

July 2017

Predicting Faculty Intentions to Assign Writing in Their Classes

David Trafimow

New Mexico State University - Main Campus, dtrafimo@nmsu.edu

Lindsay M. Ruckel

New Mexico State University

Shelly Stovall

New Mexico State University

Yogesh J. Raut New Mexico State University

Recommended Citation

Trafimow, David; Ruckel, Lindsay M.; Stovall, Shelly; and Raut, Yogesh J. New Mexico State University (2017) "Predicting Faculty Intentions to Assign Writing in Their Classes," *International Journal for the Scholarship of Teaching and Learning*: Vol. 11: No. 2, Article 12.

Available at: <https://doi.org/10.20429/ijstl.2017.110212>

Predicting Faculty Intentions to Assign Writing in Their Classes

Abstract

Teachers who offer undergraduate courses agree widely on the importance of writing assignments to further undergraduate education. And yet, there is a great deal of variance among teachers in their writing assignments; some teachers assign no writing whatsoever. To determine the variables that influence the decisions of teachers about whether to assign writing, we predicted their intentions to assign writing from attitudes, subjective norms, perceived control, and perceived difficulty pertaining to assigning writing. Zero-order correlations and hierarchical regression analyses implicate attitude and perceived difficulty as the most important predictors of teacher's intentions to assign writing in two studies. We also obtained open-ended belief statements in Study 1 and used them to obtain quantitative belief data in Study 2 to find and validate the importance of the impact of particular specific beliefs on intentions to assign writing.

Keywords

attitude, subjective norm, perceived control, perceived difficulty, writing assignments

Predicting Faculty Intentions to Assign Writing in Their Classes

David Trafimow¹, Lindsay M. Ruckel¹, Shelly Stovall², Yogesh J. Raut¹
¹Department of Psychology, New Mexico State University, Las Cruces, NM 88003, USA
²Office of Accreditation, New Mexico State University, Las Cruces, NM 88003, USA
 (Received 19 August 2016; Accepted 1 March 2017)

Teachers who offer undergraduate courses agree widely on the importance of writing assignments to further undergraduate education. And yet, there is a great deal of variance among teachers in their writing assignments; some teachers assign no writing whatsoever. To determine the variables that influence the decisions of teachers about whether to assign writing, we predicted their intentions to assign writing from attitudes, subjective norms, perceived control, and perceived difficulty pertaining to assigning writing. Zero-order correlations and hierarchical regression analyses implicate attitude and perceived difficulty as the most important predictors of teachers' intentions to assign writing in two studies. We also obtained open-ended belief statements in Study 1 and used them to obtain quantitative belief data in Study 2 to find and validate the importance of the impact of particular specific beliefs on intentions to assign writing.

INTRODUCTION

Most college and university faculty have in common the perception that writing benefits their students (Krieger, 2013). One benefit is that writing increases learning (Collins, 1981; Langer, 1986); indeed, this is exemplified in the catchphrase, "writing to learn." Another benefit is that students gain the ability to organize, express, and communicate their thoughts, ideas, and knowledge (Langer & Applebee, 2007). Furthermore, the ability to communicate clearly is essential to later career success (Quible & Griffin, 2007) and the writing that teachers assign can provide a basis for that success (Dana, Hancock, & Phillips, 2011). And yet, teachers often do not assign writing in their classes. Our goal is to understand the variables that predict teachers' intentions to assign or not assign writing in their classes.

The Reasoned Action Approach

As Keeling, Wall, Underhile, and Dungy (2008) documented in their review, it often is advantageous to approach issues pertaining to student success from a theoretical perspective. They also recommended the reasoned action approach as particularly useful in this respect. The reasoned action approach originated as the *theory of reasoned action* (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein, 1980). Because the goal is to predict and understand behavior, the TRA is best understood by working backward from behavior to its precursors. According to the TRA, the immediate determinant of behavior is behavioral intention; put simply, people perform behaviors they intend to perform and do not perform behaviors they intend not to perform. To be sure, people do not always do what they intend to do but many researchers have obtained impressively large correlations between behavioral intentions and behaviors (Ajzen & Fishbein, 1977; Wong & Sheth, 1985).

It is almost tautological that behavioral intentions determine behaviors (see Greve, 2001) and so the interesting issue concerns the determinants of behavioral intentions. In the TRA, there are two pathways to behavioral intentions; the attitudinal pathway and the normative pathway. The immediate determinants of behavioral intentions are attitudes, which are evaluations of the behavior, and subjective norms, which are people's opinions about how much most others who are important to them think they should perform the behavior. It is important to be clear that subjective norms need not reflect what important others actually think, but rather what one thinks they think; hence, the inclusion of the word "subjective" in "subjective norm."

In turn, attitudes and subjective norms have determinants. Attitudes are determined by beliefs about consequences and

evaluations of those consequences. For example, if one believes that a behavior is likely to have negative consequences and the negative consequences are indeed valued as being quite negative, the person will have a negative attitude towards performing the behavior. Subjective norms are determined by normative beliefs, which are beliefs about what specific important others think one should do, as well as motivations to comply with these referents.

The TRA applies well to behaviors that are completely under one's control. But Ajzen (1988; 1991) suggested that not all behaviors are under a person's control. There is no way to measure actual control but Ajzen invented the notion of perceived behavioral control as a proxy. All else being equal, to the extent that people believe that a behavior is under their control, the more they intend to perform it. However, Trafimow, Sheeran, Conner, and Finlay, (2002) noted that although some perceived behavioral control measures tend to measure control, other such measures tend to measure difficulty. They argued further that these are distinct ideas; for example, it might be difficult to go running for a long distance, but it is still under many people's control. Trafimow et al. (2002) performed experimental manipulations that influenced control measures without influencing difficulty measures, and performed experimental manipulations that influenced difficulty measures without influencing control measures. They demonstrated that perceived control and perceived difficulty should be disentangled from each other and measured separately—an approach we adopted in the present research. As in the case of attitudes and subjective norms, perceived control and perceived difficulty are influenced by people's relevant beliefs. Beliefs about why a behavior is under one's control or not influence perceived control, whereas beliefs about why a behavior is difficult or easy influences perceived difficulty.

In summary, as Figure 1 illustrates, the complete reasoned action approach involves four determinants of behavioral intentions and beliefs that are relevant to each of them. These are attitudes, subjective norms, perceived control, and perceived difficulty. The usual reasoned action approach to addressing a practical issue, such as the issue of inducing teachers of undergraduates to give writing assignments in their classes, is to perform the research in two phases. In the first phase, the idea is to find out what beliefs predict behavioral intentions whereas, in the second phase, the idea is to perform intervention studies to show that changing the beliefs found to be most relevant in the first phase actually does change behavioral intentions and behavior. The two studies to be presented here are first phase studies. Thus, our goal in Study 1 was to attempt to predict behavioral intentions from attitudes, subjective norms, perceived control, and perceived difficulty. The variables that best predict behavioral intentions in the first study provide the most promising route for further study and eventual intervention. Our

hope was that one or more variables would fare poorly in Study 1 so as to justify their omission from Study 2, thereby simplifying matters. A second goal of Study 1 was to find out the relevant beliefs which would inform the main focus of Study 2.

Our goal in Study 2 was to investigate the open-ended beliefs obtained in Study 1 to find out which beliefs best predict intentions to assign writing. In Study 2, we created close-ended scales out of the open-ended beliefs elicited in Study 1. Thus the qualitative belief data in Study 1 were transformed into quantitative belief data in Study 2 that could be used to aid in the prediction of behavioral intentions and provide researchers with a strong idea of which beliefs should be the focus of interventions.

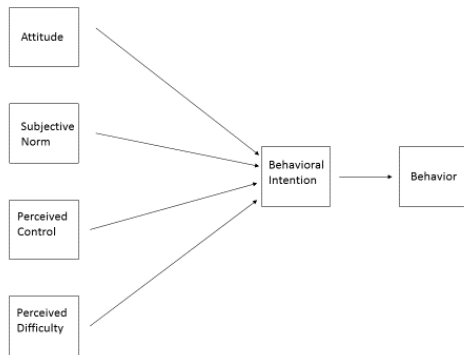


Figure 1. A diagram relating behavioral intention to behavior and relating attitude, subjective norm, perceived control, and perceived difficulty to behavioral intention.

STUDY 1

Goal and Hypotheses

There are two main goals for Study 1. The first goal was to find out which of the four variables—attitudes, subjective norms, perceived control, or perceived difficulty—best predict teachers' behavioral intentions to assign writing. The second goal was to obtain a list of relevant beliefs for each of these variables to use in the subsequent study. We based our main hypotheses on research by Trafimow and colleagues (Trafimow & Finlay, 1996; Trafimow, Rice, Hunt, List, Nanez, Rector, Notah, & Brown, 2012) who tested the precursors of behavioral intentions for a large number of behaviors to find out which of them was the best predictor. They found that for most behaviors, attitudes better predict behavioral intentions or behaviors than do subjective norms. A second hypothesis came out of research by Trafimow et al. (2004) who found that, in general, perceived difficulty better predicts behavioral intentions than perceived control does. In summary, Hypothesis 1 was that attitudes would be an important predictor of intentions to assign writing and Hypothesis 2 was that perceived difficulty also would be an important predictor.

Applying Measurement Principles to Study 1

One of the reasons the reasoned action approach works well is the careful attention paid to measurement issues. According to this approach, each behavior has an action, target, time, and context and it is important to ensure that measures of all variables match on these. This measurement rule is called the *principle of correspondence*. We specified the action as "require writing," the target as "at least 3 writing assignments," the context as "in the most writing-intensive course that you teach," and the time as "in the present semester." We note, parenthetically, that the decision to frame the behavior in this way was after consultation with colleagues in the English department. Thus, for example, a behavioral intention item was "In the present semester, to what extent do you not intend or intend to require writing for at least 3 assignments in the most writing-intensive course that you teach?" Participants responded by clicking a button indicating their choice on a 7-point scale ranging from "extremely not intend" (later scored as -3) to "extremely intend"

(later scored as +3). As will be discussed later in the section on materials, measures on all reasoned action variables corresponded with respect to action, target, context, and time.

Another important measurement principle is that reliability sets an upper limit on validity, so it is extremely important to have measures that maximize reliability. The relation is given in Equation 1 below where ρ_{XY} is the correlation between two variables that actually will be observed, $\rho_{T_X}\rho_{T_Y}$ is the correlation between the true scores of the two variables (the scores that would be obtained in the absence of randomness), $\rho_{XX'}$ is the reliability of the measure of one of the variables, and $\rho_{YY'}$ is the reliability of the measure of the other variable. Equation 1 makes clear that with poor reliability, observed correlations between constructs are likely to be low.

$$\rho_{XY} = \rho_{T_X}\rho_{T_Y}\sqrt{\rho_{XX'}\rho_{YY'}} \quad (1)$$

The most commonly used measure of reliability is Cronbach's alpha and it depends on two variables: the correlations between pairs of items and the number of items. To maximize the correlations between pairs of items we attempted to ensure that the items were as similar as possible and we used four items to measure each construct.

In summary, all items specified the action, target, context, and time so as to comply with the principle of correspondence. And the four items measuring each construct were designed to maximize their inter-item correlations while nevertheless remaining feasible.

METHOD

Participants

Participants were recruited via teaching workshops and through an email sent out via a listserv to faculty in our system campuses. Fifty-two teachers completed the online questionnaire. All participants taught at least one class in the classroom (not online) during the semester in question.

Materials

The constructs of interest were behavioral intentions, attitudes, subjective norms, perceived control, and perceived difficulty. As explained earlier, one behavioral intention item contained the action "(not) intend." Three additional items used "(not) plan," "(not) expect, and "(not) aim." To reiterate, participants responded on seven-point scales to items pertaining to all constructs of interest.

An attitude item was, "In the present semester, to what extent do you dislike or like to require writing for at least 3 assignments in the most writing-intensive course that you teach?" Three additional items substituted words for "(not) like" and these were "(not) enjoy," "(not) prefer," and "feel positively (negatively)."

A subjective norm item was, "In the present semester, to what extent do most others who are important to you think you should not or should require writing for at least 3 assignments in the most writing-intensive course that you teach?" Three additional items substituted words for "who are important to you" and these were "who matter to you," "with whom you wish to comply," and "who you care about."

A perceived control item was, "In the present semester, to what extent is requiring writing for at least 3 assignments in the most writing-intensive course that you teach not under your control or under your control?" Three additional items substituted words for "not under your control or under your control." These were, "not up to you or up to you," "not determined by you or determined by you," and "a behavior you are not able to choose or able to choose?"

Finally, a perceived difficulty item was, "In the present semester, to what extent is requiring writing for at least 3 assignments in the most writing-intensive course that you teach difficult or easy?" Three additional items substituted words for "difficult or easy." These were "not manageable or manageable,"

“complicated or simple,” “a behavior with which you feel uncomfortable or comfortable.”

After responding to the constructs of interest, participants generated beliefs that we expected to use in Study 2. To facilitate this, participants were asked to write down beliefs per the following items. The first two pertained to beliefs about consequences and the following ones referred to normative beliefs (one item), control beliefs (two items), and difficulty beliefs (two items), respectively.

- “Please list the advantages of requiring writing for at least 3 assignments in the most writing-intensive course that you teach this semester.”
- “Please list the disadvantages of requiring writing for at least 3 assignments in the most writing-intensive course that you teach this semester.”
- “Please list the people (e.g., department head, spouse, etc.) who are most important to you in deciding whether to require writing for at least 3 assignments in the most writing-intensive course that you teach this semester.”
- “Please list the factors that make it under your control to require writing for at least 3 assignments in the most writing-intensive course that you teach this semester.”
- “Please list the factors that make it not under your control to require writing for at least 3 assignments in the most writing-intensive course that you teach this semester.”
- “Please list the factors that make it easy to require writing for at least 3 assignments in the most writing-intensive course that you teach this semester.”
- “Please list the factors that make it difficult to require writing for at least 3 assignments in the most writing-intensive course that you teach this semester.”

Finally, participants were debriefed and thanked for participating in the study.

TABLE 1. Beliefs about advantages and disadvantages of requiring writing, and the number of participants who listed each of them.

Beliefs	N
Advantages	
Critical thinking	5
Communication	8
Writing Skills	28
Encourages thinking about topics relevant to the discipline in a different way	13
Opportunity for application	3
Increases reflection	5
Opportunity for self-expression	4
Aids in assessing student thinking and learning	13
Preparation for future classes, jobs/careers, and graduate school	12
No advantages listed	1
Disadvantages	
Grading the papers is time consuming	28
A great deal of effort is required to give useful feedback	12
Requires teacher to read poor quality writing	9
No disadvantages listed	3

RESULTS

There were three main categories of findings. First we report the reliabilities of the measures of the constructs. Second, we report the

findings that test the main hypothesis. Third, we report the findings obtained from the open-ended items pertaining to beliefs.

Reliability of the Measures

Before presenting the main findings of interest, we report the obtained reliabilities of the measures. These were .99 for behavioral intentions, .93 for attitudes, .95 for subjective norms, .97 for perceived control, and .93 for perceived difficulty. Thus, reliability does not seem to have been a problem in Study 1.

Tests of the Hypotheses

We hypothesized that (1) attitudes and (2) perceived difficulty would best predict behavioral intentions. In fact, the attitude-intention correlation was .65 ($p < .001$). The correlations of the other variables with behavioral intentions were .31 ($p < .05$), -.12 (not statistically significant), and .43 ($p < .01$) for subjective norms, perceived control, and perceived difficulty, respectively. Thus, attitudes and perceived difficulty were the two best predictors of intentions to assign writing, thereby supporting the hypotheses.

We also performed a hierarchical regression analysis. The multiple correlation regressing behavioral intentions on to all of the variables was .68. In terms of the coefficient of determination (also known as “variance accounted for” or “variance explained”), the attitude-intention correlation of .65 translates to attitudes explaining 42% of the variance in intentions. Even including all of the other variables only raised the correlation from .65 to .68, and only increased the variance explained from 42% to 46%, which was not a statistically significant increase. In summary, attitudes were the most important predictor of behavioral intentions, and the other variables failed to significantly increase the prediction of behavioral intentions above and beyond that engendered by attitudes alone. Having said that, the large correlation between perceived difficulty and behavioral intentions suggests that it might be premature to conclude that perceived difficulty is unimportant, a matter to be addressed more fully in Study 2.

Beliefs

Table 1 contains all of the beliefs participants listed about advantages and disadvantages of requiring writing, along with the percentages of participants who listed them. Table 2 contains a similar list but of normative referents rather than of consequences. Tables 3 and 4 includes the beliefs participants listed about control and difficulty, respectively. Scanning across the tables, it is interesting that two types of negative beliefs tended to be on three of the four lists (Tables 1, 3, and 4). The time and difficulty involved with grading writing assignments were considered to be (a) disadvantages, (b) factors that place requiring writing in their classes beyond their control, and (c) factors that make it difficult to require writing in their classes. It is interesting to note that Elbow (1994, 1997) has suggested the usefulness of educating teachers about ways to assign writing that do not involve a large amount of time and effort.

TABLE 2. Normative referents and the number of participants who listed each of them.

Normative referents	N
Myself	14
Students	8
Teaching Assistants	2
Faculty/colleagues	15
Administrators	19
Other	7
None	4

STUDY 2

Study 1 demonstrated that attitudes and perceived difficulty are the best predictors of behavioral intentions. Study 1 also provided us

with a set of beliefs that were widely endorsed by the participants. Therefore, the goal of Study 2 was two-fold. First, we wished to cross-validate that attitudes and perceived difficulty predict behavioral intentions but with a larger sample. Second, we wished to capitalize on the information gained in Study 1 about the relevant beliefs pertaining to attitudes and perceived difficulty (listed in Table 1 and Table 4, respectively). Specifically, in Study 2 we assessed the ability of individual beliefs to predict behavioral intentions. The idea is that those beliefs that are good predictors of behavioral intentions also are good candidates for intervention.

METHOD

Participants

Participants were recruited similarly to Study 1, with the exception that we obtained a larger sample of 113 teachers, and 107 completed all measures.

Procedure

The procedure was similar to Study 1 but with the following exceptions. First, we dropped the measures pertaining to subjective norms and perceived control because these variables did not add anything to the prediction of behavioral intentions above and beyond that which was engendered by attitudes and perceived difficulty. Second, we added belief measures as described in the following paragraph.

Let us first consider beliefs pertaining to attitudes. Instructions appeared on the screen: "To what extent do you think it is unlikely or likely that requiring writing for at least 3 assignments in this course would result in each of the following?" Subsequently, each of the beliefs about consequences listed in Table 1 appeared on the participants' screens and they clicked a button indicating how likely or unlikely they felt each consequence would be to occur. In accordance with Ajzen and Fishbein (1980; Appendix A) the seven choices were "extremely unlikely," "quite unlikely," "slightly unlikely," "neutral," "slightly likely," "quite likely," and "extremely likely." We also measured participants' evaluations of how good or bad the consequences would be if they happened. In accordance with Ajzen and Fishbein (1980; Appendix A) the seven choices were "extremely bad," "quite bad," "slightly bad," "neutral," "slightly good," "quite good," and "extremely good." The purpose of obtaining both beliefs and evaluations is to compute belief \times evaluation product scores. For example, if a participant believes a particular consequence of assigning writing to be "extremely likely" and "extremely good" if it occurs, the product score would be $3 \times 3 = 9$ which would be a force in the direction of the participant intending to assign writing. In contrast, if a person considers a particular consequence of assigning writing to be "extremely likely" but "extremely bad" if it occurs, the product score would be $3 \times (-3) = -9$ which would be a force in the direction of the participant intending not to assign writing. According to Ajzen and Fishbein (1980), Equation 2 provides the relation between beliefs (b_i), evaluations (e_i), and attitudes (A).

$$A = \sum_{i=1}^N b_i e_i \quad (2)$$

We also measured beliefs pertaining to perceived difficulty. Participants received instructions: "To what extent does each of the following make it difficult or easy for you to require writing for at least 3 assignments in this course?" Subsequently, participants responded to each item in Table 4 by indicating the extent to which each item made it difficult or easy to require writing. The seven choices were, "extremely difficult," "quite difficult," "slightly difficult," "neutral," "slightly easy," "quite easy," and "extremely easy."

TABLE 3. Beliefs about that factors that render requiring writing to be under or not under the control of faculty, and the number of participants who listed each of them.

Control beliefs	N
Increases control	
Academic freedom/autonomy	35
Supportive colleagues/department	5
Absence of department guidelines	11
I do not have control/choice in this matter	1
Decreases control	
Grading the papers is time consuming	28
A great deal of effort is required to give useful feedback	12
Requires teacher to read poor quality writing	9
No disadvantages listed	3

RESULTS

Reliability of the Measures

Before continuing on to the main analyses, we computed the reliabilities of behavioral intentions, attitudes, and perceived difficulty to cross-validate whether the reliabilities we obtained in Study 1 would replicate in Study 2. These reliabilities were .99, .95, and .87, respectively in Study 2. Thus, the reliability values obtained in Study 1 seem to have replicated reasonably well in Study 2.

Correlations with Behavioral Intentions

There was a bit of a surprise here. Although, as in Study 1, attitudes and perceived difficulty both were significant predictors of behavioral intentions, their relative efficacy as predictors reversed from Study 1. In Study 1, attitudes were a better predictor than perceived difficulty but in Study 2, perceived difficulty was better. The correlation between attitudes and behavioral intentions, in Study 2, was .33 whereas it was .61 for the correlation between perceived difficulty and behavioral intentions. As in Study 1, the multiple correlation involving attitudes and perceived difficulty to predict behavioral intentions was strong ($R = .65$; it was .68 in Study 1).

Because we had measures of beliefs and evaluations, it was possible to compute product scores as specified by Ajzen and Fishbein (1980) and correlate the product terms with behavioral intentions. The significant correlations are as follows:

- Increase student learning ($r = .56$)
- Increase critical thinking ($r = .54$)
- Increase ability to communicate ($r = .46$)
- Increase students' ability to apply what is learned in class ($r = .51$)
- Increase students' reflection on course material ($r = .48$)
- Aids in assessment of student learning ($r = .47$)

We also correlated the perceived difficulty beliefs with behavioral intentions. The correlations that stood out are as follows:

- Having control over structure of the course ($r = .49$)
- Belief that it is good for the students ($r = .64$)

Finally, we performed a large multiple regression analysis that included all of the belief-evaluation products and all of the difficulty beliefs to predict intentions to assign writing. The multiple correlation was .77. Not only is this an impressive number for this type of research but it also highlights the potential value of intervening at the level of several beliefs rather than a single belief. To drive this point home, consider that the belief that assigning writing is good for the students best predicts intentions to assign writing ($r = .64$). Using the coefficient of determination, this belief accounts for 41% of the variance in intentions to assign writing. But

because the multiple correlation involving all of the beliefs was .77, the implication is that 59% of the variance could be accounted for by using all of the beliefs. Thus, there is a difference of 18% (59% - 41% = 18%) that can be exploited by using all of the beliefs instead of just the top predictor.

DISCUSSION

We commence by pointing out that although faculty generally acknowledge the importance of requiring writing in their classes, many of them do not do it. Our findings strongly implicate attitudes and perceived difficulty as the most important predictors of assigning writing. Not only were these variables more highly correlated with intentions to require writing than any of the other variables but inclusion of the other variables in a multiple regression equation in Study 1 failed to increase significantly the prediction of intentions. To our knowledge, this is the first such investigation into the important issue of what distinguishes faculty who require writing from faculty who do not. At the level of general constructs (attitudes versus subjective norms versus perceived control versus perceived difficulty), attitude and perceived difficulty are clear winners.

Ultimately, to perform interventions, it is necessary to have belief level data. The problem is that there are many beliefs that pertain to each of the four more general constructs (see Tables 1-4), and one cannot construct interventions on all of them. Fortunately, the correlational and regression analyses from Study 1 enabled us to eliminate subjective norms and perceived control as important predictors of intentions to assign writing, thereby leaving attitudes and perceived difficulty as the only constructs that needed to be explored at the belief level. In addition, the open-ended data from Study 1 explicated exactly what the relevant beliefs are, so that they could be investigated quantitatively in Study 2. By eliminating subjective norms and perceived control as important variables, we also were able to eliminate the items in Tables 2 and 3 as matters that needed to be investigated in Study 2.

TABLE 4. Beliefs about factors that render requiring writing to be easy or difficult for the faculty, and the number of participants who listed each of them.

Control beliefs	N
Easy	
Graduate/Teaching assistant support	9
Technology (e.g., CANVAS)	3
Rubrics/previous assignments	5
Expectations that writing will be assigned in the particular course	6
Having control over the structure of the course	9
Belief that it is necessary and good for the students	14
Enjoyment of teaching writing	9
None	1
Difficult	
Student resistance or non-compliance	6
Student ability level	7
Grading	21
Time consuming	15
Requires a great deal of effort to give useful feedback	10
Class sizes are too large	6
Dealing with plagiarism	3
None	8

In Study 2, we again found that the combination of attitudes and perceived difficulty performed well in predicting intentions to assign writing. However, the relative placement of the two variables, in order of importance, reversed from Study 1. This reversal underscores the importance of cross-validation. We will say more about this presently. For now it is sufficient to point out that we had more participants in Study 2 than in Study 1 and so we give slightly more weight to Study 2 than Study 1 on this matter.

The foregoing bullet-listed beliefs performed very well as predictors of intentions to assign writing. Because the correlations were so strong, especially the multiple correlation of .77, the findings provide reason for optimism regarding the potential to design successful interventions. They also provide a possible solution to the puzzle of why the relative contribution of attitudes and perceived difficulty reversed from Study 1 to Study 2. That is, the belief that assigning writing is good for the students was listed as a factor that makes assigning writing easier—that is, a perceived difficulty item—but it also can be thought of as a positive consequence of writing, which would render it an attitude item. Although Trafimow and Duran (1998) have shown that attitudes and perceived difficulty are different concepts, in general, our suspicion is that there is some overlap between them with respect to the issue of assigning writing. This overlap might be responsible for the different orders of importance in the two studies. Although from a theoretical point of view there may be an ambiguity about whether this particular belief rightly should be regarded as an attitude item or as a perceived difficulty item, from an applied perspective, it is not necessary to resolve this theoretical issue. Regardless of one's opinion about it, the clear implication for application is that interventions designed to convince faculty that their assigning writing will help their students should increase the frequency of writing assignments.

In one way, at least, the present findings are very surprising. Consistent with the focus of Elbow (1994, 1997) on ways to make writing assignments easier for faculty to handle, the two top disadvantages of assigning writing, listed in Table 1, were “grading the papers is time consuming” and “a great deal of effort is required to give useful feedback.” Informal discussions with colleagues supported that the time or effort required would be important predictive variables. And yet, when tested quantitatively in Study 2, these failed to make the bullet list of top predictors of intentions to assign writing. Perhaps teachers fail to give other teachers sufficient credit for their commitment to do what they believe will be good for the students—the belief that most strongly predicted intentions to assign writing (remember, $r = .64$). In fact, almost all of the items in the bullet list can be interpreted as specific ways in which assigning writing can be good for students. Possibly, this fact could increase the ease of designing integrated intervention programs. That is, because most of the important predictors of assigning writing were beliefs about various ways in which doing so is good for students, doing what is “good for students” could be the central theme of future intervention programs.

The present findings clarify that attitudes and perceived difficulty are more promising than subjective norms or perceived control, as general constructs worthy of investigation in the context of increasing teacher's intentions to assign writing. At the level of beliefs—the level at which one would intervene—we found that beliefs pertaining to ways in which assigning writing is good for students were excellent predictors of intentions to assign writing. We find this very encouraging because it suggests an admirable level of commitment that most teachers have to benefit students. There is extensive data showing that writing is good for students (e.g. Drabick et al., 2007; Marek et al., 2005; Nevid, Pastva & McClland, 2012; Stewart et al., 2010). More specifically, Angelo (1995) and others (Blake, 2005; Dunn & Smith, 2008; Mills, 2008; O'Connell & Dymont, 2006; Tsui, 1999; 2002; Wade, 1995) all contend that writing positively impacts student learning, ability to think critically and ability to reflect on course material. Further research supports

that writing to learn practices facilitate acquisition of discipline concepts (Christopher & Walter, 2006; Connor-Greene, 2000; Tsui, 2002). Others even identify writing as a unique form of learning (Emig, 1997; Wiley & Voss, 1996; McLeod, 1992; Spivey, 1990). Given the substantial research, it ought to be easy to convince faculty that, in fact, writing does benefit students.

It seems worthwhile to list some limitations of the present research. The most obvious limitation is that we used behavioral intentions rather than behaviors as the main dependent variable. Although behavioral intentions are a precursor of actual behaviors, the two are not identical. It is encouraging that much research shows that behavioral intentions are excellent predictors of behaviors when measured correctly (see Fishbein & Ajzen, 2010 for a review), but the only way to be absolutely sure, with respect to the present behavior concerning teachers assigning writing, is to collect behavioral data. A second limitation is that findings are correlational rather than experimental. The good news here is that there is precedent for the convertibility of correlational findings into experimental ones. For example, based on previous findings by Stasson and Fishbein (1990) that some behaviors receive larger attitude than subjective norm correlations and beta-weights, whereas the reverse is true for other behaviors, Trafimow and Fishbein (1994a; 1994b) supported the validity of these analyses using true experimental designs. Nevertheless, until this advance is extended to the issue of teachers assigning writing, it remains possible that the present findings may not convert to true experimental paradigms. Finally, belief change is difficult, and so although the present research identified the crucial beliefs on which to focus, the extent to which any particular intervention will succeed has yet to be determined.

Despite the limitations, the present findings are promising, and we anticipate that future research will move in this direction. We also hope that the methods applied here can be applied to many educational issues that depend on faculty inclinations, such as active versus passive teaching approaches (Michel, Cater, & Varela, 2009), the flipped classroom (Lage, Platt, & Treglia, 2000), and others.

REFERENCES

- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Chicago, IL: Dorsey.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Ajzen, I., & Fishbein, M. (1977) Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, 84, 888-918.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Angelo, T.A. (1995). Classroom assessment for critical thinking. *Teaching of Psychology*, 22, 6-7.
- Blake, T.K. (2005). Journaling: An active learning technique. *International Journal of Nursing Education Scholarship*, 2, 1-13.
- Christopher, A.N., & Walter, M.I. (2006). An assignment to help students learn to navigate primary sources of information. *Teaching of Psychology*, 27, 44-46.
- Collins, C. (1981). *The use of writing to improve reading comprehension*. Paper presented at the 71st Annual Meeting of the National Council of Teachers of English, Boston, MA.
- Connor-Greene, P. A. (2000). Making connections: Evaluating the effectiveness of journal writing in enhancing students learning. *Teaching of Psychology*, 27, 44-46.
- Dana, H., Hancock, C., & Phillips, J. (2011). The future of business: Merit in writing across the curriculum. *American Journal of Business Education*, 4(10), 51-58.
- Drabick, D. A. G., Weisberg, R., Paul, L., & Bubier, J. L. (2007). Keeping it short and sweet: Brief, ungraded writing assignments facilitate learning. *Teaching of Psychology*, 34, 172–176.
- Dunn, D.S., & Smith, R.A. (2008). Writing as critical thinking. In D.S. Dunn, J.S.
- Elbow, P. (1994). *Writing for learning—not just for demonstrating learning*. Amherst: University of Massachusetts, Amherst. Retrieved February 5, 2015, from <http://assessment.nmsu.edu/files/2013/05/Writing-for-Learning-Not-Just-for-Demonstrating-Learning.pdf>
- Elbow, P. (1997). High stakes and low stakes in assigning and responding to writing. *New Directions for Teaching and Learning*, 1997(69), 5-13.
- Emig, J. (1997). Writing as a mode for learning. *College Composition and Communication*, 28, 122-128.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York: Psychology Press (Taylor & Francis).
- Greve, W. (2001). Traps and gaps in action explanation: Theoretical problems of a psychology of human action. *Psychological Review*, 108, 435-451.
- Keeling, R. P., Wall, A. F., Underhile, R., & Dungy, G. J. (2008). *Assessment reconsidered: Institutional effectiveness for student success*. International Center for Student Success and Institutional Accountability: United States of America.
- Krieger, J. (2013). *Faculty beliefs and practices about writing initiatives as classroom strategies and institutional objectives* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (UMI No. 3560619)
- Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education*, 31(1), 30-43.
- Langer, J. (1986). Learning through writing: Study skills in the content areas. *Journal of Reading*, 29(5), 400-406.
- Langer, J., & Applebee, A. (1987). *How writing shapes thinking: A study of teaching and learning*. Urbana, IL: National Council of Teachers of English.
- Marek, P., Christopher, A. N., Koenig, C. S., & Reinhart, D. F. (2005). Writing exercises for introductory psychology. *Teaching of Psychology*, 32, 244–246.
- McLeod, S.H. (1992). Writing across the curriculum: An introduction. In McLeod, S.H., & Soven, M. (Eds.), *Writing across the curriculum: A guide to developing programs*, (pp: 1-11). Newbury Park, CA: Sage Publications, Inc.
- Michel, N., Cater III, J. J., & Varela, O. (2009). Active versus passive teaching styles: An empirical study of student learning outcomes. *Human Resource Development Quarterly*, 20(4), 397-418.
- Mills, R. (2008). 'It's just a nuisance': Improving college student reflective journal writing. *College Student Journal*, 42, 684-690.
- Nevid, J.S., Pastva, A., & McClland, N. (2012). Writing-to-learn assignments in introductory psychology: Is there a learning benefit? *Teaching of Psychology*, 39 (4), 272-275.
- O'Connell, T., & Dymont, J. (2006). Reflections on using journals in higher education: A focus on group discussion with faculty. *Assessment & Evaluation in Higher Education*, 31, 671-691.
- Quible, Z., & Griffin, F. (2007). Are writing deficiencies creating a lost generation of business writers? *Journal of Education for Business*, 83(1), 32-36.
- Spivey, N.N. (1990). Transforming texts: Constructive processes in reading and writing. *Written Communication*, 7, 256-287.
- Stasson, M., & Fishbein, M. (1990). The relation between perceived risk and preventive action: A within-subject analysis of perceived driving risk and intentions to wear seatbelts. *Journal of Applied Social Psychology*, 20, 1541-1557.
- Stewart, T. L., Myers, A. C., & Culley, M. R. (2010). Enhanced learning and retention through "writing to learn" in the psychology classroom. *Teaching of Psychology*, 37, 46–49.

- Trafimow, D., & Duran, A. (1998). Some tests of the distinction between attitude and perceived behavioural control. *British Journal of Social Psychology, 37*, 1-14.
- Trafimow, D., & Finlay, K. A. (1996). The importance of subjective norms for a minority of people: Between-subjects and within-subjects analyses. *Personality and Social Psychology Bulletin, 22*, 820-828.
- Trafimow, D., & Fishbein, M. (1994a). The importance of risk in determining the extent to which attitudes affect intentions to wear seat belts. *Journal of Applied Social Psychology, 24*, 1-11.
- Trafimow, D., & Fishbein, M. (1994b). The moderating effect of behavior type on the subjective norm-behavior relationship. *The Journal of Social Psychology, 134*, 755-763.
- Trafimow, D., Rice, S., Hunt, G., List, B., Nanez, B., Rector, N., Notah, J., & Brown, J. (2012). It's Irrelevant, but it matters: Using confluence theory to predict the influence of beliefs on evaluations, attitudes and intentions. *European Journal of Social Psychology, 42*, 509-520.
- Trafimow, D., Sheeran, P., Conner, M., & Finlay, K. A. (2002). Evidence that perceived behavioral control is a multidimensional construct: Perceived control and perceived difficulty. *British Journal of Social Psychology, 41*, 101-121.
- Tsui, L. (1999). Courses and instruction affecting critical thinking. *Research in Higher Education, 40*(2), 185-200.
- Tsui, L. (2002). Fostering critical thinking through effective pedagogy: Evidence from four institutional case studies. *The Journal of Higher Education, 73*(6), 740-763.
- Wade, C. (1995). Using writing to develop and assess critical thinking. *Teaching of Psychology, 22*, 24-28.
- Wiley, J., & Voss, J. (1996). The effects of "playing" historian on learning in history. *Applied Cognitive Psychology, 10*, 63-72.
- Wong, J., & Sheth, J. (1985). Explaining intention-behavior discrepancy--a paradigm. *Advances in Consumer Research, 12*, 378-384.