Exams often are anxiety provoking; the first exam of a course even more so, as students do not know exactly how the professor tests. For many students, an exam review session is the magic balm that can alleviate exam woes and stress. Many courses favor breadth over depth, and students may be left with only a quick introduction to terms, topics, and theories without the time to properly digest the material, let alone analyze, evaluate, synthesize, or apply it. Worse, students are pressured to study to do well on the exam instead of studying to gain a thorough understanding of the material. This problem is particularly evident in introductory psychology where voluminous material is covered and assessment is primarily in the form of multiple-choice exams. It is no wonder that many students clamor for review sessions.

Arguments Against Review Sessions
Many instructors avoid holding review sessions because they take time away from valuable lecture or discussion if held during regular class time, and they are a time consuming additional burden if held outside class time. In addition, publisher-provided study guides, extensive study aids (quizzes, glossaries) available online at textbook sites, and other textbook pedagogical aids may seem to lessen or eliminate the need for them. After all, if a teacher keeps tabs on student learning during class sessions, why have a review? Other instructors fear that students will attend but not participate, thereby not justifying the time spent in the preparation of the session. Furthermore, students may study only what is discussed in review sessions and not everything that could be important. It is also difficult to conduct a review session to satisfy everyone. Students may arrive expecting only to be told what is on the exam (a poor review session strategy for faculty), complain about missing them, and so forth. These arguments notwithstanding, there are many reasons to hold review sessions (and ways to compensate for them taking class time or proving burdensome to hold outside class).

A Case For Holding Review Sessions

Focusing Students on What They Know and Do Not Know
Regardless of how much time is given during class to ensure students are comprehending material, students are often unaware of what they do not know or do not understand until closer to the exam, often a day before it occurs (Gurung, 2005). Review sessions can thus serve to help clarify questions about the materials/notes, make students feel more confident about possible exam material, and provide a valuable metacognitive opportunity to examine what they know and do not know.

Assist in Organizing Course Material
Well-designed review sessions help students organize the material to be studied. Studies show that perhaps emphasis should not be on total study time but on the way students study (Gurung, 2005). A much stronger relationship has been found between test scores and time spent organizing the course content than with total study time (Dickinson & O’Connell, 2005). One way to reach more students in a review session would be to present the material in a different form than it was presented in class. If PowerPoint was the main form of presentation, for example, then you should distribute or use overhead
transparencies or handouts of other graphic representations. Conversely, if transparencies of charts and graphs were used, then a PowerPoint presentation could be used to restructure the material and allow students to visualize the material in another way. Students could be encouraged to create their own concept maps or outlines that group and organize the material in a way that best organizes the material in their minds — cooperative and active learning. Even if not done specifically in the review session, if the behavior is modeled for them, perhaps students can leave class and try it themselves while studying.

Support for this suggestion comes from an experiment comparing exam performance between two groups of students who had attended different types of review sessions. One group was provided with a basic question and answer review session, the other, in addition to time allotted for questions, received exam content only in an outline form. All the major concepts were discussed, and then time was allowed for questions. Results showed that the students who attended the second type of review session out performed those in the former (Aamodt, 1982).

**Foster Cooperative Learning**

Motivation is generally a key factor in the amount students learn. Therefore, it is imperative to discuss ways in which students can be motivated to learn or participate in review sessions. One study showed that student athletes in their freshman year favored a mandatory, weekly after school program because it emphasized cooperative learning where they had to collaborate in order to maximize their own and each other’s learning. Due to these combined learning efforts, more on-task behavior and higher academic self-esteem and lower levels of extrinsic motivation ensued (Dudley, Johnson, & Johnson, 2001). Suggestions for review sessions include encouraging more group work and discussion as opposed to the same straight lecture that so many students already receive in class. All of these efforts will have the students working together and getting immediate feedback from one another.

- Instead of lecturing on what material students should review, give that responsibility to the students. Have them work in groups to create an outline of the highlights from the material that could potentially be on the exam.
- Encourage students to quiz each other and question each other’s thinking and reasoning of the material.

**Increasing Student Engagement — Playing Games**

Another key factor in the amount of learning students take away from a review session is the level of student engagement. Once again, if a review session is all lecture and the students are not engaged, then the chances of them leaving feeling prepared for the exam are not good. Games can be a good means of engaging all students. The use of one game, *Jeopardy*, was found to be quite useful in facilitating studying before the review session as well as engaging students during it (Gibson, 1991). It is important to keep in mind that this procedure may not work with all classes or even all students. Ideally, students would study at least a little bit beforehand and come to the review session ready to play and learn. However, not all students will find this intrinsic motivation or the extrinsic motivator of winning the game enough to study before the session or to participate upon attending.

- Dividing students into different groups for each review increases competitiveness and engagement with the task.
- Presentation of the material assists students’ mastery and flexibility of thinking. Giving students the answer and requiring them to provide the question restructures how they learn.
• *Jeopardy* organizes course content into categories. The five or six categories the faculty chooses for each chapter or module, or themes from the entire course, help students visualize how to organize the material in order to better help them study (Aamodt, 1982).

• Finally, *Jeopardy* helps students think about how questions could be phrased on the upcoming exam and what areas of the material they need to spend more time studying.

**Active Learning and Practice — Study Guides and Practice Exams**

Study guides provide a means for students to not just memorize the material but to critically think about the main terms and concepts. They can provide practice at multiple choice questions and with retrieval cues that can help with recall on an exam (Dickson, Miller, & Devoley, 2005). In fact, Dickson et al. (2005) compared two introductory psychology courses. One class was required to complete a study guide (e.g., fill-in-blanks, true and false), and the other was not. The class that was required to complete the study guide performed significantly better, supporting the notion that study guides do benefit students in classes with multiple choice exams.

• Have students in a review session complete or discuss study guides in groups and then present or teach that section to the rest of the class.

• Use the study guide as an outline for creating a *Jeopardy* game as discussed previously or for creating a practice exam from which the students can test themselves.

Practice exams are another review option. Studies show benefits to providing a practice exam if given in the same manner as the actual exam, that is, students should study beforehand and take the practice exam without using notes. Students who participate in such an activity have a better idea of how well they would do on the exam without any further practice or studying, allowing them to adjust their studying accordingly or to focus on areas that need more of their attention (Balch, 1998). Koriat and Bjork support this concept of self assessment, reporting that judgments of learning following study are generally more accurate than retrospective assessments made following an exam (Koriat & Bjork, 2005). Holding a review session in this format also allows students to be engaged in the session because they have the opportunity to answer the questions themselves, either out loud or mentally, before receiving the answers.

**Aid in Metacognition**

The final and perhaps most important component for review sessions is metacognition, defined as the knowledge of one’s knowledge, processes, and cognitive and affective states and the ability to consciously and deliberately monitor and regulate them (Hacker, Dunlosky, & Graesser, 1998). With the ability to assess their knowledge in this way, students can study accordingly. So whichever method of study or presentation is modeled in the review session should include the aspect of metacognition. Faculty could ask students to rate on a 1 to 7 scale how much of the material they know well, what material they need to study more, to predict their exam score if it was taken today, and so forth. A practice exam obviously contains metacognition. Students can see their score on the practice exam, evaluate their confidence with the material, and assess what they know and what they need to study further. Answers to these questions can be encouraged in other forms of review sessions. Through the presentation of the organized subject matter, for instance, students can reflect on which sections of the content they know and which are more elusive. During the *Jeopardy* game, the instructor can encourage metacognition through questions that cause students to think about how they arrived at an answer and why they drew the conclusions they did. Anything to promote critical thinking and self assessment will
likely help students when it comes to test day.

Some Pragmatics

How Many Review Sessions?
If an instructor cannot give up class time for a review session it is best to offer at least three to four different times for review sessions spread out over the morning, afternoon, and evening. This scheduling offers students with heavy work schedules (and those taking a full load of classes) sufficient opportunities to attend. If an instructor’s class has Supplementary Instruction (SI), or other programs where students are offered tutoring by peers or other campus organizations, it is prudent to dovetail the instructor review with these and be aware of the nature of these other reviews for students.

When to Offer Review Sessions?
It is optimal to hold a session the day or class period before an exam as it helps students to plan their studying, giving them an idea of what areas they do not understand well. Holding sessions prior to two days before an exam will likely not have a high turnout as most students have not studied yet and those who attend may be more likely to do so for answers (and possible exam material) rather than questions for clarification.

How Long Should Review Sessions Be?
The best answer is “as much time as an instructor can afford.” Without a set time period, students can leave early if their questions are answered and the faculty has gone through the agenda (see agenda below). Some students expect a “complete review,” a minimum of a 50 minute or 1 hour class session, and often are disappointed with less.

What Should the Format and Content Be?
Three rules prevail:

- It is not advisable to use review session time for a simple rehashing.
- A teacher should never introduce new material during this time.
- It is important to remember that active student learning typically is better than passive learning.

Some faculty think of a review session as a time when they ask what questions students have, and if those attending do not have any, everyone leaves. Often having students ask questions leads to quiet sessions in which students either have not adequately studied or are too shy to talk. On the other hand, having prepared questions can cause students to sit back and passively take notes (with the hope that the review questions are on the exam). A blend of formats is optimal, especially if the leader prepares questions using an engaging, entertaining format as discussed previously (e.g., quiz shows). Some faculty use reviews to clarify and emphasize difficult course material.

Do Students Who Attend Review Sessions Get Better Grades?
In a recent study of student behavior Gurung and Bord (2007) found that students who attended review sessions scored significantly higher on exams (80 versus 76 points) than students who did not attend, even after controlling for student GPA. We asked 216 students in an Introductory Psychology class to rate which of five different formats they preferred (lecture, group work, trivia/game show, mock exam, questions/answer format, PowerPoints of main points) for review sessions. Using a 1-5 scale (1 = not at all, 5 = very much so) students preferred mock exam (mean = 4.06), and PowerPoint (mean = 3.87)
formats the most and group discussion and additional lecturing (2.85 and 2.74) the least. Given that enhancing self-testing and other metacognitive strategies are optimal for learning (Koriat & Bjork, 2005), it is promising to see the mock exam format rated best for review sessions. To students who may just want more material, briefly discussing the research findings (e.g., during classroom discussion of cognitive psychology or memory research or even before the first exam) and providing a rationale for why that format is used will decrease student resistance and increase motivation for it.

Conclusion
Many factors contribute to the success of a review session. However, the fundamental elements that remain the same in any review session are the engagement of all students, the motivation of the students, and the presence of metacognition. If the students are motivated by the instructor to learn the material, they will be engaged in whatever format is used: the Jeopardy game, class discussion, or a practice exam. Then, with a little prompting, the students can assess what they know, and that insight will assist them in productive studying, content mastery, and exam performance.

References and Recommended Readings