
Perceptions of Undergraduate Students of Student-Regulated Online Courses

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Abstract

Undergraduate students at a large, public, southeastern university enrolled in one of two independent, fully-online courses were released from the instructor-regulated structure mid-semester. Subsequently, the course was structured as student-regulated and students self-managed pace of study and timing of assessments for the remainder of the course. The objective of the research is to assess student preferences in learning structure (instructor-regulated versus student-regulated) in order to inform effective course design options in the online learning environment. At the end of each semester included in the study, a survey was administered to ascertain students' perceptions of the student-regulated (self-paced) learning environment. After analyzing the survey results, but before drawing final conclusions, it was acknowledged that student preferences might be skewed if coupled with altered performance in the course, real or perceived. Therefore, student performance was evaluated to ensure neutrality in this component. To this end, exam grades were collected over multiple semesters based on the original instructor-regulated structure (control group) together with the student-regulated structure (study group) and analyzed to compare mean grade performance between the two learning formats. Results indicated that the slight decline in grades for the self-paced students were not statistically significant. Given the benign performance results, the survey results were analyzed for statistical reliability and revealed a strong student preference for the self-paced online structure. The survey and grade performance results were compared against other research literature on online learning. Issues relating to incompatibility of student-paced flexibility and group-based assignments are also presented. Implications and opportunities for increasing student-regulated learning in online course design are addressed.

Introduction

Online courses are widely offered and eagerly embraced by many undergraduate students. In a news report, the Babson Survey Research Group estimated that 5 million North American students were engaged in distance learning in 2014, with nearly one-third of all students taking at least one distance education course. "In addition, online students rate class conflict with work, reducing commuting time, and flexibility in studying as being more important to them in their choice of

course format than do lecture students” (J. Dutton & M. Dutton, 2002).

In instructional and course design, administrators and instructors may choose between active and passive learning styles. Active learning can be designed for the group or at the individual level. “Changes in educational approaches and technologies have created new opportunities for learners to study in unsupervised situations where they must make active decisions about their own study” (Carvalho, Braithwaite, de Leeuw, Motz, Goldstone, 2016). Considerable research supports a variety of modalities and interactive engagement such as group discussions, group assignments and exercises, etc. “Despite acknowledging the benefits of interactive learning, students remained steadfast in preferring strategies that were convenient, comfortable, and allowed control over one’s grade, in essence passive modes of instruction” (Cuthrell & Lyon, 2007). Online courses are less viable candidates for the active learning style. “It might seem that the online course setting inherently utilizes the *active* learning style given the self-study environment. However, if learning is driven by narrated lectures that the student accesses and views, the learning modality is *passive*” (Robertson & Wakeling, 2017). In addition, it is challenging to incorporate group-based activities into an online course. Online courses allow students increased flexibility in when to study in lieu of scheduled classroom meetings and/or in-person group assignments (Powell, 2007). This points to a tension from the students’ perspective between the convenience of independent, asynchronous course delivery versus active engagement strategies and group assignments attempting to simulate the face-to-face environment.

Further, in designing a course, administrators and instructors may consider student-regulated or instructor-regulated structures. Under instructor-regulated, the instructor sets a schedule through which students’ progress, commonly organized as a linear series, perhaps with start/stop stages, of individual and group assignments, synchronous discussion/participation, etc. This common format has the entire class bound together within the instructor’s timeline. An ordered sequence of assignments, assessments, required group discussions, and/or group exercises restricts students from moving at either their preferred quicker or more measured pace. Like face-to-face courses, online courses may be designed as instructor-regulated or student-regulated. Many online students with work or family-related obligations could be conflicted when having to operate at a groups’ pace within an instructor-regulated start/finish sequence (Block, Udermann, Felix, Reineke, & Murray, 2008). Rhodes (2009) addressed the imposed-pace model which “sets definitive parameters for the course and stipulates that all learners engage in the same learning activities at specific time periods,” but said that “the self-paced approach affords more autonomy to learners, allowing each to proceed at an individualized pace while providing benchmarks for progress and achievement.”

Method

This research surveyed and analyzed student attitudes in two, independent, fully-online undergraduate courses across several semesters where certain students were empowered to self-manage their study with flexibility in assessment deadlines. Content delivery and the timing of assessments for both courses included in this research were originally designed, and initially presented to students in the syllabus, as instructor-regulated with the passive learning style. “Passive learning is often the default learning style for online which opens the door for a *student-regulated* structure to be considered” (Robertson & Wakeling, 2017). Therefore, a control group, which followed the instructor-regulated format with a series of start/finish stages, included students from several semesters for both courses. Likewise, for the first half of each semester included in the research, a study group also followed an instructor-regulated format. However, at mid-semester, the study group was released to self-manage the course and complete the remaining assessments any time up to and including the end of the semester. Because neither course included group-based assignments, each student in the study group could independently self-manage the last half of the course.

The objective of the research is to assess student preferences in learning structure (instructor-regulated versus student-regulated) in order to inform effective course design options in the online learning environment. This paper does not assess the learning efficacy between passive and active learning styles or instructor- versus student-regulated course structures. Rather, it evaluates student attitudes and perceptions of student-regulated conditions compared to the instructor-regulated structure.

The two courses included in the study are introductory Macroeconomics and introductory Personal Finance. Students in these independent, online courses matriculated under the same university entrance standards and registered during open enrollment. Over the last three years, students in the control and study groups closely resembled the overall business school demographics: 40% female, 73% full-time registrants, and 67% age 22 years and younger. All business majors are required to complete the introductory Macroeconomics course. One online section is offered each semester against several traditional on-campus sections. Personal Finance is an elective for non-business majors. One section is offered each semester, which is only online. The same two experienced online instructors taught all sections of each course, respectively, for both the control and study groups. The courses were consistently delivered across consecutive semesters, including identical content, textbook, narrated lectures, and assessments.

Both courses included in this research consisted of consecutive 15-week spring or fall semesters delivered within the university's business school. The control group received the entire course content under a linear-sequenced, instructor-regulated timeline. The study group experienced the same instructor-regulated delivery for the first half of the semester. At mid-semester, study groups were informed that the instructor-set timeline for study and assessments in the syllabus was waived for the balance of the semester. Students had no advance knowledge of this change. Using mid-semester as the starting point for the research provided the student an equal amount of time and number of assigned chapters and assessments under the earlier instructor-regulated and, later, student-regulated format.

At mid-semester, the self-paced structure was announced to the study group students through an email in the university's learning management system, which read:

“To give you maximum flexibility in studying and taking your remaining six quizzes, completing your remaining two assignments (one is required and the other optional), and taking the practice final, I am giving you more deadline flexibility for the remaining course schedule.

Under the existing schedule, each section of the course opens and closes in D2L based on specific dates indicated in the syllabus. Effective now, all remaining chapter materials, quizzes, assignments, and the practice final are being made accessible in Desire2Learn.

You are welcome to continue to follow the course schedule outlined in the Syllabus if you prefer an instructor-paced schedule. But, to accommodate your personal schedule and learning preferences, you are now able to self-manage your progress through all remaining course requirements under this new flexible schedule.”

At the conclusion of the semester, study group students from both courses completed the same nine question survey. The survey addressed two issues – reaction to the flexible self-paced study format and attitude about the effectiveness of learning under the self-paced structure. The t-test and survey results will be described in later sections. However, after analyzing the survey results, but before drawing final conclusions, it was acknowledged that student preferences might be skewed if coupled with altered performance in the course, real or perceived. Therefore, student performance was evaluated to assess any impact from this component. Grades were collected from the second half of the semester from the instructor-paced control groups and compared to the student-regulated study groups. A t-test was applied to compare the mean grades for the second half of the semesters

between the control and study groups. All students present at the end of the course were included in the analysis of the grade performance. Drop rates held steady over the several semesters in this research.

Student Survey Methodology - The survey consisted of eight Likert-type questions and a ninth 'identify your top three preferences' question. Psychologist Rensis Likert (1931) developed and described this technique for the assessment of attitudes. A Likert-type scale "requires an individual to respond to a series of statements by indicating whether he or she strongly agrees (SA), agrees (A), is undecided (U), disagrees (D), or strongly disagrees (SD). Each response is assigned a point value, and an individual's score is determined by adding the point values of all the statements (Gay, Mills, Airasian, 2009). Also "A principle basic to Likert scale measurement methodology is that scores yielded by a Likert scale are composite (summed) scores derived from an individual's responses to the multiple items on the scale" (Warmbrod, 2014).

"The meaningfulness of scores achieved on a multi-item Likert scale depends not only on the individual items but, as well, on the interconnectedness of those items in, ultimately, influencing the participants' responses. A multi-item Likert scale is more than the sum of its parts, and should be examined by using cross-item analyses, rather than limited-approach or individual-item analyses" (Wigley, 2013)

This research organized the eight individual Likert questions into two "constructs," i.e. composite scale scores from four related questions. "Often this practice is recommended, particularly when researchers are attempting to measure less concrete concepts, such as trainee motivation, patient satisfaction, and physician confidence – where a single survey item is unlikely to be capable of fully capturing the concept being assessed" (Sullivan & Artino, 2013). The two constructs evaluated in this paper are (1) "Instructor-paced learning is more effective" and (2) "Students prefer a self-paced schedule." Additionally, other criteria or standards are recommended before interpreting Likert scale results. Criteria recommended, although not exhaustive, include:

- The Likert scale include at least five distinct answer choices and include 'undecided' or 'neutral'. Choices such as 'often', 'frequently', 'occasionally' are imprecise compared to 'never', 'always'.
- Points from at least 4, but more often 5 or more, Likert items should be combined to measure an attitude or perception (H. Boone & D. Boone, 2012)
- Act in survey design to reduce Central Tendency Bias, Acquiescence Bias, Social Desirability Bias, Order Bias
- Include 'negatively' worded questions to reduce 'response bias' (Croasmun & Ostrom, 2011)
- Calculate and report Cronbach's Alpha coefficient for internal consistency, reliability among the individual Likert questions that combine to measure a 'construct' (Croasmun & Ostrom, 2011)

Results and Discussion

Student Survey Results

The Likert survey was administered in the Fall 2017 and Spring 2018 semesters. Tables 1-A and 1-B present the eight Likert scale questions in the end-of-semester survey, which included 117 respondents (64 from Macroeconomics and 53 from Personal Finance). Preliminary comparisons showed the pattern of responses between the Macroeconomics students and the Personal Finance students to be very similar. The response rate was 83% for Macroeconomics (64 completed of 77 registered) and the response rate was 87% for Personal Finance (53 completed of 61 registered).

Questions 1, 3, 5, and 7 (**Table 1-A**) related to the composite construct "Instructor-paced learning is more effective." Questions 2, 4, 6, and 8 (**Table 1-B**) related to the composite construct "Students

prefer a self-paced schedule.” The two constructs with associated questions and summary statistics is presented below. Discussion of results follows.

Table 1-A: “Instructor-paced learning is more effective”

Survey Question	Ques. #	Mean (Std. Dev.)	Median ¹
I spent more total study time over the last 6 chapters under the flexible schedule than my study time for the early Chapters 1 – 6 <i>(Negative question; score recoded)</i>	1	2.48 (1.25)	2
I learned more under the original schedule with weekly chapters and quizzes than the last several chapters when I controlled my schedule.	3	2.74 (1.23)	3
My quiz scores generally were stronger early in the semester when each chapter’s quiz was scheduled every 10-14 days than my scores later when I controlled the study schedule.	5	2.40 (1.18)	2
I found I learned more effectively by following a structured instructor-paced study schedule rather than to control the schedule myself.	7	2.51 (1.24)	2
COMPOSITE SCALE n = 117 <i>“Instructor-paced learning is more effective”</i>		2.54 (1.23)	2.5
Cronbach’s α reliability coefficient (acceptable $\geq .7$)		.583	

¹ 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

The result from Table 1-A shows weak disagreement with the proposition that “Instructor-paced learning is more effective” based on the overall construct mean of 2.54. The construct composite median value is 2.5, moderately below the ‘neutral’ score of 3. Additionally, Cronbach’s alpha value indicates general inadequacy of the four questions combined to generate a robust interpretation of responses. In other words, the Cronbach reliability coefficient indicates the questions forming the composite score are unreliable as a group for its Likert composite scale of ‘weak disagreement.’ This reinforces the value of Cronbach’s alpha for consistency and reliability of the survey instrument. While a researcher in another case might reach a stronger Agree/Disagree score, knowing that the basis for measuring the score itself is reliable is also important. The weakly reliable result found in this instance would recommend revising and improving the set of survey questions if this research is repeated. On a positive note, this research can rely on statistical analysis of student grade performance in lieu of the inconclusive survey results for “Instructor-paced learning is more effective.” A later section presents results of t-tests comparing the mean grade performance between the control and study groups.

Table 1-B: “Students prefer a self-paced schedule”

Survey Question	Ques. #	Mean (Std. Dev.)	Median ¹
I preferred having the schedule flexibility that allowed almost two months to study the last several chapters and complete their quizzes.	2	4.57 (0.922)	5
I found it difficult managing my study schedule for the last seven chapters and I was running out of study time for the quiz deadlines at semester’s end. <i>(negative question; score recoded)</i>	4	4.13 (1.08)	4
With the flexibility from the extended deadlines for the last half of this course, I could better manage my other coursework and lifestyle obligations.	6	4.66 (0.709)	5
Based on my experience in the last half of this course, in the future I would prefer to take other online courses that allowed me a high level of control over the schedule and assessment deadlines.	8	4.43 (0.903)	5
COMPOSITE SCALE n = 117 “Students prefer a self-paced schedule”		4.45 (0.913)	4.5
Cronbach’s α reliability coefficient (acceptable $\geq .7$)		.754	

¹ 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

By contrast, the survey results in Table 1-B for the study groups’ perception, “Students prefer a self-paced schedule,” are straightforward and reliable. The mean and median is 4.45 for the composite “Students prefer a self-paced schedule.” The median for three of the four sub-item questions itself is 5, Strongly Agree. Cronbach’s alpha at .754 signals that this composite scale of questions is internally consistent and reliable. Therefore, a study group consensus supports the survey-based composite score that students strongly prefer a student self-paced structure. The strong student preference for a student-regulated online format measured in this paper is consistent with the research (Cuthrell & Lyon, 2007; Drennan, Kennedy & Pisarski, 2005; Rhode, 2009).

The survey also included a non-Likert question to identify the consensus of student perception about the study period’s self-paced structure. The question, and the top three responses, appear in Table 2 below. The three top student responses accounted for 66% from among the eight choices offered. The other five choices were each selected by less than 9% of the total respondents.

Table 2: Survey Question 9

Please identify the <u>three most advantageous features</u> of the flexible schedule structure for the last seven chapters. <i>(check up to 3)</i>	% Choosing
<i>Choice A.</i> I’m very busy with non-school activities, so having more schedule flexibility was very convenient.	28.8%
<i>Choice H.</i> The flexible schedule reduced my stress over the earlier instructor-set sequence of 7-14 day study and quiz deadlines.	22.1%
<i>Choice B.</i> I like to bundle my work, so being able to complete several chapters at once was more efficient for me.	15.5%

The answer choices that cumulatively accounted for 66% of the student responses are entirely consistent with the high level of preference measured from the Likert composite, “Students prefer a self-paced schedule,” presented in Table 1-B. Students had the opportunity to add additional unprompted comments. One student wrote, “I really liked the course format for the last half of the semester and I wish every course was like that.” Several other students expressed a similar sentiment.

Grade Performance Methodology

Macroeconomics Course – The control group for grade performance analysis included 113 online

students from three semesters (Spring 2016, Fall 2016, and Spring 2017). The study group included 77 students from two semesters (Fall 2017 and Spring 2018). The same instructor identically delivered the course for all five sections. The syllabus for all sections detailed the same instructor-regulated, linearly-sequenced timeline for rate of progression and assessments. Assessments included bi-weekly quizzes which we're set to open and close at predetermined dates/times. Once students in the study group were empowered to proceed in the self-paced flexible format at mid-semester, access to several brief chapter-linked quizzes was immediately allowed for all six remaining quizzes. From mid-semester forward, students could individually manage the order and timing of study no longer restricted to the instructor's timeline or sequence. For the study group, this meant that all deadlines were extended approximately two months to the last week of the semester.

Personal Finance Course – The control group for grade performance analysis included 120 online students from four semesters (Fall 2014, Spring 2015, Fall 2015, and Spring 2017). Four student sections, ranging from 26 to 34 students each, were aggregated to boost the control group sample size. The study group included 122 students from four semesters (Spring 2016, Fall 2016, Fall 2017, and Spring 2018). The same instructor identically delivered the course for all eight sections. The syllabus for all sections detailed the same instructor-regulated, linearly-sequenced timeline for rate of progression and assessments. Once the new structure was announced, study group students had immediate access to the six remaining chapter-linked quizzes. From mid-semester forward, students could individually control the order and timing of study outside of the syllabus mandate. The remaining quiz deadlines were reset to the last week of the semester, approximately two months later.

Grade performance data from both the Macroeconomics and Personal Finance students was collected and organized for separate analysis. For the Macroeconomic students, Final Exam scores were compared between the control and study groups. Even in a course designated “fully online,” the university permits the instructor to schedule one on-campus test. This gains the benefit of an instructor-proctored test despite some student inconvenience. Distance proctoring is offered with advance justification and instructor approval.

For the Macroeconomics course, the Final Exam is mandatory and comprises 25% of the overall course grade. The same set of 50 multiple-choice items appeared in the two-hour Final Exam for both control and study groups. Exam questions were reordered and question order scrambled. The instructor controlled the distribution of the Final Exam itself so its content is not circulated across semesters.

For the Personal Finance course, the average grade over the six required online quizzes assigned for completion in the last half of the semester was compared between the control and study groups. The Final Exam was not used because the instructor typically offers it as an optional opportunity to replace one lower semester quiz score. The quizzes typically contained 20 multiple-choice questions the computer randomly selected from a test bank containing at least three choices for each question. The same random-selection test bank applied to both the control and study groups. The 20 question quiz had a 30-minute completion limit.

The control group students were restricted for the entire semester to a sequence of bi-weekly ‘start / end access’ gates to prepare for and complete these six quizzes. The study group students at mid-semester were given immediate access to all of the last six quizzes, for which they could prepare and take in any order, with all deadlines reset to the last week of the semester almost two months later. A missing quiz score was included at a value of 0 in a student's six-quiz average. The six quizzes were equally weighted and collectively account for approximated 43% of the course grade.

Grade Performance Results

Table 3 provides a summary of grade performance for the Macroeconomics and Personal Finance students. A t-test of sample means assuming unequal sample variance is provided with other summary statistics. The hypothesis tested is $H_0: \mu_1 - \mu_2 = 0$, $H_1: \mu_1 - \mu_2 \neq 0$. Results computed from Excel are discussed in the section following Table 3.

Table 3: t-Test Comparing Mean Grades for Control and Study Group

	Macroeconomics		Personal Finance	
	Control	Study	Control	Study
MEAN GRADE (Std. Dev.)	85.434 (12.645)	84.597 (11.239)	76.621 (14.097)	74.987 (15.033)
Observations (degrees of freedom)	113 175	77	120 239	122
t-statistic P(T<=t) two-tail	0.4784 0.633		0.8725 0.3838	
T Critical two-tail	1.9736		1.9699	

For both courses, the mean grade for the study sample under a student self-paced format declined. The decline for Macroeconomics was -0.84 point (-0.98%) from 85.4% to 84.6%. The decline for Personal Finance was -1.6 points (-2.1%), from 76.6% to 74.9%. For both courses, the t-test results indicate do not reject the null hypothesis of no difference in the sample mean grades between the respective control and study groups at $p = .05$. These mean grade results indicate students in the two study groups gained significant flexibility to manage their individual study schedule with little apparent opportunity cost in lower grade performance. Although this research focused on the effects of student-regulated learning, the comparison of mean grade performance cannot differentiate among other possible underlying influences.

Moreover, the modest decline in the sample mean grades may, at the margin, mask some shift if viewed in terms of A, B, C... boundaries. Although these study-period scores were only a part of the overall course grade, these scores from both courses were organized separately into the traditional letter-grade segments, 90.0+ = A, 80.0–89.9 = B, etc. A Chi-Square analysis was performed separately for each course. The distribution of letter grades from the control group was treated as the expected distribution. Chi-Square results for both courses showed no statistically significant difference at $p = .05$ between grade distributions. Interestingly, the statistical analysis showing only a minor decline in grade performance is logically consistent with the overwhelming student preference for the flexible self-paced class structure. Presumably, students would not have strongly preferred the self-paced structure if it was at the cost of much lower grades.

Limitations

It is indeterminate if this study's results are repeatable or are influenced by unique, perhaps unrecognized, conditions present in these particular courses at that time. For example, how many students were already experienced with online learning, the number and type of other courses being taken (online or on-campus), the percent with part or full-time jobs, etc. Despite the general passive online design of these courses, the degree of instructor interaction on occasions of direct personal assistance, frequent class-wide emails and text broadcasts may have contributed to the student satisfaction results. Data was not collected in this research with regard to the presence or extent of voluntary student-initiated informal interaction that could qualify as elements of active engagement.

Conclusion

Research has long concluded that students prefer the flexibility associated with online courses, and for very practical reasons, e.g. independence, commuting, distance, work and family commitments. This research incrementally shows that students enrolled in online courses strongly prefer the added flexibility of the student-regulated structure. For distance administrators and instructors designing an online course, a passive learning style with limited group-based activities is most compatible with the student-regulated structure allowing a high level of student self-management through an online course.

Future Research Opportunities

The courses used in this research to evaluate student perceptions of student-regulation in online courses were delivered with (1) the passive learning style and (2) no group-based activities. The research found that students prefer the flexibility of online courses and the incremental benefits associated with the freedom to self-regulate, and these preferences were not influenced by course performance either way. Many distance learning administrators, supported by ample research, prefer to integrate group-based activities into online courses, ostensibly to simulate the sense of community associated with the on-campus setting. However, incorporating major group-based course assignments/assessments in an online course is in conflict with the perceived benefits of student-regulation. If students are constrained by the progress of the group to which they are assigned, it is similar to being constrained by the instructor. Therefore, it would seem that group-based activities and an instructor-regulated structure pose the same limitations, and the only way to offer pure student-regulation is to have only individual assignments/assessments.

That said, holding the student-regulation piece constant, the theory could be tested by conducting research on if and how performance and student perceptions change if group-based activities are included in the course. The data for the control group is already collected. The same course (or courses) could be modified in future semesters to include group-based activities before and after the announcement of the student-regulation component. The course performance would be, once again, compared to ensure it did not unduly contribute to student perception and, if it did not, the survey could be administered and the results compared to this research.

Powell (2007) conducted similar research by surveying 90 online students for preferences among five instructional strategies that spanned from individual to group-based assignments. The individual "Read and Respond" assignment was most preferred. Here, students read their assigned text and respond individually to questions at the end of the chapter. The individual responses are read by other students in the group. The least preferred assignment was "Audio Files," where students listen to an auditory lecture, discuss the content in assigned groups, and submit an audio file from the group.

Additionally, similar research could expand to a wider variety of subject-matter courses, especially those outside the business school and with or without the nuance of including group-based assignments.

Future research might also collect multi-dimensional performance data under a flexible self-paced format to identify which student behaviors and course features either enhance or inhibit learning and performance. Except for survey feedback that "I like to bundle my work, so being able to complete several chapters at once was more efficient for me," this paper did not collect information about how students specifically adjusted their study patterns from the instructor-regulated to self-paced environment.

The table below details the opportunity to explore more imaginative and innovative course design to include student-regulated structuring and group-based activities:

POPULAR CURRENT COURSE DESIGN OPTIONS

Instructor-Regulated		Student-Regulated	
Individual	Group-Based	Individual	N/A

OPPORTUNITY FOR FUTURE COURSE DESIGN

Student-Regulated	
Individual	* Group-Based *

Distance learning administrators, instructional designers, and online faculty can better serve students' comprehensive preferences if the course includes group-based learning activities along with some measure of self-paced and flexible timeline elements. Whether including such activities into a course affects course performance and/or student perceptions would be the focus of the research. Some ideas and examples are listed below (1) rationalize the number, breadth, time and effort required for group assignments, (2) collapse smaller assignments into larger ones due less often to enhance flexibility, (3) modify a sequence of start/end stages to instead permit early access to online assessments, (4) reveal all course assignments and due dates from the outset to help students' plan, (5) allow students to self-select into 'common interest,' 'early starter,' 'prefer daytime,' 'prefer weekends,' and 'technology skill level' groups to ensure compatibility within groups, (6) offer choice among assignments to accommodate student interests (Rakes & Dunn, 2010), (7) consider group assignments that leverage student work or life experience, (8) alternate between more difficult and less difficult tasks (Rakes & Dunn, 2010), and (9) encourage students pairing with a 'study buddy' to boost collaborative learning (Kizilcec, Perez-Sanagustin & Maldonado, 2017).

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