Syllabus Language, Teaching Style, and Instructor Self-Perception: Toward Congruence

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Abstract

As with all language, the words of a syllabus carry emotional associations. Previous literature has not objectively measured the emotional associations of syllabus language or explored the relationship between instructors' teaching style and the emotional associations of syllabus language. Using the Pleasure-Arousal-Dominance (PAD) framework, this article reports baseline measurements for syllabus language, investigates the relationship between Grasha's teaching styles and instructors' self-perceived emotional associations with teaching, and compares instructors' self-perceptions with the emotional associations of their syllabus language. Moderate correlations between teaching PAD scores and Grasha's teaching style inventory suggest the emotion that may connect with concrete teaching attitudes and behaviors. Crucially, we find that most instructors' syllabi are incongruent with their teaching self-perceptions on key emotional dimensions. In other words, instructors' syllabi are not communicating the central emotional associations of their instructor self-perception. Syllabus language can be altered, however, to align more closely with instructor self-perception.

In late 2018, online commentators took Leeds Trinity University's department of journalism to task for allegedly banning capital letters and "officious language and negative instructions" when describing course assignments and pleading for instructors to "avoid a tone that stresses the difficulty or the high-stakes nature of the task." According to detractors, the university instead urged faculty to write in a "helpful, warm tone." Critics opined that the directives were another example of higher education coddling students and failing to prepare them for the "real world."[1]

Whether Leeds indeed gave instructors specific guidelines intended to make course documents such as syllabi less threatening, and whether such moves amount to coddling of students (Lukianoff and Haidt, 2018), this case hints at the importance that the course syllabus is assuming; it can easily become the proxy for broader conversations on the mission of higher education. But the syllabus is not merely symbolic: this document has become nearly ubiquitous in college courses. It is a content-rich teaching artifact that often serves as the initial contact between student and instructor, and students have cause to return to the syllabus many times throughout a course. For this early and ongoing prominence, many scholars argue the syllabus is an important element of any college course, setting the "tone" for a class (O'Brien, Millis, & Cohen, 2008).

The Leeds episode also demonstrates the growing interest in syllabus language. Many scholars recognize the possible emotional associations of syllabus language and their effects on students and the student-teacher relationship. A weakness in this scholarship, however, is the lack of any objective measurement of the language's emotional associations. These writers rely instead on intuitions regarding whether particular language is "friendly" and "unfriendly" (Denton & Veloso, 2018; Harnish & Bridges, 2011), "warm" and "cold" (Slattery & Carlson, 2005), "rewarding" and "punishing" (Ishiyama & Hartlaub, 2002), or whether a syllabus "convey[s] a positive attitude" (Habanek, 2005) or is unnecessarily "controlling" (Singham, 2005).

Heated debates about political correctness or the mission of higher education aside, there are many reasons to inquire about the emotional associations of syllabi language. For instance, syllabus language may affect student motivation, ratings of instructors, or attitudes towards the course (Harnish & Bridges, 2011; Ishiyama & Hartlaub, 2002; Ludy, Brackenbury, Folkins, Peet, Langendorfer, & Beining, 2016). More importantly, it may also influence how caring, approachable, competent, or engaged students believe their instructors to be (Jenkins, Bugeja, & Barber, 2014; Richmond, Slattery, Mitchell, Morgan, & Becknell, 2016; Waggoner Denton & Voloso, 2018), which can in turn influence students' behavior in the classroom. Current literature addresses many of these questions, but without the benefit of objective measurement of language.

But addressing the effects of syllabus language on their own is somewhat artificial. In the interest of a wholistic approach to teaching, the emotional associations of syllabus language should not be divorced from who the instructor is and how the instructor teaches. The goal rather should be to arrive at syllabus language that is associated with positive student outcomes *and* that is informed by instructor self-perception and teaching styles. This raises fundamental questions that are also missing from the literature: to what degree are the emotional associations of instructors' syllabi language congruent with their teaching self-perceptions? And do these self-perceptions have any correlations to "teaching styles," that is, specific instructional approaches and behaviors? When choosing instructional approaches, many instructors may be led more by concerns of content and student performance (e.g., on an exam) than by the emotional associations of their behaviors. Many instructors may also not give much thought to the emotional associations of their syllabi language; some acknowledge that large portions of their syllabi are borrowed from predecessors, colleagues, and institutional verbiage. These practices create potential discrepancies between who instructors see themselves to be and how their instructional approaches and their syllabi represent them. These issues of congruence are not unre-

lated to the questions of how syllabus language affects students or how students perceive the emotional associations of syllabus language. As we suggest below, congruence itself could positively affect the student experience. Additionally, the process of investigating congruences can prompt greater reflection on and more diverse options for syllabus language that is associated with positive student effects.

To better understand the complex relationships between teaching style, emotional dimensions of instructor self-perception, and the emotional associations of syllabus language, we conducted two studies intended to answer our two main research questions:

> **In what ways are teaching styles predictive of instructors' emotional associations with teaching?**

> **How well-aligned is instructors' syllabi language with their teaching self-perceptions?**

STUDY 1

Study 1 was designed both to pilot our tool for measuring syllabus language and allow us to gather basic information about the emotional content of syllabus language from a variety of disciplines, thereby providing baselines for comparison of separate syllabi (Study 2). We were interested in seeing how our tool rated these syllabi overall, as well as by discipline and by overarching category (e.g., humanities). Although this was a very exploratory study by nature, we did expect that the syllabus language scores would vary by discipline.

Method

Materials.
Syllabus language
With the help of our institution's digital scholarship librarian, we created an algorithm in Jupyter Notebook that calculated scores for each text using the Pleasure-Arousal-Dominance (PAD) emotional state model (Mehrabian & Russell, 1974). The PAD model proports to evaluate a person's emotional state, or experienced level of emotions at a given time or within a certain context. As indicated by its name, the PAD scale is composed of three independent subscales. The pleasure—what we will call *valence*—subscale (P) is designed to measure affect (e.g., emotions ranging from positive to negative). Descriptors for these emotional states include (among others) "unsatisfied," "bored," and "melancholic," on the low end and "satisfied," "relaxed," and "contented," on the high end (see Appendix A). The *arousal* subscale (A) assesses a person's level of activity or alertness. Descriptors include (among others) "calm," "sluggish" and "dull" on the low end and "excited," "frenzied," and "jittery" on the high end. The *dominance* subscale (D) evaluates a person's feelings of perceived control of a given situation. Descriptors include (among others) "influenced," "awed," and "submissive" on the low end and "influential," "important," and "dominant" on the high end. To create PAD scores for the syllabi, the algorithm assigned all words values from a collection of PAD ratings of 13,915 English lemmas by 1,827 independent raters (Warriner, Kuperman, & Brysbaert, 2013). In this normed database, each lemma, or base or dictionary form of words, was rated on the valence, arousal, or dominance raters felt while reading it using a single, 9-point semantic differential item (e.g., Excited – Calm). The algorithm rated all available words in each

syllabus and created a mean P, A, and D score on a 9-point scale. It is important to note that the algorithm rates language only on the word-level, and thus may miss emotional content conveyed at higher levels (e.g., the phrase- or sentence-level).

Procedure
We collected 200 publicly available syllabi from the internet, seeking a broad sample. Each syllabus was coded by discipline and discipline category. Ten disciplines representing STEM (Biology, Chemistry, Mathematics, Statistics), social sciences (Anthropology, Education, Political Science, Psychology), and humanities (English, History) were included in the sample. Approximately twenty syllabi were included in each discipline. We also selected syllabi from institutions that differed in type (23% private, 77% public) and geographic location within the United States (39% eastern, 33% middle, 28% western). Syllabi were downloaded and analyzed with the PAD algorithm, resulting in a P, A, and D score for every syllabus.

Results
We first began by exploring the overall PAD scores from the 200 syllabi. In general, the comparison syllabi were rated greater in terms of valence ($M = 5.61$, $SD = 0.12$, Range = 5.31-5.89) and dominance ($M = 5.67$, $SD = 0.11$, Range = 5.36-5.97) than arousal ($M = 3.91$, $SD = 0.08$, Range = 3.67-4.19). We then conducted multivariate analyses of variance (MANOVA) to investigate the syllabi PAD ratings by specific discipline and by category.

Syllabi scores by discipline.
The average PAD scores by discipline for the syllabi taken from the internet are in Table 1. There was a large significant multivariate effect of discipline, Wilks' $\Lambda = 0.39$, $F(27, 549) = 7.65$, $p < .001$, partial $\eta^2 = .27$. All three dimensions on the PAD varied by discipline: $F_P(9, 190) = 8.93$, $p < .001$, partial $\eta^2 = .30$, $F_A(9, 190) = 5.58$, $p < .001$, partial $\eta^2 = .21$, and $F_D(9, 190) = 9.65$, $p < .001$, partial $\eta^2 = .31$, respectively. Post-hoc tests with Bonferroni adjustment revealed that the three disciplines with the highest P scores (Education, Psychology, and Anthropology) differed significantly from other disciplines' scores. Specifically, Education was higher in valence than English, History, Biology, Political Science, Statistics, Math, and Chemistry ($ps < .05$). Psychology was higher than Political Science, Statistics, Math, and Chemistry ($ps < .05$), and Anthropology only significantly differed from the discipline lowest in valence, Chemistry ($p = .003$).

Table 1. *Mean Syllabus PAD Scores by Discipline*

Discipline	N	Valence	Arousal	Dominance
Social Sciences	80	5.67 (0.12)	3.94 (0.08)	5.68 (0.13)
Anthropology	21	5.66 (0.10)	3.94 (0.09)	5.63 (0.09)
Education	20	5.75 (0.10)	3.95 (0.06)	5.80 (0.10)
Political Science	18	5.57 (0.11)	3.95 (0.08)	5.57 (0.10)
Psychology	21	5.68 (0.12)	3.89 (0.08)	5.73 (0.12)
Humanities	39	5.61 (0.10)	3.93 (0.08)	5.65 (0.09)
English	20	5.63 (0.09)	3.89 (0.06)	5.70 (0.08)
History	19	5.59 (0.12)	3.97 (0.09)	5.61 (0.09)
STEM	81	5.56 (0.10)	3.88 (0.06)	5.66 (0.08)
Biology	20	5.58 (0.11)	3.88 (0.06)	5.65 (0.09)
Chemistry	20	5.53 (0.07)	3.89 (0.06)	5.66 (0.07)
Math	20	5.55 (0.10)	3.88 (0.06)	5.65 (0.09)
Statistics	22	5.56 (0.09)	3.86 (0.05)	5.68 (0.08)

Note. Showing mean scores; standard deviations are in parentheses.

The four disciplines with the highest A scores (History, Education, Political Science, and Anthropology) also significantly differed from other disciplines. History had higher arousal scores than English, Chemistry, Biology, Math, and Statistics ($ps < .05$). Educa-

tion, Political Science, and Anthropology were significantly higher than only the lowest-rated discipline, Statistics ($ps < .05$). Similarly, the disciplines with the four highest D scores (Education, Psychology, English, and Statistics) were significantly higher than other disciplines. Education was significantly higher in dominance than English, Statistics, Chemistry, Math, Biology, Anthropology, History, and Political Science ($ps < .05$); Psychology was greater than Anthropology, History, and Political Science ($ps < .05$). English and Statistics were only significantly higher in dominance than the lowest-scoring discipline, Political Science ($ps < .05$).

Syllabi scores by category

A MANOVA on PAD scores by overarching category (STEM, humanities, or social sciences) revealed a large significant multivariate effect of category, Wilks' $\Lambda = 0.66$, $F(6, 392) = 14.88$, $p < .001$, partial $\eta^2 = .19$. Both P scores and A scores differed by category, $F(2, 197) = 20.33$, $p < .001$, partial $\eta^2 = .17$, and $F(2, 197) = 15.05$, $p < .001$, partial $\eta^2 = .13$, respectively. However, the three categories did not differ in terms of D scores, $F(2, 197) = 1.43$, $p = .243$, partial $\eta^2 = .01$. Follow-up post-hoc tests showed that those in the social sciences had significantly higher valence than those in the humanities ($p = .022$), and both groups had significantly higher scores than those in STEM ($ps < .05$). The social sciences and humanities did not differ when it came to arousal ($p = 1.00$), but once again both groups had significantly higher scores than those in STEM ($ps < .01$).

STUDY 2

Having piloted our syllabus language tool, we next conducted a short online survey to investigate our two research questions directly. Participants, all instructors at Institution 1, filled out a teaching style inventory, completed a PAD teaching scale, and submitted a syllabus. Syllabi PAD scores were calculated using our algorithm. We expected that the relationship between teaching styles and instructors' emotional associations with teaching would be informed by the language used in the teaching style inventory. That is, instructors who endorsed teaching styles characterized by statements higher in pleasurable, arousing, or dominant language would also show higher P, A, or D scores when rating their teaching experiences. Separately, we expected that instructors' syllabi language would not be consistent with their teaching self-perceptions.

Method

Participants

After receiving exemption from our institution's IRB, we invited 404 instructors from Institution 1's center for teaching and learning email list to participate in our study; 35 instructors completed the survey (an 8.7% response rate). Participants were nearly equally men and women (51.43% male) and represented 27 departments at our institutions. Most (86.71%) had over six years of teaching experience.

Materials

Teaching style

We used Anthony Grasha's Teaching Styles Inventory (Grasha, 1996). According to Grasha, an instructor's teaching style is "a statement about who I am as a person" (Grasha, 1994), that is, a relatively stable core of emotions, attitudes, and behaviors. While teaching style can be adapted and developed, it is more than a collection of techniques. In this questionnaire, participants

respond to forty statements such as "What I have to say about a topic is important for students to acquire a broader perspective on the issues in that area" and "Examples from my personal experiences often are used to illustrate points about the material." Participants indicate their level of agreement with each item using a seven-point Likert-type scale (1 = Strongly disagree, 7 = Strongly agree).

Grasha's inventory avoids the simplistic binary of teacher-centered vs. student-centered, instead identifying five thematic categories of instructional style. These categories are Expert, Formal Authority, Personal Model, Facilitator, Delegator. The Expert teaching style is characterized by the concern for transmitting expert knowledge, whereas the Formal Authority style focuses on establishing standards in the classroom. In contrast, the Personal Model teaching style uses instructor experience to model learning and teaching for students. The Facilitator teaching style seeks to guide and support students to develop as independent learners. Finally, the Delegator teaching style encourages students to work autonomously, providing minimal support as needed. Rather than assigning each instructor to a single primary style, we created mean scores for each participant in each category to capture the broader pattern of teaching styles.

Teaching emotional self-perception

To assess participants' emotions during teaching, we adapted a prompt from a previous PAD scale questionnaire (Mehrabian, 1998). After thinking about their experiences, participants indicated their feelings when teaching using an 18-item semantic differential scale. Each dimension of the PAD was represented by six adjective pairs, and participants selected the radio button in one of nine unmarked spaces between each word pair (e.g., Unhappy – Happy) to describe the intensity of their emotions when involved in teaching-related activities. Adjective pairs were coded such that lower ratings indicated weaker levels of a given dimension, and higher ratings indicated stronger levels (e.g., 1 = Sluggish, 9 = Frenzied). From these ratings we calculated mean scores for each dimension to represent participants' overall teaching emotional self-perceptions. This measure is available in Appendix A.

Syllabus language

We asked participants to provide a de-identified syllabus they had used or planned to use in the future. We then generated PAD scores for every syllabus using our PAD algorithm, yielding a score for each of the three dimensions.

Procedure

The web-based survey asked participants to answer some basic demographic questions, upload their syllabus, and respond to Grasha's teaching styles inventory and the teaching PAD scale questionnaire. At the end of the survey, participants were thanked, and the purpose of the study was explained to them. Syllabi were later downloaded and analyzed with the PAD algorithm by a member of our team.

Results

Teaching styles and teaching self-perceptions

To investigate whether teaching styles predict instructors' emotional associations with teaching, we examined the relationships between Grasha's inventory and the teaching PAD scale. We began by first running all the relevant inventory items for

each teaching style together through the PAD algorithm to determine how each of the five styles corresponded to the three PAD dimensions in terms of language emotion. As shown in Table 2, the Personal Model teaching style had the highest score on valence, Formal Authority style the highest on arousal, and Expert style highest on dominance. Conversely, the Delegator style had the lowest score on valence, Personal Model had the lowest score on arousal, and Formal Authority had the lowest score on dominance. Despite these differences, the styles did not significantly differ in their mean valence or dominance, $F(4, 170) = 1.71$, $p = .149$; and $F(4, 170) = 0.38$, $p = .824$. However, there were significant differences in mean arousal, $F(4, 170) = 2.47$, $p = .047$. Tukey HSD post-hoc tests indicated that the wording in the Formal Authority style was significantly higher in arousal than in the Personal Model style, $p = .030$. There were no other significant differences in arousal among the five styles.

Table 2. *Grasha's Teaching Styles Measured with the PAD Scale Algorithm*

Teaching Style	Valence	Arousal	Dominance
Expert	5.98 (0.67)	4.00 (0.94)	6.05 (0.72)
Formal Authority	5.75 (1.10)	4.36 (0.86)	5.85 (0.78)
Personal Model	6.16 (0.58)	3.80 (0.57)	5.97 (0.77)
Facilitator	6.02 (0.81)	3.95 (0.71)	5.97 (0.81)
Delegator	5.72 (0.89)	4.13 (0.75)	5.87 (0.79)
Note. Showing mean scores; standard deviations are in parentheses.			

We next explored the relationship between the Grasha teaching style and the teaching PAD scores and compared them to our algorithm results (see Table 3). Overall, the pattern of correlations was mostly in line with expectations and the direction of PAD algorithm scores for the Grasha inventory. Greater endorsement of the Personal Model or Facilitator teaching styles, which had the highest ratings on valence per the algorithm, showed a moderate but significant positive relationship with scores on valence, $r(33) = .41$, $p = .016$, and $r(33) = .34$, $p = .016$. Expert scores predicted higher D scores, $r(33) = .49$, $p = 003$. We also observed some unexpected relationships. Despite having the lowest scores in their respective dimension per the algorithm, higher Delegator scores were associated with higher scores on valence, $r(33) = .34$, $p = .047$, Personal Model scores were positively correlated with arousal, $r(33) = .41$, $p = .015$, and Formal Authority scores were positively correlated with dominance, $r(33) = .42$, $p = .011$.

Table 3. *Correlations between Instructors' (Grasha) Teaching Styles and Teaching PAD Scores*

Variable	M	SD	1.	2.	3.
1. Teaching P	7.87	0.93			
2. Teaching A	6.96	0.91			
3. Teaching D	5.71	1.17			
4. Expert	4.96	0.81	.09	.14	.49**
5. Formal Authority	5.50	0.68	-.01	.08	.42*
6. Personal Model	5.39	0.57	.41*	.41*	.26
7. Facilitator	5.32	0.78	.34*	.21	-.27
8. Delegator	4.51	0.82	.34*	.18	-.15
*Note. * $p < .05$; ** $p < .01$*					

Syllabus alignment with teaching self-perceptions
To examine how well instructors' syllabus language aligned with their teaching emotional self-perceptions, we first explored how the syllabus PAD scores from our instructor sample compared to a larger sample of syllabi. Then, we compared our instructors' syllabi PAD scores to their teaching PAD scores.

Comparison with internet syllabi
We conducted a MANOVA on our PAD scores to compare our instructors' syllabi to the syllabi we gathered from the internet. Specifically, we were interested in seeing if the PAD scores

from our study participants' syllabi were similar to that of the comparison syllabi (see Table 4). The results from our MANOVA indicated no significant multivariate effect of sample, Wilks' Λ = 0.97, $F(3, 231) = 2.50$, $p = .060$, partial $\eta^2 = .03$. The syllabi in our study, therefore, could be considered representative.

Table 4. *Study and Comparison Mean Syllabus PAD Scores*

PAD Dimension	Study	Comparison
Valence	5.63 (0.09)	5.61 (0.12)
Arousal	3.95 (0.07)	3.91 (0.08)
Dominance	5.69 (0.08)	5.67 (0.11)
Note. Showing mean scores; standard deviations are in parentheses		

Alignment with teaching PAD
After surmising that our instructors' syllabus PAD scores were not atypical, we then investigated the relationship between syllabus language and teaching self-perceptions. We approached this question in two ways. First, we compared participants' syllabus PAD scores and teaching PAD scores (see Figure 1). Our MANOVA results indicated a multivariate effect of PAD scale, Wilks' Λ = 0.07, $F(3, 32) = 133.37$, $p < .001$, partial $\eta^2 = .93$. Follow-up univariate ANOVA with a Greenhouse Geisser correction revealed that instructors' scores on the teaching PAD scale were significantly higher than their syllabus PAD scores on both valence, $F(1, 34) = 198.12$, $p < .001$, partial $\eta^2 = .85$, and arousal, $F(1, 34) = 407.00$, $p < .001$, partial $\eta^2 = .92$. The mean valence teaching score was 7.87 ($SD = 0.93$), while the mean syllabus valence score was 5.63 ($SD = 0.09$). Similarly, the mean arousal teaching score was 6.96 ($SD = 0.91$), while the mean syllabus arousal score was 3.95 ($SD = 0.07$). In contrast, teaching and syllabus PAD scores did not differ in terms of D scores, $F(1, 34) = 0.01$, $p = .908$, partial $\eta^2 < .001$. Dominance teaching scores ($M = 5.71$, $SD = 1.17$) were effectively similar with the syllabus scores ($M = 5.69$, $SD = 0.08$).
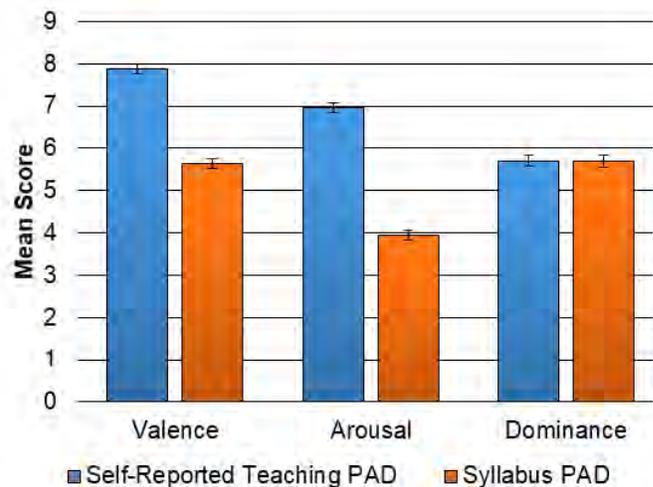

Figure 1. *Comparison of Teaching PAD and Syllabus PAD Mean Scores*
Note. Error bars represent ±1 Standard Error of the Mean (SEM).

Next, we determined the percentage of instructors' syllabi that were incongruent with their teaching PAD score. Instructors were coded as congruent if their syllabus PAD fell within ±1 SD of their teaching PAD mean, and incongruent if they fell outside that range. Standard deviations on the teaching PAD scale were calculated for each participant. Based on this analysis, 82.90% of instructors had incongruent syllabus and teaching P scores and 91.40% of instructors had incongruent A scores, but only 20.00% of instructors had incongruent syllabus and teaching D scores. As with our MANOVA results, instructors' emotions while teaching

were more misaligned with their syllabi on valence and arousal than on dominance.

DISCUSSION
In the above studies, we developed a tool that allowed us to objectively quantify emotional associations of syllabus language in terms of PAD scores. Using this tool, we were able to identify basic patterns regarding the emotional content of syllabus language both overall and by discipline and category of discipline. We then explored the relationships between teaching style and teaching self-perception, as well as teaching self-perception and syllabus language. In investigating the relationship between teaching style and emotional associations of teaching, we found both expected and unexpected correlations between instructors' teaching styles and their self-reported PAD scores. Further, we found noteworthy misalignment between instructors' emotional associations with teaching and the emotional content of their syllabi on ratings of valence and arousal.

Internet Syllabi Language
We found noteworthy patterns in the emotional associations of syllabi language. Although the humanities disciplines—because of their facility with language and emotion—may be expected to score highest on valence, in general, social sciences scored higher on valence, while STEM scored lower, with humanities in between. But these trends were not absolute on the level of disciplines. The notable exception was Political Science, which, although categorized as a social science, scored more like a STEM discipline on valence. The social sciences also had the highest average score on arousal, with STEM again averaging lowest and humanities in the middle. The outlier in the social sciences was Psychology, whose arousal score was closer to the STEM average. This may be a function of Psychology's precarious identity, straddling the STEM and social sciences categories. Notably, Education scored highest on both valence and dominance, while it was tied for second highest on arousal. We speculate that Education faculty, experts in pedagogy and student-teacher dynamics, are skilled in the use of language for high learner impact.

Teaching Styles and Teaching Self-Perceptions
While the language of Grasha's inventory assessed with PAD may not be a strong indicator, we did see moderate positive correlations between instructors' teaching style and their teaching PAD scores. Thus, teaching style as defined by Grasha can be a meaningful (but not perfect) indicator of the emotional self-perceptions of one's teaching. Personal Model, Facilitator, and Delegator teaching styles, which are notably more student-centered, are more likely to have pleasurable or positive associations with teaching. The Personal Model style, noted by its use of modeling, is more likely to be associated with active or energetic feelings. Finally, the Expert and Formal Authority teaching styles, which both highlight the strict difference between instructors and students, are related to greater feelings of dominance or control. The fact that these relationships between teaching style and teaching self-perceptions were in line with expectations from Grasha's descriptions suggests that behaviors or approaches in the classroom are linked to feelings about teaching in reliable ways. It should be noted, however, that nearly all of the observed correlations were positive, suggesting that, for professional instructors, teaching is inherently characterized by valence, arousal, and dominance.

The benefit of this data is that it can provide insight into the emotional associations of teaching styles, making the growing literature on teaching styles relevant for those interested in understanding or adjusting the emotional dimensions of their teaching. For instance, an instructor seeking ways to increase the positive affect they experience when teaching may investigate the Personal Model teaching style. The instructor may thus be encouraged to experiment with teaching methods linked with Personal Model style, such as role playing and personal anecdotes (Grasha, 1994). Alternatively, these results can also suggest that the emotional associations instructors have with teaching influence the methods they are likely to use, such that increasing instructors' positive feelings about teaching, for example, may make them more likely to adopt teaching styles that are more student-centered. Of course, further research is needed to determine the causal direction of this relationship.

Syllabus Alignment with Teaching Self-Perceptions
As a general observation, our results show that most instructors' syllabi evoke in readers emotional associations inconsistent with instructors' teaching emotional self-perceptions, and that the average syllabus is incongruent with the average instructor self-perception in terms of affect and arousal. These findings have important implications for both instructors and students. Assuming that instructors desire consistency (that they want "who they are" to come through in teaching artifacts[2]), this finding suggests that instructors would benefit from critically analyzing their syllabi with a view toward alignment with teaching self-perception. Alignment does not happen automatically. Further, assuming that students desire consistent emotional messages between an instructor's in-person behavior and the syllabus[3] and that instructor self-perception manifests in specific in-person behaviors, this finding suggests that many students would have a more positive experience if an instructor's syllabus language were to match the emotional associations of that instructor's self-perception. We might also speculate that the emotions students perceive in their instructor are closely related to the emotions they themselves feel. As a matter of building community, instructors may want to foster the same emotions they themselves feel. Congruency between instructor emotions and the student perception of emotions would facilitate this.

More specifically, the tool used in this research has the potential to increase instructor self-awareness regarding the relationship between their self-perceptions and their syllabi. Assuming teaching style and self-perceptions reflect a relatively stable core of instructor identity while syllabus language is comparatively easy to adjust, this awareness becomes actionable information. For instance, one of the authors submitted a personal syllabus for an introduction to Christian history course to be run through the PAD algorithm and completed the teaching PAD questionnaire. Based on the same type of congruency analysis as done in Study 2, this instructor was congruent on valence and dominance but incongruent on arousal. While arousal was the only incongruent dimension, the instructor, based on personal preference, attempted to improve the P score. The revised syllabus changed some key words and phrases—for instance, "Required Books" became "What Book You Need," "Course Requirements" became "How to Demonstrate Your Learning," and "Attendance and Student Decorum" became "How to Be a Part of the Class."

The revised syllabus also added a welcome paragraph and a philosophy of teaching paragraph. Although the instructor remained incongruent on arousal, even these few changes resulted in a new syllabus with scores more in line with the instructor's teaching P and A scores. Appendix B shows a sample of the changes made in the syllabus.

LIMITATIONS AND AREAS FOR FURTHER RESEARCH

The main limitation of the study is the uncertainty regarding the mapping of PAD teaching scale scores to the PAD scores generated through our textual analysis algorithm. Although both use the same 9-point version of the PAD scale and are rated based on participants' experienced emotions, differences in what experience is being rated (general teaching experiences versus specific readings of individual words) and how the aggregate dimension scores are calculated (mean of multiple items versus mean of many raters' single item rating) undermine the congruency between these two measures. Further research could investigate these relationships; for example, by comparing raters' emotions when observing an instructor in the classroom with their emotions when reading that instructor's syllabus. However, in the end, our study's contribution seems to lie in the qualitative rather than quantitative data it provides. Making instructors more aware of possible inconsistency between their syllabus language and teaching self-perception may be more valuable than offering precise calculations of said inconsistency. In other words, it seems helpful enough to discover, say, that one's syllabus valence score is lower than one's teaching self-perception valence score.

Another crucial limitation is that the PAD algorithm we used is a flat textual analysis, meaning every measured word has equal weight. Such a word-level analysis likely misses the emotional nuances of complex phrases and sentences and fails to account for other rhetorical conveyers, such as word order within sentences, sentence order within paragraphs, paragraph order and hierarchy within the document, metaphorical language, etc. Furthermore, as a study of words, this investigation also overlooks the emotional associations of graphics (color and pictures, but also typographical variations, like fonts, bold, underlining, capital letters, etc.), which some scholars argue can significantly improve the student experience (Nilson, 2007). Further research could use other, more sophisticated text analysis tools, such as VADER (Valence Aware Dictionary and sEntiment Reasoner; Hutto & Gilbert, 2014). However, the issues cited here and the complexity of emotional expression in general limit the usefulness of nearly all sentiment analysis tools currently available (Seyeditabari, Tabari, & Zadrozny, 2018), and the use of human raters poses its own unique challenges (for the advantages and disadvantages of using human- or computer-based coding, see Su, Cacciatore, Liang, Brossard, Scheufele, & Xenos, 2016).

The limitations of sentiment analysis tools notwithstanding, our findings regarding the relationships between teaching style and teaching self-perceptions are likely hindered by the fact that a "pure" teaching style is not possible. Due to the nature of Grasha's instrument, instructors are unlikely to fall into only a single category or even have a "perfect" (that is, the highest possible) score on any one teaching style.[4] Without further analyses to determine what elements of each teaching style load on each dimension of PAD, and assuming that these elements load on only one dimension, one cannot precisely relate a teaching style score to a PAD score. Thus, what we have is a suggestive overlap rather than precise indicator of how teaching styles, as defined here, relate to the emotions experienced when teaching.

The small sample size and use of instructors from only one institution also poses limitations on generalizability. Given these instructors were only a small subset of those invited by the center for teaching and learning, our findings may be restricted to instructors who are interested in and motivated to contribute to the scholarship of teaching and learning. Separately, we do not yet know what degree of difference between syllabus and teaching PAD score is practically significant. It may be that the discrepancies reported here, while producing large statistically significant effects, go unnoticed by students and instructors. Additionally, it remains unknown if there is a limit to the extent that a syllabus PAD score can be adjusted, given the necessary language constraints of the syllabus as a document that must convey both basic information and necessary technical and academic jargon depending upon one's discipline and university requirements. Our internet syllabi provide some clues (e.g., STEM may inherently have more difficulty raising P scores), but more data, specifically broader data, on syllabus PAD scores would help researchers answer this.

Beyond aligning an instructor's syllabus language and self-perception, instructors may want to adjust syllabus language with target student outcomes in mind. Syllabus language has been linked to students' attitudes and potential behaviors, such as motivation (Harnish & Bridges, 2011) and comfort approaching the instructor outside of class—an effect especially pronounced among first and second year students (Ishiyama & Hartlaub, 2002). This has implications especially for instructors of introductory level courses. Further studies could investigate links between PAD scores and students' attitudes and behaviors. For instance, do students report greater motivation to learn in a class where the syllabus has a high P score?

CONCLUSION

The course syllabus is an important document, since it is likely the first document students see and a document to which they repeatedly refer throughout the course. Both students and instructors may benefit from a syllabus that aligns emotionally with the instructor's self-perceptions, but many instructors give little thought to the emotional associations of their syllabus language—how the language may affect students or the impression the syllabus gives students of the instructor. Prior to this study, instructors who were conscientious about their syllabus language had only literature that relied on intuition about the emotional associations of language. The PAD scale provides an objective way to measure the emotional associations of syllabus language and compare the emotional associations of syllabus language with an instructor's emotional associations regarding teaching. Our study finds that most instructors' syllabi are incongruent on the PAD dimensions for valence and arousal and that on average, instructors' P and A teaching PAD scores are much higher than their corresponding syllabus scores. Nevertheless, instructors can easily adjust the syllabus language to yield PAD scores that more closely align with instructor self-perception. Such an exercise would not only create closer alignment between syllabus and instructor self-perception but would drive instructors to think more deeply about how their syllabi relate to their teaching and vice-versa, prompting a virtuous cycle of experimentation

and refinement. Furthermore, by demonstrating informative links between teaching PAD scores and the existing teaching style literature, this study may help instructors explore in depth the teaching attitudes and behaviors that connect to target PAD dimensions.

NOTES

1. The actual memo sent to faculty is not publicly available. For reactions and purported quotes, see https://www.yorkshireeveningpost.co.uk/news/education/leeds-trinity-university-responds-to-ban-on-capital-letters-1-9453332. Accessed March 14, 2019.

2. At the very least, instructors should find it useful to know the degree to which their teaching self-perceptions align with their syllabi language, even if they do not use that information to aspire to congruency. One instructor in our participant pool commented that he aims for strategic inconsistency between his in-class persona and syllabus language, attempting a "good cop, bad cop" approach.

3. We don't suggest that students desire consistency between instructor self-perception and syllabus language because (1) students' knowledge of instructor self-perception would be difficult to assess, since students don't have concrete access to instructor self-perceptions; and (2) students may not care how an instructor's self-perception relates to teaching behavior or teaching materials; what concerns students is the behavior and materials they encounter directly.

4. Grasha addresses this with the concept of "clusters": nearly all instructors' teaching styles map on to one of four arrangements of each of the five styles into primary and secondary styles.

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APPENDIX A. PAD TEACHING SCALE QUESTIONNAIRE

The Pleasure-Arousal-Dominance Emotion Scale

We would like you to give us as accurate an idea as possible about how you feel in general when you are teaching. Please take your time and think about all aspects of your teaching. Then, use the adjective pairs below to describe how you feel in general when you are teaching. Some of the pairs might seem unusual, but you may generally feel more one way than the other. For each pair, select the circle that best describes your feelings about teaching.

		1	2	3	4	5	6	7	8	9	
Pleasure	Unhappy	○	○	○	○	○	○	○	○	○	Happy
	Annoyed	○	○	○	○	○	○	○	○	○	Pleased
	Unsatisfied	○	○	○	○	○	○	○	○	○	Satisfied
	Melancholic	○	○	○	○	○	○	○	○	○	Contented
	Despairing	○	○	○	○	○	○	○	○	○	Hopeful
	Bored	○	○	○	○	○	○	○	○	○	Relaxed
Arousal	Relaxed	○	○	○	○	○	○	○	○	○	Stimulated
	Calm	○	○	○	○	○	○	○	○	○	Excited
	Sluggish	○	○	○	○	○	○	○	○	○	Frenzied
	Dull	○	○	○	○	○	○	○	○	○	Jittery
	Sleepy	○	○	○	○	○	○	○	○	○	Wide awake
	Unaroused	○	○	○	○	○	○	○	○	○	Aroused
Dominance	Controlled	○	○	○	○	○	○	○	○	○	Controlling
	Influenced	○	○	○	○	○	○	○	○	○	Influential
	Cared for	○	○	○	○	○	○	○	○	○	In control
	Awed	○	○	○	○	○	○	○	○	○	Important
	Submissive	○	○	○	○	○	○	○	○	○	Dominant
	Guided	○	○	○	○	○	○	○	○	○	Autonomous

APPENDIX B. AUTHOR'S SAMPLE SYLLABUS COMPARISON

ORIGINAL

Goals (What I will give you)
1. The basic arch of the history of Christianity;
2. The main theological issues Christians have addressed;
3. Familiarity with the diversity of Christian thought and practice.

Objectives (What you will do to succeed)
1. Locate on a map sites important in Christian history;
2. Identify correct information concerning the major theological, historical and cultural details of Christian history;
3. Explain in your own words the historical issues and theological concerns of various leaders and movements.

Required Books
Mullin, Robert Bruce. *A Short World History of Christianity*, revised ed. Louisville, KY: Westminster John Knox Press, 2014. (Labeled "M" in the assignments calendar)

Weaver, C. Douglas, et al., eds. *Exploring Christian Heritage: A Reader in History and Theology*, 2nd ed. Waco: Baylor University Press, 2018. (Labeled "W" in the assignments calendar)

Attendance and Student Decorum
We are all adults. I intend to treat you with respect, and I expect you to treat me and your classmates with respect. Students are expected to attend class. This class will apply the College of Arts and Sciences policy at Baylor University of 75% minimum attendance, which permits you 7 absences from the class. The 8th absence entails an automatic F in the class. These absences include any kind of absences, excused or unexcused.

Course Requirements
Your grade will be determined by the following:
1. Perform satisfactorily on one [1] theological terms quiz. [10 pts.]
2. Perform satisfactorily on two [2] map quizzes [20 pts.]
3. Participate in class discussions and activities [70 pts.] (This grade will, in large part, be determined by the grades your small group members give you at the end of the semester.)
4. Perform satisfactorily on ten [10] UNANNOUNCED quizzes given over daily reading.
5. Perform satisfactorily on one [1] essay. This essay must be typed, double-spaced, 1,000-1,500 words of text (see directions at bottom of syllabus). [100 pts.]
6. Perform satisfactorily on three [3] review examinations. Make-up exams will be given only if you have written documentation—a receipt from the health center is NOT written documentation—of illness, family emergency or university-excused absence. Make-up exams will be scheduled at the instructor's convenience within one week of the regularly scheduled test. [300 pts.]
7. Perform satisfactorily on the final examination. The final exam is both a review of the last section of the course and a comprehensive exam for the basic ideas in the course. The final exam will only be offered at the assigned time. [100 pts.]

REVISED

My Invitation to You
Welcome. PEACE BE WITH YOU. We come together for a tremendous but exciting and rewarding task: to find some historical and theological meaning in the lives, beliefs, practices, and institutions of past Christians. Together we will encounter the story of Christianity (or, one version of that story), exploring, questioning, and learning about the nearly two thousand years of this religion. In the process, we will discover the main theological issues Christians have addressed and become familiar with the diversity of Christian thought and practice. I hope we all come to see better why Christians believe what they believe and do what they do. Whether or not you are a Christian, appreciation of this world religion can help you make sense the world we all live in, touching on everything from the plays of Shakespeare to why President Trump recognized Jerusalem as Israel's capital.

What I Think about Teaching and Learning
Teaching is a joy for me because I love the material, the ongoing process of discovery, and the experience of expanding the ranks of those who think and care about the material I love. My central goal, therefore, is not to "cover material" but to help you enter a community of knowing. This goal guides my choices as an instructor. You will experience a variety of learning activities in the class. When dealing with some basic information, I will lecture. But in my lectures, I will always strive to encourage you to think by posing questions, pointing out ironies, or tackling controversial issues. Yet even the best of lectures can only accomplish so much. Most learning that is meaningful and lasting happens when the learner helps to make knowledge; that is, by solving problems, defending positions, applying information to new situations, teaching others, etc. This means that although my role is unique as the one who frames, organizes, and assesses our learning, I AM NOT THE ONLY TEACHER IN THE ROOM.

How to Demonstrate Your Learning
1. Find and label on a map twenty key sites in Christian history;
2. Engage in thoughtful discussion with classmates and the instructor about the meanings and motivations of Christian faith and practice
3. Identify information about the major theological, historical and cultural details of Christian history;
4. Explain in your own words the historical issues and theological concerns of various Christian leaders and movements

What Book You Need
Weaver, C. Douglas, et al., eds. Exploring Christian Heritage: A Reader in History and Theology, 2nd ed. Waco: Baylor University Press, 2018. (Labeled "W" in the Course Schedule)

How to Be a Part of this Class
Learning happens in community. For our purposes, this means being present and being caring. Let mutual respect guide our time together, so that everyone can participate and enjoy the class. This class uses the College of Arts and Sciences attendance policy at Baylor University, found here.

The instructor's teaching PAD, pre-revision syllabus PAD, and post-revision syllabus PAD scores are shown in Table 5. Both the P and A syllabus scores increased post-revision, becoming closer to the teaching PAD scores. The post-revision syllabus A score increased by 0.09, and the syllabus P score increased by slightly over one-tenth of a point. While these may seem like small changes, note that the maximum and minimum P scores in our comparison syllabi differed by only 0.58 and the standard deviation in P scores was 0.12, whereas the range for A scores was 1.89 and the standard deviation was 0.08. A few intentional adjustments in syllabus language was enough to change the scores for two PAD dimensions around an entire standard deviation when compared to our observed syllabi.[1]

1. These new scores were also achieved, in part, by eliminating a major assignment description and rubric (ostensibly putting this in a separate document for students). Any interpretation of the higher P and A scores in the revised (and shorter) syllabus must therefore take into consideration that many studies show students prefer more detailed syllabi (Harrington and Gabert-Quillen, 2015).

Table 5. *Author-sample Comparison of Syllabus and Teaching PAD Scores (post-revision)*			
Dimension	**Teaching PAD**	**Syllabus PAD-Pre**	**Syllabus PAD-Post**
Valence	6.50	5.61	5.72
Arousal	5.83	3.92	4.01
Dominance	6.17	5.65	5.59
Note: Showing mean scores			