




How to Deliver an Effective Course: A Student's Perspective

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Abstract

Certain course features, such as engaging delivery, can benefit student learning. This essay presents one student's opinion of what made for an effective introductory psychology course. The student provides his perspective on various features of the recently completed psychology course and how those elements supported his learning. The elements he identified included various ongoing knowledge checks, test reviews, tests, in-class engagement, personalized touchpoints, scaffolding, and student feedback. For each, the course instructor explains the pedagogical underpinnings of her choices. Faculty may find a student's perspective on courses valuable as they consider their pedagogical decisions in terms of course design and delivery.

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Introduction

Instructors want to deliver effective, engaging courses to students, and most think that they are doing a good job. Instructors certainly believe that the courses they create are those they would enjoy attending as a student! But are the courses we (as faculty) develop actually effective from a student's point of view, and, if so, which course components contribute to that perception? What do students like, and what helps them learn? To help answer that question, a recent student (the first author) identifies the features of an introductory psychology course that he considered to be most effective and how they contributed to the efficacy of the course. After each of his points, the second author (the course instructor) provides the underlying rationale and empirical evidence used to support why that pedagogical decision was made during course design. The course features included in this discussion are various ongoing knowledge checks (e.g., quizzes), closed-book tests, test reviews, personalized touchpoints, in-class engagement, scaffolding, and student feedback.

Course Features

Ongoing Knowledge Checks

Because multiple distinct components were based on very similar pedagogical principles, we grouped them here under a single heading. These include the Revel platform that accompanies the Pearson textbook used, Immediate Feedback Assessment Technique (IF-AT) scratch cards, and in-class polling cards. Each will be described and then an explanation of the underlying rationale will be provided for this group of ongoing knowledge checks, making distinctions among the specific activities where appropriate.

Textbook Quizzing (Revel)

As a student in this class, I was required to read the textbook for each chapter, which included embedded mini quizzes within the online Revel textbook platform. These appeared as I was reading the ebook. In most other classes, a professor assigns certain chapters of the textbook as required reading, and I would not always read them, yet I still managed to get high marks in those classes. Because these short quizzes also counted towards our overall grade in this class, students who normally would not read the textbook chapters assigned, such as me, absolutely had to read each chapter to move through the chapters and quizzes to receive a decent grade. This requirement also provided another opportunity to review course material, whether before or after class. I found that the quizzes taken while reading helped to reinforce the topics introduced for upcoming tests and supplemented the notes taken during class.

IF-AT Scratch Cards

In class, there were numerous no-stakes opportunities for us students to test our knowledge. In one case, which we did weekly, the activity even had a reward system that encouraged me to review my notes and the lecture slides before class. The most prominent tests of knowledge were the scratch card reviews where, at the beginning of every class, the professor would hand out multiple-choice scratch cards to be done collaboratively with a group or partner. The Immediate Feedback Assessment Technique (IF-AT) card is a cross between a scantron form and a scratch-off lottery ticket and can be purchased from CognaLearn (<https://www.cognalearn.com/ifat>). To answer each of the 10 multiple-choice questions, students scratch off the correct box (rather than fill it in as on a scantron). A correct answer was indicated by a star. If the incorrect box was selected (i.e., scratched), students could try again and earn partial credit for that question. The questions were on concepts learned in the previous week's class and whichever group had the highest score would win their choice of a prize from a top-secret bag of swag, trinkets, and candy. While this may seem childish, it worked for me, and I found myself becoming increasingly competitive in order to get the chance to select a prize. I also observed that my classmates were of the same mind as they were excited over the opportunity to win a toy or some candy.

In-Class Polling Cards

The professor also gave students polling cards (index cards of different colors) as another interactive part of the class. For this exercise, students were regularly shown multiple choice questions on the slides to check their understanding and ensure that we understood key concepts before building on that knowledge or moving on to another topic. This allowed us to demonstrate our understanding of the concept thus far and monitor our own learning. The polling cards were also another way of ensuring that the students were engaged and listening to the lessons in order to be prepared for the questions given.

Pedagogical Rationale

All of these knowledge checks make use of retrieval, which I chose intentionally as the instructor. Retrieval has been shown to be an important principle that underlies learning and memory (Adesope et al., 2017; Karpicke, 2016), particularly when retrieval is spaced, to allow for some forgetting, which strengthens the memory trace (Kang, 2016; Nørby, 2015; Richards & Frankland, 2017). To this end, the Pearson textbook chosen for this course is accessed through the Revel platform, which forces students to answer three multiple-choice questions after each section in the textbook and then presents a final quiz at the end of the chapter. This format provided students with multiple opportunities for retrieval and, in particular, forced them to somewhat space their retrieval. Similarly, students used polling cards in the classroom to indicate their responses to multiple choice quiz-like questions embedded in the class at various points to check understanding. Both of these activities (polling and textbook) structured the learning to make use of retrieval practice and spaced rehearsal.

In addition, the IF-AT scratch cards were used to review the material from the previous week's class, providing additional opportunities for retrieval practice and spacing. An additional benefit of the IF-AT activity is that it also made use of collaboration, immediate feedback, positive reinforcement, and gamification. The motivational aspect of the activity comes from positive reinforcement with the prize for the winner as well as the gamified competition element (Huang et al., 2020; Kennette & Beechler, 2019). Students also collaborated and discussed the answers to select the correct one, which helps to clarify their own understanding of the concepts and increases retention (Hoogerheide et al., 2016; Rajaram & Pereira-Pasarin, 2007; Sekeres et al., 2016). Peers are uniquely positioned to explain content because their cognitive networks are more similar to each other than the expert teacher (Bowman et al., 2013). The immediate feedback received on the IF-AT (the star indicating the correct answer or the lack of a star indicating an error) also reduces the risk of encoding an incorrect answer (Dihoff et al., 2004). One final benefit of the IF-AT cards is that they tap into some of the same principles that underlie gamification, which has been shown to be motivating (Matsumoto, 2016). Interested readers can find a more in-depth analysis of the benefits of the IF-AT tool in Kennette and McGuckin (2018).

Timed, Closed-Book Tests

This class was the only one during the semester with tests that were not open-book and a restricted time limit. I expected that the time limit would affect my performance as a student because in high school I found myself needing more time on tests. But when I completed these tests, I found that I usually had close to 20 minutes left out of the 50 minutes given. The test not being open-book had a larger effect on my study habits as this forced me to review my notes multiple times until I was sure I understood the concepts introduced in class. I also found that the quality of the notes I was taking improved, with my notes becoming much more comprehensive to the point where I would not have needed to consult the textbook or slideshows if I had forgotten a concept. The perceived shorter time limit also created what I felt to be a productive kind of stress within me, where I was more motivated to study as a result.

Pedagogical Rationale

Providing enough time for students to complete tests is important in optimizing performance. According to the Yerkes-Dodson Law, too little time can lead to additional stress, which reduces students' optimal performance (Nickerson, 2021), and too much time could potentially lead to issues of academic integrity (Goldberg, 2021; Munoz & Mackay, 2019). McKeachie (2002) proposes that 1 minute per question is sufficient and balances these needs. Indeed, Brothen (2012) has shown that students use between 24 and 45 seconds per question, which aligns with McKeachie's recommendations as well as principles of universal design for learning (UDL), which aims to remove barriers to student learning (CAST, 2018). This approach to testing also encouraged students to develop good study skills, ensure comprehension, and engage in metacognitive reflection as they prepared for their test, thinking about how they will be tested and knowing how best to

prepare for that particular assessment. Metacognition (and perhaps more specifically the goal-setting, planning, and self-monitoring aspects of metacognition) is an important skill for future success and is more likely to result in a successful job search (Kanar & Bouckenooghe, 2021). Providing limited time for assessments can also evoke a game-like element (like a “beat the clock” game), which can also be motivating to some students (Huang et al., 2020).

Test Review

The professor provided a comprehensive test review handout the week before the test, which had topics that I found were almost guaranteed to appear on the test. If I could complete the test review without consulting my notes, I felt as if I had prepared sufficiently for the test. When I studied, I made sure to focus more of my attention on any review concepts that I did not know the answer to. This method significantly reduced the test-related anxiety that I felt and allowed me to feel less stressed on the day of the test.

Pedagogical Rationale

Because the content of the review did not simply require rote memorization (e.g., of definitions), students were forced to elaborate on the material, making connections to what they already knew, which should result in increased retention (Weinstein et al., 2018). For example, if the test asks a student to explain why someone with one eye would still be able to perceive depth, even though they lack binocular disparity, students would have to know about the sense of sight and binocular disparity as well as multiple other perceptual factors that contribute to depth perception. The benefits of elaboration like this are in addition to the benefits of retrieval discussed earlier. Feeling adequately prepared will also help to maximize student performance on the test (refer back to the discussion of the Yerkes-Dodson Law in Nickerson, 2021). One final aspect of the test review was that the material was not provided in chronological order, grouped by chapter. Instead, the content from multiple chapters was interleaved. Interleaving the content within the test review has been shown to improve learning (Rohrer et al., 2015; Weinstein et al., 2018). Retrieval practice and self-testing (for which at least some students used this review) have also been shown to improve memory (Roediger & Karpicke, 2006), so it is hoped that students will retain this information well into the future.

In-Class Engagement

The most significant part of the course that helped me achieve the grade I received was the multiple interactive activities and experiments that the professor used to demonstrate concepts being learned in class. An example of this would be when we were learning about the facial-feedback hypothesis. We replicated an experiment done in 1988 by Strack et al. wherein we held a popsicle stick between our lips in the first section and between our teeth in the second section in order to see how we reacted to a series of psychology-related comics. The point of the exercise was to demonstrate how our perception is influenced by our facial muscle activity. Overall, our results aligned with the hypothesis, with many students laughing in the series of comics when the popsicle stick was held in our teeth (forcing our faces into a smile) and rating them as funnier. This kind of interactive learning, I felt, primarily demonstrated that what we were learning in class related to our actual realities and were not just scenarios in a textbook.

Pedagogical Rationale

Active learning, in which students are not simply passive consumers of the information shared by their professor, has been shown to increase retention (Pérez-Sabater et al., 2011). To tap into this benefit, students actively engaged with the course material as part of the weekly class, including replicating experiments and experiencing psychological phenomena for themselves. This engagement helps to break up the lecture and makes the class more exciting for students, which should increase their motivation to learn, specifically by providing multiple means of engagement, which aligns with this principle of universal design for learning (CAST, 2018). Engaging different areas of the brain while presenting the same content in multiple ways (e.g., the professor describing it in class and students replicating the experiment for themselves) should also lead to

more stable learning by providing multiple retrieval cues for that content, in line with the dual coding approach (Bui & McDaniel, 2015; Weinstein et al., 2018).

Personalized Touchpoints

After each test, the professor would send a personalized email, depending on the mark one achieved on the test. The emails I got acknowledged how well I did on the test. These acknowledgments made it feel that the professor was invested in the outcome of her teaching in terms of student learning and also that she was available to the students if they needed help to improve their learning (I know that some of my peers who earned lower scores received tips on how to improve to do better on future tests as well as information about campus resources that might help). For me, the emails also served as a form of ongoing encouragement because I was receiving personalized feedback from my instructor, and this further helped me to estimate whether I did well on an assessment or needed help understanding the concepts being assessed.

Pedagogical Rationale

Receiving positive feedback from an instructor is motivating and empowering to students, improves both academic and psychological outcomes, promotes a growth mindset, and increases social and teacher presence (Ani, 2019; CAST, 2018; Christian et al., 2020; Deci et al., 1999; Fried et al., 2015; Garrison & Akyol, 2013; Garrison et al., 2001; Kennette & Myatt, 2018; Rowe, 2011; Yan et al., 2011). It acts much like a positive reinforcer and encourages students to continue to engage in these positive behaviors (e.g., studying for tests or putting effort into assignments) in order to continue to receive this praise (Deci et al., 1999; Hancock, 2002; Hodgman, 2015). It also provides an additional opportunity for instructors to build a personal relationship with each student and increase student-instructor rapport, showing that the instructor actually cares about students' success; this connection has been shown to increase student success, confidence, perceived learning, and engagement (Gray & DiLoreto, 2016; Jones et al., 2021; Micari & Pazos, 2012; Vogt, 2008). In fact, many students reply to these personalized messages from the instructor, which provides an additional touchpoint and opportunity for dialogue outside the confines of the classroom. In some cases, students could also use this feedback to self-check their own metacognitive awareness (in addition to their reflection on the actual grade they received).

Although these personalized touchpoints may seem like a time-consuming component of the course, especially in courses with high enrolment (though still well worth the effort, in my opinion), most learning management systems (LMS) should allow for at least some level of automation (e.g., multi-select students with similar grades to send the same email or automate the process based on some rules or release conditions that you set up in your LMS). There is also text-expanding software (e.g., Phrase Express) that instructors can use to reduce some of this time and effort.

Scaffolding

The professor would also do something in class known as scaffolding learning, wherein a small activity was completed within the class and served as practice for a larger assessment or as a way to help develop or build the skills we would need for a future task. In one particular case, the professor provided a worksheet where, with a partner, we had to identify several examples of inborn (nature) causes and learned/environmental (nurture) causes for serial killers. We were able to discuss with our partner to identify potential causes and determine whether each of these was nature or nurture and why that would be the case. This worksheet helped prepare us for our first assignment, where we had to choose from a list of topics such as obesity, substance abuse, intelligence, eating disorders, musical ability, athleticism, etc., and find empirical evidence that supported both nature and nurture as a potential underlying cause of the phenomenon. Then, we chose one position and provided an explanation of our evidence in a short essay where we argued for that side and explained why it was more convincing in explaining the cause of the chosen topic. This kind of slow buildup to a major assignment was something I found especially helpful as it allowed for an understanding of the concept

of nature versus nurture on a smaller scale and helped me develop my understanding related to the distinction before jumping into researching it at the level required for an academic essay.

Pedagogical Rationale

Scaffolding activities provide structure to assist learners in making progress toward their learning goals, as they are unlikely to be able to do so independently without the help of this scaffold (Belland, 2014). Providing students with some scaffolding in the classroom, then, is a way to help learners move through what Vygotsky (1978) terms the Zone of Proximal Development. In this way, providing opportunities for students to practice and develop their skills together before being asked to demonstrate them in a formal assessment can help students feel more confident and more successful in their learning (Doo et al., 2020). In addition, these scaffolding activities can provide students with additional opportunities to practice their durable skills (also known as soft skills or transferable skills) such as critical thinking, communication, and problem-solving (Government of Canada, 2022).

Student Feedback

The professors in a few of my classes, including this one, initiated something called a stop-start-continue activity, where students filled out a form with at least one thing they believed the professor should stop doing, start doing, and continue doing. This form allowed students to provide the instructor with constructive feedback part way through the semester and to have input into the manner in which we learned and what we believed our professor could do to better support our learning. I found that there was not much that the professor for the course could start or stop doing because it was already a great course, but many of my classmates agreed with me that the in-class experiments were really helpful to our learning and would be something we wanted to see continued throughout the semester. So it was nice that we could let our professor know that. After receiving the “graded” stop-start-continue activities (with some personalized feedback based on what we had identified) we knew that the professor had read and acknowledged our perspective. I felt heard and that I had some control over my learning in the course. For example, following this feedback, additional experiments were incorporated into our learning and, as such, I felt that there was an aspect of control that was greatly appreciated by me and my peers in how lessons were delivered.

Pedagogical Rationale

Some of the factors that increase motivation include control, choice, and some ownership of the learning process (CAST, 2018; Christian et al., 2020; Pink, 2011). From the perspective of UDL, giving students some control over their learning, or at least providing an opportunity for them to provide feedback about it, should increase student engagement (CAST, 2018). In addition to the motivational aspect, all students should have a voice and feel valued and heard, especially from the lens of equity, diversity, and inclusion (EDI), ensuring that the more marginalized and/or more introverted students all have the space to be heard (Lin et al., 2023; Sue, 2010). Asking students to provide this feedback also presented another opportunity to build or develop individual relationships with students by giving feedback and/or explaining the pedagogical underpinnings of some of the design choices in the course. Feedback was even used to clarify some student misunderstandings or issues (e.g., if a student wrote, “I wish there was a test review to help me study,” I was able to respond with the location of the test review on the LMS and/or a prompt for them to email me if they couldn’t find it or would prefer it in a different format than the one provided).

Caveats and Conclusions

We have presented several examples of what made this particular psychology course a good learning experience for one student. This list should not be considered exhaustive or used blindly to make changes to curriculum or course delivery. This is the opinion of a single student, and, although many of these elements are brought up regularly when I solicit student feedback during mid-semester reflection, may not be

appropriate for every course, cohort, or student. However, this discussion can be a starting point for instructors to reflect and/or critically evaluate their own practice. It may also spur some research on the scholarship of teaching and learning, specifically as it relates to student perceptions of these elements as they relate to their own learning.

The goals of instructors should, however, be to structure courses in a way that aligns with the cognitive principles discussed here (e.g., retrieval practice, positive communication/rapport, etc), and will be effective for a variety of learners. The course in question was delivered fully in person. Some of these specific elements could be adapted to an online environment (or in some cases, like the textbook questions, already were online), but that is not to say that they will work as well or be enjoyed as much. Offering students some choice and agency in their learning (e.g., choosing the delivery mode or how they want to engage with the course material and/or demonstrate their learning) remains the best approach whenever possible. This recommendation is in line with the principles of UDL, which endeavors to remove the various barriers to student learning (CAST, 2018).

The features identified here are one student's perspective on what made for an effective introductory psychology course. Although there is empirical evidence to support these pedagogical choices, the items identified may not be perceived as effective for every student; doing so would require a more formal and empirical investigation and a homogeneous student population. This list does, however, provide a good starting point for instructor self-reflection about their own courses and the decisions that continue to be made about delivery, content, format, and approaches to learning.

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