An Affective Assessment Intervention to
Improve the Motivational Climate in Courses

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The motivational climate and student engagement within courses are important for instructors to consider during the instructional design process because they can affect student learning. To help instructors improve the motivational climate and student engagement within their courses, we implemented an affective assessment intervention within the first- and second-year courses in a US college of veterinary medicine. Based on the MUSIC Model of Motivation Theory, the intervention was administered near the end of the courses, and the results were presented to the course instructors in an attempt to improve the motivational climate within the courses the following year. The purpose of this article is to describe the intervention, present a case study based on one of the courses, and explain the lessons learned from implementing this intervention. The intervention involved administering an online questionnaire with affective items to students in 18 veterinary medicine courses over 2 years and sharing the results with the instructors. The assessment measured the motivational climate by assessing students' perceptions of empowerment/autonomy, usefulness, success, interest, and caring within their courses because these perceptions have been shown to be related to students' engagement. Based on the assessment results, the instructors made changes to their instruction the following year and students were surveyed again as the intervention cycle was repeated. One of the lessons learned was that the results from the student survey were useful to instructors; therefore, this freely available assessment tool may also be useful to other instructors in higher education.

The motivation and engagement of students in professional schools can vary over time (Mikkonen & Ruohoniemi, 2011) and can be affected by the activities within a course (Rotgans et al., 2018). Although instructors are often familiar with some strategies for motivating students, they do not always know how to create a motivational climate that effectively engages students in their courses (Pelaccia & Viau, 2017; Snook et al., 2021). Similar to how instructors use cognitive assessments (e.g., quizzes, exams) to determine what students have learned in a course, they can also use affective assessments to measure students' non-cognitive abilities (Popham, 2003), such as their perceptions of the motivational climate in a course (Jones, Fenerci-Soysal, et al., 2022). The *motivational climate* in a course has been defined as "the aspects of the psychological environment that affect students' motivation and engagement within a course" (Jones, Miyazaki, et al., 2022, p. 1). Assessing students' perceptions of the motivational climate in courses could provide helpful feedback that instructors could use to redesign courses in an attempt to improve student engagement.

The purpose of this case report is to describe how we implemented an intervention that involved (a) administering an affective assessment to students in courses at a college of veterinary medicine, and (b) sharing the results of the assessment with the course instructors. The aim of this intervention was to affect instructional changes to create a motivational climate that would more effectively engage veterinary medicine students in their courses. We believe that the intervention

was useful to faculty and led to some positive outcomes for students. Yet, we encountered real-world obstacles that limited the amount of instructional change that was possible. We explain the lessons learned from implementing the intervention over 2 years and provide some suggestions for overcoming the challenges we faced.

An Intervention to Improve the
Motivational Climate

Steps in the Intervention

The intervention we implemented was based on the premise that instructors should consider the motivational climate in their courses when designing instruction because students' perceptions of the motivational climate are related to their motivation, engagement, learning, and course ratings (Jones, 2010, 2019; Jones & Carter, 2019; Jones et al., 2021; Jones, Miyazaki, et al., 2022). The first two authors of this article designed the intervention and implemented it over 2 years at a college of veterinary medicine. We created the intervention based on a similar faculty development intervention used with faculty who taught undergraduate courses, as described in Jones et al. (2020). The first author is an educational psychologist who conducts research related to student motivation. The second author graduated from the participating college of veterinary medicine, had worked as a veterinarian for several years, and was enrolled as a doctoral student in an educational

psychology program at the time the intervention was conducted. The third author, a professor at the college of veterinary medicine, was the lead instructor for one of the courses, and we use his course as a case study example of how the intervention was implemented within a course. We believe that this intervention is replicable, in full or in part, at other veterinary, medical, and health science colleges.

The intervention included the following five steps: (1) surveying students with an online questionnaire at the end of their courses, (2) analyzing the questionnaire responses, (3) teaching instructors about a motivation model and presenting them with the results of the data collection, (4) discussing ideas with instructors about how they can improve the motivational climate of their course based on the results, and (5) implementing the instructional changes to improve the motivational climate. This intervention was then repeated the next time each course was taught. During the second administration of the intervention, the data analysis also included comparing the results of the redesign to the initial results.

Theoretical Framework

To guide our intervention and understanding of students' perceptions of the motivational climate, we used the MUSIC Model of Motivation theory (Jones, 2009, 2018, 2020). We chose the MUSIC model because it was designed specifically to help instructors intentionally design instruction to motivate students in their courses. Jones (2018) explains that the MUSIC model focuses on five motivational design principles:

> The instructor needs to ensure that students: (1) feel empowered by having the ability to make decisions about some aspects of their learning, (2) understand why what they are learning is useful for their short- or long-term goals, (3) believe that they can succeed if they put forth the effort required, (4) are interested in the content and instructional activities, and (5) believe that others in the learning environment, such as the instructor and other students, care about their learning and about them as a person. (p. 9)

The initial sounds of the five categories of strategies associated with these principles (i.e., eMpowerment, Usefulness, Success, Interest, and Caring) form the acronym MUSIC.

These five design principles are part of the larger MUSIC model that explains students' motivation and behavior in courses, as shown in Figure 1. At the center of Figure 1 are students' motivational climate perceptions in a course. These five MUSIC perceptions are important because decades of motivation research (see Wentzel & Miele, 2016) has demonstrated that they

are related to students' motivation, engagement (e.g., effort), and outcomes (e.g., learning, performance). In this model, motivation is defined as "the extent to which one intends to engage in an activity" and engagement is defined as "participating in or thinking about an activity" (Jones, 2018, p. 5). Therefore, motivation precedes engagement because motivation is the intent to engage that precedes the actual engagement in the activity.

Veterinary medicine students have also been shown to be motivated to engage in other activities besides their courses (Jones et al., 2019). To decide which activity to engage in at any one time, students make cost/benefit decisions to determine the cost of engaging in one activity versus others (as indicated by the "cost/benefit decisions" box in Figure 1). The left-side of Figure 1 shows that external and internal variables interact with one another to affect students' MUSIC perceptions in a course. External variables include the teaching strategies that instructors employ; and therefore, instructors influence students' MUSIC perceptions through their teaching strategies. Students' MUSIC perceptions are also influenced by other environmental conditions, including their family, peers, culture, and society. Internal variables (i.e., factors inside students' minds)—thoughts, beliefs, goals, values, emotions, moods, needs/desires, identity beliefs, personality characteristics, and other variables—also affect students' MUSIC perceptions. All of these factors work together to form a cycle that continuously affects the way in which students engage in course activities.

Surveying Students to Assess Their Perceptions of the Motivational Climate

To begin the intervention, we collaborated with the Associate Dean for Professional Programs at the college of veterinary medicine to develop a plan for assessing students. The Associate Dean was supportive of the intervention and provided us with a means to survey students at the end of all 10 of the first- and second-year courses offered to students (five courses in the first year and five courses in the second year). Over the 2 years of the intervention, we surveyed students in all but two of the courses, for a total of 18 course surveys. Most of the courses consisted of lectures, laboratory sessions that taught clinical skills, and integrative sessions in which students worked in teams to discuss case-based scenarios. Courses included topics related to the foundations of medicine, the host and defense, the circulatory system, the gastrointestinal system, the musculoskeletal system, reproduction, population health, and professional competencies. Courses were led by a "lead instructor" who was responsible for creating the course syllabus and coordinating the other instructors. Some courses involved up to 20 instructors

Figure 1
The MUSIC Model of Motivation as it Relates to Students in a Course
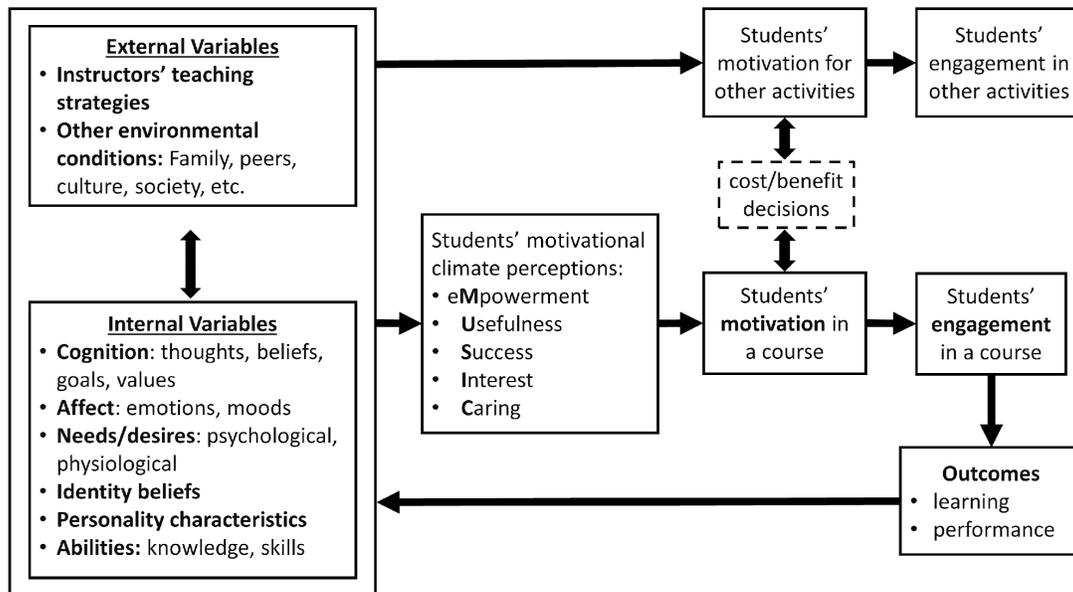
Note. Adapted from *Motivating Students by Design: Practical Strategies for Professors*, B. D. Jones, 2018, p. 13.

who provided content in their area of expertise. About 120 to 130 students were enrolled in each course.

To assess students' perceptions of the motivational climate using a questionnaire, we included the 20-item short form of the College Student version of the MUSIC Model of Motivation Inventory (MUSIC Inventory; Jones, 2012/2021). The MUSIC Inventory consists of five scales—related to the five categories of the MUSIC model—that measure five motivational constructs: eMpowerment/autonomy (Deci & Ryan, 1991), Usefulness/utility value (Eccles & Wigfield, 2020), expectancy for Success (Eccles & Wigfield, 2020), situational Interest (Renninger & Hidi, 2015), and Caring (Wentzel, 1999). Each scale in the short form MUSIC Inventory includes four items that students rate on a 6-point Likert-format scale with descriptors at each point (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Somewhat Disagree*, 4 = *Somewhat Agree*, 5 = *Agree*, 6 = *Strongly Agree*). The items are averaged to form a scale score. The empowerment scale measures the extent to which students have control over their learning environment in the course. The usefulness scale measures the degree to which students perceive the coursework to be useful to their future. The success scale measures the extent to which students perceive that they can succeed at the coursework. The interest scale assesses students' interest in the instructional methods

and coursework. And finally, the caring scale measures the degree to which students perceive that the instructor cares about whether they succeed in the coursework and about their well-being (Jones, 2012/2021). More information about the MUSIC Inventory, the model, and associated instructional strategies are available at the MUSIC model website (www.theMUSICmodel.com).

We chose to use the MUSIC Inventory for a variety of reasons. First, the results of the inventory can be linked directly to the five MUSIC categories of motivational strategies that instructors can use to increase students' motivation and engagement. For example, if a course is rated low on the Usefulness scale, then instructors can consider ways to increase the usefulness of the topics in their course (e.g., relate the course material to real-world examples; Jones, 2018). Second, the MUSIC Inventory had been validated for use with students in a medical school (Gladman et al., 2020), a veterinary medical college (Jones et al., 2019), a pharmacy college (Pace et al., 2016), and undergraduate programs (Jones et al., 2016; Jones & Wilkins, 2022; Wilkins et al., 2021).

Pace et al. (2016) found that students in pharmacy courses completed the 26-item MUSIC Inventory in about 2 minutes. Due to the short completion time of the MUSIC Inventory, the questionnaire also included one open-ended item related to each of the MUSIC model

components. In other projects, the first author has found that collecting open-ended qualitative data is useful in gathering ideas that can be used to improve the course, especially when the questions ask students about what they would *change* to improve the course (Jones et al., 2012; Jones et al., 2020).

In addition to measuring students' MUSIC perceptions with the quantitative and qualitative items, we assessed their perceived *course effort* (as a measure of their engagement; Jones, 2019) and *cost/benefit* because these two factors are important parts of the larger MUSIC model (Jones et al., 2021; Kosovich et al., 2015) (see Figure 1). We also assessed students' perceived *ease* of the course because it can affect the amount of effort that students put into the course (Jones et al., 2021). Finally, we used a single item to assess students' overall perceptions of the course (rated on a scale with 1 = *Terrible*, 2 = *Very poor*, 3 = *Poor*, 4 = *Good*, 5 = *Very good*, and 6 = *Excellent*) (Jones, 2010). Examples of all of these questions are provided in Table 1.

We administered the questionnaire online near the end of the 18 courses. At the end of the questionnaire, students were invited to allow their responses to be included in a study about the course perceptions of veterinary students. Only students who elected to participate in the study were included in the study. The protocol for the study was approved by the Institutional Review Board (IRB) at our institution. The course data were downloaded, de-identified, and analyzed by the first two authors so the instructors would not have access to the raw data and be able to link students' names to their responses.

Analyzing the Results and Meeting with the Instructors

Once the questionnaire data were collected, we computed means and correlations among the variables. In the next section, we explain this process in more detail as part of the case study. Based on the results, we created a Summary Report that was typically about six pages and included five sections: (1) an explanation of all of the constructs measured on the questionnaire (i.e., a definition of all of the scales listed in Table 1); (2) means and standard deviations for all of the scale scores and course rating item; (3) a table with the correlations between all of the scale scores; (4) a brief explanation of the means and correlations, especially the correlations between MUSIC perceptions and effort (to identify which MUSIC perceptions were most highly correlated with student effort); and (5) a summary of the responses to the open-ended items, organized as "Accolades" and "Opportunities for Growth and Suggestions" (which also included some of our own suggestions as pedagogical experts and based on strategies in the Jones [2018]

book). We conducted the quantitative analysis fairly quickly; however, the qualitative analysis of the open-ended items was more time intensive because it involved reading the student comments for each open-ended item, generating themes, and selecting a few representative quotations to include in the Summary Report. Our purpose was not to conduct a research-level qualitative analysis; but rather, to conduct a quick analysis that would identify themes that could be useful to the instructors and help to place the quantitative results in context. In addition to the Summary Report, we provided the lead instructors with a spreadsheet of all of the student responses to the open-ended items. Therefore, although it was not necessary for us to summarize the responses for them, we did so to save the instructors time and provide specific talking points for our meetings with the instructors.

Next, we shared the Summary Report with the lead instructor from each course. The lead instructor was designated to coordinate the other course instructors and finalize the overall course syllabus. During the first year of the intervention, the first two authors met with each of the course leaders in person, individually, for about an hour to (a) briefly explain the MUSIC model and how the data we collected from students were related to the MUSIC model components and the other variables (i.e., effort, cost, ease, and course rating), (b) present the Summary Report and the main findings therein, and (c) discuss potential changes that could be made to the course in the future. Overall, the lead instructors were very receptive to the feedback in the report. Even when the results were consistent with what they expected, they appeared genuinely happy to receive the results, sometimes because it gave them empirical results they could use to share with the other instructors. For example, if the lead instructor perceived a problem related to the usefulness of some course content and the students also noted this problem, the lead instructor could take the results to the other instructors and explain that "this is what students are saying." Although this veterinary college conducts student perception surveys at the end of each course, the results we provided in this Summary Report were specifically targeted at the components of the motivational climate and provided feedback that was not collected through the regular end-of-course surveys.

Although we encouraged faculty to consider how they could improve the motivational climate of their courses based on the student results, we typically did not follow up with the lead instructors (or other instructors) or document exactly what changes they made in their courses the following year. Instead, the lead instructors implemented the instructional changes that they and the other instructors decided would be appropriate. Then, during Year 2, we surveyed the students again, analyzed the data, and sent the Summary Report to the lead

Table 1
Example Questionnaire Items

Scale or Item	Example Item	Source
Scales		
eMpowerment scale	I have flexibility in what I am allowed to do in this course.	Jones (2012/2021)
Usefulness scale	In general, the coursework is useful to me.	Jones (2012/2021)
Success scale	I am confident that I can succeed in the coursework.	Jones (2012/2021)
Interest scale	The coursework is interesting to me.	Jones (2012/2021)
Caring by teacher scale	The instructors are respectful of me.	Jones (2012/2021)
Caring by others scale	My classmates are respectful of me.	Jones (2012/2021)
Effort scale	In this course, I put forth my maximum effort.	Jones (2019) Jones et al. (2021)[a] Jones et al. (2021)
Cost scale	This course requires too much time.	
Ease scale	This course is very easy for me.	
Open-ended items		
eMpowerment item	What could be changed in this course to make you feel that you had more choices in the course?	Jones et al. (2012)
Usefulness item	What could be changed in this course to make it more useful to you?	Jones et al. (2012)
Success item	What could be changed in this course to help you feel that you could be more successful in it?	Jones et al. (2012)
Interest item	What could be changed in this course to make it more interesting?	Jones et al. (2012)
Caring by teacher item	What could be changed in this course to increase your perception that the instructors care about you as a student?	Jones et al. (2012)
Caring by others item	What could be changed in this course to increase your perception that your classmates care about you as a student?	Jones et al. (2012)
Effort items	Two questions: How much effort do you put into this course? Why do you put this amount of effort into this course?	Jones et al. (2019)
Single Item		
Overall course rating	My overall rating of the course.	Jones (2010)

[a] This is a modified version of a scale initially created by Kosovich et al. (2015).

instructors. Because the lead instructors already knew how to interpret the report results, we did not meet with them during the second year. The lead instructors were not *required* to make changes to their courses and we had no authority over the lead instructors or the other instructors; therefore, we could only encourage them (but not require them) to make changes.

A Case Study Demonstrating the Impact

To provide a more detailed explanation of the general intervention steps described in the prior section, we describe a case study of one course in this section. The veterinary college course in this case study included 125 students, lasted 8 weeks (175 contact hours), and was taught by a professor and 20 other instructors. An online questionnaire was administered to students during the last week of the course along with the regular college end-of-course evaluation. The first two authors analyzed the data, created the Summary Report, and set up a meeting with the lead instructor to present the report. During our meeting, we explained the MUSIC model, the data that were collected on the questionnaire, and the results provided in the report.

We shared the quantitative results first. Figure 2 shows the results from the questionnaire for the first year and for the second year after instructional changes were made to improve the instruction. Most of the students completed the questionnaire and gave us permission to use their results in Year 1 (100 of 125 students for a response rate of 80%), but fewer did so in Year 2 (72 of 126 students for a response rate of 57%). The Year 1 results indicate that usefulness ($M = 4.8$), caring teacher ($M = 4.8$), and caring students ($M = 4.7$) were the highest rated components of the MUSIC model, and empowerment ($M = 3.7$) and interest ($M = 4.2$) were the two lowest-rated components, with success ($M = 4.4$) in the middle. Students put forth a good amount of effort ($M = 4.7$), believed that the cost/time was relatively low ($M = 3.0$), believed that the ease of the course was below average ($M = 2.5$), and rated the course overall as "good" ($M = 4.1$). All of the MUSIC model components except student caring were statistically significantly related to the overall course rating ($r = 0.49$ for empowerment, 0.54 for usefulness, 0.40 for success, 0.71 for interest, and 0.41 for teacher caring; $p < 0.001$ for all correlations), but only interest and usefulness were statistically significantly correlated with their effort ($r = 0.26$ and 0.27 respectively; $p < 0.01$).

Our discussions with the lead instructor about improving the course involved considering whether strategies could be implemented to improve the motivational climate by increasing students' MUSIC perceptions. We provided the lead instructor with some possible suggestions and engaged in two-way conversations about these ideas. We focused on the interest and usefulness components, primarily because interest was one of the lowest rated MUSIC perceptions, and both interest and usefulness were significantly correlated with students' effort and course rating. Although correlation does not imply causation, we believed that it was reasonable to focus on interest and usefulness because students' responses to the open-ended items indicated that they wanted more interest and usefulness through activities such as clinical cases and practical applications that focused on "real-world aspects." Students also mentioned that having more handouts of notes could help them to be more successful and could be useful to them in their professional career. Another student suggestion related to success perceptions was to record the lectures (similar to what was done in some of their other courses) to allow them to go back and watch parts of the lecture at a later time if needed.

After we met with the lead instructor, he met with the other course instructors to share the questionnaire results and to provide some suggestions for instructional changes that could be implemented for the next time the course was taught (the following year). Based on the questionnaire results, they decided to (1) highlight the usefulness of the material that was presented (to increase usefulness perceptions), (2) reduce the amount of material that was not clearly useful or relevant (to increase usefulness perceptions), (3) utilize more of a case-based approach (to increase interest and usefulness perceptions), (4) provide more detailed and useful notes (to increase success perceptions), and (5) video record their lectures (to increase success perceptions). These course changes were implemented when the course was taught again to a new class of 126 students the following year.

The questionnaire was administered the following year and the results are provided in Figure 2. All of the MUSIC model components except student caring were statistically significantly related to the overall course rating ($r = 0.47$ for empowerment, 0.46 for usefulness, 0.40 for success, 0.69 for interest, and 0.51 for teacher caring; $p < 0.001$ for all correlations). Empowerment, usefulness, and interest were statistically significantly correlated with their effort ($r = 0.26$, 0.31, and 0.23 respectively; $p < 0.05$).

We conducted t-tests between the Year 1 and Year 2 values for each variable. The variables that increased statistically significantly ($p < 0.05$) included usefulness, success, interest, teacher caring, ease, and overall course rating. For the other variables, there was no statistically significant increase or decrease from Year 1 to Year 2. It was noteworthy that usefulness, success, and interest increased because those were the MUSIC components that were targeted in the intervention for the instructional changes in Year 2. It seems that highlighting the usefulness of the material, reducing material with poor relevance, and using more case-based approaches was helpful in raising students' perceptions of usefulness (and possibly their interest). In addition, enhancing access to the material through improved notes and the video recording of class sessions likely increased their perceptions of success and course ease by reducing their frustrations in the course.

What was very striking about these results was the increase in the overall course rating, which increased almost a full scale point from a mean of 4.1 to 4.9. This increase was not only statistically significant, but also likely has practical significance. In our experience, administrators and faculty (e.g., department heads, tenure, and promotion committees) who evaluate courses based on course ratings would likely perceive a significant difference between courses that were rated a 4 versus those that were rated a 5, which is almost the difference in the scores here.

Lastly, it is important to note the limitations of using a statistical test (i.e., the t-test to compare the values between years) to evaluate the results in this type of case study. The students in Year 1 were different from the students in Year 2 and other variables may also influence the results. Our case study was not designed to be an

Figure 2

Questionnaire Results from the First and Second Questionnaire Administration
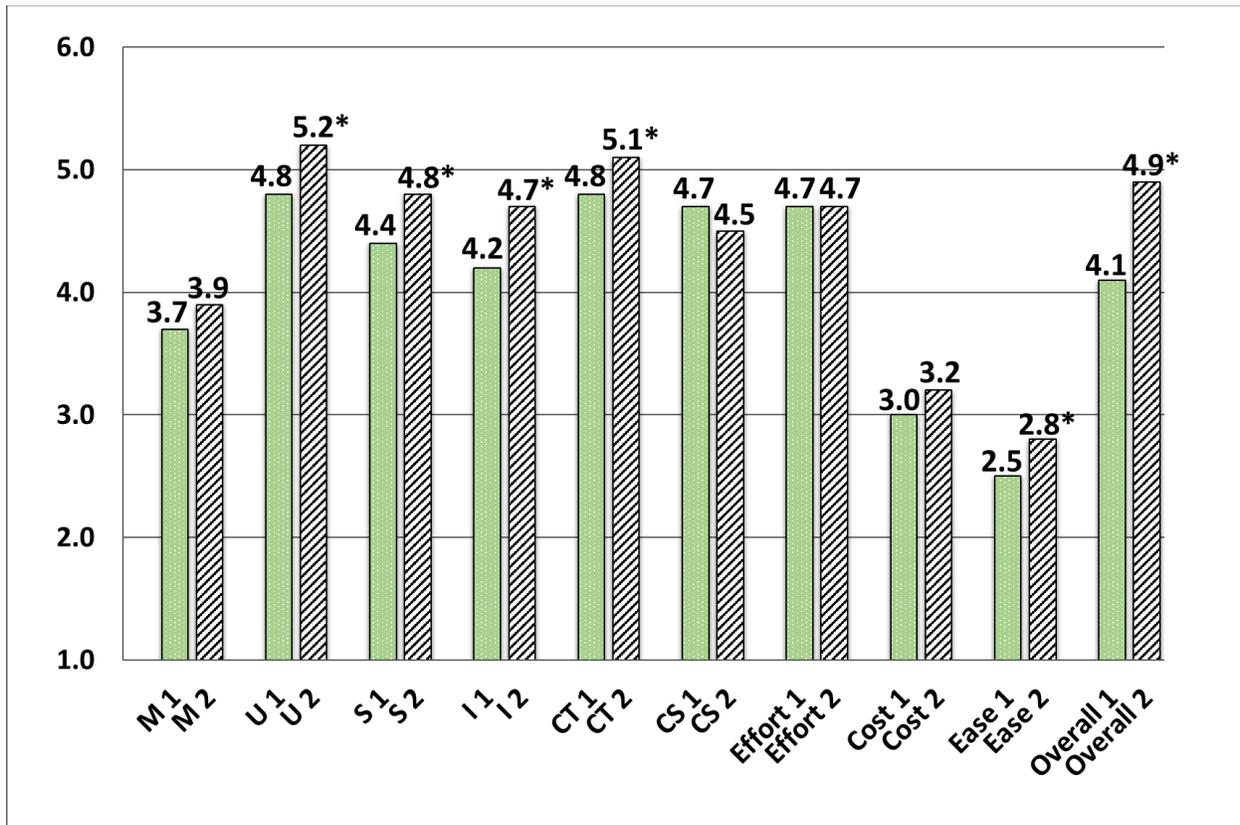
Note. 1 = first time the questionnaire was administered (Year 1; *n* = 100 students), 2 = second time the questionnaire was administered (Year 2; *n* = 72 students), M = eMpowerment, U = Usefulness, S = Success, I = Interest, CT = Caring Teacher, CS = Caring Students, Overall = overall course rating. Statistically significantly higher values in Year 2 are denoted with an asterisk.

experimental study. Rather, the results were used primarily to give the instructors results related to how the scores varied over different years to identify trends. It could have been useful to collect the data in the course in the following years to determine whether Year 2 was part of a consistent trend of increased perceptions or if it was an anomaly and the scores decreased over the next few years.

Lessons Learned

Overview

In this section, we present some lessons learned from our implementation of the intervention. These lessons are presented in the same order as the order of the five steps in the intervention: surveying students, analyzing the survey responses, presenting the instructors with the results, discussing ideas with instructors to improve their instruction, and implementing instructional changes.

Surveying Students

A critical part of the success of the intervention was the assistance we received from the Associate Dean of Professional Programs at the college in administering the survey. Her assistance was key to gaining access to students in the courses in a systematic manner. Although it can be easy to identify a few faculty who are willing to administer a survey in their course, it can be challenging to find a means to systematically survey students across all courses in a department or college. Doing so requires the commitment and support of administrators. Without this level of commitment, instructors can be resistant to give up 15 minutes of class time for students to conduct the questionnaire or to ask students to complete the questionnaire outside of class time. (In these cases, it can be helpful to remind instructors that if they have 45 hours of class time in a three-credit course, it is not unreasonable to spend 15 minutes of that time asking students for their perceptions of the course.)

We found that the MUSIC Inventory and other questionnaire items provided an easy and efficient means to capture students' perceptions of the motivational climate in the courses. These questionnaire items and scales are available for free (see www.theMUSICmodel.com) and could be useful to instructors at other medical and health science schools, as noted by Gladman et al. (2020) and Snook et al. (2021).

Analyzing the Survey Responses

Conducting the survey online allowed us to easily download the results into a spreadsheet to analyze the data. The data analysis was relatively easy, but it took some time to do it for all of the courses. It would be helpful if this process could be more automated and the results could be more directly imported into the Summary Report.

It was fairly easy to interpret the results from the Year 1 survey administration before we implemented the intervention. However, it was difficult to interpret the results from the Year 2 survey and precisely identify which outcomes were due to the intervention and which were not. After Year 1, some instructors told us they planned to make some instructional changes in their courses even before they received the Summary Report. Therefore, it was difficult to separate the instructional changes that were made based on the intervention with those that instructors would have made in the regular process of course revision. It is likely that the results in the report interacted with their prior ideas to help them form some new strategies. Therefore, trying to identify exactly how the intervention affected the instructors' instructional changes may be impossible in many cases.

Similarly, it can be difficult to assess exactly how changes in instruction affect students' motivation and engagement. Many factors contribute to students' motivation and engagement in courses and the instructional changes likely interact with these other factors in ways that are difficult or impossible to document precisely. For example, although we found that students' perceptions increased during the second year (see Figure 2), we cannot attribute these increases to the intervention without designing an experimental study. We can only assume that the intervention contributed in some way to the increase in the scores.

Finally, we did not assess the impact of instructional changes on students' learning. As an affective assessment, the MUSIC Inventory can assess the motivational climate of a course; however, it does not guarantee that improving the motivational climate will lead to increased learning. Nonetheless, researchers (see Wentzel & Miele, 2016) and instructors generally agree that when students are more motivated and engaged, they learn more. Future researchers should investigate the

conditions in which the motivational climate is most likely to have a positive effect on students' learning.

Presenting the Results to the Instructors

We found that it was useful to meet with the lead instructors in person for an hour to explain the data collection process and results. The instructors were receptive to the feedback and the in-person meeting allowed us to share ideas back and forth. In hindsight, we should have presented the results of the second-year survey in person as well. Doing so would have informed us as to the changes the instructors made and how they interpreted these changes based on the student survey results. It could have also helped the instructors if we had shared more of our ideas while we engaged in conversation about the results.

It was helpful to present the lead instructors with a Summary Report document to discuss during our meetings. The document provided a record of the results, and the lead instructors could share it with the other instructors and discuss it at their department or course planning meetings.

Discussing Ideas with Instructors to Improve Their Instruction

The results in the Summary Report provided instructors with more information they could use to make data-driven decisions instead of guessing as to what engaged students in their courses. Because we provided instructors with feedback related to *many different aspects* of the motivational climate, it may have pushed instructors to think more broadly about factors that influence students' motivation. For example, some instructors may have conceptualized "motivation" as including students' interest, but not really considered that providing students with choices (i.e., increasing empowerment) or caring for students could increase their motivation and engagement in the course.

Overall, we found that instructors were receptive to the student feedback in the reports and were able to generate strategies to address student concerns. However, sometimes the instructors were unable to implement these strategies because of logistical barriers. For example, one instructor acknowledged that presenting more case studies could be beneficial to students. However, he was unable to include more case studies because it took a lot of the instructors' time to do so, and the cases could leave gaps in students' knowledge related to the topic. That is, the cases might help students understand certain topics well, but other topics may not be covered because it is difficult or impossible to design cases that cover all of the required material.

The Summary Report provided a tool for us to use in discussing course changes with the lead instructors, but some lead instructors also noted that it was helpful to them in talking to the other instructors about changes that could be made in the course. Sometimes it can be difficult for faculty to convince their colleagues that changes are needed, especially if their colleagues have strong convictions or have taught using the same instructional approaches (e.g., lecture) for many years. The results in the Summary Report provided the lead instructors with evidence they could share with their colleagues, which could reduce arguments based solely on opinions. Furthermore, the results can instill more confidence in instructors that the changes they intend to make are more likely to work. Sometimes instructors have good ideas, but they are afraid to implement them. If the student feedback corroborated their ideas, they may be more likely to try those strategies.

It can be difficult to force some faculty to make instructional changes if they don't want to make changes or if they don't have the time to implement them. Some faculty may be resistant to instructional changes because they don't agree with students' perceptions and ideas. Other faculty may want to make changes, but don't have the time to devote to making those changes (e.g., creating study guides for students, developing new case studies). These situations may require administrators to become more involved by committing resources (e.g., release time from some duties, summer stipends) and thinking of ways to motivate instructors to make positive instructional changes (e.g., develop a college culture that values teaching, base raises on documented attempts to improve teaching).

Implementing Instructional Changes

Unfortunately, we did not follow up with most of the lead instructors to find out what changes they made to their instruction and if they thought that the changes led to any significant improvements in students' motivation and engagement. This was mostly due to the fact that we were busy with other obligations and this project was not part of our regular jobs. Therefore, another lesson learned was that someone needs to be committed to documenting the instructional changes made within the course if that is important to the instructors or administrators. We believe that a more systematic and sustained commitment to this process over a few years could be more beneficial than the 2-year intervention we employed.

Conclusion

Overall, we believe that using affective assessments to provide instructors with feedback about motivational climate in courses can be an effective method to motivate

instructors to initiate strategies that engage students. Although more evidence is needed to understand how this assessment process can be implemented most effectively within departments and colleges, our experience at a veterinary medical college led us to see the potential of such an approach. The data collection process was brief for students, and the instructors appeared genuinely appreciative of the student feedback. The cost of implementing this approach is primarily the time needed for someone to set up the data collection and analysis procedures and then explain the results to the instructors. The time required by instructors to review the results and reflect on their instructional practices is relatively short and is time that should already be built into their schedule as effective instructors. That is, data collection and evaluation of the results should be part of a course redesign process that occurs regularly. We would be happy to discuss any aspects of this process with readers interested in implementing these approaches.

Declaration of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have influenced this study.

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