

The Key to Learning Vocabulary: The Employment of Pop Quizzes



Patrick T. Randolph ¹

¹Independent Author, Coach, Lecturer, & Speaker // creative.ideas.4.english@gmail.com

ABSTRACT: Although research on the effectiveness of pop quizzes is still in its infancy, the current studies done on pop quizzes in higher education clearly demonstrate that they are very beneficial in terms of helping students learn the material, probe deeper into the content of their classes, and better understand the practices and concepts of their respective majors (Agrawal et al., 2021; Carter & Gentry, 2000; Ruscio, 2001). The benefits of using pop quizzes for English language learners (ELLs) studying vocabulary is no exception (Randolph, 2023). The current paper examines the powerful effects of pop quizzes on ELLs' acquisition of vocabulary and touches on some basic principles in neuroscience that support the use of pop quizzes in the learning process. Informal student impressions are offered that demonstrate their interest in the use of pop quizzes as useful learning tools. In addition, suggestions on how not to use pop quizzes are offered and reasons why these tips are important for vocabulary acquisition are explained. The paper concludes by offering five different kinds of pop quizzes that help ELLs understand and use English lexical items with ease, confidence, and enthusiasm.

Keywords: pop quizzes, spaced practice, distributed practice, post-encoding exposures, gestured-based pop quizzes

Introduction

When students hear the term “pop quiz,” they do not become joyfully excited. On the contrary, great pulses of fear rush through their bodies. However, I have met hundreds of my own students who have learned to love pop quizzes after taking my courses and learning the value and benefits of these magnificent pedagogical creatures. Using pop quizzes is truly one of the best ways to learn and remember vocabulary. Let us see how this works. First, I will briefly offer research done on pop quizzes administered in higher education. Second, I will survey discoveries in neuroscience that can be employed to support the use of pop quizzes as inspiring learning tools. Next, I share informal student impressions regarding their feedback on the pop quizzes used in my classes. I, then, offer three crucial tips on how not to use pop quizzes. I conclude by presenting five kinds of pop quizzes I use to help reinforce the learned vocabulary and transfer the lexical items from my students' working memories to their long-term memory systems.

Review of Literature

Just how common are pop quizzes in higher education? The answer to this might surprise my reader, for the frequent employment and positive effects of pop quizzes are more widespread than one might imagine.

For instance, pop quizzes have been effectively used with great success for undergraduate dental students. According to Agrawal et al. (2021), the use of pop quizzes helped their students learn the concepts at a deeper level and also better understand the detailed practices in dentistry. In a nursing program, pop quizzes were used as powerful critical thinking tools for nursing students (Carter & Gentry, 2000). These helped the students understand the intricacies of the profession and also become better at dealing with the various issues they would face in the future. Ruscio's (2001) work with pop quizzes in psychology classes has proven to be highly effective as well. He found that the pop quizzes motivated his students to learn the topics and do the required reading with more commitment and interest. Based on the reported benefits of pop quizzes in higher education, a library instruction program for health sciences implemented pop quizzes and discovered these tools to be extremely helpful in assisting the students through the learning process without the stress and anxiety of tests and exams (Le, 2012).

My own action research (Randolph, 2023) has shown that my English language learners (ELLs) retained vocabulary at impressive rates by using pop quizzes. In fact, they accurately recalled the lexical items long after the initial encoding process. This was exhibited when my former ELLs from intensive English programs later enrolled in my university writing courses and used the lexical items I taught them when they first started studying English. This idea of using pop quizzes makes sense, as spontaneous challenges arise during the day at work, and we must be prepared for them. Life itself is by no means a set of scheduled exams, but rather a myriad of pop quizzes that occur randomly throughout the day and make us stronger and better thinkers. In short, the more we can use these quizzes in our classes, the better prepared our ELLs will be both in their academic careers and in their respective lives.

Support from Neuroscience

The most striking inspiration for employing pop quizzes to help my ELLs learn vocabulary came from Ebbinghaus's work. His research in learning and memory discovered that people forget up to 90% of what they learn within a mere 30 days (Ebbinghaus, 1885/1913). My response to this uncomfortable fact was to turn it into a personal challenge. I thus sought to reverse the effect and inspire my learners to recall 90% or more after 30 days.

To reinforce the vocabulary that is learned, I create multiple *post-encoding exposures* of the vocabulary terms with spaced intervals of learning. This is also known as "spaced practice" or "distributed practice." Such methods, according to Furst (2021), Medina (2009), and Noraini et al. (2021), are excellent ways to solidify the newly learned material and cheerfully send it to the long-term memory. That is, "[d]eliberately re-expose yourself to the information if you want to retrieve it later. Deliberately re-expose yourself to the information more elaborately if you want the retrieval to be of higher quality" (Medina, 2009, p.133).

Willis (2006), both a neurologist and classroom teacher, also recommends multiple exposures as a way to solidify the new information in the long-term memory. She asserts that "[t]hese multiple and varied exposures and higher cognitive processing result in more pathways leading to the newly stored information. That means there will be more ways to later access the information for retrieval after it has been stored in the long-term memory centers" (p. 30). Hence, after the initial exposure, I make sure my students revisit the terms regularly through both graded and ungraded pop quizzes (Randolph, 2016); and the frequent review sessions for these quizzes continually expose the students to the lexical items we learn.

Another valuable neuroscience discovery that highlights how learners acquire information is the notion of personalizing the material (Immordino-Yang, 2016; Randolph, 2019; Randolph & Ruppert, 2020; Sousa, 2011; Willis, 2006). I consequently encourage my students to personalize the lexical terms through having them come up with the correct definitions and creating a series of student-generated example sentences. I, of course, help them define the terms by pointing them in the right direction and eliciting answers via leading questions as we study these in class; however, I never simply "give" them the definitions. This process of defining terms on their own truly helps them personalize and internalize the lexical items (LeDoux, 2003).

The example sentences also help the students connect intimately with the terms. Personalizing the content helps make the transformation from the abstract to the concrete; and, any time a learner can personalize the material, it helps the material become an intrinsic part of their mind, heart, and soul.

Student Experiences

At the beginning of each semester, when I announce that pop quizzes will be a central part of our classes, the students' responses are far from favorable. When I ask how many of them find pop quizzes useful, not a hand is raised. When I ask how many find pop quizzes irritating, almost all the hands ascend into the air and none of these hands show any signs of enthusiasm. However, once my students begin to understand the function of pop quizzes, see how they significantly help in the acquisition of vocabulary, make their minds stronger, improve their use and insights into the lexical items, and experience the variety of pop quizzes and their myriad of benefits, they change their minds and become avid supporters of pop quizzes. In fact, a number of students argue that the instructors in their other courses ought to use pop quizzes as well. These students feel that pop quizzes prepare ELLs better because students (1) study more on their own to prepare for possible quizzes; (2) use the lexical items more in spoken English in preparation for the quizzes; and (3) "play" with the terms more and apply them in their written English (English 150, English 152, personal communication, May 20, 2019).

Due to the simple fact that I review the terms a great deal in class, offer homework that reinforces the use of the terms, and create activities that stress the "spaced practice" or "distributed practice," they actually start to look forward to the quizzes as positive mental challenges. And, the fact that students score anywhere from 90% to 98% on these (Randolph, 2017) also encourages them to do well. They see that the quizzes are designed to help with their fluency in English and make their mastery of the language stronger, and in no way are the quizzes meant to penalize or hurt the students. As a result of the pop quizzes, they pay better attention in class, use the terms more often during and outside of class, and take full advantage of the review sessions. Pop quizzes teach them to come prepared to class, and they also feel these quizzes strengthen their language skills in their other courses.

How Not to Employ Pop Quizzes

If we carefully observe random events in our daily lives, we can easily see that there are many situations that are similar to pop quizzes. That is, we encounter various events that are challenging and ones which we cannot "study for," but we must use our own personal knowledge from what we have learned in order to solve the situations at hand. Surgeons, for example, must have an in-depth knowledge and understanding of their skills and training, because they are asked to perform different medical procedures on the spot. They cannot run to the operating theater while cramming for the procedure. They must know what to do and do it with care, precision, and an acute knowledge of the various consequences. This, I suggest, is how we ought to be training our ELLs in terms of vocabulary use. They need to be able to use the lexical items with ease, care, and precision. We ought to help them develop an acute knowledge of the various connotations and meanings. One way to help them with this is by implementing pop quizzes on a regular basis.

However, as both a graduate student in Applied English Linguistics and a professional in the English language teaching field, I have seen or heard of various inappropriate and damaging ways that teachers have used pop quizzes. These, unfortunately, were both ineffective and harmful for their students. That is, these pop quizzes created an environment of fear and stress versus one of joyful learning and inspirational curiosity.

Let us, then, take a look at how not to employ pop quizzes so that we can better understand how to use them as powerful learning devices and inspirational tools that motivate our students to learn and enjoy the process therein.

Do Not Use Pop Quizzes as Threats or Punishments

One of the most dangerous uses of pop quizzes is employing them as either threats or punishments. All too often I have witnessed my own colleagues at various institutions or heard similar stories at teacher conferences where instructors become frustrated by their students for one reason or another and punish them with a sudden pop quiz on a random topic from the class. This, by no means, helps our students; quite the contrary, it exacerbates the problem of fear and anxiety in learning.

Threatening students with a pop quiz is also a serious misuse of this tool because these quizzes get categorized by the teachers as “penalties” versus how they should be categorized—as beautiful and effective learning devices. In sum, it is important not to employ pop quizzes in this manner. Rather, we ought to use them as ways to improve the learning process and the desire to learn.

Do Not Give Pop Quizzes During the Middle of Class

It is most productive to give pop quizzes at the beginning of class (Immordino-Yang, 2016; Medina, 2009; Willis, 2006). The reason behind this is based on how the brain works best and how to lower anxiety while promoting focus and concentration. If the students are expecting a pop quiz, they will not be focused on the content of the lesson. However, if the quiz is given at the beginning of the class, then it can also be used as a tool for reviewing the terms and perhaps act as a nice segue for the main part of the lesson. That is, the pop quiz should be promoted as a powerful and useful device and not one that instills fear and anxiety.

Do Not Employ Pop Quizzes on Topics That Have Not Been Thoroughly Covered

Another misuse of pop quizzes is when teachers give them to students who have not thoroughly grasped a particular skill or the subject matter. Let us take lexical items as an example. If the terms have not been properly explained or the students have not had time to use them, then it is best to wait until they develop a good understanding of their meanings and uses. Otherwise, there is really no point in quizzing the students. Quizzes should be given as learning tools that inspire confidence, build mastery, and foster insight (Agrawal et al., 2021; Furst, 2021; Me-Linh, 2012; Noraini et al., 2021; Randolph, 2017; Willyard, 2010).

Five Kinds of Pop Quizzes

I would like to now survey five kinds of pop quizzes I use each semester. Teachers can easily implement these or make variations that meet the needs and wishes of their students. The first three are graded pop quizzes and the latter two are ungraded.

Graded Pop Quizzes

Creative Writing-Based Pop Quizzes

These are short dialogue/drama-based quizzes that can be used for all levels of ELLs, but they work best when given after the first few weeks of the semester when the students have developed confidence in their writing and vocabulary use. I first suggest a scenario (e.g., two teachers discussing their classes) and then

give the students seven to eight lexical items that they must use correctly in the dialogue. After writing the conversation, they define the terms at the bottom of the page. These quizzes are graded on correct definitions, the creative content of the dialogue, spelling, and grammar. A sample of this kind of quiz is shown below using the terms “determined,” “turn over a new leaf,” and “rambunctious.” If time allows, these short dialogues can be performed later in the week after the quizzes have been marked and the grades recorded. The performances may be graded as well.

George: I see your students are **determined** to pass your class this time.

Victoria: Yes, the little sweethearts **have turned over a new leaf**.

George: Does this mean they are less **rambunctious**?

Victoria: Hm . . . I guess time will tell.

determined = to want to do something and never give up

turn over a new leaf = begin acting/behaving in a better way

rambunctious = being full of energy and difficult to control

Timed Written Pop Quizzes

These pop quizzes are standard written quizzes that must be completed within a designated amount of time. Generally, I give the students 10 minutes to complete these short quizzes. I typically give the students six lexical items: four that they have studied during the week and two items they studied during a previous week. The students create paraphrased definitions of the terms that are based on what we studied in class. That is, these are not simply memorized dictionary definitions, but rather they are personally constructed definitions. This helps them internalize and personalize the definitions, making them more learnable and memorable as noted above. The reader may recall at this point that personalizing the material is a very significant and helpful method based on various principles in neuroscience. Next, the students create original example sentences that demonstrate proper use and correct understanding of the terms. These quizzes are graded on correct definitions and examples, grammar, and spelling. Below is a sample:

shed light on = to explain something more clearly or carefully so that it is better understood

Example: In yesterday’s class, Mr. Vega **shed light on** how neurons are created and protected.

Pair Work-Based Pop Quizzes

These quizzes are a variation of the timed written quizzes, but they are taken with a partner. Each person, however, must contribute equally to the quiz. Typically, I have each student in the pair define three of the terms and write three example sentences. Then, the partners check each other’s work and make any needed changes or corrections. This is an effective way for students to learn from each other, as they see different takes on the definitions and read a variety of example sentences. This quiz also develops a strong sense of classroom community because the responsibility is shared. These pop quizzes are graded in the same way as the standard, timed written quizzes discussed above.

Ungraded Pop Quizzes

Gesture-Based Pop Quizzes & Warm-Up Pop Quizzes

I usually assign a unique gesture or facial expression to the lexical items when I introduce the terms. This helps make the terms more tangible and concrete for the learners because they literally “embody” the terms and incorporate them in their bodies and minds (Willis, 2006). This gesture-based pop quiz, then, is a great way to quiz the students in a very entertaining fashion, and it can be used as a warm-up or a short, mid-class brain booster. I simply write eight words on the board. Then, I stand in front of the class and create gestures or facial expressions that correspond to the lexical items. These are most often the same ones I used to introduce the terms, so they add extra reinforcement in the learning process. The students shout

out the term and offer a definition. Next, one or two students offer example sentences for each term. The benefit of this pop quiz is that all the students get multiple exposures of the definitions, and they enjoy unique example sentences from their classmates.

Timed Pair Pop Quizzes

Timed pair pop quizzes are another highly effective way to review the terms from both the current and previous lessons. For these quizzes, I have the students pair up and ask each other the definitions and offer example sentences for 10 terms. I usually ask them to review seven recent terms and three terms from previous weeks. First, one student quizzes his/her partner for three minutes, and then they switch roles for three minutes. If time allows, they can also quiz each other on the parts of speech and identify each term's register.

Conclusion

Pop quizzes can be a valuable tool for ELLs if used correctly and frequently (Agrawal et al., 2021; Me-Linh, 2012; Noraini et al., 2021; Randolph, 2017; Willyard, 2010). As mentioned above, various undergraduate departments have found pop quizzes to be helpful for their students because they motivate them to study more on their own, and they help foster a higher level of critical thinking skills. With regard to my ELLs, they initially find pop quizzes challenging, but soon discover how fun they can be, as they create opportunities to reinforce the learning and master the lexical items through different creative review and practice sessions. The scores on these pop quizzes range from 89% to 98% on average. In most cases, the more pop quizzes the students take, the range increases from 93% to 98%. The retention of the lexical items is impressive, and the ELLs use and manipulate the terms very naturally. This, I believe, is due to their constant exposure to pop quizzes and review sessions. Moreover, pop quizzes can help our ELLs develop better skills by learning to review the terms through both spoken and written English. This allows the students to ultimately use the terms with a sense of confidence, creativity, and control. Pop quizzes ought not to be something that breeds fear and anxiety in our students, but rather they ought to inspire a desire to learn and learn with sincerity and curiosity.

The Author

Patrick T. Randolph specializes in vocabulary acquisition, creative and academic writing, speech, and debate. Patrick has been awarded three “Best of TESOL Affiliates” (2015, 2018, and 2021). He has also received two “Best of CoTESOL Awards” for his 2017 and 2018 presentations on observation journals and creative writing, and he received the “Best Session Award” from MinneTESOL (2019-2021) for his research in neuroscience and his implementation of movement in the ELL classroom. Patrick has published *New Ways in Teaching with Creative Writing* (2020) with TESOL Press and is the author of over 100 articles, 200 poems, eight books, and three short stories. He has given over 200 presentations on a variety of topics: language pedagogy, discoveries and applications of neuroscience, vocabulary acquisition, mindfulness and well-being, poetry, and philosophy. Currently, Patrick works with children with special needs, and he coaches high school volleyball. Patrick lives with his soul-uplifting wife, Gamze; insightful daughter, Aylene; wonderfully wise cat, Master Gable; and comical puppy, Bubbles, in Middleton, Wisconsin.

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