[redacted]
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Chemistry, Grant MacEwan University
[redacted], 10700 - 104th Avenue
Edmonton AB T5J 4S2
21 September 2011

To: The Investigative Committee established pursuant to Policy C5051

From: [redacted]

Re: Response to Investigative Committee Meeting held August 23, 2011, and Information Provided During the Investigation

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Response Table of Contents

Additional documents submitted include:

- **Curriculum Vitae and Teaching Dossier of [redacted]**
- **Chapter from *Chemical Principles* by Zumdahl**
- **Chemistry 101/3 Workbook by Dr. Hilts**

Background information regarding the textbook, [redacted]

After starting at MacEwan, I began entering my instructional notes into the computer to make it easy to read and revise. These notes expanded to beyond my instructional needs and became the basis for [redacted]

Textbook development takes years, starting with private development, then several cycles of field-testing and review, with revisions after each cycle. The turn-around time from idea to first published edition is five to ten years. I started formal development of [redacted] in 2005. Ideas on content and presentation strategies came primarily from my own classroom experience (what I found that worked to convey information to students), from reviewing other textbooks (to see how other textbooks presented material), from attending chemistry conferences and reading the published chemistry and chemical education literature. Numerous real-world questions were developed by being cognisant of the world around me and me wanting to know how something worked.

My colleagues were aware of the project and I freely gave sections to colleagues for their review. [redacted], then Chair of Chemistry, was very interested and involved in the development. ([redacted] is credited as a reviewer in the text.) In 2008, I hired a professional writing student to review the grammar and style of the text. Adam Gottleib, an instructor at the University of Victoria, conducted a thorough review of the text in 2009/10.

With the permission of MacEwan, I used [redacted] with students in 2008/09, 2009/10, and 2010/11. [redacted] is in draft, currently Field Test III. Students are informed of this and asked to provide feedback to improve the text. Each year saw increasingly positive responses from students. [redacted] was made available online so that others could review the completed chapters and to provide suggestions on how to improve the text. (Note that I took the website down when the plagiarism allegation first arose.)

[redacted] is not yet published. It is at least three years away from a first edition. The current edition, Field Test III, is over 1000 pages and consists of 20 core chapters plus chapters on the applications of chemistry in specialized fields: food science, environmental science, forensic science, pharmaceutical science, chemical engineering, etc. I am not an expert in all areas of chemistry and do not feel qualified writing certain chapters. I am therefore working with specialists to develop or review chapters. I credit these experts in the text itself (e.g., materials engineering (a.k.a., organic chemistry), energetic materials, etc.). I am actively seeking authors for several other applications chapters.

During summer 2010, I had several students working on [redacted] Students currently in the pharmacy program at the UofA were developing a chapter on pharmaceutical chemistry. A student expressed interest in researching and developing the food and nutrition chapter. Another student was reviewing and expanding the Solution's Manual. With all of these students, I entered

into IP sharing agreements (they retained ownership; I licensed their work for use in [redacted]

All of these experts and students will be credited when their work is incorporated into [redacted] Numerous contributors have already been credited (refer to [redacted] at section 4.5, Chapter 12, Chapter 25, Chapter 28, Chapter 30, Chapter 31, and Chapter 32).

Because [redacted] is still in its early stages of development, and continues to require much testing and revision, it is expected to be substantially different when it comes time to publish the text. You can see in the textbook numerous chapters labelled "not developed". I intend to revise the questions that are raised as concerns in this complaint, to ensure that no further concerns are raised in the future.

As can be seen from my CV and Teaching Dossier (attached as a separate document), I am active in the chemical education community, giving presentations at national and international conferences on topics ranging from barriers faced by students transitioning to from high school to post-secondary, to improving instructional strategies to minimize learning barriers, to alternative publication models. I have every intention of continuing to contribute to this community, and do not wish for this complaint to detract from my work overall.

MacEwan scholarly activity- the applicability of Policy C5051

Policy C5051 pertains to scholarly activity that is recognized and supported by MacEwan through Policy C5050.

In January 2011, Dr. Higgins made it perfectly clear that, to date, [redacted] is not recognized by or supported by MacEwan.

Date: Wed, 19 Jan 2011 09:59
From: [redacted]
To: David Higgins
Subject: MacEwan support of [redacted]

Dr. Higgins

At the end of our meeting on 18 January 2011, you commented to the effect, 'It is news to me that you felt the institution was supporting your development of the new textbook.' I was surprised by your statement and would greatly appreciate a clear statement from you regarding any past and/or present support of my textbook by Grant MacEwan University.

Thank-you,
[redacted]

Date: Mon, 24 Jan 2011 12:08
From: David Higgins
To: [redacted]
Subject: Re: MacEwan support of [redacted]

Hello [redacted]

I think that the phrase 'news to me' covers the case. Your textbook is your undertaking, hence it is news to me that you would consider it to be an institutional undertaking. It is not. No discussion about or request for support has ever reached me or the associate dean - hence my surprise when you stated that you considered ' [redacted] to be supported by the institution.

David

Three weeks later, Dr. Higgins launched his 'private investigation' of plagiarism and now has filed a complaint under C5051. Both of these threaten my employment at MacEwan, though they are for activities not recognized or supported by MacEwan.

Consider a nurse working in a hospital and teaching at MacEwan. If that nurse commits an error in the hospital, MacEwan has no right to investigate. The hospital or health authority investigates and reaches a decision. If that decision finds the nurse guilty, then MacEwan can review its employment relationship with the nurse based on those findings.

Applied to [redacted] Pearson Education has expressed an opinion that a small number of the questions in my unpublished textbook are too similar to questions in Petrucci. I have responded by taking the textbook off the internet, and committed myself to revising those questions prior to future use or publication. *No basis for further action by Pearson Education exists.* Furthermore, Pearson Education's primary option of addressing their concerns is through the Canadian Courts. As detailed below, Pearson Education may be aware they have little chance of success through the courts system because my actions do not constitute copyright infringement. Given Pearson Education's obvious interest as the publisher of a textbook that [redacted] would be in competition with, their opinion with respect to whether or not plagiarism has occurred in a draft text that has not yet been published is of little weight.

Dr. Higgins complained under Policy C5051 mere weeks after making it clear that the University had no involvement with the textbook I was developing. Simply, the development of [redacted] is not recognized or supported by MacEwan, thus the application of policy C5051 is inappropriate.

If it is the case that MacEwan applies policy C5051 to activities not supported as part of the scholarly production of instructors, I would suggest that the policy has not been followed appropriately. Because of Dr. Higgins' involvement in this issue prior to invoking Policy C5051

(which is addressed below), I suggest that my agreement to change the exercises in question prior to publication was a reasonable resolution to this issue.

Defining plagiarism in context

Plagiarism is not a simplistic or black and white concept. Science instructors routinely take questions from other sources to prepare assignments and exams. Rarely are these sources ever cited. From a black and white perspective, these instructors — the majority of science instructors at MacEwan and in North America — could be guilty of plagiarism.

A simplistic definition of plagiarism fails to account for numerous factors such as originality, copyrightable information, common knowledge, creativity, established practice, and intent. These factors were presented in my 12 July submission to the Investigative Committee. Some are further expanded upon in this document.

The policy statement and section 2.4 of policy C5051 specifically recognizes intent: "Grant MacEwan University requires and encourages high ethical standards in research and scholarship while recognizing that **research can involve unintentional error** (emphasis added)." A simplistic, black and white definition of plagiarism is not consistent with policy C5051.

Every textbook presents numerous core concepts in much the same fashion. No textbook cites the original source of these concepts. One possible reason why textbooks do not cite this information is because, by the time it becomes 'textbook material', it is considered common knowledge in the chemistry community. (Reviewer #1 reiterates this.)

Every textbook contains real-world examples as stories and exercises. Failure to cite the source of this information would be plagiarism in other contexts. I have found very few (less than 10 in all the textbooks surveyed) citations to original sources in stories, but none in the exercises. In Petrucci's text, for instance, he cites no other source for his examples and questions. However, I found numerous similarities between his questions and questions in other textbooks, including McQuarrie. Those textbooks have co-existed for decades.

Attached as a separate document is one chapter from *Chemical Principles* by Zumdahl, the text currently used at MacEwan. I have reviewed this chapter and identified twenty-three sections of text that would require one or more citations if printed in another context — a student essay for example. However, in this chemistry textbook, these sections go uncited. Similar sections in other textbooks are similarly uncited. This is the established practice when developing first-year science textbooks. Please note that [redacted] does endeavour to cite the original source when that source is available. Searching the electronic version of [redacted] for 'source:' finds 24 citations, including one in the end-of-chapter exercises.

MacEwan chemistry adapted its first-year laboratory experiments from other sources and is developing senior level experiments based on existing experiments at other institutions and from published scholarly articles. Not all the MacEwan instructors developing these experiments cite the sources used to prepare them.

The fact that plagiarism and copyright are often misunderstood concepts that vary with context is reflected by Pearson Education. In a document circulated by Dr. Robert Hilts to the department on textbook development, Pearson Education discusses copyright (Appendix A). Pearson Education states,

> The copyright laws are not as clear as the general public thinks.
>
> We have caught almost all instances of copyright infringement before publication. In almost all cases, the infringement by our authors is inadvertent – a result of failing to understand the copyright laws.

Pearson Education recognizes that the simplistic (black and white) definition of plagiarism commonly held by academics is incorrect. Furthermore, it seems appropriate from Pearson's perspective to rectify before publication any issues that might be considered copyright infringement or plagiarism. That is what is suggested to be done here.

Simply, plagiarism is not something that is easily defined. Numerous factors must be simultaneously considered when making a determination of plagiarism.

Other examples of contextualized re-use of material that is not considered plagiarism

It is clear on the reviewers' comments, and the descriptions of "copying" or "borrowing" found in various settings, that not all instances of copying material is considered plagiarism.

Assignments and exams

Reviewer #3 offered as an interesting example the common practice with respect to assignments. At all university levels in chemistry, instructors commonly take questions from other sources for use in course assignments and exams — an *established practice*. In many cases, up to 100 % of an assignment is taken from other sources. Reviewer #3 argued that it was acceptable for instructors to not cite the source of the questions in assignments, rationalizing this from a pedagogical perspective. However, the simplistic definition indicates that plagiarism occurs whenever information is taken from another source without citation. With the simplistic definition, instructors at MacEwan and every other institution across Canada are engaged in flagrant plagiarism. Obviously the simplistic definition is too simplistic.

The reviewers were not provided with any information as to the concepts of originality, common knowledge, creativity, established practices, and especially intent. They were provided with a simplistic, unvalidated matrix for assessing questions.

Few instructors write textbooks. All prepare assignments, often by taking unattributed questions from other sources. Reviewer #3 does acknowledge that context would matter to the conclusion of plagiarism or not; presumably, a fully contextualized question to the reviewers could alter their conclusions.

MacEwan orientation resources

I created resources to assist my students in transitioning from high school to post-secondary. (This is an area of personal interest; I have given presentations at conferences on this work.) I have also shared these resources with my colleagues, who have adapted and incorporated them into their presentations. In sitting through a number of their presentations to incoming students, not one has cited the source of the information they are presenting.

The fox terrier example

In another example, Reviewer #1 presented an example where a false story has propagated through biology texts. Reading Stephen Jay Gould's essay in *Bully for Brontosaurus* (1992) provides significant insights into textbook authorship practices, practices in existence for decades. Notably, Gould writes extensively about copying of text and stories, but makes no comment regarding plagiarism associate with this practice. (His only plagiarism comment relates to changing illustrations.)

> In book after book, the evolution section is virtually cloned. Almost all authors treat the same topics, usually in the same sequence, and often with illustrations changed only enough to avoid suits for plagiarism. Obviously, authors of textbooks are copying material on a massive scale. (p. 156)
>
> Of course, I have no objection to the similar recording of information by textbooks. No author can know all the byways of a profession, and all must therefore rely on written sources for areas not enlightened by personal expertise. I speak instead of the thoughtless, senseless, and often false copying of phrase, anecdote, style of argument, and sequence of topics that perpetuates itself by degraded repetition from text to text…. (p. 158)
>
> When a truly important and well-known fact graces several texts in the same form, we cannot know whether it has been copied from previous sources or independently extracted from any expert's general knowledge. But when a quirky little senseless item attains the frequency of the proverbial bad penny, copying from text to text is the only reasonable interpretation. (p. 158)

> For years, I have been much amused (and mildly bothered) that the great majority of texts report *Hyracotherium* as "like a fox terrier" in size. I was jolted into action when I found myself writing the same line…. I haven't the slightest idea what a fox terrier is. (p. 159)

Gould then tracks the chronological use of four animals to explain the size of *Hyracotherium* to students: cat, fox, dog, and fox terrier.

> Copying is the only credible source for these shifts of popularity…. Nor can I believe that two-thirds of all modern writers would independently say, "Aha, fox terrier" when contemplating the dawn horse. (p. 163-4)
>
> In fact, we can trace the rise to dominance of fox terriers in our references. The first post-Osborn citation that we can find … credits Osborn explicitly as author of the comparison with fox terriers. [Osborn was a preeminent palaeontologist who likely coined the term 'fox terrier' in 1904.] Thereafter, no one cites the original, and I assume that the process of text copying has begun.
>
> "…no larger than a fox terrier." (*Vertebrate Palaeontology*, 1966)
>
> "…about the size of a fox-terrier" (*Biological Science Curriculum Study*, 1968)
>
> "…about the size of a fox-terrier" (*Modern Biology*, 1977)
>
> "…about the size of a fox-terrier" (*Biological Science*, 1980)
>
> "…not much bigger than a fox-terrier" (*The Study of Biology*, 1982)

Gould closes by commenting that *Hyracotherium* is actually much larger than a fox terrier. Fox terriers range in size from 6 – 9 kg; *Hyracotherium* is estimated to be around 25 kg, or about the size of a Springer Spaniel. (This is original to me.)

This fallacy — both the concept and common text — was propagated for decades in biology textbooks, with no known allegation of plagiarism nor disciplinary actions resulting against those who repeated the fallacy.

Ralph Klein's plagiarism complaint

The results of the 2004 plagiarism complaint against Ralph Klein, then Alberta Premier and former Calgary reporter, are relevant to the issues in this complaint. Klein was accused of plagiarizing an essay on Augusto Pinochet for a course he was taking at Athabasca University. It was estimated that approximately 40 % of his essay was not properly cited. Judith Hughes, the vice-president academic at Athabasca University, and Ken Collier, the program director for the program were involved in the investigation.

> In Collier's rationale - released by the university with Klein's permission - he said he viewed the improper citation "as a relatively minor error, undisputed by (the) student, easily corrected, and not an ongoing or repeated problem."

> In a letter to Klein, Collier wrote, "I find there is no academic or legal basis to sustain the claim that an academic offence has taken place. No intent to deceive or cover up use of unattributed material, nor any practices to pursue those goals are evident."
>
> Accordingly, the conclusion was that "[u]nder these circumstances no penalty is rendered."
>
> Canadian Press, http://www.ctv.ca/CTVNews/Canada/20040528/klein_plagiarism_040528/, (accessed 16 September 2011).

Critical herein is that Athabasca University considered *intent* in its investigation. Since January, 2011, when Dr. Higgins began his investigation, I have been explaining that I have never intentionally copied anything from Petrucci. My intention was to maintain the same level of rigor between students using [redacted] and students using Petrucci and I took steps to change the questions to avoid plagiarism. I was also following the common practice in the textbook development community. Furthermore, only about 0.2 % of the text in [redacted] has been alleged to be plagiarism, and the alleged text is not profound as it involves introductory chemistry equations with some explanatory notes and non-copyrightable data.

Workbook for General Chemistry

Dr. Hilts is an author with Pearson Education. He has prepared and published workbooks for use with *General Chemistry*, by Petrucci. (Dr. Hilts' CHEM 101/3 workbook is available to students on Blackboard; this document is attached.) In preparing his workbook, Dr. Hilts incorporated numerous images from Petrucci into his workbook, but he does not cite the source of these images. Many of the images in Petrucci are cited to a third-party in Petrucci's text itself, yet Dr. Hilts doesn't cite either Petrucci or the third-party in his workbooks.

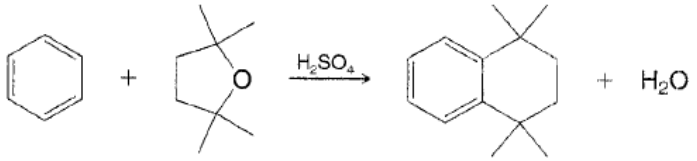
Dr. Hilts' workbooks have been edited and are published by Pearson Education. While [redacted] is clearly in draft, Dr. Hilts' workbooks are published. He has been using them with students for three years and encourages other instructors to use them as well. It is a significant double-standard that Pearson Education identified a few questions in [redacted] as copyright infringement/plagiarism — an allegation that is not borne out by the preponderance of the evidence herein — yet publishes Dr. Hilts' workbooks, which are clearly based on the Petrucci textbook, without recognizing that relationship or at least citing the source of images, especially images that are owned by third-parties and cited in Petrucci itself.

Questions in organic chemistry

Dr. Jonathan Withey, MacEwan Physical Sciences (Chemistry), is on the Faculty Association Executive and aware of these proceedings. When informed of the situation, he indicated that he remembers questions in different organic chemistry textbooks that are identical or nearly identical. He spent an hour or two and discovered the following examples.

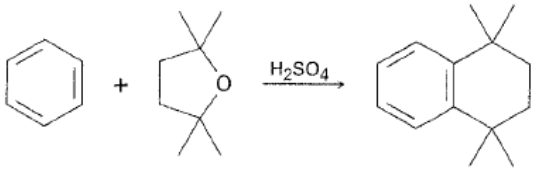
(*Organic Chemistry*, Solomons)

15.25 Provide a detailed mechanism for the following reaction.



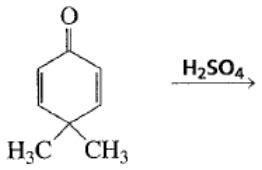
(*Organic Chemistry*, McMurray)

Propose a mechanism to account for the reaction of benzene with 2,2,5,5-tetramethyltetrahydrofuran.



(*Organic Chemistry*, Smith)

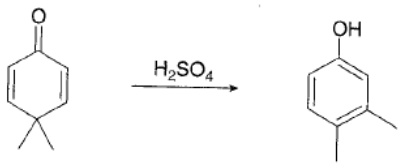
Give the product of the following reaction:



(*Organic Chemistry*, Solomons)

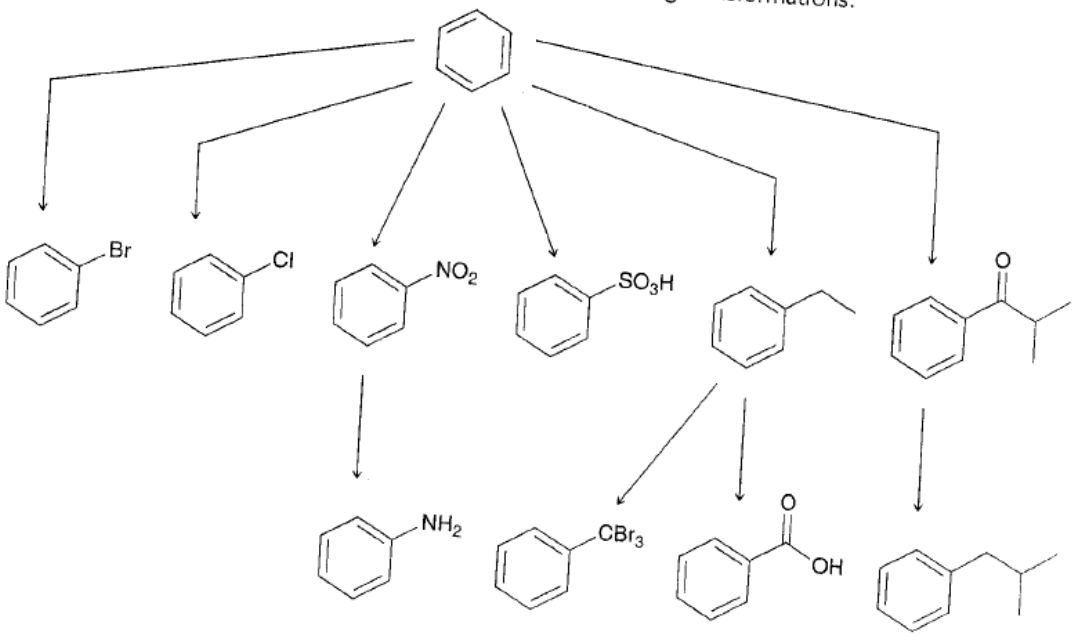
...and yields 2-substituted products.

18.77 Draw a stepwise, detailed mechanism for the dienone–phenol rearrangement, a reaction that forms alkyl-substituted phenols from cyclohexadienes.



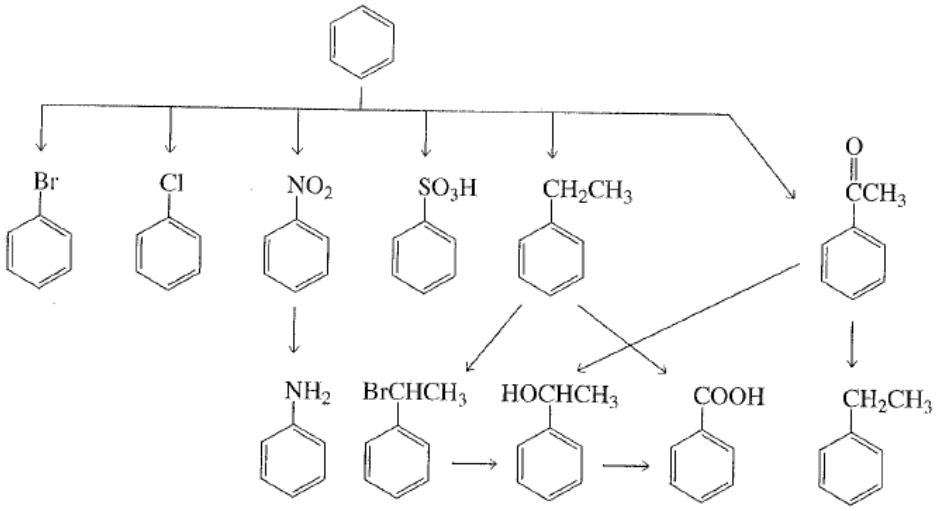
(*Organic Chemistry*, Klein)

19.43 Identify the reagents necessary to accomplish each of the following transformations:



(*Organic Chemistry*, Bruice)

41. Provide the necessary reagents next to the arrows.



Critically, Dr. Withey reviewed only a few chapters from a few organic chemistry textbooks from different publishers. Expanding his review to more chapters and more textbooks would likely find numerous additional instances of repeated questions.

Simply, it *is* common practice for authors to adapt text (Gould's *fox terrier* essay, for example) and questions (atomic isotope questions and organic questions, for example) from one textbook to another. Sometimes, little or no change is made to the text or question. It *is not* common practice to cite the source of information in high-school and first-year chemistry textbooks. While these practices may constitute plagiarism in other contexts, it is not plagiarism in the science textbook development community.

Legal considerations of plagiarism

Jon Siegel on "Plagiarism's Defenses"

US lawyer Jon Siegel, a law professor at George Washington University and currently the Director of Research and Policy of the Administrative Conference of the United States, argues that the law distinguishes between negligence and intentional wrongdoing. Siegel argues that, in property law, it isn't theft if you didn't intend to take someone else's property.

> *Imagine being in a store and absentmindedly put an object in your pocket while talking with a friend or while trying to console your child. Security stops you outside the store. It's embarrassing and humbling, but it isn't theft because it wasn't your intention to steal.*

Siegel argues that the same rationale should apply to plagiarism. While we strive to be perfect, we make mistakes. If it can be shown or suggested that a person was negligent in failing to cite a source, it's embarrassing and humbling, but it isn't plagiarism because it wasn't intentional.

Siegel identifies numerous factors that must be considered when intent is presented as a defence: the amount of material copied: the nature of the material copied (common knowledge, profound, or not), the past actions of the writer (plagiarists are often serial offenders), the mental state of the writer, etc.

Siegel states in his closing paragraph, "It would be simpler if we could just compare the texts, decide if too much was copied, and be done. [But we can't.]" Importantly, Siegel indicates that there is a threshold amount — "… decide if too much was copied …".

In the case of [redacted] the seven questions at issue correspond to 0.2 % of the text. The content of the questions is not profound but rather is basic. I had no intention of copying material from another source and intend to change the text before publication so no concerns persist. Furthermore, I have not been the subject of any previous allegation of plagiarism; it is not a practice of mine, and will not be.

Siegel's article is available at http://jsiegel.blogspot.com/2010/02/plagiarisms-defenses.html and is attached in Appendix B.

Legal opinion

A legal opinion was obtained and is attached in Appendix C. The opinion concludes that my textbook would not be considered to be a copyright infringement of Petrucci's work, for many of the same reasons I have prepared in this response to the Investigating Committee:

- the questions at issue should be considered in context in the whole textbook
- the questions are not rote copies of Petrucci's questions
- both texts deal with the same introductory concepts and are not presenting original or overly specific ideas
- the number of questions at issue is minimal

Furthermore, the opinion concludes that the matrix used by Dr. Higgins and perpetuated by the Committee is unhelpful in analyzing whether or not copyright infringement has occurred.

Observations on the blind reviews

The Investigative Committee requested reviews from three chemists. The reviewers were provided with Dr. Higgins' unvalidated matrix and asked to both assess the matrix and use it or another assessment tool to review the questions at issue.

Reviewer #1 questioned the concept of plagiarism as it applied to textbook development, touching on non-copyrightable data, common knowledge, established practices, and intent. Reviewer #1 identified a false story repeated in many biology texts without citation. Reviewer #2 used Dr. Higgins' matrix without comment. Reviewer #3 made a distinction between questions copied for a textbook and questions copied for assignments.

Abilities of the reviewers

The reviewers are professional chemists. They are not experts in intellectual property law and not experts at assessing the validity of a plagiarism matrix. I respectfully submit that their conclusions are not valid.

Distribution of matrix

In seeking third party reviews, the Investigative Committee distributed Dr. Higgins' unvalidated matrix to the reviewers, requesting that the reviewers:

(1) comment on the matrix, and

(2) use the matrix if they wish.

This action prejudices the reviewers to Dr. Higgins' simplistic definition of plagiarism and gives the perception that the results of the questions are biased towards Dr. Higgins' conclusions. It is

not surprising that reviewers #2 and #3 used Dr. Higgins matrix without question as the simplistic definition of plagiarism is common among academics.

A review by an intellectual property lawyer found that Dr. Higgins' matrix "is of little value in assessing copyright infringement as it breaks each question down into several small components and purports to assess a level of similarity for each component. This approach has been rejected by the Courts in Canada as they have stated that in assessing copyright infringement, one must view the works as a whole."

It is apparent that the reviewers were given only seven questions. They did not review the questions within the context of the introductory, non-published text book (or even chapters) in which they appeared. Although the matrix calls for the reviewers to assess question "context", they have none. In fact, the context provided does not even include the fact that the textbook is not yet published, but is in draft form for review.

The matrix's usefulness is questionable, as many of the factors would have high levels of similarity between numerous questions available in introductory chemistry textbooks (a point I elaborate on in my initial response to the investigation). Examine, for example, Reviewer #1's commentary for Question B. Many of the factors in the matrix are rated as "high", except for the numerical values, verbal congruence and overall similarity. Yet, Reviewer #1 notes that much of the question, including the "form of the equilibrium, the equilibrium constant, and the temperature at which the equilibrium constant is valid are "facts" and are not unique to the question", that he/she did a very similar lab exercise during undergraduate studies, and comments that "[t]he particular equilibrium example is very common". However, despite the commonality of this type of example, the numerical values are different. Confusingly, the Reviewer states in the matrix that the reaction conditions are rated as highly similar, but comments that the "differences of reaction conditions" make the questions hard to evaluate. The matrix gives the indication that the questions are highly similar and indicative of plagiarism, but the Reviewer notes that the problem is a very common one, with numerous constants that are "facts", and with numerical values that are different between the questions. It is unclear what the Reviewer is concluding, if anything.

The other questions which are not the subject of the complaint

The Investigative Committee asked Dr. Higgins why he submitted only 7 of the 22 questions identified by Pearson Education as plagiarism. Dr. Higgins explained that he included seven illustrative examples.

I submit that Dr. Higgins did not submit seven *illustrative* questions. Dr. Higgins submitted the seven questions that had the highest degree of similarity with questions in Petrucci. I submit that Dr. Higgins withheld 15 questions because he believed that the lack of similarity (especially considering that many "facts" are routinely used in introductory chemistry texts, assignments and labs, as noted by Reviewer #1) in these questions would weaken Pearson Education's conclusions and his plagiarism allegation.

Appendix D contains the 22 questions identified by Pearson Education.

- Pearson Education subdivided the questions into two categories: 'identical or slightly reworked' and 'similar'. However, a comparison shows that no questions were identical and that Pearson Education's definition of similar is uncertain. The reviewer at Pearson Education is unknown; likely the reviewer was a publishing employee and had no knowledge of introductory post-secondary chemistry, and what might be considered to be common knowledge or constant values.
- Of the questions submitted by Dr. Higgins, 5 were questions that Pearson Education labelled 'identical or slightly reworked' and 2 questions Pearson Education labelled 'similar'.
- My response of 01 April contained examples from other chemistry textbooks that were equally similar or more similar than the questions in [redacted]

Dr. Higgins applied his matrix to the other 15 questions, highlighting some of the weaknesses in his matrix and his weak understanding of chemistry.

Chemistry textbooks present common concepts, use common examples, and use common question styles. Because the two textbooks present much the same information to properly cover introductory post-secondary chemistry, these are *expected commonalities* that guarantee that several of the points in Dr. Higgins' matrix will be high:

- question context (common concepts, common question styles)
- style and type of question (common concepts, common question styles)
- compounds etc. used (common examples)
- reactions conditions (common examples, common question styles)
- problem to be solved (common concepts, common question styles)

If the Committee applied Dr. Higgins' matrix to select questions from other textbooks — textbook questions that have coexisted for decades — they would also get positives. However, given the context, the texts have not previously been considered to be plagiarized materials.

I present just one example out of the 15 questions that were not presented to the blind reviewers that illustrates the above observations and draws into question the validity of Dr. Higgins' matrix.

[redacted]

27) Hydrogen gas can be produced through the reaction of iron and water.

$$3\ Fe(s) + 4\ H_2O(g) \rightleftharpoons Fe_3O_4(s) + 4\ H_2(g) \qquad \Delta H^\circ = -150\ kJ$$

How will the equilibrium shift when

a) H_2O is added?
b) Fe_3O_4 is removed?
c) argon is added?
d) a catalyst is added?
e) the temperature is increased?
f) the reaction volume is doubled?

***General Chemistry* (Petrucci)**

51. Explain how each of the following affects the amount of H_2 present in an equilibrium mixture in the reaction

$$3\ Fe(s) + 4\ H_2O(g) \rightleftharpoons Fe_3O_4(s) + 4\ H_2(g) \qquad \Delta H^\circ = -150\ kJ$$

(a) Raising the temperature of the mixture; **(b)** introducing more $H_2O(g)$; **(c)** doubling the volume of the container holding the mixture; **(d)** adding an appropriate catalyst.

Level of Similarity	High	Medium	Low
Question context	X		
Style and type of question	X		
Numerical values	n/a		
Compounds etc. used	X		
Reaction conditions	X		
Problem to be solved	X		
Verbal congruence		X	

Pearson Education identified this question as 'identical or slightly reworked'. Dr. Higgins' matrix analysis argues a high degree of similarity. I disagree with their uninformed analysis.

Contrary to Dr. Higgins' assertion, no reaction conditions are given in this question. This error illustrates Dr. Higgins' limited understanding of chemistry. (Reaction conditions are things like temperature, pressure, solvents, etc.)

This concept — le Chatelier's principle — is in every first year textbook. Every textbook has numerous questions on this topic because it is a challenging topic for students to learn. Because of this, it is expected that question context, style and type of question, compounds used, and problem to be solved will be high on Dr. Higgins matrix. I provided several pages of examples in my 01 April response to Dr. Higgins. (A few are copied below.) My question format is actually closer to some other textbooks than to Petrucci. You will also see on page 568 of [redacted] that I use this question format for many questions related to le Chatelier's principle.

Yet Pearson Education identified this question as 'identical or slightly reworked' and Dr. Higgins identifies this question as plagiarism. Similar arguments can be presented for the other 15 questions, and for some of the seven that Dr. Higgins did submit.

Note that Masterton (q. 43) and Zumdahl (q. 66) are very similar: same chemical equation, very similar sub-questions, and the same format. Applying Dr. Higgins matrix to any two of these questions would result in a false positive.

(Bailar)

15.45 How will the position of equilibrium in the reaction

$$\text{heat} + CH_4(g) + 2H_2S(g) \rightleftharpoons CS_2(g) + 4H_2(g)$$

be affected by the following changes?

(a) Adding $CH_4(g)$
(b) Adding $H_2(g)$
(c) Removing $CS_2(g)$
(d) Decreasing in the volume of the container
(e) Increasing the temperature

15.46 The reaction $CO(g) + 2H_2(g) \rightleftharpoons CH_3OH(g)$ has $\Delta H^\circ = -18$ kJ. How will the amount of CH_3OH present at equilibrium be affected by the following changes?

(a) Adding $CO(g)$
(b) Removing $H_2(g)$
(c) Decreasing the volume of the container
(d) Adding a catalyst
(e) Increasing the temperature

(Silberberg)

17.69 How would you adjust the *volume* of the container in order to maximize product yield in each of the following reactions?

(a) $Fe_3O_4(s) + 4H_2(g) \rightleftharpoons 3Fe(s) + 4H_2O(g)$
(b) $2C(s) + O_2(g) \rightleftharpoons 2CO(g)$

(Masterton)

43. Consider the system

$$SO_3(g) \rightleftharpoons SO_2(g) + \tfrac{1}{2}O_2(g) \qquad \Delta H = 98.9 \text{ kJ}$$

(a) Predict whether the forward or reverse reaction will occur when the equilibrium is disturbed by
(1) adding oxygen gas.
(2) compressing the system at constant temperature.
(3) adding argon gas.
(4) removing $SO_2(g)$.
(5) decreasing the temperature.

(b) Which of the above factors will increase the value of K? Which will decrease it?

(Jespersen)

15.47 Consider the equilibrium

$$N_2O(g) + NO_2(g) \rightleftharpoons 3NO(g) \quad \Delta H^\circ = +155.7 \text{ kJ}$$

In which direction will this equilibrium be shifted by the following changes?

(a) Adding N_2O
(b) Removing NO_2
(c) Adding NO
(d) Increasing the temperature of the reaction mixture
(e) Adding helium gas to the reaction mixture at constant volume
(f) Decreasing the volume of the container at constant temperature

(Zumdahl)

66. What will happen to the number of moles of SO_3 in equilibrium with SO_2 and O_2 in the reaction

$$2SO_3(g) \rightleftharpoons 2SO_2(g) + O_2(g)$$

in each of the following cases?
a. Oxygen gas is added.
b. The pressure is increased by decreasing the volume of the reaction container.
c. In a rigid reaction container, the pressure is increased by adding argon gas.
d. The temperature is decreased (the reaction is endothermic).
e. Gaseous sulfur dioxide is removed.

67. In which direction will the position of the equilibrium

$$2HI(g) \rightleftharpoons H_2(g) + I_2(g)$$

be shifted for each of the following changes?
a. $H_2(g)$ is added.
b. $I_2(g)$ is removed.
c. $HI(g)$ is removed.
d. In a rigid reaction container, some $Ar(g)$ is added.
e. The volume of the container is doubled.
f. The temperature is decreased (the reaction is exothermic).

Similarity in questions

I recognize that my 12 July 2011 submission provided numerous examples of similar questions from other textbooks. I wish to highlight a few questions to emphasize that the language used by Petrucci is not original or creative, and is not considered to be plagiarized. Recall that data is not copyrightable.

[redacted]

26. The density of phosphorus vapour at 310 °C and 775 mmHg is 2.64 g/L. Determine the molecular formula of phosphorous under these conditions.

***General Chemistry* (Petrucci)**

43. The density of phosphorus vapor at 310 °C and 775 mmHg is 2.64 g/L. What is the molecular formula of the phosphorus under these conditions?

(Gilbert)

6.91. The density of an unknown gas is 1.107 g/L at 300 K and 740 mmHg. Could this gas be CO or CO_2?

6.92. The density of a gas containing chlorine and oxygen has a density of 2.875 g/L at 756 mmHg and 11°C. What is the most likely molecular formula of the gas?

(Gillespie)

51. The density of a gaseous chlorofluorocarbon at 23.8 °C and 432 mm Hg is 3.23 g L^{-1}. What is the molar mass of the compound? If it contains only one carbon atom per molecule what is its molecular formula?

[redacted]

36. $1.00 \cdot 10^{-3}$ mol PCl_5 is placed in 250 mL reaction vessel and allowed to establish equilibrium at 284 °C.

$$PCl_3(g) + Cl_2(g) \rightleftharpoons PCl_5(g)$$

At equilibrium, $9.65 \cdot 10^{-4}$ mol Cl_2 was present. Determine K_P at 284 °C.

***General Chemistry* (Petrucci)**

15. 1.00×10^{-3} mol PCl_5 is introduced into a 250.0-mL flask, and equilibrium is established at 284 °C: $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$. The quantity of $Cl_2(g)$ present at equilibrium is found to be 9.65×10^{-4} mol. What is the value of K_c for the dissociation reaction at 284 °C?

(Ebbing)

15.64 The equilibrium constant K_c for the reaction

$$PCl_3(g) + Cl_2(g) \rightleftharpoons PCl_5(g)$$

equals 49 at 230°C. If 0.400 mol each of phosphorus trichloride and chlorine are added to a 4.0-L reaction vessel, what is the equilibrium composition of the mixture at 230°C?

(Jespersen)

15.69 At a certain temperature, $K_c = 0.18$ for the equilibrium

$$PCl_3(g) + Cl_2(g) \rightleftharpoons PCl_5(g)$$

If 0.026 mol of PCl_5 is placed in a 2.00 L vessel at this temperature, what will the concentration of PCl_3 be at equilibrium?

(Gilespie)

16. Phosphorus pentachloride, $PCl_5(g)$, dissociates at high temperature into phosphorus trichloride, $PCl_3(g)$, and chlorine, $Cl_2(g)$. Initially, 0.200 mol of PCl_5 were placed in a 5.00-L flask at 200 °C, and at equilibrium the concentration of PCl_5 was found to be 0.015 mol L^{-1}. Calculate the value of the equilibrium constant, K_c, for this reaction at 200 °C.

(Olmsted)

13.70 For the following reaction, K_{eq} is 1.83×10^3 at 390. K:

$$PCl_5(g) \leftrightharpoons PCl_3(g) + Cl_2(g)$$

If 2.00 g of PCl_5 is placed in a 3.00-L bulb at 390 K, what is the equilibrium pressure of Cl_2?

[redacted]

42. 1.00 g each of CO, H_2O, and H_2 are sealed in a 1.50 L vessel and heated to 600 K.

$$CO(g) + H_2O(g) \rightleftharpoons CO_2(g) + H_2(g)$$

$$K_P(600\ K) = 23.2$$

What mass of CO_2 is present at equilibrium?

General Chemistry (Petrucci)

32. 1.00 g *each* of CO, H_2O, and H_2 are sealed in a 1.41-L vessel and brought to equilibrium at 600 K. How many grams of CO_2 will be present in the equilibrium mixture?

$$CO(g) + H_2O(g) \rightleftharpoons CO_2(g) + H_2(g) \quad K_c = 23.2$$

(Gillespie)

14. For the reaction in Problem 13, at the same temperature, what would be the equilibrium concentrations if initially 1.00 mol of $H_2(g)$ and 1.00 mol of $CO_2(g)$ were placed in a sealed 5.00-L vessel?

(Jespersen)

15.63 At a certain temperature the reaction

$$CO(g) + H_2O(g) \rightleftharpoons CO_2(g) + H_2(g)$$

has $K_c = 0.400$. Exactly 1.00 mol of each gas was placed in a 100.0 L vessel and the mixture underwent reaction. What was the equilibrium concentration of each gas?

(Kotz)

49. The equilibrium constant K_p for the formation of $PCl_5(g)$ from $PCl_3(g)$ and $Cl_2(g)$ is 0.087 at 300°C.

$$PCl_3(g) + Cl_2(g) \rightleftharpoons PCl_5(g)$$

If you place 1.0 mole each of PCl_3 and Cl_2 in a 5.0-L flask and heat to 300°C, what is the maximum concentration of PCl_5 that can exist at equilibrium?

(Whitten)

26. We place 0.500 mol CO, 0.500 mol H_2O, 0.500 mol CO_2, and 0.500 mol H_2 in a 1.00-L container under the conditions of Exercise 25 and allow the reaction to reach equilibrium. What will be the equilibrium concentrations of all substances present?

Concerns regarding process

Representatives during the August 23, 2011 meeting

At the 23 August 2011 meeting, Dr. Susan May was surprised that I did not have an attorney and that I only had one representative. Samantha Kernahan (MacEwan's legal counsel) stated that her interpretation of Dr. May's correspondence was that it did not restrict the number of representatives to one. However, Dr. May's correspondence clearly indicates that I was only entitled to one representative.

Date: Wed, 17 Aug 2011 15:01
From: [redacted]
To: Susan May
Subject: Re: Confirmation of Date and Time re Investigation Committee meeting
Cc: Jerry Zdril

Susan

<I sent this to Heather earlier today. She is apparently on holidays.>

In my email of 12 July, I indicated that I would likely be accompanied at the meeting. My apologies for the delay in responding. I met with the Faculty Association this morning and the FA would like to have three people accompany me at the meeting:
 * Jerry Zdril, President
 * Joe Childs, Professional Resource Officer
 * a legal advisor

Unfortunately, the FA is involved with New Faculty Orientation until 1430 on 23 August. Would it be possible to reschedule the Investigative Committee meeting to 1500 (3:00 pm) so that these representatives can attend?

The FA has also requested that the meeting be recorded.

Thank-you and, again, my apologies for the short notice.

[redacted]

Date: Thu, 18 Aug 2011 11:16
From: Susan May
To: [redacted]
Subject: Confidential Re: Confirmation of Date and Time re Investigation Committee meeting
Cc: Valli Sikstrom

Hello [redacted]

With respect to your scheduled meeting with the Investigation Committee, we need to retain the previously agreed to date and time of Tuesday, August 23 from 2:00 to 3:00. The Investigation Committee already accommodated one time change at your request.

> As indicated in my letter to you of June 24, 2011, I advised you that you could be accompanied at the meeting by **a person of your choice**, with the explicit request that you provide the name of the person to me by July 12, 2011. It was your choice whether you chose to bring legal counsel, a Faculty Association representative, or other party, but **the Committee does not endorse more than one person accompanying you to the meeting**. (emphasis added)
>
> The committee has also previously determined that the meeting notes would be recorded in written form, and not tape recorded. You and/or the person who accompanies you to the meeting can of course make your own personal notes of the proceeding, and we will provide time for this occur.
>
> Thank you.
> Susan

Policy C5051 and the correspondence regarding the number of representatives led the Faculty Association to believe that the 23 August 2011 meeting was part of the informal resolution process. (Section 4.5.4.1 restricts the number of representatives the researcher can bring to the informal meeting; no such restriction exists during the formal resolution stage in s. 4.5.5.) Limiting me to one representative put me at a distinct disadvantage during the meeting and violated my right to 'full and free opportunity to rebut the complainant' in s. 4.5.5.4.

Evidence gathering

Sections 4.5.5.4 and 4.5.5.7 of policy C5051 provide me with the right to "full and free opportunity to rebut the complainant" and "an opportunity to respond to any evidence uncovered by the investigation committee".

The Committee met privately with Dr. Higgins, who gave additional evidence to the Committee. I was not provided with the evidence he presented nor the opportunity to rebut that evidence.

It is unclear in which capacity Samantha Kernahan is engaged with the committee; she may be counsel, advisor, expert witness, or employer representative. My concern is that Kernahan is not neutral — she is employed by and beholden to MacEwan. Kernahan met with the Committee both pre and post my meeting with the Committee. I was not provided with the evidence or arguments she presented, nor the opportunity to rebut that evidence or arguments. This seems to be in violation of the Policy C5051.

I hereby request all of the written and verbal evidence collected by the Committee, including evidence given by Dr. Higgins, Samantha Kernahan, and any other persons consulted by the Committee, including their identities and qualifications. I also request sufficient time to review this evidence and respond to the Committee prior to the Committee making a decision.

Dr. Higgins' investigation outside the Policy C5051

According to Dr. Higgins, two students, not in my class, met with Dr. Higgins in January 2011 and indicated that I may have plagiarized from Petrucci, another general chemistry textbook. The students provided no evidence whatsoever.

According to Policy C5051, Dr. Higgins should have directed the students to the Vice President Academic (VPA). Instead, Dr. Higgins made himself the complainant, but did not invoke the Policy until later in the process.

Dr. Higgins launched his own investigation, his 'private investigation'. On 01 February and with no prior notification that an issue had been brought to him, Dr. Higgins confronted me with the students' allegation. I explained that questions were adapted from Petrucci to maintain the same level of rigor between students using [redacted] and students using Petrucci. On 04 February 2011, Dr. Higgins required that I provide him with examples.

Dr. Higgins consulted with Pearson Education, the publisher of Petrucci. On 18 March, Dr. Higgins confronted me with 22 questions identified by Pearson Education, which Pearson Education had labelled as 'identical', 'slightly reworked', or 'similar' to questions in Petrucci. Dr. Higgins indicated that both he and Pearson Education believed the questions were plagiarized. Dr. Higgins gave me *three days to respond* to this allegation of plagiarism! Asked what the process would be, Dr. Higgins stated that he would determine if plagiarism occurred. Brian Pearson then stated that if plagiarism had occurred, MacEwan would move to terminate my employment.

The actions by Dr. Higgins violate C5051. According to s. 4.5.1, Dr. Higgins should have directed Pearson Education to the VPA or, at a minimum, taken all the allegations to the VPA himself. Policy C5051 appropriately separates the role of complainant, investigator, and arbiter; Dr. Higgins was the investigator and arbiter in his own investigation, contrary to University policy, and continues to assert himself as an investigator by applying his matrix to the questions.

While preparing a response, I became aware of policy C5051. I submitted my response to Dr. Higgins on 01 April and inquired with Brian Pearson regarding C5051. Brian Pearson indicated that it was Administrations prerogative if and when C5051 would be activated. I submitted a letter to the VPA inquiring why C5051 was not being applied (Appendix E). Dr. Higgins immediately stopped his investigation and informed me that he was 'activating C5051' and filing a complaint. It seems illogical that a Dean or any other administrator can choose when policies apply or not. At no time prior to my inquiry with the VPA did either Dr. Higgins or Brian Pearson even allude to C5051.

In his complaint under C5051, Dr. Higgins, while the complainant, continues to skew the investigation by developing a matrix for identifying plagiarism. Dr. Higgins' matrix is unvalidated and, if applied to questions from other textbooks, would erroneously conclude that plagiarism occurred. By adopting this matrix without question, the Investigation Committee has tainted its process and biased the process against me.

In summary, Dr. Higgins established an ad hoc process similar to that in section 4.5 of C5051, except that Dr. Higgins controlled all aspects of the process.

Dr. Higgins 'private investigation' has resulted in

- oppressive and intimidating meetings
- letters on my file
- a resignation package and strong suggestions for me to resign
- innumerable statements threatening my career

These are not the actions of an objective investigator; these are the actions of a malicious results-oriented process, with the intent leading to findings adverse against me.

In preparing these responses and preparing a formal harassment complaint, I identified several issues:

- Dr. Higgins complaint is unsigned, contrary to section 4.5.1
- Dr. Higgins minimizes his collaboration with Pearson Education in his complaint
- Dr. Higgins starts and ends his complaint with a *conclusion* of plagiarism, not an *allegation* of plagiarism
- Dr. Higgins states in his complaint that he shouldn't forward my 01 April 2011 document because it was submitted 'without prejudice', yet Dr. Higgins
    - includes an extensive summary of the arguments I presented
    - minimizes and dismisses many of the arguments I presented
    - extracts and uses images from my document without acknowledging the source(!)
- section 4.5.5.3 clearly separates the role of complainant and investigator, Dr. Higgins continues to act as an investigator with the development of an assessment own matrix and analyzed the questions using his untested, unvalidated matrix. His actions have biased the information presented to the Investigative Committee.

Conclusions

Overall, I suggest that the investigation improperly commenced against me by Dr. Higgins was initially flawed, and the flaws in the investigation have been magnified rather than cured by the process so far under Policy C5051. Dr. Higgins took an unpublished work-in-progress that has not been sanctioned or supported by MacEwan as scholarly work, and conducted an inappropriate and premature comparison. I am willing to revise the exercise questions in issue, prior to publication of the textbook.

Dr. Higgins' matrix is not valid and is fundamentally flawed in its construction. Dr. Higgins' matrix is biased to concluding that plagiarism has occurred because it fails to account for the expected commonalities in questions and because it fails to consider originality, common knowledge, creativity, established practices, and intent. Dr. Higgins' matrix is based on the simplistic definition of plagiarism. If applied to questions in other textbooks, his matrix would find numerous examples of plagiarism. If applied to assignments and exams, his matrix would find that most faculty are guilty of plagiarism. Distributing this matrix to the reviewers biased their perspectives and invalidates their responses. Dr. Higgins, with a Ph.D. in philosophy, does not have sufficient knowledge of copyright law to prepare an assessment matrix or the chemical expertise to assess chemistry questions himself.

The chemistry reviewers do not have sufficient knowledge of copyright law or sufficient information on intent or context to assess the questions. Supplying Dr. Higgins' matrix focussed these instructors onto the simplistic definition of plagiarism. Reviewers #2 and #3 applied this matrix without question. Reviewer #1 raised questions about the matrix and applicability to textbooks.

Laboratory manuals, course assignments, course exams are routinely adapted from other sources without citation. Siegel argues that *intent* is critical in determining whether plagiarism occurred, and intent was used by Reviewer #3 to explain why copying for course assignments is not plagiarism.

Pearson Education recognizes that copyright laws are complex and that plagiarism (copyright infringement) is not simply black and white. Pearson Education appears to have a double standard when it comes to assessing plagiarism, given their treatment of Dr. Hilts' workbooks.

Textbook development is not traditional research. The citation expectations for textbooks are very different than citation expectations for original research and analysis published in scientific journals.

Again, my intention was to maintain the same level of rigor between students using [redacted] and students using Petrucci and I took steps to change the questions to avoid plagiarism. Based on the information presented herein, including common practices in the chemistry textbook development community, the practices of academics creating assignments (as an example), the legal opinion submitted, and my stated intention. I request the Investigative Committee to find that

> [redacted] *actions are consistent with actions within the textbook development community; there is no evidence of plagiarism. We do recommend that* [redacted] *change the numerical data wherever possible to minimize the likelihood and inconvenience of future complaints.*

Since the finding of plagiarism is context dependent, where the same text should be cited in one context (a scholarly publication), but not another (a textbook), I am simply asking to be held to the same standards as other textbook authors.

Dr. Higgins actions prior to his complaint — his 'private investigation' — are contrary to Policy C5051 and MacEwan procedures, and contrary to policies D1100 (Respectful Workplace) and D1200 (Code of Conduct - Employees). I request the Investigative Committee require MacEwan to protect me and my scholarly activity from Dr. Higgins as per 4.5.5.9 of policy C5051.

I request the Investigative Committee collect and destroy all documents held by Dr. Higgins, MacEwan, and parties they enlisted. I request confirmation of this destruction.

Please contact me if you have any additional questions.

Thank-you,

[redacted]

Appendix A: Document from Pearson Education

Petrucci et al, *General Chemistry: Principles and Modern Applications*, 10e
Development Summary
Pearson Canada

Here is a summary of the steps taken during development and production to ensure the accuracy (as well as the suitability for instructors and students) of our 10th edition of Petrucci et al., *General Chemistry*. Please note that much of this information can be gleaned from the Acknowledgments section of the book (p. xxiii).

Development
During the development of this project, from May 2007 to December 2008, we conducted 3 main rounds of reviews. In all, we used a total of 46 instructors:
• 22 instructors in Canada (representing 14 universities and 4 colleges)
• 13 instructors in the U.S.A. (representing 10 universities, 2 colleges and 1 technical institute)
• 1 instructor in Finland (representing 1 university).

Only 30 of the 46 reviewers are identified in the Acknowledgment section because 16 of the reviewers preferred to remain anonymous. Anonymity for reviewing is something we take very seriously in order to elicit frank assessment of our materials.

We began with a review of the 9th edition. For the subsequent 2 rounds of review, we had the drafts of each chapter for the 10th edition examined by a minimum of 3 reviewers. Some chapters were examined by as many as 12 reviewers.

Production
During production of the book, from March 2009 to February 2010, we had each chapter carefully copy edited. Then, after we designed and formatted the pages (called first pass), we proofread each page. And our authors simultaneously proofread the material. While the proofreading was being done, we had a technical checker examine each chapter to check for accuracy. We used a total of 6 technical checkers, and they are identified in the Acknowledgments section of the book. We then collated all the corrections and produced another set of pages (called second pass). Because of the complexity of the project, we then took the extraordinary step of having Ralph Petrucci check every single page of 2nd pass. Only after we corrected all the errors he found did we proceed to press.

Copyright Infringement

To avoid copyright infringement, we start by educating our authors about what material needs a permission release from the copyright holder and what material does not. The laws in Canada are somewhat different from those in the U.S. And the Canadian laws are currently being revised.

The copyright laws are not as clear as the general public thinks. And with the increase in digital materials, many people erroneously think that materials on the Web are copyright free.

As we proceed through development, we have our authors compile lists of those borrowed items for which written permission releases will be required from the copyright holders. And we insist that that they cite all sources, even when permission to reuse the material is not required. When we start production, we have our copy editors check for all instances of borrowed material to check that we have a complete listing. We will not proceed very far into production without all the necessary permission releases in hand.

We have caught almost all instances of copyright infringement before publication. In almost all cases, the infringement by our authors is inadvertent – a result of failing to understand the copyright laws. That is why we place such an emphasis on educating them at the outset.

Deliberate plagiarism is very rare. We have caught it in the past by noticing a change in writing style in certain passages.

Appendix B: Jon Siegel's article

LAW PROF on the LOOSE

A Law Professor Looks at the News, the World, and Life

About Me

JON SIEGEL

THURSDAY, FEBRUARY 18, 2010

Plagiarism's Defenses

Jack Shafer of Slate magazine has been on a campaign against plagiarists for a long time -- and a good campaign it is, too. I don't like plagiarists, either. I once nailed a GW student for outrageous plagiarism in our school newspaper (he had copied his entire column from a website).

But I think Shafer goes a little too far in his recent derisive analysis of plagiarists' excuses. Shafer provides a list of excuses and explanations that plagiarists commonly give -- that they lifted only a little, that the material lifted was so bland and boilerplate that it doesn't count, and so on.

Shafer is right that plagiarists typically come out with the same tired excuses every time. But where I think he goes too far is that Shafer seems to believe that plagiarism is what the law would call a "strict liability" offense, whereas I would say that, like most offenses, plagiarism has an *actus reus* (bad act) and a *mens rea* (required mental state).

Thus, excuse 7 on Shafer's list is "He didn't really plagiarize because the lifting wasn't intentional." Shafer seems to think that this excuse, even if proved, wouldn't constitute a defense (he describes his excuse list as "evasions" that "allow the plagiarist to displace the key question of whether his copy was adequately sourced with the more delectable conversation about the plagiarist's mental state").

I think it would. Suppose it really happened (as many plagiarists claim) that a writer accidentally got confused about who had written a sentence and included in his finished work a sentence lifted from somebody else (because, for example, he kept his research notes and his original work in the same file). That's bad, negligent work, but in the law we usually distinguish between negligent and intentional wrongdoing. If you got confused and accidently took someone else's *physical* property, believing it to be your own, you'd have to give it back, but you wouldn't have committed the crime of theft. A similar rule should apply to literary property.

One might argue that every writer has an absolute duty to avoid copying and that any violation of this duty is plagiarism, no matter how unintentional. But I would say that goes too far. We should distinguish between intentional and unintentional copying.

Therefore, I would say several other excuses on Shafer's lists aren't as irrelevant as he thinks either. They go to the credibility of the claim that copying was unintentional. If the text copied was bland and boilerplate, if the writer was working late, if the writer lifted only a little, all of these things are relevant to the likelihood that the copying was really unintentional.

So I wouldn't dismiss the excuses on Shafer's list as quickly as he does. In my view, the problem with some of these excuses is not that they wouldn't,

Professor of Law, George Washington University Law School. Home Page: www.jsiegel.net

View my complete profile

even if proved, constitute real defenses, but that they are so often utterly implausible. A plagiarist says, "sorry, I kept my research notes and my own writing in the same file and I got confused about which was which," but the amount copied is so great that it's not remotely plausible that it happened by accident. The plagiarist is just lying. In my experience, the amount copied is usually a good guide to plausibility (and searching the accused's other writing can help, because most plagiarists are serial offenders).

If you drive negligently and kill someone, that's obviously a bad thing, but it's not nearly as bad as if you deliberately run someone down with your car. One is murder, the other not. Mental state matters.

I know it makes plagiarism cases messier if you have to worry about the accused's mental state. It would be simpler if we could just compare the texts, decide if too much was copied, and be done. But that's true in the law too. It would be simpler if we could just decide whether the defendant killed someone and not listen to his explanation of how it happened by accident. But justice demands that we distinguish negligent from intentional misbehavior.

Posted by Jon Siegel at 7:18 AM

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- sports (17)

Appendix C: Legal opinion

FMC LAW

Fraser Milner Casgrain LLP
2900 Manulife Place
10180 - 101 Street
Edmonton, AB, Canada T5J 3V5

MAIN 780 423 7100
FAX 780 423 7276

MEMO

TO [redacted]

FROM Rob McDonald

DIRECT 780 423 7305

DATE September 2, 2011

SUBJECT Legal Opinion Regarding Copyright Infringement - [redacted]

I have been asked to provide a legal opinion as to whether the inclusion of certain questions that appear in [redacted] textbook [redacted] constitutes an infringement of Copyright that may exist in materials contained in another chemistry textbook, *General Chemistry*, (9th Edition) by Petrucci.

There are seven questions in [redacted] textbook which are referred to in Dr. Higgins complaint and which are reproduced in his May 30, 2011 memo to Janet Paterson-Weir. These are questions numbered 26, 36, 42, 44, 46, 48 and 93 (the "[redacted]Questions"). My opinion relates to these questions, and the questions referenced from the Petrucci textbook numbered 43, 15, 32, 37, 40, 36 and 105 (the "Petrucci Questions").

First, copyright in Canada is governed by *the Copyright Act of Canada,* RSC 1985, c. C-42, as amended, (the "*Act*"). No copyright subsists in any work unless the requirements of the *Act* are met. Section 5 of the *Act* states, inter alia, that copyright subsists in every original literary work. The Petrucci textbook is a literary work, and the Petrucci Questions form part of that literary work. However, there is not sufficient evidence from which to draw any conclusions as to whether the Petrucci Questions are original. Originality is a requirement of the *Act* and no copyright subsists in any work that does not satisfy the originality requirement. For a work to be original, it cannot be a mere copy of another work, and there must be an exercise of skill and judgment for a work to be original.

Hughes on *Copyright and Industrial Design* (Butterworth's 2011, page 341) states that

> "The Court may examine the degree of skill, judgment or labour exercised in the creation of a work which, if minimal in the context of the overall arrangement, could be insufficient to be original enough to require a copyright, particularly where what is involved is a common place arrangement of non-copyright material. The question in each case

> is factual, depending on the form of expression used: whether simple facts or data are presented or whether more is done to create an individualistic form of expression".

It should be noted that more than one original work might be created by two different authors working independently and using much the same source material, which may result in very similar works being created. In these cases, despite their similarities, each work would be considered original. The case law provides that a minor variation of another work may itself possess copyright (Central Art Services Inc. v. Steinberge Inc., (1987), 12 CIPR 25 (Quebec SC), as quoted in Hughes on *Copyright and Industrial Design*.

With respect to the facts at hand, I cannot determine if copyright subsists in the Petrucci Questions as there is no evidence as to whether the Petrucci Questions are original or if they were copied from another work. or derived from a common source There can be no copyright infringement of a literary work unless it can be determined conclusively that the originality requirement has been met.

If I were to assume for the sake of my analysis that the Petrucci Questions are original, it must then be determined whether copyright subsists in the Petrucci Questions apart from the Petrucci textbook. The work created by Petrucci is the Petrucci textbook as a whole – it is improper to consider each sentence, paragraph, chapter or question as a separate literary work in which copyright subsists. Thus, to analyse whether there has been a copyright infringement of the Petrucci Questions one must consider the Petrucci textbook as a whole and determine whether copyright in the Petrucci textbook has been infringed by the reproduction of the whole or a substantial part of the textbook namely, the Petrucci Questions. In this case, the only allegation relates to seven questions from the Petrucci textbook and there is no suggestion that the whole of the Petrucci textbook has been reproduced. Thus, the proper question in law is whether the Jensen Questions constitute an infringement of the Petrucci textbook.

The *Act* states that it is an infringement of copyright for any person to reproduce a work or any substantial part thereof (Section 27 and 3). Clearly in these facts, the entirety of the Petrucci textbook is not reproduced. The legal question is therefore whether a substantial part of the Petrucci text has been reproduced.

Some general copyright principles are important to consider as follows: Copyright exists only in the expression of ideas, and not in the ideas themselves. Mere similarity is insufficient to conclude that a work is copied from another. General similarity of two works based on a common pool of ideas does not give rise to a finding of copyright infringement. Substantial similarity of a substantial part of a work must be found in order to give rise to copyright infringement – unless both criteria can be proved, there is no copyright infringement.

Whether a substantial part of work has been reproduced is based upon a test which considers both the quantity of the matter reproduced, as well as the quality of the matter reproduced. On

a quantitative basis, it is my opinion that the [redacted] Questions do not constitute a substantial part of the Petrucci text. The [redacted] Questions constitute approximately seven out of 500 total questions in the Jensen text, and the corresponding Petrucci Questions are similarly a very small quantitative portion of the entire Petrucci text. In considering the qualitative aspect of the [redacted] Questions as compared to the Petrucci text and the Petrucci Questions, I am also of the opinion that a substantial part of the Petrucci text has not been reproduced. In some cases the copying of a few pages of a lengthy book can constitute copyright infringement, for example where those few pages contain a summary of the book or contain a particularly novel or unique feature or format. However, those cases also suggest that the use of common words and short phrases do not constitute a substantial taking. (CCH Canadian Ltd. v. Law Society of Upper Canada , [1999] FCJ No. 690, 18 CPR (4) 129).

Conclusion:

A review of the facts in this matter leads me to the conclusion that the [redacted] Questions do not constitute a copyright infringement of the Petrucci textbook. This is first due to the fact that in comparing two works, the works must be considered as a whole and not broken down into their component parts. There is no reproduction of the whole or a substantial portion of the Petrucci textbook by virtue of the [redacted] Questions. While there are certainly similarities between the [redacted] Questions and the Petrucci Questions, the Petrucci Questions form an insubstantial portion of the copyright work as a whole. Alternatively, even if copyright subsisted in the individual Petrucci Questions separate and apart from the Petrucci textbook, there is no evidence as to the Petrucci Questions being original and copyright infringement cannot be found without evidence of originality. Further, a comparison of the [redacted] Questions and the Petrucci Questions show that one is not a mere copy of the other. It is not copyright infringement to draw from a common pool of ideas and knowledge, even if doing so results in very similar works. A first year textbook is the very type of work in which one would expect to see similarities due to the introductory nature of the textbook and the common pool of ideas and knowledge being drawn upon. The table used by Dr. Higgin's in his May 30, 2011 memo is of little value in assessing copyright infringement as it breaks each question down into several small components and purports to assess a level of similarity for each component. This approach has been rejected by the Courts in Canada as they have stated that in assessing copyright infringement, one must view the works as a whole.

RDM:rstg

Appendix D: Questions identified by Pearson Education

15 March

Sources: [redacted] - on-line; Petrucci - custom edition for MacEwan based on 9th edition

1. Questions in [redacted] Identical, or slightly re-worked, to questions in Petrucci

[redacted] page	number		Petrucci page	number
403	26	See	217	43*
408	82	See	216	37
567	13	See	655	7
568	23	See	659	57 *
568	25	See	659	58
568	26	See	661	94
568	27	See	658	51
569	36	See	655	15
570	42	See	656	32
570	46	See	657	40
570	48	See	657	36 *
570	49	See	658	45 *
571	50	See	659	64

made by publisher
↳ bios
↳ obituari
↳ copyright by Petrucci?

"grave" concerns" - Higgins
reviewed 5 chapters

2. Questions in [redacted] "similar" to questions in Petrucci

[redacted] page	number		Petrucci page	Number
35	7		30	76 *
36	22		30	74
409	93		221	105
567	20		655	9
569	38		656	29
569	40		656	30
570	41		656	31
570	43		657	35
570	44		657	37

"similar" = similar question with similar wording but different numbers; similar question with slightly different wording and numbers; attached are some hard copies of four of these examples which, in the table above, are marked with an asterisk

3. Questions arising:
   a) do these examples point to plagiarism; if Pearson Publishing extended the search beyond five chapters, would there be more similar instances; what would be the result if other general texts were substituted for Petrucci?
   b) is this method of developing questions acceptable?

initial respond by 18 March ← 3 days!
They had document for 6 wks
now must respond by 01 Apr.

Appendix E: Letter to VPA re application of policy C5051

[redacted]

Chemistry, Grant MacEwan University
[redacted]10700 - 104th Avenue
Edmonton AB T5J 4S2

31 March 2011

Provost and Executive Vice-President Academic
Grant MacEwan University

Dr. Janet Paterson-Weir

Re: Policy C5051 (Code of Conduct for Integrity in Research and Scholarly Activity)

You are likely aware of the prolonged and escalating affairs between Dr. Higgins and myself. Recently, one of my colleagues brought policy C5051 (Code of Conduct for Integrity in Research and Scholarly Activity) to my attention and wondered why this process was not being followed. After reviewing C5051, I wonder the same thing. Policy C5051 appears to be the appropriate procedure for at least two of the major issues.

The development of the [redacted] textbook has been my scholarly activity project since 2005. The development has spawned many small research projects and I have attended, presented, and hosted symposia at many conferences on both the textbook and instructional material development.

1. During summer 2010, I employed several students to assist with the development of [redacted] Because of the nature of their work, I entered into IP sharing agreements with these students. In October 2010, Dr. Higgins requested a copy of these agreements. In January 2011, Dr. Higgins informed me that the agreements were unacceptable, that the IP rights still resided with the students, and that he would "proceed in accordance with these principles". I am concerned his statement is a threat. Since these IP sharing agreements were made as part of a scholarly activity project, and since Dr. Higgins evidently took exception to these agreements, why didn't Dr. Higgins use the procedure in C5051 to address this issue? Please note that no student has expressed concerns regarding the IP agreements.
2. In January 2011, *students not in my class* contacted Dr. Higgins and expressed concern that [redacted] was plagiarizing from *General Chemistry*, by Petrucci (the textbook used at MacEwan). The students provided no evidence to Dr. Higgins. Dr. Higgins admitted that he did not investigate this allegation, rather that he wanted to hear from me directly. I stated that I have occasionally used chemical concepts from Petrucci questions, but rewrite the question for [redacted] Higgins requested I provide him with copies of several questions from [redacted] and *General Chemistry*. In March, I discover that Dr. Higgins provided my document to Pearson Education (the publisher of *General Chemistry*) and asked them to assess it. The publisher identified questions that were 'slightly re-worked'

and 'similar' to questions in [redacted] and labeled them all 'plagiarism'. Dr. Higgins initially gave me three days to respond, but was asked by members of the Faculty Association Executive to extend the response time. Two weeks was agreed to. Dr. Higgins has stated that he will determine if plagiarism has occurred. Brian Pearson has stated that if plagiarism has occurred, MacEwan will move to terminate my employment. These statements and actions appear inconsistent with the procedure in C5051. Again, why aren't Dr. Higgins and Brian Pearson using the procedure in C5051 to address this issue?

In these and related issues, Dr. Higgins has assumed the role of complainant, investigator, and arbiter. This has severely strained my relationship with Dr. Higgins. Dr. Higgins appears to not want to consider my arguments. For example, during a meeting with Dr. Higgins in October 2010 regarding the development of [redacted] I commented that the development of [redacted] was part of my scholarly activity and permitted as academic freedom. At this point, Dr. Higgins raised his voice, sharpened his tone, and stated, 'anyone attempting to imply that academic freedom has any place in this discussion is blatantly introducing a red herring!' (Dr. Higgins did not dispute this in the distributed meeting summary.) Unfortunately, our relationship has continued to deteriorate over the subsequent months.

Both Dr. Higgins and Brian Pearson should have known of policy C5051 and the processes therein. Simply, I would like to know why policy C5051 was not followed and what options exist to have what has transpired reviewed by an independent, impartial arbiter.

As you might gather, these and related issues have made the 2010/11 academic year very stressful for me. As early as December 2010, I expressed this openly. I started the Winter 2011 term planning to not ripple the surface. However, the issues escalated around me. I completed Winter 2011 with ever-increasing stress and anxiety. I don't know how I survived this term, but I must say that I am completing it because of my commitment to students. The above and related issues, the stress, and the anxiety have taken a significant toll on my mental health, my physical health, my relationship with my colleagues, and my relationship with my family.

Thank-you,

[redacted]

cc Dr. David Higgins, Arts and Science Dean
Mr. Brian Pearson, Human Resources Director
MacEwan Faculty Association
personal file