammar marks, so you hire a tutor to polish your writing for an essay. The tutor corrects all of your grammatical errors, but you don’t really understand the corrections. Because the essay is for an English class, much of the final grade is based on grammar and

clarity of ideas. The tutor doesn't change your original ideas; she just tweaks the words to make your writing sound better. Is this academic misconduct?

- a. yes, this is academic misconduct because this graded work does not reflect your skills.
- b. no, it is not academic misconduct because anyone can use a tutoring service.
- c. yes, this is academic misconduct because someone else is writing your graded work.
- d. no, it is not academic misconduct because MacEwan allows for students to seek out editing help.

17. Your friend tells you that you can make money online by posting the notes you take in class and your assignments to a note-sharing website. You need the money, so you post your research paper to the note sharing website. Which violation of MacEwan's Academic Integrity Policy is this?

- a. improper collaboration.
- b. plagiarism.
- c. assisting others in gaining an unfair advantage.
- d. contract cheating.

18. You pay to download a paper from a website and submit it in place of writing your own assignment. Which violation of MacEwan's Academic Integrity Policy best describes this?

- a. cheating.
- b. gaining an unfair advantage.
- c. contract cheating.
- d. plagiarism.

19. You just got an exam back from a professor that has a mistake in the addition of grades. You are going to ask your professor to add up the correct answers again and fix the grade. Before you hand it in, you erase a few wrong answers and change them to correct. You had erased the right answer and changed it during the exam, so you are just putting it back to what you originally had. Is this a violation of MacEwan's Academic Integrity Policy and if so, which kind best describes it?

- a. yes, this is multiple submissions.
- b. yes, this is obtaining an unfair advantage.
- c. no, because you knew the answers before you changed it.

- d. no, because other people are probably doing the same.
20. Learning to paraphrase properly is a crucial skill for avoiding plagiarism. A proper paraphrase:
- includes a citation.
  - doesn't use the grammar and syntax of the original.
  - includes your own ideas.
  - a and b.
21. I just finished writing my exam and am about to hand it in when I hear an incoming text arrive on my phone. I'm meeting a friend after the exam, so I quickly check the text to see if my friend is ready to meet. The instructor sees me check my phone with my exam still in hand. Is this cheating, according to MacEwan's Academic Integrity Policy?
- no, this is a not violation of the policy because using the phone had nothing to do with the exam.
  - yes, this is a violation of the policy because the instructor has no way of knowing if you are cheating.
  - no, this is a not violation of the policy because you have already finished the exam.
  - yes, this is a violation of the policy because the text may have been an emergency.
22. If a student has been found to violate MacEwan's academic integrity policy, they can request a restorative resolution to the situation. A restorative resolution:
- strives to repair harmed relationships.
  - gives voice to the harmed party.
  - values relationship building.
  - all of the above
23. Which of the following is NOT a possible consequence for violating MacEwan University's academic integrity policy?
- giving the assignment a mark of zero.
  - an F in the course.
  - expulsion.

d. requiring the student to take the class with a different instructor.

24. If you have been found to have committed academic misconduct, you have a right to:

- a. a review hearing.
- b. an appeal.
- c. a lawyer as provided by MacEwan University.
- d. a and b.

25. Who must attend a review hearing?

- a. a Faculty Adjudicator.
- b. the instructing faculty member.
- c. the student.
- d. all of the above.

#### Abbreviations

AIE-L: Academic Integrity E-Learning; APA: American Psychological Association; LMS: Learning Management System; MERSQ: Medical Education Research Study Quality Instrument

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