A Comparison of Learning Outcomes and Learner Satisfaction in a CADD Course with Flexible and Rigid Deadlines

Dr. Joel Peterson P.E., University of Wisconsin, River Falls

Dr. Peterson is a faculty member in the Agricultural Engineering Department at the University of Wisconsin - River Falls. Dr. Peterson strives to bring the real-world lessons he learned in industry to students in the classroom. He is a registered civil engineer and teaches a variety of classes ranging from to project management to fluid mechanics.

Dr. Matthew Francis Digman, University of Wisconsin, River Falls

Dr. Digman received his bachelor's degree in Mechanical Engineering from the Milwaukee School of Engineering in 2003 during which time he spent two summers and one-year designing equipment for the livestock and dairy industries at Kuhn North America. In 2004, Dr. Digman returned to graduate school to study Biological Systems Engineering at the University of Wisconsin – Madison where he received his master's and doctor of philosophy degrees in 2006 and 2009, respectively. Dr. Digman has experience in design and evaluation of novel machine forms for production of biofuels, biomaterials, food and livestock feed at the United States Dairy Forage Research Center (USDA-ARS) and, most recently, in a research role at Kuhn North America.

A Comparison of Learning Outcomes and Learner Satisfaction in a CADD Course With Flexible and Rigid Deadlines

Abstract

An introductory computer aided drafting and design (CADD) course has been offered in a flipped format for six years. The course syllabus details the schedule of topics, assignments and assessments. Because of the volume of material, a rigid course schedule was kept (i.e., no late work allowed). This model is adequate for the majority of learners. However, some students, for a variety of reasons, fall behind by not watching lecture material or missing assignment deadlines. Given the obvious advantages of a flipped classroom for self-paced learning, we asked the question: would a semi-self-paced (SSP) format result in different learning outcomes (course grade) and result in different perceptions of the course? To test this question, in one section of the course a semi-self-paced (SSP) flipped format was implemented, while the other section maintained rigid assignment deadlines (RAD). Students in the SSP section were able to submit homework assignments at any point without penalty up to an exam date. Exam dates (2-midterms) and one final exam were fixed to promote self-regulation. Suggested due dates for assignments were also provided to promote self-regulation. We did not observe a difference in learner outcome, as measured by homework grade, final exam grade or final course grade. Nine of 14 respondents in the SSP section submitted 10 or more of the 14 homework assignments later than the recommended due date, indicating a lack of distribution of practice (cramming). Students in both the RAD and SSP sections indicated a preference for the section they were in. Our conclusion is that rigid homework deadlines are preferable since they provide a means for distributed practice and students in that format express the same level of course satisfaction and attain similar learning outcomes as in the SSP format.

Introduction

The flipped classroom approach to content delivery has become prevalent in recent years. A key benefit of the flipped approach is that it promotes active learning because work on problem solving or other activities occurs during the lecture rather than passively absorbing lecture material during class time [1]. Because lecture material is generally watched individually, outside of class, students are able to self-pace their learning. A flipped class approach was adopted in an introductory computer aided design and drafting course. The course is required for agricultural engineering and agricultural engineering technology majors and is a popular elective taken by physics majors. The current flipped format has been in place for six years. Fifteen homework assignments, due on average every week, comprise 45% of the grade. Thus, each homework assignment is worth about 5% of the final grade and no late assignments are accepted without prior approval. For a variety of reasons, including competing workload in other courses, forgetfulness, procrastination, some students do not turn in one or sometimes multiple assignments, which has a significant impact on final grade. In computer aided drafting and design (CADD), many of the assignments act as gates to the next assignment, known as ‘strong

binding [2]. The concept of strong binding means than one must learn A before one learns B. A CADD course falls under this definition; for example, one must learn how to draw a line before one can fillet the line. Thus, if a student falls behind, they have a very difficult time catching up and are likely to fall further and further behind. One means of addressing this issue is with Keller's PSI [2], which is a formal methodology of self-paced learning. Student progress is entirely self-paced in the PSI method, with courses broken down into modules. Module mastery is required before students can advance to the next module. As Purao et al. [2] point out, one of the key challenges of self-pacing is that many students felt managing self-pacing was too challenging, which led to problems of procrastination. We felt that a completely self-paced approach would not be manageable give the number of students, data files, and inefficiency in the classroom addressing so many different learners at different stages. We therefore opted for a semi-self-paced approach, whereby student would have flexible homework deadlines, that would provide student flexibility ion homework deadlines but would also help them self-regulate by maintaining a common in-class schedule and suggested due dates.

There are, however, several potential issues related to a flexible deadline approach. The first is the planning fallacy, where learners underestimate the time it takes to complete a task [3]. If flexible deadlines are in place, students may not undertake the requisite self-regulating strategies in order to complete the assignments. Another potential issue with relaxed deadlines is the tendency for students to mass (cram) their work in very few study episodes just before the tasks(s) are due. Citing several works, Fulton et al. [3] note that distribution of practice (i.e., more frequent deadlines) results in better performance across a wide range of tasks.

In our experience, students are often happy to have deadlines relaxed or pushed back. We wanted to test whether permitting flexible deadlines in a semi self-paced (SSP) format would impact student achievement, measured by homework, exam, and overall course grades, and course satisfaction, as students with rigid or standard (RAD) deadlines.

Methodology

Course Description and Experimental Design Overview

Lecture videos were created in the summer of 2012 using TechSmith Relay. This software is a screen and audio capture software with limited editing capabilities. Video content was designed to address concepts (e.g., best dimensioning practice), skills (e.g., how does one dimension a drawing in AutoCad), and examples. An attempt was made to make each video between 5 and 10 minutes in duration, for a total of approximately one hour of content. This resulted in 116 videos over 21 lecture periods. Two class periods were devoted to exams while the remaining five lecture periods were devoted to the AutoCAD Civil 3D portion of the course, which utilizes step-by-step instructions developed by the instructor. A portion of the course syllabus is shown in Figure 1, which details which lectures students are expected to review prior to class.

Having watched the assigned videos prior to class, the beginning of class is used for class announcements and to solicit questions regarding the videos. The students are then asked to work

on In-Class Activities (ICAs), which are drafting problems related to the lecture material. The syllabus shows which ICA the student should be working on for the respective class period. ICAs are due at the end of the class period and are turned in via a learning management software. No late submissions are permitted on ICAs unless there are mitigating circumstances. Students are encouraged to ask questions of the instructor during class if they have difficulty. Students are given full points for ICAs if they submit their work. No attempt is made to assess the quality of the work since the students have ample time and instructor help is freely provided. The ICAs also serve as a form of attendance grade, and since this is primarily a freshman and sophomore-level class, it helps to inculcate good habits in these students.

Date	ICA	Topic(s)	Lecture Segment – Review Prior to Class	Assignment	Due Date
UNIT 1. INTRODUCTION TO AUTOCAD AND 2-DIMENSIONAL DRAFTING					
Sep 6	0	Course Introduction			
Sep 11	1	Opening AutoCad, Features of the workspace	1_Intro_Drafting 1_Into_AutoCad	HW1	9/14/12 11:59 AM
Sep 13	2	Differences between model and paper space, how to set up new layers and use templates, how to enter coordinates	2_Paper_Model_Space 2_Layers_Templates 2_Coordinates 2_Example5 2_Exercise14	HW2	9/19/12 11:59 AM

Figure 1 — Sample of a portion of course syllabus showing date, in-class activity and associated lecture material.

A survey instrument was developed to assess student perception of the course, prior experience using CADD, and preferences regarding flexible homework deadlines. Some questions were adapted from those presented in Velegol [1] and Hibbard [4]. Between the two sections, there were six questions regarding major, academic standing, grade point average entering the semester (N/A for freshmen), expected course grade, number of missed homework assignments, and time spent outside of class working on homework assignments. Fourteen questions were common between the two sections, soliciting feedback in three categories: 1) student perception of course (Q1, Q6, Q7, Q12, and Q13); 2) student perception of course format (Q2, Q5, Q8, Q9, and Q11); and 3) prior experience using CADD (Q3 and Q4). Responses were on a five-point Likert scale. For the RAD section, there were four additional questions regarding the use of rigid assignment deadlines (Q15 – Q18). In the SSP section there were an additional five questions, with the first 4 reworded from the RAD section (Q15 – Q18). The last question solicited feedback on the use of suggested deadlines (Q19). Survey questions are presented in the Appendix. Cronbach's alpha [5] was used to assess the internal consistency of questions groups. During the analysis responses were recoded as necessary to reflect the fact that some questions were worded in opposite directions to reduce response bias. Data were first analyzed graphically using diverging stacked bar charts [6]. To determine if there were differences in median response for different groups the non-parametric Mann-Whitney [7] test was used with $\alpha = 0.05$ using Minitab v. 18.1 software. If there was no difference detected, the data were pooled for that response to determine if the median response was either greater or less than three (neither agree

nor disagree) using a one-sample sign test. If the Mann-Whitney test indicated a difference was present, the section responses were tested to determine if they were greater or less than three using the one-sample sign test.

Differences in learning outcome for midterm exam, final exam, and course grade between the two sections were analyzed using one-way ANOVA. Difference in homework grade was assessed using the Mann-Whitney test.

This study received an Institutional Review Board approval. The survey instrument was administered on the second to last day of class by a departmental academic associate. No instructors were present while the students completed the survey. The academic associate secured the surveys until final grades had been posted.

Participants

Thirty-one undergraduate students enrolled in an introductory computer aided drafting and design course participated in the study. Students self-selected the section that best fit their schedules. Students were not aware of any difference in course structure prior to enrollment. The course is required of Agricultural Engineering and Agricultural Engineering Technology majors, who are advised to take the course their freshman year, space permitting (Table A.1). There were 14 freshmen, 7 sophomores, 8 juniors, and 2 seniors. Two primary CADD software packages were used in the course: Autodesk AutoCAD and Autodesk Inventor. Students with prior CADD experience in one or both of the software packages may have an advantage versus students with no prior CADD experience. Students were asked to indicate their prior experience with the software in two questions using a 5-point scale as: 1, no experience; 2, a little; 3, exposure through part of a class/work/internship; 4, had a full class or used somewhat in work/internship; or 5, had a class and used in work/internship (Table 2).

Table 1 — Student counts by academic standing and major (no. participants = 31, 2 students did not report major).

*Major**	*Freshman*	*Sophomore*	*Junior*	*Senior*	*Total*
PHYS	0	1	4	1	6
AE	6	4	2	0	12
AET	7	1	1	0	9
CSS	0	1	0	0	1
DS	0	0	0	1	1
Total	13	7	7	2	29

* PHYS = Physics, AE = Agricultural Engineering, AET = Agricultural Engineering Technology, CSS = Crop and Soil Science, DS = Dairy Science

Table 2 — Student-reported experience with CADD software prior to enrolling in class.

Software	Section	*Student experience with software prior to enrollment* 1, none	2, a little	3, some	4, fairly extensive	5, extensive
AutoCAD	1	9	5	2	1	0
	2	9	2	1	1	1
Inventor	1	7	4	3	2	1
	2	5	2	4	2	1

Results and Discussion

The survey questions were grouped into 3 categories to check for internal consistency: 1) perception of course; 2) preference for flipped format; and, 3) preference for flexible or rigid deadlines. Cronbach's alphas for the three question groups were 0.82, 0.82, and 0.84, respectively, indicating good internal consistency of question groups.

Student perception of the course was largely favorable, with mean responses of 4.65 and 4.29 significantly different from 3 (4= agree, 5 = strongly agree) for questions 1, "I found this course to be valuable" for sections RAD and SSP, respectively (Table 3). Both sections found the number of videos per lecture to be about right (question 6) with mean responses of 3.35 and 3.36 for the RAD and SSP sections, respectively (Table 3). There were 116 videos produced for 20 class periods for an average of 5.8 videos per class period. The mean responses to the statement "The length of individual videos was about right" were 3.24 and 3.07 for the RAD and SSP sections, respectively, with the combined mean not different from 3.0. The average video length was 8.7 minutes. There were 6 videos over 20 minutes long, with a maximum of 43 minutes. These longer videos mainly dealt with conceptual topics (e.g., dimensioning practice), while shorter videos tended to be tool-based (e.g., how to use *object snaps* in AutoCAD). We noted in written comments provided by students that the length of those few videos over 20 minutes tended to shape student impression of video length in general.

Students in both sections responded favorably to the flipped course format, with mean responses of 3.29 and 3.71 for the RAD and SSP sections, respectively for the question "I liked the 'flipped' style of the classroom" (Table 3 and Figure 3). A consequence of the flipped class is that students actively work on problems during class instead of having a lecture. Thus, it not surprising that students responded positively to question five, "I prefer the use of class time to work on problems rather than listening to a lecture or watching a demonstration", with means of 3.88 and 3.71 for the RAD and SSP sections, respectively. The preceding indicates that students value time spent working in class versus listening to a lecture. However, student response to question eight, "I prefer coming to class to listen to a lecture versus watching a lecture online", had mean responses of 3.29 and 2.93 for the RAD and SSP sections, respectively. Mean responses were not different between sections, nor were they different from 3.0. This apparent contradiction between students preferring class time to work on problems but indicating no preference for a lecture online versus in-person lectture could be explained by student perception of active learning versus lecture format. As reported by Hibbard [4] and O'Flaherty and Phillips

[8], a common criticism of the flipped class approach was that students prefer a traditional lecture. Thus, while students value and prefer using lecture time to work, they indicated no preference regarding in-class versus out-of-class lecture.

Another key aspect of the flipped class format is the ability to work on exercises in class that are substantially similar to homework problems. The ability of students to complete the homework because they had spent class time understanding the concepts or skills needed to execute the homework was addressed in question nine, “My ability to complete homework assignments was improved because of the time spent practicing in class”. The response of both sections was positive and greater than 3.0, indicating agreement with the statement. The intent of the out-of-class videos is to prepare students to complete in-class activities (ICAs), prompting questions 10 and 11. Question 10 asked students “I came to class prepared for the ICAs by watching the lecture videos prior to class”. The five-point scale for this question included estimated percent of videos watched: strongly disagree (less than 10 % of videos watched), disagree (between 25 and 50% of videos watched), neither agree nor disagree (between 50 and 75 of videos watched), agree (between 75 and 90% of videos watched), or strongly agree (>90% of videos watched). In this case both sections agreed that they had done the necessary preparation before class in order to complete the ICAs, with means of 4.53 and 3.50 for RAD and SSP treatments, respectively, but the median response of the RAD section was significantly greater, meaning they had watched a greater fraction of video content prior to class. Question 11 asked the students: “After watching the out of class videos, I felt prepared to complete the in-class activities”. The RAD section generally agreed with the statement (mean 3.94), which was different than the SSP section (mean 3.04). One possible explanation for the different in preparation rates between the two sections could be that students in the SSP section felt less motivation to watch the videos before class since they could delay watching video content until such time as they needed that information to complete a homework assignment. Also, since instructor help was readily available during class, there was essentially no direct penalty for not watching the videos prior to class.

Engineering drawing is a skill attained with practice. As instructors, we strive to balance the amount of work assigned to attain proficiency against being overly burdensome, which prompted questions 7 “I would have learned more if there were fewer homework assignments.” and 13 “The amount of homework was appropriate for the course.” with students generally in agreement with the amount of homework.

Questions 15-18 were developed to determine whether there was a strong preference for a semi-self-paced format. There was a statistical difference between sections regarding preference for SSP format (Q17, Table 3, Figure 5). While students in the RAD section expressed a moderate but not significant preference for the RAD format, SSP students did favor the flexible deadlines. It was somewhat surprising that students with rigid deadlines were apparently content with that reality, or at least did not express a strong preference for having flexible deadlines. This is contrary to the work done by Fulton et al. [3], who indicate student control increases satisfaction. One drawback to self-paced learning is the potential for procrastination. Students in the RAD section agreed that having rigid deadlines prevented them from procrastination (Table 3, Figure 5). The mean student response for the SSP section in question 15 was 3.00; students indicated no

consistent agreement that flexible deadlines led to procrastination. For the SSP section, suggested deadlines were given which were the same dates as the rigid section. Using the learning management software, the number of homework assignments turned in after the suggested deadline was tabulated for the SSP section. These results show that 2 of 14 students turned all assignments on or before the recommended due date (Figure 2). Of the 14 assignments, 9 of 14 students submitted 10 or more past the recommended deadline. While students in the SSP section reported that they did not procrastinate, their actions indicate that most students did not keep pace with the course lecture material. This finding is similar to Fulton et al. [3] who found that groups with less learner control engaged in higher levels of distributed practice than their peers.

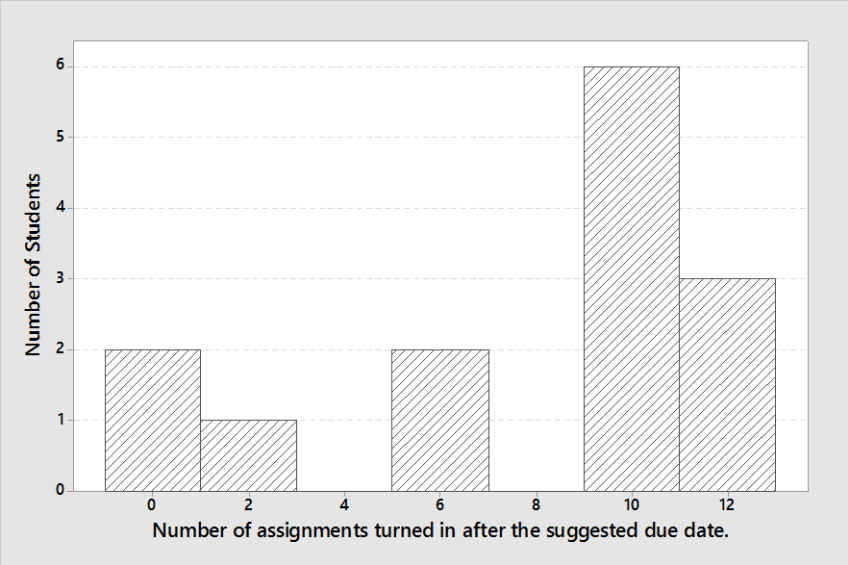

Figure 2 — Histogram showing frequency of number of homework assignments turned in after suggested deadlines, by student, in the SSP section.

Less frequent distributed practice (cramming) manifested itself in the number of assignments turned in past the suggested due date in the SSP section. Another indicator of infrequent practice is the number of missed assignments. Recall that students in the SSP section were required to hand in all assignments issued prior to an exam by the exam date. Thus, we surmised that students might wait until a week or days before the exam before attempting to complete the assignments and might simply run out of time to complete them all. Out of 14 assignments, average number of missing assignments was double (1.2) for the SSP section compared to the RAD section (0.6).

Table 3 — Comparison of mean response rate between sections using Mann-Whitney test mean response difference (α = 0.05).

Question	Section	N	Mean	P-Value	Question	Section	N	Mean	P-Value
Q1[a]	RAD	17	4.65	0.156	**Q11**	RAD[±]	17	3.94	0.017
	SSP	14	4.29			SSP	14	3.07	
Q2[a]	RAD	17	3.29	0.243	**Q12**	RAD	17	3.24	0.572
	SSP	14	3.71			SSP	14	3.07	
Q3[a]	RAD	17	1.71	0.772	**Q13[a]**	RAD	17	3.88	0.143
	SSP	14	1.79			SSP	14	3.57	
Q4[a]	RAD	17	2.18	0.605	**Q14[a]**	RAD	17	4.06	0.317
	SSP	14	2.43			SSP	14	3.71	
Q5[a]	RAD	17	3.88	0.692	**Q15***	RAD[±]	16	4.25	0.009
	SSP	14	3.71			SSP	13	3.00	
Q6[a]	RAD	17	3.35	0.982	**Q16***	RAD	16	2.81	0.171
	SSP	14	3.36			SSP	13	2.46	
Q7[a]	RAD	17	2.59	0.246	**Q17***	RAD	16	2.94	0.045
	SSP	14	2.86			SSP[±]	13	2.08	
Q8	RAD	17	3.29	0.424	**Q18***	RAD	16	3.06	0.022
	SSP	14	2.93			SSP	13	1.85	
Q9[a]	RAD	17	4.06	0.538	**Q19**	RAD	0	*	
	SSP	14	3.86			SSP	13	3.92	
Q10[a]	RAD	17	4.53	0.016					
	SSP	14	3.50						

[a] Indicates combined section medians are greater or less than a value of 3 using the 1-sample Sign Test (α = 0.05).
± Indicates individual section median is greater or less than a value of 3 using the 1-sample Sign Test (α = 0.05).
* Responses were re-coded as necessary to achieve similar positive or negative direction between sections when performing Mann-Whitney test. Means shown are raw response means (before re-coding).

Learning outcomes were assessed by homework grade, midterm exam grade, final exam grade, and final course grades. Differences in homework grade between sections were evaluated using the Mann-Whitney test, while other comparisons were assessed using one-way ANOVA (all at α = 0.05). Mean percentages for the different assessment categories are presented in Table . The only statistical difference occurred in midterm exam score, with the SSP section exhibiting a significantly greater mean than the RAD section. In the RAD section there was one very low performer that, if removed from the analysis, would have resulted in no statistical difference in midterm exam scores between sections. These results contrast those of Fulton [3], who found that lack of practice spacing results in lower exam scores. We surmise that in a computer aided drafting course, exams do not rely on conceptual knowledge but rely largely on skill at utilizing the computer program. Thus, there may be less of a ‘penalty’ for cramming in this case. In fact, cramming could have the opposite effect, where students benefit on exams because they have just learned a requisite skill immediately before the exam.

Table 4 — Descriptive statistics for learning outcome assessment by section.

Assessment	*Section*	*N*	*Mean*	*Minimum*	*Median*	*Maximum*
Homework	RAD	18	79.60	49.42	82.38	93.91
	SSP	14	77.96	51.94	79.80	96.70
Midterms	RAD	18	73.78	42.00	75.00	91.00
	SSP	14	82.79	63.00	83.50	95.00
Final Exam	RAD	18	73.50	47.00	77.00	89.00
	SSP	14	74.21	52.00	74.50	94.00
Final Grade	RAD	18	80.47	60.59	83.61	90.63
	SSP	14	81.24	64.50	82.70	94.00

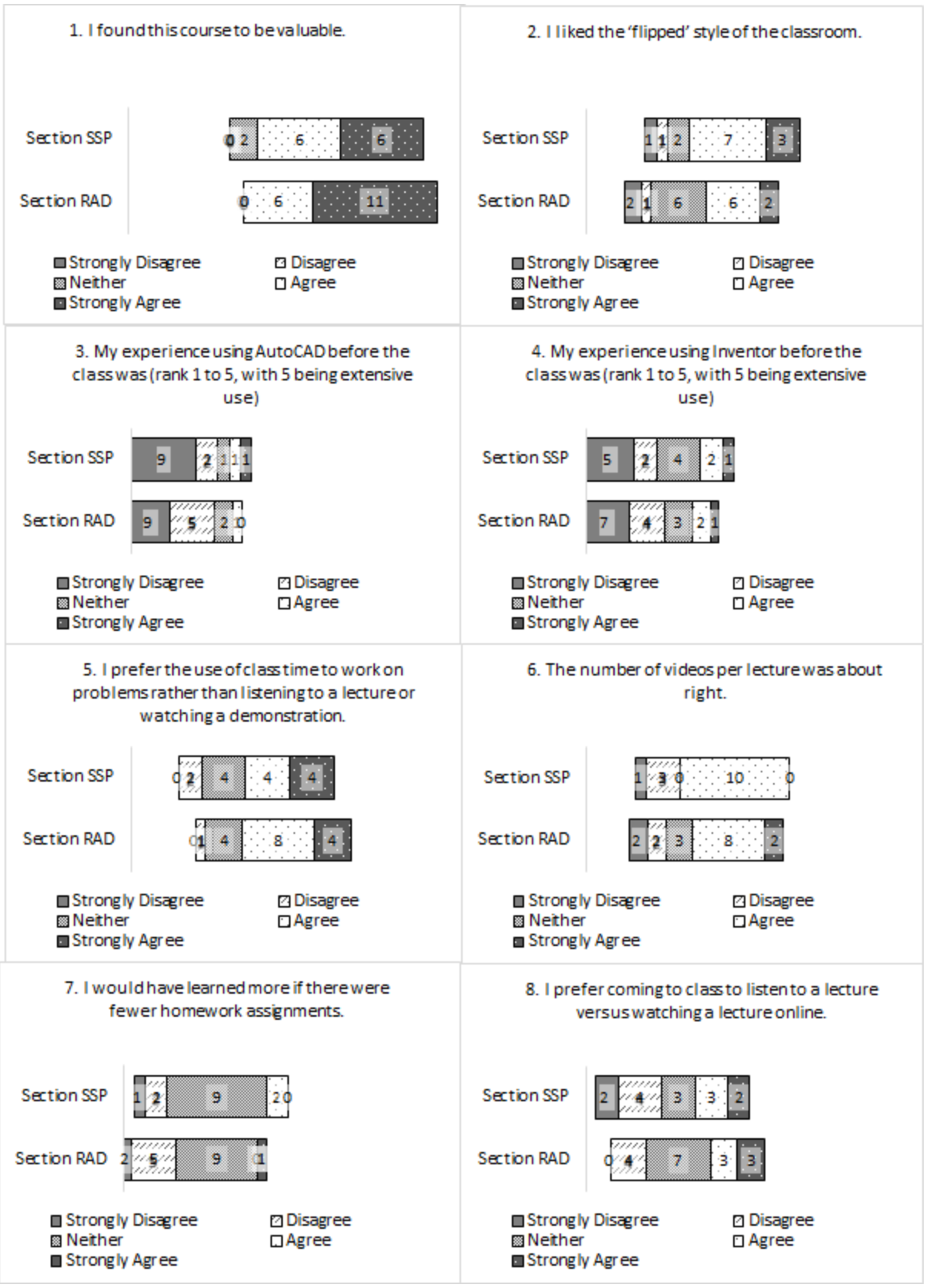

Figure 3 — Divergent stacked bar chart showing student response to survey instrument (Q1 – Q8).

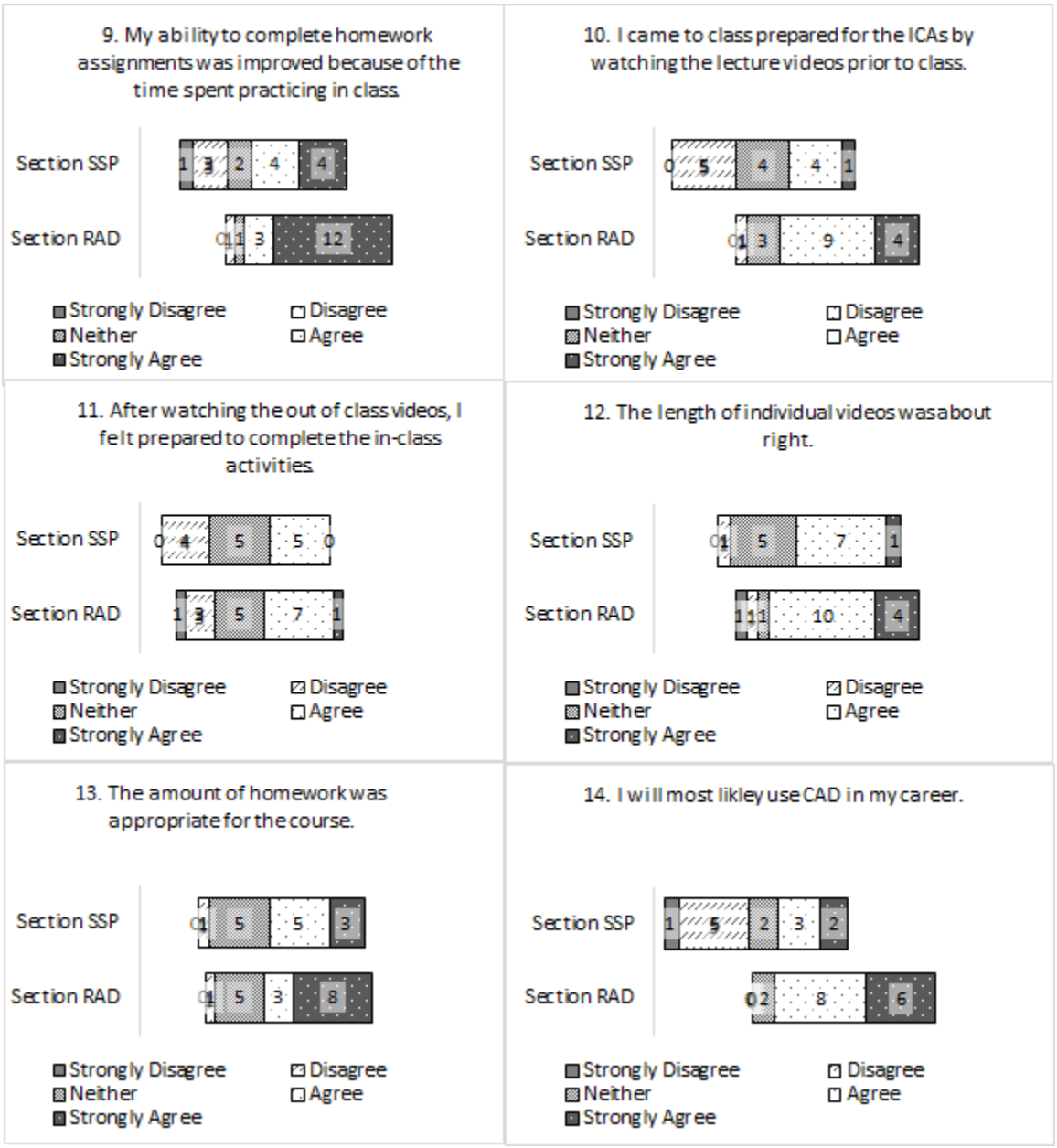

Figure 4 — Divergent stacked bar chart showing student response to survey instrument (Q9 – Q14).

Conclusions

We did not observe a difference in learner outcomes, as measured by homework grade, final exam grade or final course grade between semi-self-paced (SSP) and rigid assignment deadlines (RAD). Students in the SSP section self-reported that they watched a significantly lower proportion of the video content prior to class. Nine of 14 respondents in the SSP section submitted 10 or more of the 14 homework assignments later than the recommended due date, indicating a lack of distribution of practice (cramming). As such, we are concerned that the SSP format reduces distributed practice, a technique that has been shown to be a more effective

means of retaining information. Finally, our data does not indicate that students prefer SSP over RAD and, in fact, appear to prefer whatever format they are exposed to. Moreover, the SSP format is more difficult from an instructor management point of view because grading assignments occurs piecemeal throughout the semester whenever students turn in homework as opposed to the RAD format, where each homework can be graded at one time after the due date. Since there was no difference in learner outcome and students expressed no clear preference for format, the RAD format appears to be preferable since it has the advantage of distributing practice and is easier for the instructor to manage grading.

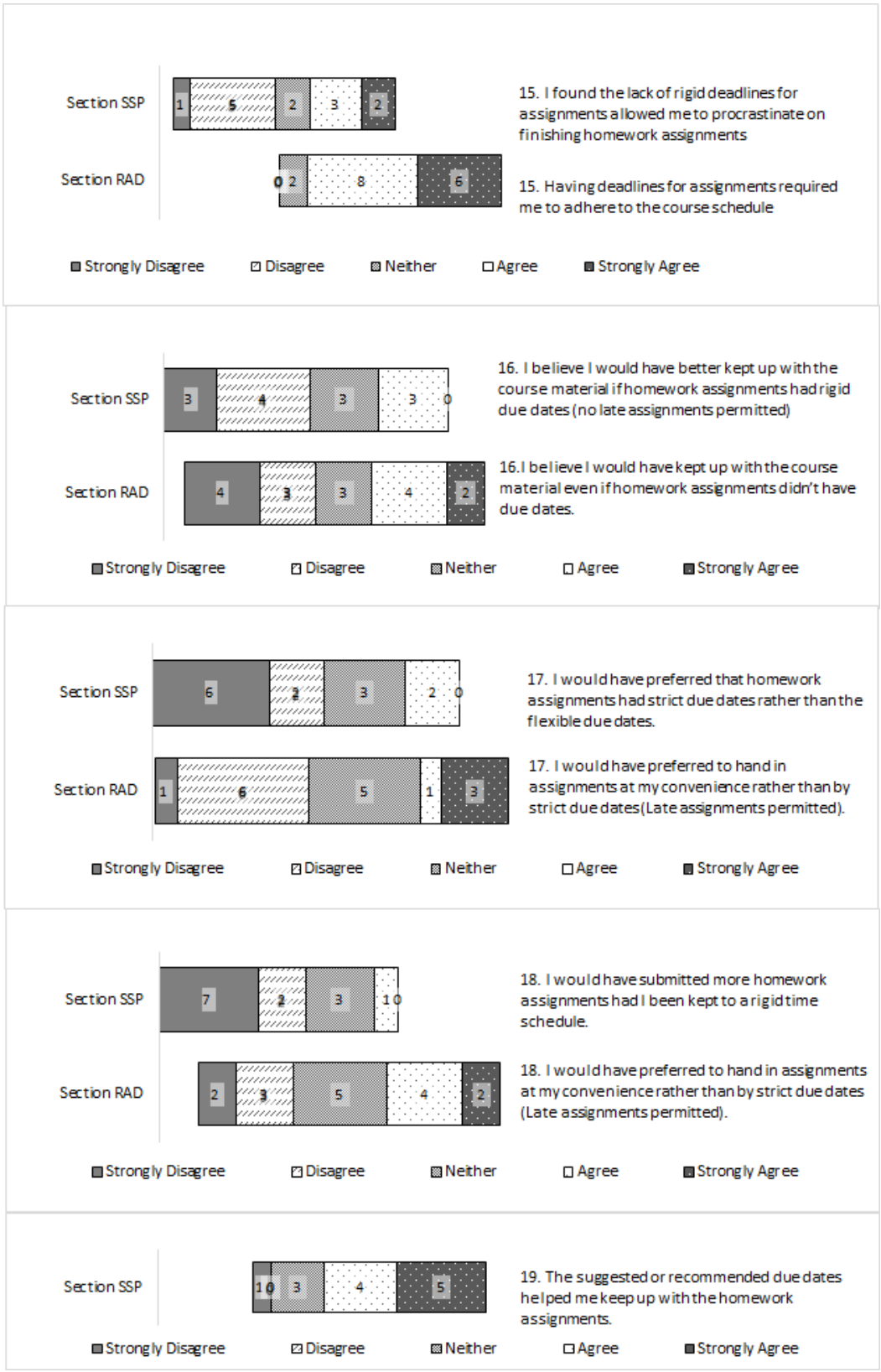

Figure 5 — Divergent stacked bar chart showing student response to survey instrument (Q15 – Q19).

Limitations of the Study

In this study we compared learning outcomes and student satisfaction between a course having frequent, rigid assignment deadlines (RAD) and a semi-self-paced (SSP) format. We did not investigate the role of motivation, emotion, or meta-cognition in this study. Cho and Heron [9] found that both motivation and positive emotion significantly affected student achievement and satisfaction. Students that have infrequent or flexible deadlines may have had lower levels of frustration because they did not have the pressure of weekly homework assignment due.

References

[1] S.B. Velegol, S.E. Zappe, and E. Mahoney, "The evolution of a flipped classroom: evidence-based recommendations", *Adv. in Eng. Education.* Winter 2015. pp. 1 – 37, 2015.

[2] S. Purao, M. Sein, H. Nilsen, and E.A. Larsen, "Setting the pace: experiments with Keller's PSI", *IEEE Trans. On Education.* 60(2), pp. 97-104, 2017.

[3] L.V. Fulton, L.V. Ivanitskaya, N.D. Bastian, D.A. Erofeev, and F.A. Mendez. "Frequent deadlines: evaluating the effect of learner control on healthcare executives' performance in online learning", *Learning and Instruction.* 23. pp. 24-32, 2013.

[4] L. Hibbard, S. Sung, and B. Wells. "Examining the effectiveness of a semi-self-paced flipped learning format in a college general chemistry sequence", *J. of Chemical Education.* 93(1), pp. 24-30, 2016.

[5] J.R.A. Santos. "Cronbach's alpha: a tool for assessing the reliability of scales.", *Journal of Extension.* 37(2), 1999. Accessed from https://www.joe.org/joe/1999april/index.php on February 5, 2018.

[6] N.B. Robbins and R.M. Heiberger. "Plotting Likert and other rating scales." In *JSM Proceedings, Section on Survey Research Methods*, pp. 1058–1066. American Statistical Association, Alexandria, VA. URL: http://www.amstat.org/sections/SRMS/proceedings/y2011/Files/300784_64164.pdf. 2011.

[7] M.F. Triola. *Elementary Statistics, 3rd Addition.* Boston, MA. Pearson Education.

[8] J. O'Flaherty and C. Phillips. "The use of flipped classrooms in higher education: a scoping review". *Internet and Higher Education.* 25, pp. 85-95, 2015.

[9] M. Cho and M.L. Heron. "Self-regulated learning: the role of motivation, emotion, and use of learning strategies in students' learning experiences in a self-paced online mathematics course." *Distance Education.* 36(1). pp. 80-99, 2015.

Appendix

Table A.1 — Survey instrument used in the current study. Response options were in the form of a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Common Questions	Q1	I found this course to be valuable.
	Q2	I liked the 'flipped' style of the classroom.
	Q3	My experience using AutoCAD before the class was (rank 1 to 5, with 5 being extensive use)
	Q4	My experience using Inventor before the class was (rank 1 to 5, with 5 being extensive use)
	Q5	I prefer the use of class time to work on problems rather than listening to a lecture or watching a demonstration.
	Q6	The number of videos per lecture was about right.
	Q7	I would have learned more if there were fewer homework assignments.
	Q8	I prefer coming to class to listen to a lecture versus watching a lecture online.
	Q9	My ability to complete homework assignments was improved because of the time spent practicing in class.
	Q10	I came to class prepared for the ICAs by watching the lecture videos prior to class.
	Q11	After watching the out of class videos, I felt prepared to complete the in-class activities.
	Q12	The length of individual videos was about right.
	Q13	The amount of homework was appropriate for the course.
	Q14	I will most likely use CAD in my career.
RAD Questions	Q15	Having deadlines for assignments required me to adhere to the course schedule
	Q16	I believe I would have kept up with the course material even if homework assignments didn't have due dates.
	Q17	I would have preferred to hand in assignments at my convenience rather than by strict due dates (Late assignments permitted).
	Q18	I would have submitted more homework assignments had I been allowed to turn them in at any time.
SSP Questions	Q15	I found the lack of rigid deadlines for assignments allowed me to procrastinate on finishing homework assignments
	Q16	I believe I would have better kept up with the course material if homework assignments had rigid due dates (no late assignments permitted)
	Q17	I would have preferred that homework assignments had strict due dates rather than the flexible due dates.
	Q18	I would have submitted more homework assignments had I been kept to a rigid time schedule.
	Q19	The suggested or recommended due dates helped me keep up with the homework assignments.