

Factors that impact students' motivation in an online course: Using the MUSIC model of academic motivation

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Abstract: The aim of this study was to examine the factors that motivate students in large online courses. Specifically, the purposes were: (a) to document how highly men and women rated motivational beliefs in a large online course; (b) to determine why men and women rated their motivational beliefs the way in which they did; and (c) to provide recommendations for how to intentionally design online courses to motivate students. Using a mixed methods design, we used a questionnaire to assess undergraduate students' perceptions of the components of the MUSIC Model of Academic Motivation (i.e., eMpowerment, Usefulness, Success, Interest, and Caring) in an online course and their suggestions for changing the course. Overall, men and women provided high ratings for their motivational beliefs in the course. The suggestions students provided for changing the course were similar for both sexes and revealed a preference for instructional strategies that were consistent with the tenets of the MUSIC Model of Academic Motivation, including: offering more and/or varied assessments, providing interactive activities, including videos and/or video lectures, and offering face-to-face meetings. Other suggestions for improving the online course design are provided.

Keywords: motivation, MUSIC Model of Academic Motivation, online teaching, engagement, student perceptions

I. Introduction.

Although online courses are becoming more prevalent in higher education, the literature related to student motivation in online courses is only in its nascent stages (e.g., Dixson, 2010). Instructors and instructional designers of online courses must consider how engaging students in online course content might be similar to, yet possibly different from, face-to-face courses. In one study of a course that was taught face-to-face in one semester and then taught online in another semester, the researcher found that the students in the online section of the course provided higher ratings for several motivational beliefs than the students in the face-to-face section of the course (Jones, 2010a). Although this study documented differences in students' beliefs, it did not explore *why* students rated their motivational beliefs higher in the online section than in the face-to-face section of the course. The aim of the present study was to address this issue by examining *why* students in online courses might provide higher ratings for motivational beliefs than students in face-to-face courses. Specifically, the purposes of the present study were: (a) to document how highly men and women rated motivational beliefs in a

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large online course, (b) to determine why men and women rated their motivational beliefs the way in which they did, and (c) to provide recommendations for how to intentionally design online courses to motivate students.

A. Background.

Motivation is a varied construct that can be examined through the lens of many theories and principles. To help instructors design courses that engage students in learning, Jones (2009) developed the MUSIC Model of Academic Motivation, which consists of five components that have been derived from research and theory as ones that are critical to student engagement in academic settings: empowerment, usefulness, success, interest, and caring. The name of the model, MUSIC, is an acronym based on the second letter of “eMpowerment” and the first letter of the other four motivational components. The MUSIC model has been used as a framework for instructors in designing instruction (Jones, 2009; Jones, 2010b) and for researchers in understanding the impact of instruction on students’ motivation (Jones, 2010a; Jones, Ruff, Snyder, Petrich, & Koonce, 2012). Interestingly, Jones (2010a) documented that men and women’s ratings differed for some of the MUSIC components in an online course.

The first component of the MUSIC model, empowerment, refers to the amount of perceived control that students have over their interactions with their learning environment. Instructors can empower students by supporting their autonomy, such as by providing them with choices and the ability to make decisions. In online courses, empowerment has been shown to be a predictor of undergraduate students’ effort, course ratings, and instructor ratings (Jones, 2010a).

The usefulness component of the MUSIC model involves the extent to which students believe that the coursework (e.g., assignments, activities, readings) is useful for their short- or long-term goals as their motivation is affected by their perceptions of the relevance of what they are learning for the future (De Volder & Lens, 1982; Kauffman & Husman, 2004; Tabachnick, Miller, & Relyea, 2008). One implication is that instructors need to ensure that students understand the connection between the coursework and their goals. Students in an online course have been shown to access examples and exercises more frequently when they were provided with information about the usefulness of the material (Sansone, Fraughton, Zachary, Butner, & Heiner, 2011).

For the third MUSIC component, success, instructors need to ensure that students believe that they can succeed if they have the required knowledge and skills and put forth the appropriate effort. Instructors can foster students’ success beliefs in a variety of ways, including making the course expectations clear, challenging students at an appropriate level, and providing students with feedback regularly. For example, students’ perceptions of their ability to succeed in using technology in online courses have been shown to be related to their motivation (Kim & Frick, 2011).

The interest MUSIC component includes two theoretically distinct constructs: situational interest and individual interest (Hidi & Renninger, 2006). Situational interest, which is akin to curiosity, refers to immediate, short-term enjoyment of instructional activities, whereas individual interest refers to internally activated personal values about a topic that are more enduring. Instructors can create situational interest by designing instruction and coursework that incorporates novelty, social interaction, games, humor, surprising information, and/or that engenders emotions (Bergin, 1999). Instructors can develop students’ individual interest in a

topic by providing opportunities for them to become more knowledgeable about the topic and by helping them understand its value (Hidi & Renninger, 2006). Studies of undergraduate and graduate students in online courses have documented that when instructors make the online course content more useful and relevant to students' interests, students' motivation increases (Kim & Frick, 2011).

The underlying principle of the caring MUSIC component is that all humans have a need to establish and sustain caring interpersonal relationships (Baumeister & Leary, 1995; Ryan & Deci, 2000). The caring component can be divided into two components: academic caring and personal caring (Johnson, Johnson, & Anderson, 1983). Academic caring specifies that instructors need to demonstrate to students that they care about whether or not they successfully meet the course objectives. Personal caring involves the idea that students need to perceive that their instructor cares about their welfare. Having an online presence in online courses, providing students with well-conceived immediate feedback, supporting students' critical and independent perspectives, offering invitations for personal discussions and interactions, and encouraging students to engage with one another in learning communities are all strategies for communicating a sense of caring in online courses that can lead to increased student motivation (Baker, 2010; Weiss, 2000).

B. Research Questions.

Because Jones (2010a) documented differences between men and women for some of the MUSIC model components, we designed the present study to examine not only why students have certain motivational beliefs in online courses, but also whether these beliefs vary by gender. We addressed the following two research questions in this study.

1. How highly do men and women rate each of the components of the MUSIC model?
2. What online course characteristics do men and women perceive as ones that could be changed to increase their perceptions of the MUSIC components?

II. Methodology.

A. Design.

We implemented a partially mixed, concurrent design whereby the quantitative and qualitative components have approximately equal status (Onwuegbuzie, & Collins, 2007). This study includes some of Newman, Ridenour, Newman, and DeMarco's (2003) goals for conducting research, such as: *understanding a complex phenomena* (i.e., how course characteristics affect student motivation), *adding to the knowledge base* in the areas of motivation and the scholarship of teaching and learning, and *informing constituencies* (e.g., educators, instructional designers) of the findings.

B. Participants.

Participants in this study included 609 of the 651 undergraduates (a 93.5% response rate) enrolled in a fully online "Personal Health" course at a large, public university in the United States. About half of the participants were women ($n = 303$; 49.8%) and about half were men ($n = 306$; 50.2%). The majority of students were White or Caucasian (not Hispanic; $n = 466$;

76.5%), whereas others self-reported their race/ethnicity as Asian or Pacific Islander ($n = 73$; 12.0%), Black or African American ($n = 30$; 4.9%), Other ($n = 21$; 3.4%), Hispanic ($n = 17$; 2.8%), or Native American ($n = 2$; 0.3%). The reported academic level of the participants reflected students at their Freshman ($n = 33$; 5.4%), Sophomore ($n = 109$; 17.9%), Junior ($n = 187$; 30.7%), and Senior ($n = 280$; 46.0%) years.

C. Course Description.

The syllabus description of the Personal Health course stated, “This on-line course is designed to provide students with health information based on scientific principles that will enable him/her to make sound decisions regarding his/her health. The major emphasis is wellness and the importance of individual responsibility for health related matters through health promotion efforts.” The course included material from thirteen chapters of a textbook covering topics such as wellness, mental health, substance abuse, alcohol, tobacco, cardiovascular health, cancer, communicable diseases, consumer health, nutrition, fitness, and human sexuality. Students were assessed with four exams that were weighted equally toward students’ final course grade. The exams included questions in the format of true/false and multiple-choice and assessed content material from the textbook. To prepare for the exams, students read the textbook and studied questions provided by the instructor that were similar to the questions on the exams. Students were also required to attend one workshop at the campus health center or to complete five online self-assessments. Final grades were calculated based on the following percentages: the exams accounted for 84.5%, the workshop or online assessments accounted for 14.1%, and a questionnaire about the course accounted for 1.4% of students’ final grade. The course was not a requirement for any of the students as part of their university coursework.

D. Measures.

Participants completed a questionnaire that contained items from previously validated instruments, as well as items written by the authors. The instruments that we used were the same as those presented in Jones (2010a). Students rated each item on a 7-point Likert-type scale with descriptors at each point; one example item of each is presented here. The instruments measured seven constructs: five items measured empowerment ($\alpha = 0.93$; “My instructor listens to how I would like to do things.”), three items measured usefulness ($\alpha = 0.95$; “In general, the material in this course is useful to me.”), four items measured success ($\alpha = 0.93$; “In this course, I feel that I am able to perform well.”), three items measured situational interest ($\alpha = 0.90$; “In general, how interested are you in learning the content material in this course?”), three items measured individual interest ($\alpha = 0.84$; “Learning the course content material is very valuable to me.”), four items measured academic caring ($\alpha = 0.93$; “I believe that my instructor cares about how much I learn.”), and four items measured personal caring ($\alpha = 0.92$; “I believe that my instructor really cares about me as a person.”). We found the reliability estimates for the scales to be acceptable.

As a measure of the perceived quality of the course, students were asked on a 7-point Likert-type scale with descriptors at each point (1 = *terrible*; 7 = *excellent*): “My overall rating of the course is:” Open-ended items were written by the authors to gain further insight into those aspects of the course that contributed to or detracted from the MUSIC components. The exact wording of the eight open-ended items is provided in the “Results” section.

E. Procedures.

Participants were introduced to the questionnaire through the course syllabus, which was provided at the start of the semester. At three weeks prior to the availability of the questionnaire and again at one week prior to the availability of the questionnaire, the course instructor reminded the participants via email that they needed to complete the questionnaire assignment when it became available. A link to the online questionnaire was made available to the participants during the ninth week of a 16-week semester via email notification and on the course website.

F. Data Analysis.

We used SPSS 12.0 to analyze students' responses to the Likert-type and descriptive items on the questionnaire. To compare the differences between men and women on the MUSIC model components, we conducted *t*-tests and set the alpha level at 0.01 to address the problem of multiple comparisons.

For analysis of the open-ended items, we used a thematic whole text analysis, which was informed by the analytic procedure developed by Glaser and Strauss (1967; also see Strauss & Corbin, 1998). An initial coding scheme for the item responses was developed after the authors read all of the responses, identified themes, and created coding categories within the themes. Once codes were established for all open-ended items, the authors independently coded all 609 potential responses for each question. Their responses were compared and the disagreements were noted. Because it was possible for participants to provide a response that warranted more than one code, the inter-rater reliability was computed using the percentage of responses, not respondents. The inter-rater reliability ranged from 91% to 98% for the open-ended items.

III. Results.

A. Research Question 1: Ratings for MUSIC Model Components.

The first research question asked: How highly do men and women rate each of the components of the MUSIC model? To address this question, we computed the mean scores and conducted *t*-tests to determine whether there were differences between females and males in their ratings. The means, standard deviations, and results of the *t*-tests are presented in Table 1.

Both men and women rated all of the variables highly in that all of the mean values were greater than 5.0 on a 7-point Likert-type scale. Women provided statistically higher ratings than men for usefulness, success, situational interest, and individual interest. We found no statistical differences between men and women for empowerment, academic caring, or personal caring. Men and women's overall rating of the course was similar ($t = 1.86$, $df = 607$, $p = .06$). The average course ratings were slightly above 6 on the 7-point scale ($M = 6.11$, $SD = 0.97$ for men; $M = 6.26$, $SD = 1.02$ for women), indicating that their overall rating of the course was between *very good* (a "6" on the scale) and *excellent* (a "7" on the scale).

Table 1. Means, standard deviations, and *t*-test results of students’ ratings of the MUSIC model components by sex.

Variable	Females ^a <i>M (SD)</i>	Males ^b <i>M (SD)</i>	Mean difference	<i>t</i>	<i>df</i>	<i>d</i>
Empowerment	5.46 (1.04)	5.25 (1.19)	0.21	2.32	597.9	0.19
Usefulness	6.02 (0.96)	5.81 (1.04)	0.21	2.63**	607.0	0.21
Success	6.45 (0.64)	6.29 (0.76)	0.16	2.78**	591.2	0.23
Situational interest	5.93 (0.88)	5.67 (0.96)	0.26	3.47***	603.4	0.28
Individual interest	6.20 (0.71)	5.96 (0.84)	0.23	3.70***	591.2	0.31
Academic caring	6.15 (1.03)	6.00 (1.02)	0.15	1.85	607.0	0.15
Personal caring	5.30 (1.54)	5.36 (1.46)	-0.05	-0.45	607.0	0.04

Note: All items were rated on a 7-point Likert-type scale.

** $p \leq 0.01$; *** $p \leq 0.001$

^a $n = 303$; ^b $n = 306$

B. Research Question 2: Course Characteristics Related to MUSIC Components.

Our second research question asked: What online course characteristics do men and women perceive as ones that could be changed to increase their perceptions of the MUSIC components? Participants were asked a series of open-ended questions for which they provided information about those aspects of the course that could be changed to enhance their motivation. Responses to these questions are summarized in the following sections.

Empowerment. We asked participants the following question related to empowerment: “What could be changed in this course to make you feel you had more control over your learning?” We received 614 responses (310 from males and 314 from females); the results are presented in Table 2. Over half of the students reported that nothing could be changed to give them more control and 16.3% of the responses indicated that they already had sufficient control. The other responses reflect more varied suggestions on how the course could be changed to give students more control over their learning, including eliminating exam deadlines, requiring more or varied assessment opportunities, offering face-to-face meetings with the professor, providing opportunities for interactive activities with other students in the class, finding ways to include videos and video lectures into the course, and incorporating more workshop opportunities (see Table 2 for the complete list).

To determine which aspects of the course gave students a sense of control, we asked them: “Which aspects of this course give you control over this course?” We received 983 responses (458 from males and 525 from females), which are summarized in Table 3. Of the overall responses, 18.1% indicated that the availability of practice questions to prepare for the course exams gave them control over the course; 16.4% indicated that the ability to work at their own pace/teach themselves gave them control over the course; 14.6% of the overall responses indicated that “everything” about the course gave them control over the course; and 12.7% of the responses indicated that the choice to either read the textbook or answer the practice questions gave them control over the course. Varied responses comprised 34.6% of the overall data for this question and indicated that the online format and its subsequent flexibility for testing and completing assigned work, the correspondence with the instructor, and the choice to attend workshops outside of class contributed to their sense of control in the course.

Table 2. Things that could be changed to give students more control over their learning.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Nothing	50.0	58.9	54.4
I have sufficient control	17.4	15.1	16.3
Irrelevant response that did not address the question	9.4	6.6	8.0
No exam deadlines except one at the end of the course	4.8	4.3	4.6
N/A	2.6	4.3	3.4
Require more or varied assessments	3.5	2.6	3.1
Allow for meetings with the professor	3.3	0.3	1.8
Make the course more interactive	1.6	1.3	1.5
Videos or lecture videos	1.9	1.0	1.5
More workshops	1.6	1.0	1.3

Note: Inter-rater reliability = 94%; responses with less than 1.0% overall are not shown.

^a310 coded responses, ^b314 coded responses, ^c624 coded responses

Table 3. Aspects of the course that give students control over the course.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Availability of practice questions or tests	17.5	20.2	18.9
Ability to work at my own pace or teach myself	17.5	15.4	16.5
Everything	15.7	13.4	14.6
Choice to read text or answer practice questions	12.4	13.4	12.9
Online course or online tests	9.6	6.7	8.2
Where or when to take multiple choice exams	7.4	7.4	7.4
Correspondence with the instructor	6.1	8.0	7.1
Plenty of time to take tests or flexible deadlines	3.9	5.9	4.9
Attending the workshops	2.8	3.1	3.0
Irrelevant response that did not address the question	3.3	1.3	2.3
Being able to finish early or get ahead in class	1.6	2.1	1.9
Choice between tests or workshops	1.1	1.5	1.3

Note: Inter-rater reliability = 91%; responses with less than 1.0% overall are not shown.

^a458 coded responses, ^b525 coded responses, ^c983 coded responses

Usefulness. We asked students: “What could be changed in this course to make it more useful to you?” We received 627 responses (317 responses from males and 310 from females), which are summarized in Table 4. Over half of the responses reported that there was nothing that could be changed to make the course more useful to them (52.3%); however, 39.2% of the responses indicate that there are methods and practices that could be changed to make the course more useful. Although the suggestions for making the course more useful represented a variety of ideas (as shown in Table 4), 5.6% of the overall responses indicated that providing more interactive, group activities throughout the term would make the course more useful, 4.8% of the overall responses indicated that requiring more workshops would make the course more useful, and 3.7% of the overall responses indicated that requiring more or varied assessments would make the course more useful.

Success. We asked students, “What could be changed in this course to help you feel you could be more successful in it?” and we received 620 responses (309 from males and 311 from females). The results are presented in Table 5. Over two-thirds of the students reported that nothing could be changed in the course to make them feel more successful in it. Although varied

and fewer in number, the remaining responses indicated that students believed that they would be more successful if the course required more, varied types of assessments; if the course was more interactive; if videos and video lectures were included among the instructional materials for the course; if improvements were made to the textbook, course website, and study guides; if more workshops were made available; and if other resources were provided to help students better prepare for exams (see Table 5 for the complete list).

Table 4. Things that could be changed in the course to make it more useful.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Nothing	51.1	53.5	52.3
N/A or irrelevant response	9.5	7.4	8.5
Provide more interactive, group activities	5.7	5.5	5.6
Require more workshops	4.4	5.2	4.8
Require more or varied assessments	3.8	3.5	3.7
Use a different textbook	3.5	1.3	2.4
Provide a more specific content focus	1.9	2.6	2.2
Do not use a textbook	1.6	2.6	2.1
Provide online tutorials or lectures	2.8	1.3	2.1
Make it a traditional class that is not online	2.2	1.9	2.1
Give shorter, more frequent exams	0.6	3.2	1.9
Use videos to share information	2.8	0.6	1.8
Post presentation slides online	0.9	2.3	1.6
Focus more on current news or health issues	1.6	1.3	1.4
Provide fewer multiple choice questions	1.6	1.0	1.3
Make the content more relevant	1.6	1.0	1.3
Send less email	0.9	1.6	1.3
Use the course management system for everything	1.6	0.6	1.1
Offer more or varied practice questions	0.6	1.3	1.0
Reveal all practice questions at once	0.3	1.6	1.0

Note: Inter-rater reliability = 94%; responses with less than 1.0% overall are not shown.

^a317 coded responses, ^b310 coded responses, ^c627 coded responses

Table 5. Things that could be changed in the course to help students feel more successful.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Nothing	68.0	69.1	68.6
Irrelevant response that did not address the question	5.2	3.6	4.4
N/A	3.6	5.5	4.6
Require more or varied assessments	2.6	4.0	3.3
Make the course more interactive	2.3	3.6	3.0
Videos or lecture videos	2.8	2.3	2.6
Improved textbook	2.6	0.6	1.6
More practice questions after each chapter	1.3	1.6	1.5
Weekly online lectures	2.3	0.6	1.5
Improved study guides	1.0	1.6	1.3
More Workshops	1.0	1.6	1.3
Improve the website	1.0	1.6	1.3
Use other methods to help prep for exams	1.0	1.3	1.2

Note: Inter-rater reliability = 97%; responses with less than 1.0% overall are not shown.

^a309 coded responses, ^b311 coded responses, ^c620 coded responses

Interest. We asked students “What could be changed in this course to make it more interesting and enjoyable?” and we received 643 responses (321 from males and 322 from females). Forty percent of the responses indicated that nothing could be changed to make the course more interesting and enjoyable; however, nearly 52% of the responses suggested a variety of changes. The most predominant suggestions for making the course more interesting and enjoyable included showing videos or including images, and making the class more interactive by including games and discussion forums. Other responses indicated that requiring more workshops, incorporating more and varied assessments, and maintaining a more specific content focus would make the course more interesting and enjoyable, as would making improvements to the textbook and providing additional instructional materials beyond the textbook (see Table 6 for the remainder of the responses).

Table 6. Things that could be changed in the course to make it more interesting and enjoyable.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Nothing	40.1	39.8	40.0
Show videos or images	12.1	11.1	11.6
More interactive activities	9.7	12.7	11.2
More Workshops	6.5	7.5	7.0
Irrelevant response that did not address the question	5.3	3.4	4.4
N/A	3.4	4.0	3.7
Require more or varied assessments	3.4	3.4	3.4
More specific content focus	2.8	3.1	3.0
Use real-life examples, stories, or case studies	1.2	4.0	2.6
Opportunities for application or hands-on	1.9	2.8	2.4
Make content more relevant to students’ lives	2.5	2.2	2.4
Textbook improvements	3.4	1.2	2.3
Provide additional materials beyond textbook	2.2	1.2	1.7
More meetings or interactions with instructor	2.2	1.2	1.7
Video-taped lectures or presentation slides	1.2	0.9	1.1

Note: Inter-rater reliability = 98%; responses with less than 1.0% overall are not shown.

^a321 coded responses, ^b322 coded responses, ^c643 coded responses

Caring. Because the caring component can be divided into academic and personal caring (Jones, 2010a; Jones & Wilkins, 2012), we asked questions related to both of these caring subcomponents. Related to academic caring, we asked students: “What could be changed in this course to make you feel that the instructor cares about whether you learn the course content and do well in the course?” We received 621 responses (319 from males and 302 from females), which are summarized in Table 7. Almost half of the students reported that there was nothing that could be done to increase academic caring. Nearly 16% of the students reported that academic caring is difficult to convey in an online environment and that it is, therefore, not expected. Additional responses suggested providing more interaction between the student and the instructor, providing opportunities to meet the instructor face-to-face, offering the course face-to-face instead of fully online, and asking students about themselves personally via email (see Table 7 for the remainder of the responses).

Table 7. Things that could be changed in the course to increase academic caring.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Nothing or can't think of anything	44.0	47.1	45.6
Caring is difficult to convey online or isn't expected	13.7	17.9	15.8
More interaction between the students and instructor	6.0	6.3	6.2
Opportunities to meet the instructor face-to-face	6.3	4.0	5.2
N/A	4.1	5.3	4.7
Offer the class face-to-face instead of online	6.3	1.7	4.0
Irrelevant response that didn't answer the question	2.2	2.6	2.4
Ask students about themselves personally by email	2.5	2.0	2.3
Send email about current events in health	2.8	1.7	2.3
More interaction among students	2.2	2.0	2.1
Don't know	2.8	1.3	2.1
Instructor should hold "live" office hours online	1.9	1.3	1.6
Meet with students to discuss their performance	0.9	1.3	1.1
Class is too large for the instructor to show caring	0.9	1.3	1.1
Video lectures online	1.3	0.7	1.0

Note: Inter-rater reliability = 96%; responses with less than 1.0% overall are not shown.

^a319 coded responses, ^b302 coded responses, ^c621 coded responses

To gather additional data related to academic caring, we asked students: "What does the instructor do to provide you with the impression that she cares about whether you learn the course content and do well in the course?" We received 667 responses (327 from males and 340 from females), which are summarized in Table 8. Of the responses, 73.9% indicated that the instructor's continual communication via email to the class gave the impression that she cared about whether they learned the course content and did well in the course, with an overall 8.3% of the responses indicating that prompt, thorough responses to students' questions via email gave them the impression that the instructor cared about their academic success in the course. Among the remaining 14.3% of responses, students cited the accessibility of the instructor, the instructor's encouragement for students to ask questions, her accommodations and flexibility to meet the needs of her students, and her personal, individualized responses to students' emails as things the instructor did to provide the impression that she cared about whether the students learned the course content and did well in the course.

With respect to personal caring, we asked students: "What does the instructor do to provide you with the impression that she cares about you as a person?" We received 643 responses (326 from males and 317 from females), which are summarized in Table 9. Of the responses, 35.0% indicated that the instructor's frequent email reminders and notifications gave the impression that she cared about students personally. Additionally, 13.5% of the responses indicated that prompt, personalized email responses gave students the impression that the instructor cared about them personally, with 6.1% of the responses indicating that the tone of the email (e.g., polite, friendly, encouraging) made the students feel as if the professor cared for them personally. The instructor's approachability and willingness to help was found in 7.3% of the responses. Overall, 7.3% of the responses indicated that the professor did "nothing" to provide the students with the impression that she cared about them personally, whereas 6.6% of the responses asserted that personal caring was not possible in an online environment and 4.0% of the responses noted that personal caring is not possible because students have no personal interaction with the professor. The remaining responses are presented in Table 9.

Table 8. Things that the instructor does to provide academic caring.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Continual communication via email to the class	74.9	72.3	73.6
Prompt, thorough responses to email inquiries	7.5	9.1	8.3
Irrelevant response that didn't answer the question	5.2	2.6	3.9
Nothing	3.1	1.8	2.5
Accessibility of instructor	1.2	3.5	2.4
Encourages students to ask questions	1.5	3.2	2.4
Accommodating and flexible to meet student needs	1.8	1.5	1.7
Personal, individualized responses to student email	0.9	1.5	1.2
N/A	1.8	0.3	1.1
Clear, detailed course documents and materials	0.3	1.8	1.1
Provides practice exams	0.9	1.2	1.1

Note: Inter-rater reliability = 97%; responses with less than 1.0% overall are not shown.

^a327 coded responses, ^b340 coded responses, ^c667 coded responses

Table 9. Things that the instructor does to provide personal caring.

Response	% Male Responses ^a	% Female Responses ^b	% Overall Responses ^c
Frequent email reminders and notifications	36.6	33.4	35.0
Prompt, personalized email responses	11.3	15.6	13.5
Approachability or willingness to help	6.1	8.5	7.3
Nothing	9.8	4.7	7.3
Irrelevant response that did not address the question	8.6	5.7	7.2
Personal caring not possible in online environment	5.9	7.3	6.6
Tone of email was polite, friendly, or encouraging	6.1	6.0	6.1
Office hours and availability	4.9	3.5	4.2
Have had no personal interaction with instructor	3.1	5.0	4.1
N/A	3.7	2.8	3.3
Patience or assistance with technology issues	0.3	3.5	1.9
Allowed students to force-add or enroll late in course	1.8	0.3	1.1
Flexibility of due dates	0.6	1.6	1.1

Note: Inter-rater reliability = 97%; responses with less than 1.0% overall are not shown.

^a326 coded responses, ^b317 coded responses, ^c643 coded responses

IV. Discussion.

A. Research Question 1.

Both men and women rated each of the components of the MUSIC model higher than 5.0 on a 7-point Likert-type scale. These findings indicate that, overall, men and women were satisfied in this type of course. As further evidence, students' average overall course ratings were between *very good* and *excellent*. Additional research is needed to determine why women provided statistically higher ratings than men for usefulness, success, situational interest, and individual interest; however, as Jones (2010a) speculated, based on research in the field of interest (Jones, Howe, & Rua, 2000; Von Bothmer & Fridlund, 2005), women might value some aspects of the health content more than men (i.e., they might find it more useful and interesting). Being

interested in the course content and finding it useful might also lead them to feel more successful which could result in higher ratings than men on all of these MUSIC components.

B. Research Question 2.

When students responded to what they would do to change the instruction to make it more consistent with each MUSIC model component, the suggestions provided by men and women appeared to be similar in quantity. Therefore, we grouped men and women’s responses together and discuss them together in this section.

Student recommendations across MUSIC components. Students’ responses across the MUSIC components included recommendations for the addition and/or change of specific course characteristics. Each of these characteristics and their perceived benefits is discussed in detail in the following sections and is illustrated in Figure 1.

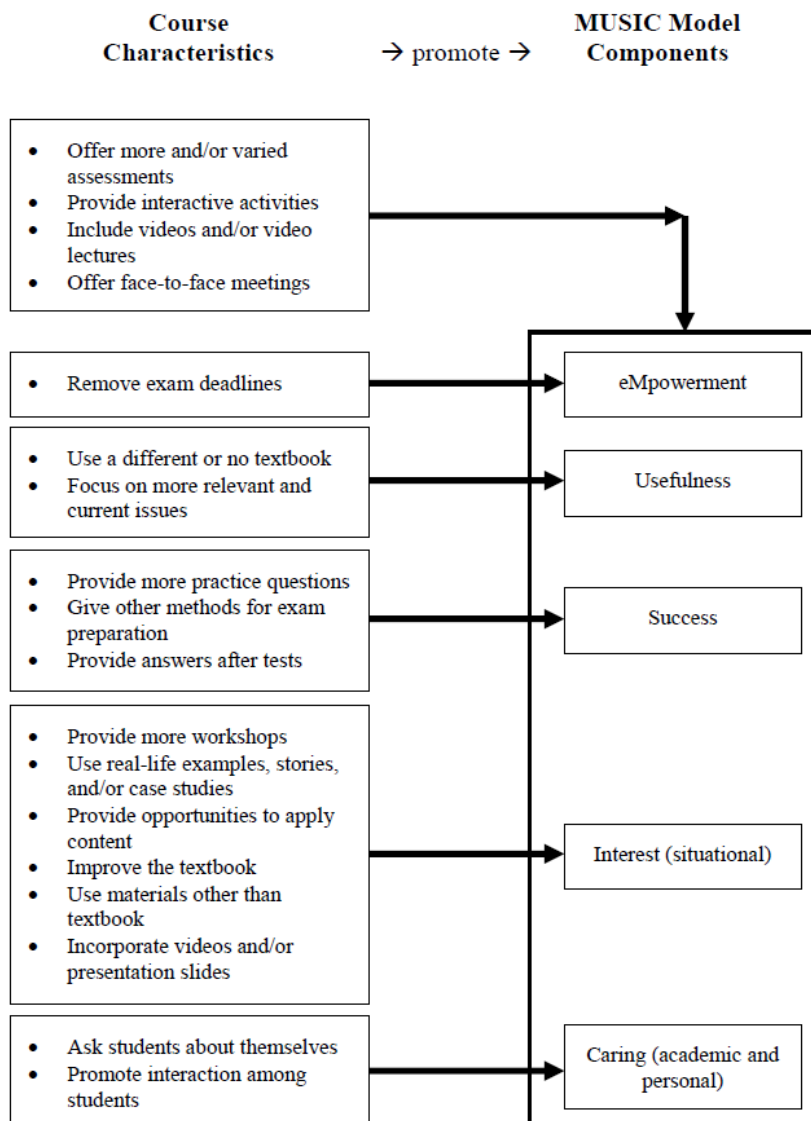


Figure 1. Summary of the main course characteristics that could be changed to enhance the MUSIC model components.

Students suggested that the instructor provide more and/or varied types of assessments to increase their perceptions of empowerment, usefulness, success, and situational interest. Currently, the course is constructed such that 84.5% of the students' final grade for the course is based on the results of exams that include true/false and multiple-choice questions. Although these types of summative assessments might be appropriate for the evaluation of students' comprehension of specific curricular objectives, they do not allow for formative development of students' understanding of the content. Adopting a course design that includes more and/or varied types of assessments may improve students' perceptions of empowerment by providing them with more choices; improve students' perceptions of usefulness by creating formative assessments that "inform future learning experiences" (Doolittle, 1999, p. 8); improve students' perceptions of success by providing other types of assessments (besides true/false and multiple choice exams) for which some students believe that they have a better chance of succeeding at; and improve students' perceptions of situational interest by reducing redundancy of assessment methods and introducing a sense of novelty.

Students suggested that the instructor include more activities that involve student interaction within the course. This response was highest for situational interest, followed by academic caring, usefulness, success, and empowerment. Thus, interactive activities were perceived as a means to improve perceptions in all of the MUSIC components. Counter to isolated learning assignments, interactive activities require social negotiation and mediation, allowing for multiple perspectives and representations of content (Doolittle, 1999). Further contributing to an effective learning environment, interactive activities allow for formative assessment opportunities in which students are engaged in higher-order cognitive processes—including analysis, synthesis, elaboration, and evaluation—as they provide one another with ongoing feedback and validation (Marra & Jonassen, 2001). Because of the significance of the role of interaction with respect to student motivation that was identified in this study, future researchers should examine exactly what students consider "interactive activities" and which of them might be the most effective at increasing students' perceptions of the MUSIC components. We believe that interactive activities would increase students' perceptions of situational interest if they are novel, involve social interaction, include games or puzzles, or require physical movement (see Bergin, 1999, for evidence and a discussion).

Students suggested that the instructor include videos and/or provide video lectures. This suggestion was highest for situational interest, but also appeared as a suggestion for empowerment, usefulness, success, and academic caring. Videos could enhance situational interest by providing a medium that is novel to the text-heavy nature of the course; they may also be incorporated to illustrate the usefulness of the material in ways that are not as easily (or quickly) transmitted through text. Further, videos (particularly appropriate motion pictures in which characters and situations are developed in emotionally evocative ways) serve to construct authentic, albeit vicarious, environments in which the course content may be accessed and contextually engaged. Videos allow for a shared framework within a course and provide a common narrative from which students can derive relevance and authenticity, critical components of an effective learning environment (Marra & Jonassen, 2001).

Because the course was offered completely online, students recommended meeting face-to-face with the instructor as a means to increase academic caring, interest, and empowerment. Certainly, "in person" conversations better facilitate "personal" connections, incorporating queues such as eye contact, facial expressions, tone of voice, and immediate responses to dynamic questions, and these factors may increase the perception of caring. Interest may also be

heightened in these face-to-face sessions through the enthusiasm of the teacher and her ability to provide immediate, personal examples of the content in light of student questions and experiences. Finally, students may feel more empowered through face-to-face meetings, particularly if their ideas and knowledge are heard and validated. Offering face-to-face opportunities in an online course also provides students with another choice through which to receive guidance about the course content.

Student recommendations within each MUSIC component. In this section, we highlight some of the other student recommendations that were more common in one of the MUSIC components and less common in the other components (see Figure 1).

To feel more empowered, students suggested removing the exam deadlines, which would provide them with more choices as to when to complete the course work. This recommendation is simple for the instructor to implement; however, one problem with this recommendation is that students might not self-regulate their learning well in an online environment without regular queues and reminders. The danger of removing exam deadlines is procrastination: some students might wait until the end of the course to take all of the exams and, subsequently, perform poorly in the course. As Jones (2010b) states, the empowerment and success components must be balanced carefully so that one does not hinder the other. In this case, too much empowerment in the form of no deadlines might hinder students' ability to be successful. A possible compromise would be to have deadlines, but allow students to complete the work and receive grades on it anytime prior to the deadline. This way, students have a choice as to when to do the work, as long as it is completed before the instructor-set deadline. In fact, students reported that the ability to work at their own pace was one aspect of the course that provided them with control.

Students' suggestions that appear consistent with the usefulness component of the MUSIC model focused on the content of the course. Some students recommended using a different textbook or not using a textbook at all. Such suggestions should be considered if the textbook content is not related to students' lives or to the real-world in some manner. We acknowledge that not all learning objectives can be personally useful to all students, but to the extent possible, the instructional materials should be presented within a framework of the learners' experiences and prior knowledge. In this way, learners can find relevance in newly introduced material. Other suggestions by students included focusing on more relevant and current health issues, which might be easier to do through web-based resources and real-world case studies, which could be made more current than those provided in a paper textbook.

Over two-thirds of the students reported that there was nothing about the course that could be changed to help them feel more successful. This finding was also evidenced with the quantitative data in that the success component was rated higher than any of the other MUSIC components by both the men and the women. These results indicate that the structure of the course is sufficient for most students to feel successful. Most of the recommendations for success were about factors related to the exams, which seems reasonable given the high importance of the exams for students' final course grade. The suggestions included providing more practice questions, giving other methods to help prepare for the exams, and providing the correct answers after the tests. These techniques would provide students with formative and constructive feedback about their increasing content knowledge, which could help them to succeed on the exams. The suggestion to provide more exams would allow each exam to include less content, which is another method that could help students succeed.

Students provided some specific examples for how the course could be more interesting and enjoyable, such as providing more workshops; using real-life examples, stories, and/or case

studies; providing opportunities for application of the content; improving the textbook; using materials beyond the textbook; and incorporating videos and/or presentation slides. Most of these recommendations would vary the style of the course presentation, which is one way to improve situational interest (Jones, 2009).

Given that email was the only means of communication between the instructor and her students, many of the suggestions for the caring component related to the use of email. Table 8 and 9 show that students felt cared for (academically and personally) through the instructor's continual email communications and her prompt, polite, and personalized responses to students' email inquiries. These findings are consistent with the findings of a study by Clayton, Blumberg, and Auld (2010), which found that students in online courses want "engaging learning environments that promote direct interaction with professor(s) and students, spontaneity, immediate feedback, and relationships with faculty and other students" (p. 362). Possible ways for the instructor to do more to be perceived as caring include asking students about themselves by email and by promoting interaction among the students (Dixson, 2010).

V. Conclusions.

Although men and women differ in the amount of some of their quantitative ratings of the MUSIC components, there does not appear to be a need to design an online course differently for men and women because the suggestions provided in the open-ended items for changing the course were similar for both sexes. Students' responses to the open-ended items revealed a preference for instructional strategies that are consistent with the tenets of the MUSIC Model of Academic Motivation; thus, providing validity evidence for the use of the MUSIC model in online courses. It is notable that several of the strategies provided could increase students' perceptions in more than one component of the MUSIC model, such as providing varied types of assessments, including interactive activities, providing videos and/or video lectures, and meeting face-to-face with the instructor. It is our hope that instructors can use the recommendations provided in this study and that doing so will lead to greater student engagement in online courses.

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