

The effects of Just in Time Teaching on motivation and engagement in a history of photography course

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The authors studied the effects of the Just in Time Teaching (JiTT) method on the motivation and engagement of students in a history of photography course. Students reported that JiTT, which requires students to respond to questions via the Web shortly before class, increased their critical thinking (73 percent), helped them better understand course concepts (79 percent) and made them feel responsible for their own success (75 percent); 66.6 percent said they spent much more or more time than in comparable courses. The authors conclude JiTT, primarily used in science and math, can increase motivation and engagement in humanities courses.

Introduction

Under the Just in Time Teaching (JiTT) method, students answer problem sets or respond to study questions then send their work electronically to the instructor shortly before class. Their responses let the instructor tailor lectures, demonstrations, discussions or other teaching and learning activities to reinforce the students' understanding and correct their misconceptions. The method combines an old idea, pre-class study questions, with internet technology.

Spring 2006 marked the lead author's third time using the JiTT method as a major component of his History of Twentieth Century Photography course. (The course surveys photography as a medium of art and communication, examining more than 125 photographers working in a variety of movements, genres and styles. It enrolled over 150 upper level undergraduates and graduate students.) In Spring 2004, he gathered data on the question of whether the JiTT method, as an important element in a writing-intensive course, increased students' critical thinking skills. In analyzing data collected through questionnaires, self-evaluation essays and focus groups, he was struck by how frequently students reported the JiTT method had exerted a positive effect on their motivation in the course.

The current study is designed to assess how effective the JiTT method is on student motivation, or disposition toward learning, and on engagement, measured as time spent on task. The study makes an important addition to the literature on this teaching method, which was developed in physics and has been implemented primarily in mathematics, and the natural sciences social sciences. To date, no research on the use of JiTT in the humanities has been published. This study offers a first step toward filling this gap. It offers instructors in the humanities a model for implementation and provides empirical and qualitative evidence for the effectiveness of the method.

Collecting a rich base of data including quantitative surveys, open-ended questions, student self evaluation essays and focus-group responses, the authors investigated the following questions:

Q1. Does JiTT change history of photography (HOP) students' disposition/motivation to spend more time working on course objectives?

Q2. Does JiTT change HOP students' disposition/motivation to spend more effort working on course objectives?

Q3. Does JiTT change the actual time HOP students spend working on assignments and exams?

Q4. Does JiTT change the actual effort HOP students spend working on course objectives?

Literature review

Just-in-Time Teaching utilizes Web-based technology to foster active learning. Students complete an assignment that is submitted on-line a few hours before class — “just in time” for the instructor to assess their work. Their responses help the instructor gauge their comprehension or misunderstanding of readings or problem sets. The instructor may incorporate ideas from their responses into the lecture or use them as a basis for discussion. JiTT requires students to practice tasks and to think critically. It works as an incentive model that provides consistent feedback and assessment to both instructor and students.

JiTT was developed by Novak, Patterson, Gavrin, and Christian (1999) to maximize the learning of students in their introductory college physics courses. They noticed that their physics students were more concerned with their grades than with acquiring knowledge and information. The focus on grades rather than knowledge is especially problematic when students advance beyond introductory coursework into higher levels of the discipline without an adequate foundation in the subject matter. According to Novak, JiTT allows students to gain control of their own learning process, gain motivation in learning, and overcome time constraints (4).

Pedagogically, JiTT allowed the authors to incorporate the “Seven Principles for Good Practice in Undergrad Education” proposed by Chickering and Gamson (1987) for effective college teaching and learning. These best practices advocate active learning, contact between students and instructors, student collaboration, feedback, emphasis of time on task, high expectations, and respect for diverse talents. The JiTT method allowed the instructor to institute all of these practices in a large lecture course that enrolled students from journalism, studio art, and art history. During class, there were regular opportunities for students to participate in small- and large-group discussions, which helped them understand the multiple perspectives of their classmates. Through the assignments, students received prompt, regular feedback specific to their progress from instructors, and they reported their level of engagement and time on task. Chickering and Gamson hold that contact between students and faculty is the most significant factor in student motivation. Furthermore, they explain that defining time expectations establishes high performance practices.

JiTT was designed for physical science courses and it has been implemented in other empirical disciplines. Instructors in the social sciences have documented the success of JiTT in their classrooms, including Simkins and Maier (2004) in their economics courses and Howard (2004) in introductory sociology. Bailey and Forbes (2005) applied JiTT strategies into their introductory computer science course at Duke University to ensure and evaluate student learning. They found JiTT offers a “sensible framework” and it was “suited for computer science education” (70).

Howard (2004) used JiTT as a form of incentive motivation for his introductory sociology students to read the assigned text. Prior to class, Howard required his students to answer multiple choice questions that referenced specific information in the assigned reading and short-answer questions that “required students to summarize and synthesize information from the reading” (237). The students surprised him with strong affective responses. Surveys revealed that the percentage of students who reported they “usually” or “always” read the assignment increased 30 points.

Studies have shown that academic achievement is affected by motivation and engagement (Garcia and Pintrich 1996, Covington 2000). Pintrich and DeGroot (1990) conceptualize academic motivation in terms of three components: an expectancy component, a value component, and an affective component. The expectancy component is related to how a student perceives his or her ability to complete an assignment and the affective component involves the student's emotional response to the task. The value component is most relevant to our study. It pertains to the students' perceived importance of and interest in a task. Schiefele (1991) proposes that interest is complex, self-motivated, and specific to subject. He indicates that interest and motivation are deeply correlated, concluding that high-interest students gain deeper comprehension than low-interest students. The JiTT model makes each assignment important not only for grades, but also for its relevance outside the classroom, which encourages interest and, therefore, motivation.

Theories of motivation account for multiple levels of intrinsic and external stimuli for regulating behavior (Skinner and Belmont 1993). JiTT assignments model incentive motivation and provide students with autonomy, two factors that correlate highly to motivation. Incentive motivation promotes behavior in order to attain or avoid an incentive (Tuckman 1996). Garcia and Pintrich (1996) showed how a sense of autonomy improved intrinsic motivation, task value, and self-efficacy. In addition, Meece, Blumenfeld & Hoyle (1988) found that higher motivation was linked to mastery rather than performance, or to intrinsic rather than extrinsic incentives. Since it is not clear if internal and external motivating factors are mutually exclusive, it appears that both can relate to interest. Our study incorporated both autonomy and incentive modes of motivation, as measured by interest.

Engagement also involves a level of autonomy. Cognitive engagement is often characterized as effort, self-regulation, and strategy in academic achievement. Multiple methods of reporting engagement exist (Gregoire, Ashton, & Algina 2001). Engagement can also be defined as "mental effort" (Beder, et al 2006) or as time spent on task. We used both in this study. We employed self-reporting, but engagement can also be measured by grades (Pintrich 2000). Operational definitions of engagement are complex, yet linked to motivation and achievement goals (Miller, et al. 1996). Research has shown that increased time on task improves student learning (Cavanagh 2006).

Many instructors in the physical and social sciences use JiTT for formative evaluations to help students determine how well they are learning the course material. In our study, we used JiTT for summative assessment, which requires a level of student autonomy and is based on cumulative learning.

Method

The study was conducted in a history of twentieth century photography course on Indiana University's Bloomington campus during the spring semester of 2006. Although it was cross listed in the School of Journalism and the Department of Art History and the instructor is on the Journalism faculty, it was conceived and taught as an art history course in the humanities tradition. It enrolled 153 students: 70 from journalism, 83 from art history. Ten were masters students, the rest were primarily underclass juniors and seniors. A few were art history students, but most contemplated careers as

photojournalists or art photographers. Class sessions comprised lectures, discussions of the JiTT readings and responses, and analysis of photographs.

Students submitted 11 JiTT assignments, which we called TARs, an acronym for Thinking about the Readings. The two lowest grades were dropped. This component, worth 40 percent of the semester grade, substituted for exams. Although the TARs generally were spread across the semester, none was due during weeks when quizzes or papers were assigned. In addition, we stopped assigning TARs two weeks before the end of the semester so students could concentrate on their final research papers.

Our implementation of the JiTT method differed from the standard model in three respects: First, our primary objective was to promote critical thinking, not the acquisition of domain knowledge. The TARs questions were based on oppositional readings by two or more authors who took contrasting positions on a topic. Students were asked to resolve the disagreements in the oppositional readings short essays due two hours before class. The questions were formulated at the higher cognitive levels of Bloom's taxonomy: comprehension, application, analysis, synthesis, and evaluation. Second, where many instructors use student responses to adjust their lectures, we used them as the basis for in-class discussion. Again, the intent was to foster critical thinking. There were no right or wrong answers to the questions, only better or poorer thinking and clearer or fuzzier articulation. Third, many instructors use JiTT as a formative technique to help students know how well they understand the material before taking high-stakes exams. Because doing TARs assignments were so time consuming, we felt obliged to weigh this component at 40% of the course grade. This effectively made the assignments summative. Despite these differences, our TARs approach falls within the JiTT method, because it uses the internet to monitor assigned homework. Our students submitted their essays via Oncourse, IU's web based course management system.

We set high expectations for the quality of thinking, writing and length of the responses. In addition to grades, early in the semester we gave students extensive feedback. After the first four assignments established a base of expectations, the amount of feedback was reduced for students submitting satisfactory, good or excellent essays. We continued to tell students with mediocre or poor assignments how they could improve.

In order to measure motivation and engagement, an extensive body of quantitative and qualitative data was collected, including:

1. Motivation. Questions about the students' motivation to learn the course content were asked in surveys at the beginning and end of the semester.

2. Engagement. Time on task was used as the measure for engagement. On each JiTT assignment, students were asked to estimate to the nearest half hour how long they spent doing the assignment.

Two qualitative methods were used to collect data:

3. Surveys. Open-ended questions were included in three surveys.

4. Focus group. A consultant from Campus Instructional Consulting conducted a focus group with 10 students who remained anonymous to the instructors. This session, which was held during the final week of the semester, attempted to probe students' motivation and engagement more deeply by following up on questionnaire items.

This study was approved by the Indiana University Human Subjects Committee. Except for anonymous questionnaires, only materials from students who have signed a consent form have been used in this study; all identifiers have been removed.

Quantitative data

The most encouraging result of the quantitative analysis portion of the project was the positive correlation between the TARs and the course objectives. For example, the more strongly students felt that TARs had helped them understand course material the more they agreed they had acquired a broad knowledge of 20th Century photography, a key course objective. In short, the data show a positive relationship between TARs and learning. Although moderate at times, this correlation existed for each of the five course objectives.

The statistical analysis derives from three surveys of students administered during Spring semester 2006. Students volunteered to take the surveys and did so anonymously. The surveys asked slightly different questions, so comparisons among them are limited. Nonetheless, they show a gradual, positive shift in students' attitudes toward TARs and specifically how TARs effected their motivation and engagement in the class. We asked the most detailed questions about the TARs assignments in the last survey, which was administered April 27, 2006, the last class of the semester. It provides the most detailed statistical analysis. Ninety-two students responded.

The first survey, administered between January 10 and January 24, via an Internet course management program, drew 131 responses. It asked basic questions about the students' interest in and knowledge of the history of 20th century photography and their familiarity with JiTT methods. Most of the students (86 percent) were juniors and seniors, and about three fourths were female.

About 98 percent of respondents reported a strong interest in the history of photography, which suggests a high level of motivation or interest to learn among those surveyed at the beginning of the study. Some 80 percent of students surveyed responded that they intended to work harder in this course than in previous upper-level courses in history, literature or other humanities disciplines. That enthusiasm was tempered somewhat when they were asked specific questions about academic reading and writing, skills that were critical for success on the TARs assignments and other course components. About 44 percent replied they disliked academic reading and about a third disliked academic writing. Students did respond positively, however, to a question about critical thinking, another key skill for TARs, which asked them to compare and contrast arguments in the readings. About 90 percent responded that they liked to do critical thinking.

The veracity of these results, which depends on how one defines "critical thinking," is open to question. But it seems clear the students surveyed felt that they possessed the motivation to tackle the course objectives, although many were unsure if their academic skills were up to the task.

About a third of the students responded that they had taken courses that employed JiTT methods and about a quarter of those answered that they felt the method had "improved" or "greatly improved" their learning. A roughly equal number of students replied that JiTT "did not affect" their learning.

This first survey laid the groundwork for the two that followed. The second, in February, asked students specific questions about their time spent on the TARs and how the TARs might be helping to improve their engagement, their critical thinking and their processing of the readings. Ninety-seven students responded to the second survey.

About 86 percent of them reported the TARs questions were clear to them. About 39 percent said the TARs questions were “difficult,” and 13 percent said they were “too difficult.” Forty-five percent responded they thought the questions were “about right.” Regarding time on task, some 38 percent of the students surveyed spent two to four hours on the TARs assignments, including reading and writing. About 36 percent spent four to six hours and roughly 14 percent reported spending six to eight hours. About 5 percent reported spending more than eight hours on each assignment, and roughly the same number reported spending less than two hours.

Separate data corroborate these numbers. Beginning with the second TARs assignment, we asked students: “Please tell us how long you spent on your TARs 2 assignment, combining both the reading and writing times into one total figure. Please round your time off to the nearest half hour. For example: 2.5, 4, 6.5, etc.” Table 1 charts the average times from assignments 2 through 11, with an aggregate mean of 3.3 hours for the 10 assignments. It also includes the high and low hours. The amount of time spent by individual students ranged from a low of 15 minutes on the final TARs to a high of 13 hours on TARs 2. The aggregate mean for the most time spent was 9.5 hours; the lowest, 0.9.

Table 1. (Mean average of times, in hours, spent on TARs assignments)

	ARs2 n=134	ARs3 n=122	ARs4 n=137	ARs5 n=120	ARs6 n=122	ARs7 n=131	ARs8 n=99	ARs9 n=116	ARs10 n=98	ARs11 n=88	Aggregate means	Average mean
Mean	.1	.6	.8	.8	.9	.2	.3	.1	.1	.1	.3	3.3
High	1	.5	3	.5	4						.5	9.5
Low	.5	.5	.5							.25	.9	0.9

Regarding assessment of the TARs assignments, more than half (58 percent) of respondents said that our expectations for the quality of their work was not “too high.” Thirty-four percent said our grading of their TARs assignments was “about right.” Slightly more than half responded that grading was “severe,” and 4 percent said it was “too severe.”

One important question on this second survey helps put the above statistics in perspective. Despite the motivation shown by many students as evidenced in the responses above, including time on task and students’ responses to questions about our grading and expectations, a majority (56.5 percent) of students responded that the learning they gained from TARs was not worth the time required, which may demonstrate a low perception of importance, the value component of motivation.

However, this response does not jibe with responses to questions we asked about academic skills. Table 2 shows an overwhelming majority of respondents indicated the TARs readings and questions helped them think more critically and process the readings at a deeper level, an indication of high valuation of the task.

Table2 (Data from February 2006 survey)

	<i>Yes (percent)</i>	<i>No (percent)</i>	<i>N (number of valid respondents)</i>
Are the TARs assignments too much work?	61.3	38.7	93
Is the learning you are gaining from the TARs worth the time?	43.5	56.5	92
Do the oppositional readings (in the TARs assignments) help you think critically?	85.3	14.7	95
Do the TARs questions help you think critically?	84	16	94
Do TARs questions help you process the readings at a deeper level?	63	37	92

The February survey provided us with valuable insight into what effects the TARs assignments might be having on students' learning. We decided to broaden the final survey to include more detailed questions about the TARs and to ask students directly about course objectives.

As with the February survey most students responded positively to questions about TARs helping them with critical thinking and a deeper processing of the readings. There was, however, a positive increase in the students' attitude toward TARs. When asked whether the learning they were gaining from the TARs was worth the time, the percentage of students with affirmative responses increased from slightly over 43 to 61, while the percentage who said no decreased from slightly over 56 to 39. Table 3 shows this change in attitude about the TARs.

Table 3. *Is the learning you are gaining from the TARs worth the time?*

	Yes	No	N
February survey	43.5	56.5	92
April Survey	61	39	80

We attribute this effect to several changes in the TARs format, which we made after the February survey when many students told us they felt overwhelmed by the regimen. Questions were reduced from two to one per assignment, frequency was reduced to one per week (the net loss was only one TARs assignment, a reduction from 12 to 11), and instead of an open-ended standard of "completeness," we stipulated a length of 700 words or two pages.

Despite this change in attitude, Table 1 shows that the actual time spent decreased an average of less than 45 minutes per assignment, from an aggregate mean of 3.8 hours before the format change to 3.1 hours after it. After the change, the average dropped

slightly below 3 hours for two assignments, then leveled off at slightly above 3 hours for the remaining five.

We employed a five-point Likert style scale to measure attitudes about the TARs assignments. In short, TARs seems to have helped a majority of respondents better understand the course material and course concepts and helped them feel more responsible for their own success in the course, which speaks to both the value component of motivation and engagement. Just over half also responded that TARs made them feel more involved in the course compared to other 400- and 500-level courses. Likewise, nearly three fourths of respondents agreed that TARs helped them keep up with readings and work in class, which corresponds to their perception of importance. Both responses appear to show that TARs increased the students' motivation in the course.

These responses correspond to similar questions in a 2004 survey of the same class, when 97 percent of students surveyed responded that TARs helped them process the readings at a deeper level and 82 percent responded that TARs helped increase their critical thinking skills. In the 2004 survey, 75 percent of students responded that the learning they gained from the TARs assignments was worth the time they required.

Table 4. Percentages of selected responses. (Based on April 2006 survey)

	<i>S</i> <i>trongly</i> <i>agree</i>	<i>A</i> <i>gree</i>	<i>U</i> <i>ncertain</i>	<i>D</i> <i>isagree</i>	<i>S</i> <i>tro</i> <i>ngly</i> <i>disagree</i>	<i>N</i> <i>(number of valid</i> <i>respondents)</i>			
TARs helped me better understand the course material.	7.5	20.5	33	14.6	1.1	91			
TARs helped me see what I don't understand about the course material.	6.5	13	6.3	33	0	11	3.2	91	
TARs helped me feel more responsible for my success in the course.	5.2	33	6.9	3	12	0	11	2.2	91
TARs made me feel more involved compared to other 400/500 level courses.	2.0	23	1.1	9	28	6	15	2.2	90
TARs helped me keep up with readings and work in class.	33	34	5.0	1	12	7.7	2.2	91	

In addition, we asked students in the final survey whether they felt they had met the course objectives. Table 4 shows a vast majority believed they had.

Table 5. Percentages of selected responses (Based on April 2006 survey)

	<i>S</i> <i>trongly</i> <i>agree</i>	<i>A</i> <i>gree</i>	<i>Un</i> <i>certain</i>	<i>Di</i> <i>sagree</i>	<i>St</i> <i>rongly</i> <i>disagree</i>	<i>N</i> <i>(Number of valid</i> <i>respondents)</i>
I acquired a broad knowledge of 20 th century photography.	4 4.6	4 4.6	3.3	5. 4	1. 1	91
I gained a deep knowledge of a photographer or photographic movement.	5 0	4 0.2	5.4	2. 2	0	90
I developed an ability to respond to photographs	3 1.9	4 6.2	17. 6	4. 4	0	91
I developed an historical consciousness	2 3.1	5 2.7	18. 7	5. 5	0	91

A majority of respondents reported that their skills at synthesizing large amounts of information and formulating a thesis had “improved” or greatly “improved.” Again, these results seem encouraging, but we were most interested in the connection between motivation and engagement in the TARs assignments and achieving the course objectives. No statistical application can prove this relationship concretely; causality is elusive. The best we can hope for is a positive relationship between TARs and course objectives, which the final survey helped us investigate.

Table 6 shows the Spearman’s Rho correlation coefficients derived from a matrix that included several ordinal-level survey questions, including questions regarding the course objectives and questions relating to the TARs assignments. We employed Spearman’s Rho because of the ordinal (ranking from less to more) nature of our data. There is clearly a positive relationship, though in many cases it is moderate, between student responses regarding their achievement of course objectives and their motivation and engagement with the TARs assignments. In other words, the stronger the students agreed they had achieved a course objective, the stronger they agreed that TARs had helped them with issues of motivation and engagement.

Table 6. Spearman's Rho correlation coefficients measuring relationship between course objectives and TARS (Based on April 2006 survey)

	TAR S helped me better understand course material	TAR S helped me feel more responsible for my success in the course	TA RS made me feel more involved compared to other 400/500-level courses	T ARS helped me keep up with the readings and work in class	I was always motivated to do my best on each TARS
I acquired a broad knowledge of 20 th Century photography	.70* *	.64* *	.61 **	.49** .	.48 **
I gained a deep knowledge of a photographer/movement	.53* *	.42* *	.46 **	.47** .	.37 **
I developed an ability to respond to photographs	.57* *	.48* *	.46 **	.39** .	.45 **
I developed the interest and research tools to continue studying the history of photography	.48* *	.54* *	.50 **	.42** .	.49 **
I developed an historical consciousness	.61* *	.57* *	.47 **	.39** .	.56 **

**** - Correlation is significant at the .01 level**

The strongest relationship in the table is between the question about whether students felt TARs had helped them understand the course material and the question about how strongly they agreed that they had acquired a broad knowledge of 20th Century photography. Students who felt that TARS had helped them understand the readings believed they learned more about the subject.

There is also a positive, though weaker, correlation between motivation regarding TARS and the achievement of course objectives. Those who responded that they were always motivated to do their best on each TARS were more likely to feel they had achieved each of the five course objectives.

Students who responded that TARS made them feel more involved in this course than in other upper-level courses and helped them keep up with course work also felt more strongly that they had achieved the course objectives. This correlation demonstrates a high level of intrinsic and extrinsic incentive motivation.

The data suggest that the students who were more motivated by and engaged with the TARS were more likely to believe they had achieved the course objectives. As mentioned earlier, these data cannot prove causation. We cannot say, based on these numbers, that engagement and motivation on the TARs assignments caused students to be more likely to meet course objectives, but the two appear to be linked.

Again the 2006 data corresponded with responses to an end-of-semester questionnaire in 2004, when 76 percent of students surveyed responded that they were “more motivated” or “much more motivated” compared to other courses they had taken at the 400/500 level.

Qualitative data

The final survey asked several open-ended questions, intended to explore the effects of the TARs assignments on the students’ engagement and motivation. Respondents fell into four broad categories: students who disliked the method, those who said the learning that resulted was worth the effort required, those who attributed their motivation to TARs and those who attributed the time they spent on the course to TARs.

Disliked. In response to the prompt “Please say anything you would like about the TARs assignments,” a few students expressed their dislike for the TARs method, some in strong words. Responses included:

“I HATED THEM!”

“We were basically asked to write a 2 pg paper a week in addition to the quizzes, paper & book [response] — WAY TOO MUCH WRITING!!! We have other classes too.”

“I hated them. I would have rather met in a discussion group than wrote so much every week.”

Several objected to the minimum word length requirement. In a typical response one student wrote, “I feel the word minimum of 700 was unnecessary. If one can answer a question accurately in 200 – 300 words why should they fill space with meaningless words.”

Many students pointed to the time the assignments required. Some of these comments carried negative judgments, others were more neutrally stated. Two examples are typical: “It wasn’t so much that each TARs was too much, but I wrote way over 22 pages JUST for TARs! Yikes!” And, “Very time consuming.”

Worth the effort. Numerous students noted the time required, but spoke positively of the learning that resulted. A sample of their comments includes the following:

“The TARs made me think. Sometimes when I did not want to. They also made me write, which in turn made me think. It was very difficult, but very good for me.”

“A lot of work, but I would rather write TARs than test over the material, & it helped me understand course material better.”

“I thought the TARs helped to force me not to fall behind.”

“As stated earlier, /them — but I think there should be more of them & less other stuff.”

“Glad they were assigned — otherwise i probably wouldn’t do the reading to my fullest capabilities.”

“I think the TARs assignments are the most important assignments of the course. They stimulated my thinking and kept me up to date with the readings.”

“Very effective, at times demanding, but certainly made me a better student.”

Motivation. Following a quantitative question about their degree of motivation, students were asked: “Please explain what caused your greater or lesser degree of motivation.” Of the 54 who responded, five mentioned TARs explicitly. Three cited TARs as a positive

influence on their motivation: “Wanted to do the best I could on TARs.” “Time, and the topic of the TARs for the week.” And, “Actually had to do the readings.”

Two students said TARs had a negative effect: “[T]he class is so big, I could get away w/skipping, doing poorly on the TARs, because the instructor doesn’t personally know me.” And, “I did not enjoy some of the TARs topics, so I was less motivated.”

Time on task. Following a quantitative question about time on task, students were asked: “Please explain what caused your greater or lesser degree of time spent working on this course.” Most students attributed the greater amount of work to the demands created by the readings and TARs assignments. A sample of responses follows:

“I think writing assignments take more time than studying for tests. I spent more time on assignments for this class than any other course I have taken at IU in the past 3 yrs.”

“In most 400 classes I’ve had 2 tests and a paper. There was just a lot more time consuming busy work (TARs).”

“This class forces you to put a lot of work in — other classes expect you to but do not actually require it. I learned a lot, but stressed a lot as well.”

“I was more compelled to do the assignments to the best of my ability & I didn’t have to struggle through.”

“The complexity of the readings & if I had to read them multiple times.”

Asked, “What contributed most to your learning in this course?” 19 of the 64 students who answered this question mentioned TARs in their written responses.

Asked, “What did you like best about the course?” six students of the 72 students who responded mentioned TARs.

Asked, “What did you dislike most about the course?” 17 of the 74 students who responded mentioned TARs.

Focus group. In the last week of the semester a campus instructional staff member conducted a focus group with 10 students. The anonymous group comprised eight undergraduates and two graduate students. Six were women and four, men. Asked to compare the amount of time they spent on this course with other courses, they gave the following responses:

One graduate student said, “I probably coasted through college and didn’t spend a lot of time reading assigned readings or studying outside of class.... I would say, on average, compared with my undergrad career I really spent 2 to 3 times as much time reading, writing, or refining my writing.”

Another student said, “[N]ot only did you have to do the readings but you had to think about the readings in such a way that you could form an argument either for or against it.... The problem was that you had to understand to such a level that you could write a paper almost in a thesis-argument form, and that was really what took the most time.”

“I feel like the readings were really beneficial, and that they really help you, and without having the TARs probably people wouldn’t read those things ...”

The focus-group leader also asked whether “the assignments and TARs motivated you to learn more than you would have without those readings compared to the same class or a history of photography class without those things — do you think having those things in any way improved your motivation?” Students responded positively:

“As I said before I was more motivated to read each reading closely and understand it instead of just skimming through it and then going to class. I was more motivated to do that.”

One student said TARs helped her/him get a better grade: “I think if this class were tailored to have 2 or 3 exams over the content and the readings and the lectures I think my grade would have been at least a letter grade lower, or maybe not a letter grade, but it would have been lower than it is, for certain.”

Asked why, the student said, “There’s a certain amount of uncertainty you have when you are taking a test. There’s also other factors: [I] could have had a bad day, have a mental block.” She/he also liked the autonomy JiTT afforded: “With these assignments you had time to work on them. TAR’s were [given out] several days in advance basically like a take home essay. But you could sit there and if you had a mental block you could leave them alone, go away and come back to it when you were clearer headed.... To me I think the way it is tailored it teaches people to teach themselves rather than trying to extract a bunch of facts.”

“Of every assignment that we had in that class I think the TARs were the most developed about the history of twentieth century photography.... The TARs brought in our own reading and then he [the instructor] brought it into class and we had discussions in class which helped a lot and so bringing all that together I learned a lot more ...”

Findings

Although the quantitative results are still tentative, when coupled with the qualitative responses, the two suggest affirmative answers to the four research questions. JiTT appears to increase students’ motivation or disposition to spend more time and effort on course objectives and their engagement, or the actual time and effort spent on course work. We believe that the most profound benefit of JiTT pedagogy in humanities courses is the continual opportunity to foster critical reading and critical thinking at a higher cognitive levels. While the TARs assignments required a larger investment of time and effort in academic reading and writing than students may enjoy doing, the data show they were motivated and engaged by the course material.

Regarding motivation, students reported high levels of interest in the critical thinking and deeper reading that TARs required and that they believed in their importance. The JiTT method helped students feel a high level of autonomy and provided both intrinsic and extrinsic modes of motivation. In terms of engagement, students also reported that the JiTT method required a high level of mental effort.

Discussion

The standard model in many large courses involves lectures synchronized to textbook readings. Grades are based primarily on two or three multiple-choice examinations spread across the semester. While it is possible to write multiple-choice exam questions at the higher cognitive levels, retention questions seem to predominate. Good students expect they can succeed in such courses by taking notes, highlighting the textbook and reviewing for exams. Poor students may rely on last-minute cramming, borrowing classmates’ notes and skimming the textbook before exams.

The JiTT method fractures this culture by requiring students to stay current with the course content by doing assignments on a regular schedule instead of studying in a few intensive sessions.

Depending on what percentage of the course grade the JiTT component counts, it will drive students concerned about good grades. Many students will rise to the work load demanded, even if they resent it. We learned, through our second survey, which occurred after the first four TARs assignments, that there is an upper limit to the amount of effort instructors can require through JiTT before it begins to alienate the students. Many students told us they felt overwhelmed by the work and expectations, and that they did not consider the learning gained to be worth the effort required. When we reduced the assignments from two questions to one and specified a word length instead of leaving the expectation open ended, the number who said the work was worth the learning increased by 21.5 percentage points.

Thus, we believe the JiTT method works best when students feel a sense of self autonomy over their learning, when they willingly choose to invest time in the reading, writing and thinking, rather than feel coerced to do so, when they see the work expended as contributing significantly to their learning and worth the time and effort required.

Despite the harsh judgments of some students, a majority in the course we studied appeared to rise to this level of motivation and engagement. In both quantitative and qualitative responses they told us they considered the work justified by the learning that resulted.

We attribute their positive responses to several factors. JiTT requires continuous engagement. Students cannot postpone the reading and learning until the night before a high-stakes exam. Their engagement produces learning, and if stimulating readings are chosen and provocative questions asked, this learning comes at the higher cognitive levels. The learning produces satisfaction, which creates a loop supporting more motivation and engagement.

Beyond this, JiTT promotes autonomy. Students should take authority over their own learning. As teachers, we fail if we do not teach our students how to teach themselves. To the degree that the TARs questions were open ended and could be done at the students' own time and pace, they helped promote this autonomous approach to learning.

Finally, JiTT promotes several other best practices as articulated by Chickering and Gamson (1987), including active learning, student-faculty contact, high expectations, and respect for diverse learning styles, all of which may impact motivation and engagement.

The JiTT method has been demonstrated to be an effective teaching approach in the sciences and social sciences. Our study is the first to examine this method in the humanities. Certainly more research needs to be done in other humanities subjects, other course formats and longitudinally. However, we offer a tentative claim that JiTT can be effective in motivating and engaging students in humanities courses.

The students' positive responses convince us that the substantial effort required of faculty to implement the JiTT method is worth the increased learning in our students.

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