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Article

Comparison of Workload for University Core Courses Taught in Regular Semester and Time-Compressed Term Formats

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Abstract: This study compared student workload and perceived value of coursework assigned for a matching set of semester and term general education courses at Brigham Young University. Statistically significant differences in workloads were found between most semester and term courses. While term workloads were slightly lighter in general, both could be called “university lite,” in that students did not spend the expected two hours outside of class per hour in class. Math and physics courses came closest to meeting the expected workloads, which tended to remain constant between semesters and terms. Differences in the value students reported for homework varied significantly by the autonomy of the instructor to adapt his own course section. Some of the curricular differences between sessions might be attributed to efficiencies instructors incorporated for shorter sessions without affecting overall course quality. Typically, reading- and writing-intensive courses showed the most negative impact when offered in a term format. The findings from this study suggest that, while some subjects lend themselves well to a compressed-time format, not all courses are suited to being taught in this way.

Keywords: higher education policy; time-shortened courses; student workload; university teaching; learning and curriculum design

1. Introduction

To give students greater flexibility in scheduling classes and to accommodate the demand for general education courses, many universities offer classes in time-compressed formats. These courses are variously referred to as *intensive* (1), *short term* (2), *accelerated* (3), *abbreviated* (4), *summer* (5), and *block* (6). For convenience, we refer to these time-compressed sessions as “a term.” To maintain the integrity of the curriculum, the workload of a term course should be similar to that of a regular semester course, requiring students to spend more time per week, often twice as much, to achieve an equivalent amount of learning to that of a corresponding semester length course. However, as college students select their courses each year, most are particularly concerned with workload. Many might speculate that term courses may be less work than the same courses taken during a regular semester.

Term courses have serious workload implications for students and faculty. The literature informs that trying to do exactly the same things in less time generally does not work well (7). Such factors as maintaining attention during longer class periods, acquiring skills, reflecting on learning, preparing for exams, and completing complex homework assignments are different for students regardless of spending the same number of hours in class. In addition, the demand on instructors to consult with students, evaluate their performance, and give meaningful feedback can be challenging.

The purpose of this study was to determine: (a) the extent to which high-enrollment general education term courses at Brigham Young University maintain a workload comparable to their semester

counterparts; (b) the ways instructors modify their courses to fit a term format; and (c) the effects of these changes on workload and student learning.

2. Background Information

Although number of credit hours is supposed to provide an indication of the workload for a course (8; 9; 10), few students seem to understand how to consider credit hours in estimating course workload. In the United States, the established credit-hour standard requires students to be in class for one hour per week per credit hour during a 15-week semester: three hours a week for a typical three-credit semester length course or six hours per week in a time-compressed 7.5-week term (11).

In addition to time spent in class, students are expected to spend approximately two hours per credit hour per week studying and doing homework: approximately six hours outside of class per week in a typical three-credit semester length course or 12 h per week during a 7.5-week term. The National Survey of Student Engagement (NSSE) in 2011 acknowledged this as a “well-established rule of thumb.” However, NSSE also found that students on average report spending only one hour outside of class for each hour in class during a semester.

2.1. Perceived Effectiveness of Time-Compressed Courses

“A paucity of research addresses how higher education faculty members perceive the effectiveness of time-compressed courses in terms of curriculum development and delivery” (12, p. 29). Using the grade earned as an indication, numerous studies suggest that those enrolled in a compressed course do at least as well in achieving the specified learning outcomes as those taking a traditional course (4; 7; 13; 14; 15; 16; 17; 18). Nevertheless, term courses are often criticized by faculty as “result[ing] in a reduction of academic rigor” (12, p. 31).

2.2. Modifications Teachers Make to Compressed Courses

Krevtovics, Crowe, and Hyun (19) found that approximately a third of faculty members reported making pedagogical adjustments for their term courses. Changes included different teaching methods, reduced content, changed texts, extended group discussions, adapted projects, papers replaced with essay tests, and assignments and assessments modified. In a similar study, Kops (20) found that some instructors gave shorter more frequent assignments, which allowed them to give feedback earlier in the course. They also “coached” their students on time management and cautioned them not to overextend themselves. Some instructors encouraged group work and allowed reading assignments to be divided among class members.

Despite these findings, some questions remain unanswered (21; 22). While some faculty reported changing term courses, many did not. While studies did not show grades varying significantly between similar term and semester courses (23), none of them considered the variation in student workload or in the nature of the courses as a result of changes the instructors made.

3. Methods

This study used an explanatory mixed-methods strategy. Extant quantitative data from student course evaluations were used to determine differences in workload between semester and term courses. Specifically, the number of hours students reported spending outside of class doing homework along with their judgments of the value of their out-of-class work were analyzed. Surveys, interviews, and syllabi comparisons were employed to determine changes instructors made to the courses they taught in a term format. The survey inquired about the extent to which they modified content, assignments, and teaching methods. Follow-up interviews determined what types of modifications instructors made and how those changes may have affected student learning. Finally, semester and term syllabi were studied to identify similarities and differences in course content. Combining the quantitative and qualitative data enabled the researchers to explore differences in the per-credit-hour workload of term courses compared to their corresponding semester courses.

3.1. Course Selection

The following general education courses were included in this study: American history, biology, economics, persuasive writing, technical communications, two courses studying world civilization, two courses focused on western humanities, management communication, calculus, introductory music, applied physics, psychology, four course in religious studies, statistics, and writing/rhetoric. Each course was taught by at least two instructors teaching sections during both semester and term during the academic year 2010–2011. Individual classes were not counted if fewer than 10 students responded or 40% of the enrolled students failed to respond to the course evaluation. With these criteria, data from 426 sections (20 different courses taught by 86 different instructors) were included in the statistical analysis.

3.2. Statistical Analysis

Student ratings from course evaluations provided the data needed to run a multivariate analysis of variance (MANOVA), which was selected because there were two dependent variables. With this analysis we were able to simultaneously consider the main effects and interactions at all levels of the independent variables, thus reducing the likelihood of an inflating Type I error that might have resulted from separate ANOVA computations. Follow up ANOVAs were conducted where appropriate. We also calculated an effect size for the result using an eta squared (η^2) calculation, estimating the amount of variance that can be attributed to a specific independent variable.

In this study, the two dependent variables were *workload* (number of hours students spent on class work outside of class) and *value of coursework* (value students placed on out-of-class work). The independent variables were *occasion* (semester or term) and *instructor autonomy* (the freedom an instructor had to make course changes). While occasion was the primary independent variable considered in this study, previous research had revealed that an instructor can also influence the chosen dependent variables (24). During the interview phase of this study, we learned that the autonomy instructors have in designing their courses undoubtedly moderated whether an instructor made course changes for term sessions. Thus, autonomy likely superseded much of the instructor-characteristic variability in course workload. Therefore, autonomy as self-reported on inquiry of course instructors and administrators became a second independent variable for this analysis. When workloads were calculated, term workloads were divided by two to make them comparable to the hours per week reported in a semester.

In addition to the multivariate analyses, descriptive statistics were used to compare the semester and term workloads reported by students to the expected workloads based on the course credit hours. To do this, the mean hours of work that students reported completing outside of class were calculated and tabulated by course section and then compared to the number of hours expected for that course.

3.3. Survey, Interview, and Syllabi Analyses

Instructor surveys, follow-up interviews, and syllabi comparisons were completed to address the second purpose for this study, focusing on the ways that instructors modified their semester courses to fit a term schedule. Surveys collected general information about the extent to which instructors modified course content, assessments, and teaching methods for their term courses. A total of 36 instructors responded, for a response rate of 42%. These data were analyzed descriptively. Based on the survey results, we selected 18 instructors to interview, deliberately including those teaching as wide a variety of courses as possible in order to maximize the diversity of situations and contexts. An instructor's willingness to be interviewed was also a requirement of IRB approval. Interviews served as a member check of survey responses, as well as probing in more depth about student learning, class demographics, final grades, and the efficacy of term courses. To analyze these data, emerging themes and possible relationships among them were coded using Ruona's (25) method. This process consisted of creating and revising categories until all of the significant elements

of instructor responses had been captured. This iterative process, which focuses on differences between session types as an interpretive lens, was considered complete when each piece of data could fit into only one category. Care was taken to ensure that the categories were conceptually congruent and that the category descriptors accurately identified the data.

Pairs of syllabi (one semester and one term) from courses taught by the same instructor were gathered from instructors and online repositories. We read and annotated the syllabi to compare content, readings, assignments, quizzes, exams, grading scales, and textbooks between semester and term courses. When variations occurred, we estimated an approximate percentage of difference. We tallied the number and percentage of components remaining the same as well as those differing between semesters and terms.

4. Results

The primary purpose of this study was to determine the extent to which high enrollment general education courses retained their credit-hour value and rigor when taught in the term format. A secondary analysis explored the ways in which instructors made changes to term courses and effects these modifications might have had on the workload of a course.

Workload Differences

A MANOVA statistical analysis was run to determine if differences existed in: (a) the amount of time students spent on course work outside of class (workload); and (b) the value students placed on the course work they did for that class (value) based on occasion (semester or term) and instructor autonomy (low, moderate, or high). The descriptive statistics for this analysis are presented in Table 1. Results of the MANOVA indicated a significant difference in workload by occasion: $V = 0.252$, $F(3,420) = 47.1$, $p < 0.001$, $\eta^2 = 0.252$. We also found a significant difference in the workload and value of coursework by instructor autonomy: $V = 0.294$, $F(6,842) = 24.2$, $p < 0.001$, $\eta^2 = 0.147$.

Follow-up analysis revealed that on average the workload difference by occasion was 0.30 h per credit hour, statistically significant based on an ANOVA, $F(1,422) = 107.8$, $p < 0.001$, $\eta^2 = 0.203$. This difference equates to approximately 54 min more per week in a three-credit-hour semester course compared to a three-credit-hour term course. The effect size for this analysis suggests that occasion accounted for approximately 20% of the variance in workload. However, the value of coursework reported by occasion was not significantly different overall, $F(1,422) = 0.813$, $p = 0.368$.

The workload difference by instructor autonomy was found to be statistically significant based on follow-up analysis, $F(2,422) = 20.3$, $p < 0.001$, $\eta^2 = 0.088$. The data trend from this result indicated that regardless of occasion the workload decreased as the instructor had greater autonomy over the course. For example, students in classes in which the instructors had the greatest autonomy reported workloads of about 0.12 hours per credit hour less than those of classes in which the instructors had low autonomy, equating to about 19 min less per week in a three-credit course. For courses with moderate instructor autonomy compared to those with high instructor autonomy, the difference was about double (35 min per week). The effect size estimate for this analysis suggests that instructor autonomy accounted for approximately 9% of the variance in workload.

Table 1. Workload in Hours and Value of Out-of-Class Work in Percentage by Occasion and Instructor Autonomy.

Dependent Variables	Occasion	Autonomy	N	Mean	SD
Out-of-class workload	Semester	Low	28	1.4	0.3
		Moderate	107	1.4	0.3
		High	134	1.2	0.3
		Total	269	1.3	0.3
	Term	Low	27	1.1	0.4
		Moderate	53	1.1	0.2
		High	77	0.9	0.3
		Total	157	1.0	0.3
	Total	Low	55	1.2	0.4
		Moderate	160	1.3	0.3
		High	211	1.1	0.3
		Total	426	1.2	0.3
Value of out-of-class work	Semester	Low	28	81.9	4.8
		Moderate	107	80.3	6.8
		High	134	84.6	7.2
		Total	269	82.6	7.1
	Term	Low	27	81.6	4.0
		Moderate	53	82.0	5.6
		High	77	84.5	6.5
		Total	157	83.2	5.9
	Total	Low	55	81.8	4.4
		Moderate	160	80.8	6.5
		High	211	84.5	6.9
		Total	426	82.7	7.66

Differences in the reported value of coursework by autonomy were also found in follow-up analysis to be statistically significant, $F(2,422) = 15.6$, $p < 0.001$, $\eta^2 = 0.069$. The pattern for this factor was reversed in comparison to workload. Students perceived greater value in the out-of-class work in courses in which the instructor had greater autonomy. For example, students whose instructors had the greatest autonomy reported that on average 85% of the work done outside of class was valuable, compared to 82% in classes with instructors who had low autonomy. The effect size for this analysis suggests that instructor autonomy accounted for approximately 7% of the variance in coursework value reported by students.

Reported vs. expected workload differences. Among university general education courses, those in math and science tend to accrue reputations for requiring substantially more work outside of class than other courses. Reading-, writing-, and research-intensive courses are also reputed to be demanding of students' time. Certainly, some courses will be more demanding than others and likely more challenging for the average student.

Table 2 shows the average workload reported for all semester and term sections of a course. In all instances, at minimum two participating instructors taught at least one semester and one term section. Analysis revealed that regardless of semester or term format, students in none of the courses put in the expected number of hours of out-of-class work. Semester students in math and in physical science came closest to meeting expectations with mean workloads reaching 85% and 82% of expected time, respectively. Students in math and physics courses were the only group reporting higher workload during the term session (3% more). In general, students taking a course during a term session tended to report a lighter workload than students in the corresponding semester course.

Table 2. Mean workload for semester and term courses compared to expected workload.

Course (Number of Sections Semester and Term)	Credit Hours	Semester		Term *		Difference in Weekly Minutes Outside of Class (Semester-Term)
		Reported Workload Mean per Week Expected	% of Expected Workload	Reported Workload Mean per Week Expected	% of Expected Workload	
US History 100 (8, 5)	3	3.3 (6)	55	2.9 (6)	48	-24
Biology 100 (8, 3)	3	2.5 (6)	42	2.0 (6)	33	-30
Economics 110 (3, 3)	3	4.3 (6)	72	3.7 (6)	62	-36
English 312 (10, 7)	3	3.6 (6)	60	3.3 (6)	55	-18
English 316 (23, 11)	3	4.2 (6)	70	3.5 (6)	58	-42
History 201 (9, 7)	3	2.6 (6)	43	2.0 (6)	33	-36
History 202 (6, 5)	3	2.6 (6)	43	2.2 (6)	37	-14
Humanities 201 (14, 5)	3	3.4 (6)	57	2.5 (6)	42	-66
Humanities 202 (12, 7)	3	3.5 (6)	58	3.2 (6)	53	-18
Mgmt. Communications 320 (31, 13)	3	4.0 (6)	66	3.4 (6)	57	-36
Math 112 (5, 3)	4	6.8 (8)	85	7.0 (8)	88	+12
Music 101 (7, 3)	3	2.5 (6)	42	1.8 (6)	30	-42
Physics 105 (4, 2)	3	4.9 (6)	82	5.1 (6)	85	+12
Psychology 111 (11, 8)	3	3.3 (6)	55	2.9 (6)	48	-24
Religion 121 (22, 15)	2	2.6 (4)	65	2.2 (4)	55	-18
Religion 122 (11, 9)	2	2.4 (4)	60	2.0 (4)	50	-24
Religion 211 (18, 9)	2	2.6 (4)	65	2.1 (4)	53	-30
Religion 324 (16, 6)	2	2.1 (4)	53	1.7 (4)	43	-24
Statistics 121 (19, 22)	3	3.2 (6)	53	2.8 (6)	47	-24
Writing 150 (32, 14)	3	3.9 (6)	65	3.4 (6)	57	-30

Note. * Term workloads were divided by two to give comparable results.

Workload differences by occasion. While instructor autonomy allows instructors to make course changes affecting the workload, individual instructor differences has also been identified as a potential contributing factor to course rigor (13). Thus, in addition to analyzing differences in workloads overall, we considered it important to understand differences in workloads between instructors teaching the same course.

Table 3 presents the average difference in workload minutes per week between semester and term sessions of courses taught by the same instructor. Just under half of these courses (45%) had no difference in workload to about an hour difference between occasions. For these courses, minor differences in workload might be attributed to imprecise estimates resulting from student self-report. However, practical differences in workloads between semester and term courses were found for many instructors, with 10% having workloads that differed by more than two hours between occasions. In general, instructors with large discrepancies in workload between class occasions taught reading- and writing-intensive courses.

Table 3. Workload differences between semester and term classes taught by the same instructor.

Minutes per Week	Courses
0-50	Economics 110, Humanities 202, Religion 121
51-100	US Hist, 100, Bio 100, Hist 202, Math 112, Music 101, Religion 122, Religion 211, Religion 324, Statistics 121
101-150	Humanities 201, English 312, English 316, Management Communications 320, Psychology 111, Writing 150
151+	History 201, Physics 105

Workload differences between instructors of the same course. Workload differences between instructors teaching the same course seem to be slightly more prevalent during semester than during term sessions, although fewer instructors teach each course during the term. Figure 1 shows the range in workloads assigned by instructors who taught the same course during the semester, listed according

to their autonomy. Figure 2 shows the range of student workloads among instructors who taught the same course during the term.

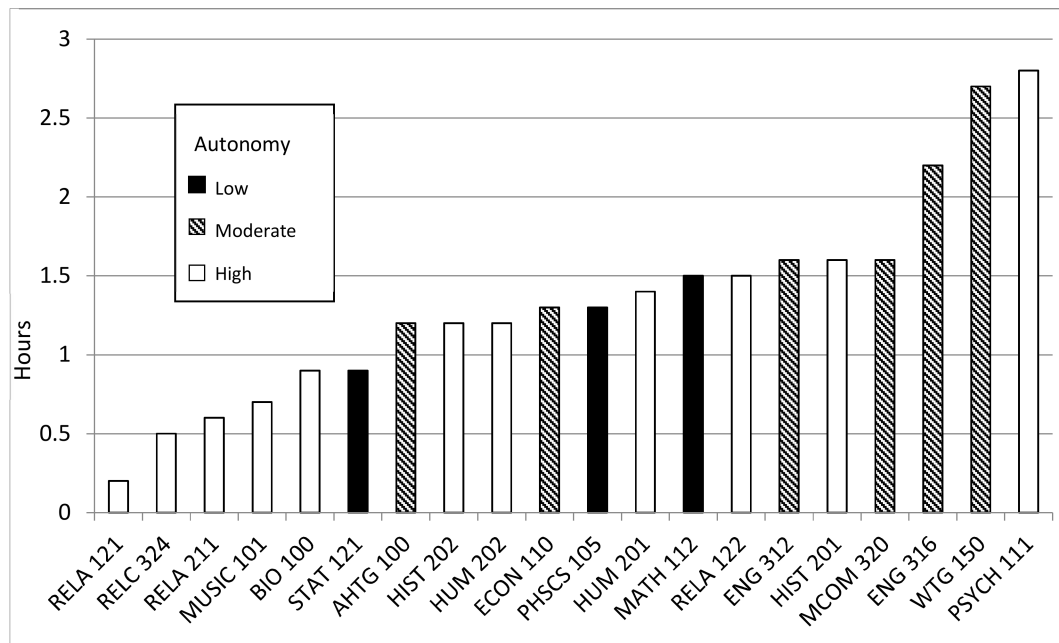


Figure 1. Workload for Instructors Teaching the Same Course During the Semester Session. During the semester, courses where instructors have the least autonomy (black bars) have moderate differences in workloads. Courses where instructors have moderate autonomy (striped bars) tended to have more variance in workload among instructors of that course. Instructors who reported having the greatest autonomy often tended to have the least variance in workload between sections of a course.

Analysis of this result seems to suggest that both the autonomy of the instructor and the nature of the topic and skills being taught in a course may affect its workload. Despite some exceptions, variation in workload between sections of the same course tended to be more prevalent among instructors who taught reading- and writing-intensive courses. In addition, courses in which the instructors had moderate autonomy in designing their section of the course seemed to have more workload fluctuation.

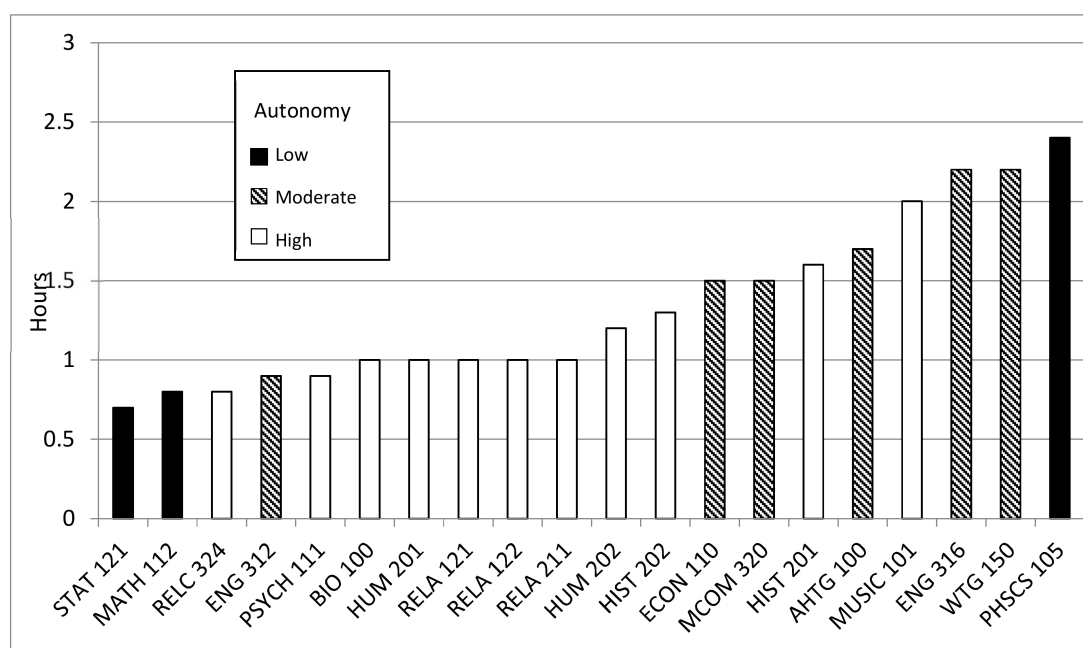


Figure 2. Workload for Instructors Teaching the Same Course During a Term. Instructors of courses with moderate autonomy tended to have the most variation in workload. These courses tended to be reading- and writing-intensive.

5. Changes Instructors Make to Term Courses

Surveys, follow-up interviews, and comparisons of semester and term syllabi were used to determine the extent and the ways instructors reported changing their course when they taught it during a term.

5.1. Changes to Content

None of the 36 instructors participating in this aspect of the study reported making *considerable* changes to the content of the course to accommodate teaching in term sessions. Although 22% reported that they reduced content *somewhat*, the majority (78%) indicated that the content was the same for both their semester and term courses. Of the eight instructors who reduced content somewhat, seven taught courses requiring a substantial amount of reading and writing. Content changes typically involved skipping topics not covered on exams or skipping aspects of the course the instructor felt were supplemental to the learning outcomes.

5.2. Changes in Assigned and Graded Coursework

Changing assignments, readings, quizzes, or exams to accommodate teaching term sections of a course are likely to affect the course workload. When asked to indicate the extent of changes they made to the graded coursework, 34% of instructors said they reduced assignments *considerably* or *somewhat*. Of those who reduced assignments, 9 of the 11 taught reading- and writing-intensive courses. Several of these instructors commented that, due to the recursive nature of the writing process, the time-compressed format did not allow adequate time between class periods for students to write and revise papers or for instructors to give adequate feedback. In a few courses, reductions were subtler. For example, several instructors who gave a weekly writing assignment during the semester maintained a weekly writing assignment during the term, which constituted a 50% reduction of those assignments.

Analysis of syllabi revealed fewer graded assignments in many term classes. Changes included dropping midterm exams, modifying assignments done in class, and requiring fewer textbook chapter

summaries. In one physics class, term students were not required to complete the multiple-choice questions in the textbook.

5.3. Changes in Teaching Methods to Accommodate Contextual Differences

No one reported changing teaching methods considerably; however, an analysis of participant comments suggests that instructors often modify the way they teach due to contextual differences between semester and term courses. Changes varied from letting discussions go longer to being “more relaxed.” Some instructors rearranged the sequence of content or classroom learning activities to accommodate longer class periods. Some spent more time tracking individual student progress so students did not fall behind. While not all term session classes included fewer students, some instructors whose classes were smaller said they met with students individually to give feedback. One instructor reported attending labs sessions to extend the class and give personalized feedback to students.

6. Changes Instructors Make that Affect Workload and Student Learning

Instructor interviews were the primary source for exploring this question. Results of this study aspect reflect instructors’ opinions about the benefits and drawbacks of teaching term sessions. As with most aspects, instructors saw advantages and disadvantages to teaching in a compressed-time format. Some instructors also noted that contextual differences in term sessions that are unrelated to the reduction of time often affect student learning.

6.1. Instructor Engagement with Students

Most instructors felt that student grades did not change (45%) or that grades improved slightly (30%) during term sessions. If grades can be considered evidence of student learning, instructors felt that factors affecting an improvement might include increasing their office hours or making themselves available to students by coming early to class and staying later. Many instructors only taught one course during the term session, which allowed them to attend more fully to the course. Most changes they made were done spontaneously, usually to break up long class sessions or to reengage students.

6.2. Student Makeup of Term Courses

The makeup of the students in a class was noted by some instructors as an issue affecting student learning. About 21% of the respondents felt that age differences of spring and summer term students may affect classroom dynamics. Term general education courses often include freshmen who want to complete the required courses as soon as possible but have difficulty fitting them in during the regular semester. Term classes also frequently include seniors who have put off a course as long as possible or have finally realized that they could not graduate without taking it.

6.3. Efficiency vs. Deep Learning

Another contextual difference found between a term and semester course was that during terms students usually take only one or two classes. Most instructors felt that students are less “stressed out” and thus able to focus more fully on the class. Some instructors noted that due to the intensive focus of the condensed courses students have less time to forget what they learn before being tested on the material. The fast pace of term courses seems to work well for many students and instructors because less review time is needed and the momentum enables more efficient learning. The nature of the course content and the material being tested most likely affected instructors’ views on this point.

Some instructors indicated that, for learning to be deep and lasting the students need time to assimilate the content, think critically about it, practice using the skills, and reflect on what they are learning. Many (58%) believed the time in term classes is insufficient for students to achieve deep learning. Writing instructors in particular suggested that the grades on student papers are often lower

during a term because students do not have enough time to revise their work. These instructors also felt that they do not have enough time to give students as much feedback as they could give them in a semester.

7. Discussion

7.1. Changes to Content

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