

Escape ROOM?!? Try Escaping the Building...

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Abstract

An escape room experience can be frantic, frustrating, exciting, confusing and exhilarating. Imagine invoking those emotions over a larger experience. Instead of a single room, now students must escape the entire College of Business. This paper discusses a cross-curriculum effort to incorporate the drama and fun of an escape room in a larger format. The approach is applicable individually or on a group basis. Further, the approach is implemented in a learning management system (Blackboard Ultra) so can support assessment for competency-focused objectives.

Keywords: competency-focused objectives, educational games, assessment, escape rooms

1. Introduction

There is a shift in focus occurring in some higher education environments. Currently, many higher education qualifications focus on course learning outcomes as a measure of student capability. Ward et al. (2021) examine the shift away from typical learning objectives to skills and competencies. Their research focuses on STEM programs within the United Kingdom and the European Union. They define a competency as a “behavioural or performance attribute that enable us to be effective, efficient, and successful when attempting tasks” (p. 346).

The importance of competency-based education in the health professions has also received considerable attention. Thibault (2020) identifies this as an emerging trend since “health professions education has the responsibility to society to produce practitioners who are competent across broad domains of knowledge, attitudes and skills. Each profession is responsible for establishing its competencies and the educational program to achieve them.” (p. 691). Within the health professions disciplines, Timmerberg et al. (2022) define a competency as “a characteristic or feature of an individual. It is an observable ability of a health professional to do something successfully or efficiently” (p. 1).

Beyond these two professional areas, there have been calls for wide-spread adoption of Competency-Based Education (CBE) among post-secondary programs. The Competency-Based Education Network (C-BEN) is an international consortium of higher education institutions seeking to advance this initiative. Long et al. (2020) define a competency as “the capability to apply or use a set of related knowledge, skills, abilities and “intellectual behaviors” like communication and problem-solving, to thrive in a defined career setting” (p. 31). They go on to note that “Learners’ progress is measured by demonstrating – through a system of rigorous assessments – the competence required for a focus area” (p. 31).

The need to assess competency-based learning in higher-education environments could prove challenging. CBE has a long history in K-12 environments [Evans et al. 2019]. Evans et al. (2019) discussion of current CBE efforts emphasizes that “CBE is rooted in the belief that all students can learn the material if given the time and opportunity to demonstrate mastery” (p. 301). While this self-paced student approach is viable in many K-12 environments, it may prove challenging in higher education settings. University courses may have 8 – 10 times as many students compared to a typical K-12 classroom. Further, university courses have certain content coverage which must be met. CBE in K-12 environments may allow students multiple attempts to demonstrate mastery. A similar approach in a university course may be difficult. Multiple attempts and the necessary grading time could prove prohibitive for a course with hundreds of enrolled students. Further, self-pacing with repeated attempts might hinder the coverage of the required knowledge content.

There have been efforts to support assessment of Competency-based learning in higher education environments. A number of research papers have discussed the use of escape rooms to reinforce and assess student knowledge and skills. Examples of escape room topic areas include medical education [Shah et al. 2023], neuroscience [Lim 2022], and chemistry [Avargil 2022] among others. These studies highlight several benefits associated with the use of escape rooms such as student engagement, active learning, teamwork, communication, critical thinking and problem-solving [e.g. Lim 2022, Avargil 2022, Shah et al. 2023, Taraldsen et al. 2022]. The prior research, while exploring the student benefits of specific efforts, were contained within a specific course or department. The approach discussed here, in contrast, is a cross-curriculum escape room embedded within the context of a college of business. The implementation of this large, cross-curriculum escape room is discussed in the following sections.

2. Implementation (Escape Premise)

The escape begins with an email from the dean to all undergraduate business school students. This email (Table 1) provides the context for the escape, the requirements that must be met, as well as the time limits typically associated with an escape room. The need to Escape the College of Business (hereafter Escape) encompasses all eleven required pre-core and core courses in our curriculum. Full discussion of all 11 courses and their required tasks would be prohibitively lengthy. Rather, the structure of the Escape and the details for one specific course are provided. This information will provide adopters with the structure, possible game options and accessories should they choose to create a similar scenario.

When Justin woke up that morning, his mind immediately went to the email he had received last evening. He was supposed to graduate in 3 weeks, so an email from the Dean’s office of the College of Business could not be ignored. The email had explained there was a problem with the University’s records system, and that it could delay approval for graduations. Justin had not slept well the previous night, his mind recalling the email from the Dean. The email is provided in Table 1.

Table 1. Email from College of Business Dean

Date: Monday, April 10, 2024

To: potential May graduates

From: Dean Olsen, College of Business

Subject: University records system

Hello,

Regretfully, I am writing to inform you of an on-going issue with the University's Records systems. A virus has corrupted the Registrar's records, and at the moment, we are unable to verify that graduation requirements have been met by potential graduates. The University IT office is currently working on the issue and is confident that the records will ultimately be restored. However, time estimates for this resolution are uncertain.

I am aware that this is a highly stressful situation. In an effort to mitigate some of the uncertainty, the faculty in the College of Business have created a number of assessments that will allow the College of Business to ascertain your competencies prior to graduation. Given the typical end of semester workload requirements, we have determined that the assessments should be completed on a group basis instead of individually.

You all have heard of, and may even have participated in, an escape room. Well, you don't need to escape a room, you need to Escape the College of Business! To Escape the College of Business, your group or team must earn 10 Escape Graduation Caps (EGCs) in each of the 11 disciplines associated with a required undergraduate course in the College of Business curriculum.

The 11 required courses that must be conquered to Escape the College are: Legal Environment for Business, Principles of Financial Accounting, Principles of Managerial Accounting, Introductory Microeconomics, Introductory Macroeconomics, Business Processes & Management Information System, Managing People & Organizations, Operations Management, Managerial Finance, Marketing Management, & Administrative Policy.

In each of these disciplines, the faculty have created 3 modules. To fully pass a module, you must complete the Level 1 assignment, followed by the Level 2 assignment and finally the Level 3 assignment. When your group completes a Level 1 assignment (in any module) you will earn 2 Escape Graduation Caps. When your group completes a Level 2 assignment, you will earn 3 Escape Graduation Caps. Completion of a Level 3 assignment will earn 4 Escape Graduation Caps. Therefore, there are a possible 27 EGCs (3 modules X 9 Escape Graduation Caps for completing all 3 levels) for each course listed above. Your group needs to earn a total of 10 EGCs for each course. It is up to your group to decide which modules and levels your group will undertake.

Successfully earning 110 Escape Graduation Caps (10 EGCs per course x 11 disciplines) will serve as a supporting certification that you have acquired the core competencies in the College of Business.

The Escape challenge will be live as of midnight on Tuesday, April 11. Your group will have the next 2 weeks to earn the necessary Escape Graduation Caps. Let the games begin!

Sincerely,
Dean Olsen

3. Structure of Escape the Building

For each of the 11 courses, 3 modules were identified to align with the content objectives and competencies as identified in the syllabus of record. Within each module, there were three specific assignments or tasks, labeled as levels 1, 2 and 3.

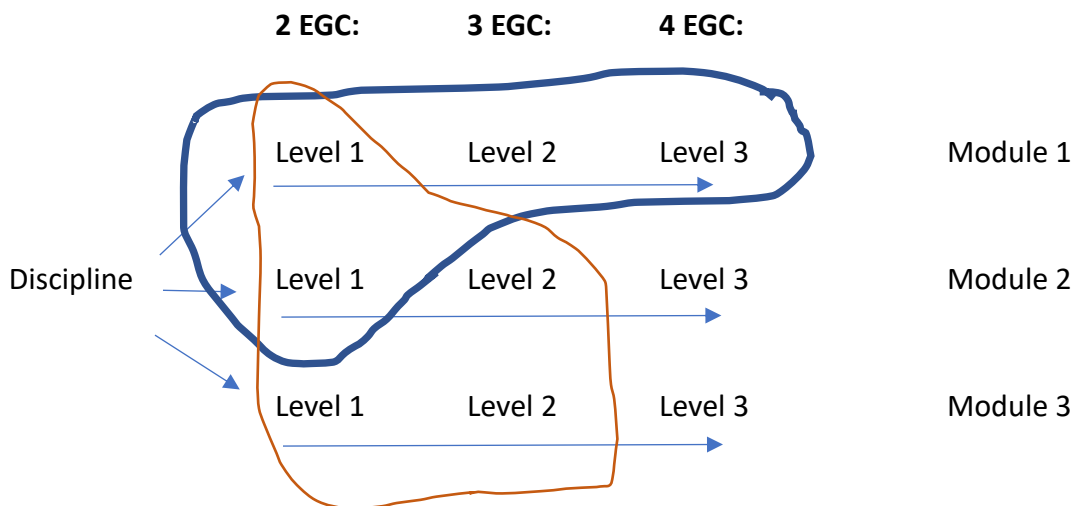
These tasks must be completed in sequence and represent increasing difficulty as students progress along a module. Completing a level 1 assignment earns 2 Escape Graduation Caps (EGCs). The Escape Graduation cap was created to represent achievement of a tasks. A representation is shown in Figure 1. It serves simply as a marker of mastery, but any number of options could be used to commemorate task completion (e.g. gold stars, university mascot, etc). Completion of a level 2 assignment earns 3 EGCs while the level 3 assignments earn 4 EGCs. To facilitate scoring, each EGC is worth 10 points. This way, students must earn a total of 100 points in each course and a total of 1100 points across all disciplines (11 courses x 10 EGCs = 110 EGCs or 1100 points) depending on how the instructor chooses to keep score.

In designing the Escape, efforts were made to provide some choice for students. Therefore, there are multiple ways that students can earn the 10 EGCs needed in one course. Figure 2 shows two alternate paths to acquire the needed EGCs. The requirement of 10 cannot be completed via a single module. Thus, students are forced to address, to some degree, two of the 3 modules, and therefore competencies.

Figure 1. Escape Graduation Cap



Figure 2. Map of completion options within each course



This Escape was implemented in Blackboard Ultra (bb Ultra), although other learning management systems should also work. Blackboard Ultra allows the creation of modules which must be completed in sequence. Given the levels associated with tasks, this was considered the best approach. However, instructors could choose not to require completion in sequence. Rather, instructors could simply have several stand-alone assignments.

Since bb Ultra is accessible on multiple digital devices, the Escape can be played in the classroom or outside of it. Alternately, the Escape can be created using paper forms and physical props in a classroom. This flexibility was also desirable, as it gives instructors more choices in adopting the Escape.

There are several resources that accompany the Escape. These are housed in a dedicated folder within the bb Ultra implementation. This enables students to have constant, convenient access to these resources. First, a list of rules for the Escape are provided. The rules list is provided in Table 2. Second, the equations which were utilized in each of the courses are available as a resource. Additionally, the instructor can choose to allow use of textbooks, calculators, online resources, etc. to facilitate the Escape. This allows customization of the Escape but can also impact the difficulty of the Escape assignments.

Table 2. Rules List

Rules List:

1. Solve the Escape as a group – if you work alone and fail, you could lock your group out of a module.
2. You can start with any course. Each course stands alone. Within a given module, if you have completed a level assignment you can leave the module and return later. DO NOT leave a module while an assignment is open!! The assignment will time out and possibly block further travel along that path!
3. There is a Resources Folder available in bb Ultra. This folder contains equations related to the courses required for Escape.
4. For each level/task/assignment, two tries are allowed before the task is locked. If the group wants a third attempt at the locked task, the group will need to redeem an “I missed class” card to have the instructor open the assignment to the group again. Your instructor will provide you with a limited number of “I missed class” reset cards for the entire Escape.
5. If an assignment has been reset twice by the instructor and the group has still not successfully completed it, the group will need to use an “Office hours appointment card” to bypass the activity without earning the associated EGCs.
6. If you are locked out of a module, you will need to choose a different module to continue to earn EGCs.
7. Time limits apply for each level task as well as the Escape as a whole. Time for all assignments to be completed: 14 days X 24 hours/day = 336 hours. Per track time limits: 336 hours/33 modules \approx 10 hours per track. Level 1 assignment has a maximum time of 2 hours, 3 hours for level 2, and 4 hours for level 3. Once each level assignment is opened, the timer starts. You cannot stop the timer so be sure to complete the assignment within the allotted time.
8. If you have a group member that has failed to participate or contribute due to a “Severe case of Senioritis”, the group may wish to remove the non-contributing member. If the group opts to pursue this option, they must complete the “Severe case of Senioritis” form and provide the necessary documentation to support removal. A student that is removed from a group will be required to work alone. The student will also forfeit 25% of the EGCs earned by the group. The group will retain the full number of EGCs earned at the time of group member removal. The instructor will make the decision regarding group member removal.
9. A student choosing to work individually without group approval is valid cause for the group to request removal from the group for that student.

The number of modules required for a course can be expanded or reduced within a single course, at instructor discretion. Further, the instructor could require more EGCs, greater than the 10 proposed here. Modules can also be done on an individual basis, instead of by group. Thus, almost all of the individual pieces of the Escape can be customized. This is particularly useful in assessing competency-focused education and grading. If assignments are done individually, it supports the self-pacing typically associated with competency-based education. Further, implementing assignments that can be scored by a learning management system allows instructors to keep up with different rates of student progression.

Some assignments may still require instructor grading, depending on the module and assignment. However, instructors could specify deadlines for those assignments that require instructor grading. This will allow instructors to plan their grading workload.

The Escape was created in a stand-alone bb Ultra shell, similar to a practice course, rather than embedded within a single course. This stand-alone shell could then be easily shared across instructors and classes. The additional card resources referenced in the rules list are provided in Appendices 1-3. The Escape associated with a specific course is discussed in the following section.

4. Implementation of a course Escape

The Syllabus of Record (SOR) was the starting point for each course included in the Escape. Alignment with the SOR ensured the applicability of the Escape assignments across all sections of the offered course. The required marketing course in our business curriculum has seven course objectives identified in the SOR. They are provided in Table 3. To keep the Escape manageable, we opted to focus on three course objectives: 1, 3 and 7. While objectives one and 3 are content-focused, objective 7 is a competency-focused objective. Assignments were then created within each module. The assignments should have increasing levels of difficulty, but not be prohibitively challenging. Ideally, assignments and modules should challenge students but ultimately be solvable via the knowledge and reasoning of the group.

Table 3. Marketing Objectives from the Syllabus of Record

After successful completion of the course, students will be able to:

1. Demonstrate comprehension of the Marketing Mix/4Ps *
2. Demonstrate comprehension of the modern marketing concept/customer orientation
3. Identify major elements of marketing strategy and recognize how they work together *
4. Integrate global, cultural and ethical factors when analyzing marketing problems
5. Locate, evaluate and use marketing relevant information effectively
6. Develop clear, concise and well-organized communication
7. Develop ability to effectively communicate *

* Denotes inclusion in the Escape

One of the marketing-based modules in the Escape focuses on the 4 Ps: product, price, place and promotion. The level 1 assignment requires students to create 3-letter, 4-letter and 5-letter anagrams from the letters in the 4 Ps (without providing the 4 Ps). Different weights are assigned based on the length of the words created. Instructors can use any of several websites that are available for creating solution lists of anagrams. Instructors then decide how many words are needed to earn 20 points or 2 EGCs. This was created as an essay format question in bb Ultra, so it does require instructor grading. Instructors can also tell students to aim for more than 20 points worth of anagrams to increase the likelihood of earning the EGCs. And while the communication competency is not the primary focus of this module, vocabulary can certainly enhance it.

The level 2 assignment of this module requires students to complete a crossword puzzle of 7-10 common marketing terms (e.g. marketing, market segment, targeting, etc.). After completing the crossword puzzle, students will need to answer multiple choice questions that reference the solution. A certain number of questions must be answered correctly to earn 30 points or 3 EGCs. This question can be graded by the learning management system.

The level 3 assignment requires students to examine an Amazon web page for bottled water. The information in the web page is numbered and the web page scanned. Matching questions were then created for the different pieces of information in the scanned document. Possible things to highlight include: customer reviews (product and promotion), description (product), delivery date, price, subscribe and save (price and promotion). The number of correct matches determines if the 40 points or 4 EGCs are earned. Completion of the full module nets a total of 9 EGCs. An additional assignment, in a different module, would surpass the 10 required EGCs. While the remaining modules do not need to be completed in the Escape described here, instructors could incentivize the achievement of additional EGCs in a course. Perhaps 5 EGCs could be traded for an additional “missed class” card.

The detailed assignments for the other two marketing modules are provided in Table 3. And while these specific assignments don’t have to be duplicated by other adopters, they do provide a variety of possible activities. Instructors can easily create additional assignments (level 1, 2 or 3) or change them from one semester to the next. Additions to the structure are easily uploaded in bb Ultra and can be hidden from students until they are needed.

Table 3. Marketing modules and assignments

Module focus:	Level 1 Assignment:	Level 2 Assignment:	Level 3 Assignment:
Demonstrate comprehension of the Marketing Mix/4Ps	Create 3 letter, 4 letter and 5 letter anagrams using the letters in the 4Ps of Marketing. Essay question in bb ultra. Instructor will need to grade.	Crossword puzzle of different marketing terms. Each multiple choice question references a clue in the completed crossword puzzle.	Level 3 - Use scanned web page of a product offered for sale on Amazon.com. Matching questions related to the information in the product web page.
Identify major elements of marketing strategy and recognize how they work together	Identify 4 macro strategies (Customer excellence, Operational excellence, Product excellence, Locational excellence). Fill in the blank question.	Provide chronological articles related to a specific company with marketing issues. Ask students which of the 4 macro strategies (or failed macro strategy) resulted in the downturn in company performance?	Analysis of follow-up actions after the start of the marketing controversy. What worked? What didn’t? Suggestions for changes? Alternative actions? Essay question in bb ultra.
Engage effectively in verbal, non-verbal, and written communication.	Identify facial expressions from cartoon faces. Multiple websites provide options with artist recognition. Use matching question to have students identify facial expressions.	Listening exercise. Use 3-4 clips from youtube videos. Then ask questions related to the videos.	Evaluation of effective PowerPoint slides. Provide criteria for evaluation of PPT slides (characteristics of effective visual aids). Have students evaluate pairs of slides based on criteria.

5. Conclusion

This study details the creation of a cross-curriculum Escape. While there are many student benefits of an escape room, the approach provided here also offers considerable benefits for instructors. The approach is flexible in virtually every aspect: single student versus group, number of courses, number of modules, number of assignments, difficulty levels, goals, resources provided, etc. And the basic structure provided here can be used in many

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Appendix 1. Supplemental resources that may be included

<p>Request form for removal of a group member due to a Severe case of Senioritis</p> <p>Group #: _____</p> <p>Current Group Members: _____ _____ _____ _____</p> <p>Group Member being considered for Removal: _____</p> <p>Date Instructor Interviewed Student: _____</p> <p>Instructor Decision: _____</p>

Please provide documentary evidence of the group member's failure to participate. For example, unanswered emails, texts, or messages, assignments that were not completed or class absences on scheduled group workdays. The instructor will consider the documentation and discuss the circumstances with the group member in question. The instructor will then decide on the removal of the group member or corrective action to be assigned to the group member.

Appendix 2. Supplemental resources that may be included

<p>MISSED CLASS RESET CARD:</p> <p>Date:</p> <p>Unfortunately, our group missed class (insert name of class) and we are not following today’s lesson. Would you please reset Module # _____ Level # _____ for Class # _____ so our group can continue our educational Escape!</p> <p>Thank you,</p> <p>_____ (Signatures of all group members are required)</p> <p>_____</p> <p>_____</p> <p>_____ (Group #)</p> <p>** Upon redemption of this card, it becomes the property of the instructor. This card is valid for a single use only. Cards are not transferable. Cards have no monetary value.</p>
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Print “I missed class reset cards” on different colored paper for different groups. Note the assigned color for each group, or print the group number on each set of reset cards. Give set number of cards (5 is recommended) to groups. Reset cards are not transferable across groups, so you want a way to make sure that the card is being submitted by the appropriate group. The instructor may also wish to keep a record of card usage (group #, course #, track #, and level #). This would provide additional feedback such as incomplete or confusing instructions associated with an assignment. For example, if one assignment causes most groups to use a reset card, the instructor can solicit information regarding the problem.

The “Missed Class” card is the lowest level option for a group that is stuck. The “Missed class” reset cards allow the group to request a single reset of a module they have been locked out of. This would result in their third and final attempt to complete a module. The “Missed class” cards can be printed on different colors of paper so they are distinct for each group. The card allows the group to have a particular module reset within blackboard. Should a group still fail to complete the troublesome module, and they get stuck again, they can use a “Need to Set up an Appointment for Office Hours card”. This represents the final reset for a given module. The intent with the two levels of cards is to impress upon the student groups the need to take the reset very seriously, as failure to successfully complete it would result in the remainder of the track being inaccessible. While the game is intended to be fun, it is important that students take it seriously. The potential lock out also provides some pressure similar to participation in an Escape Room. The instructor has the ability to choose the number of “Missed Class” and “Need to Set up an Appointment for Office Hours card” given to each group and therefore control the number of resets for any given module. The cards will also serve as feedback mechanisms for the instructor to assess the difficulty of any given module. If a particular module needed to be reset by many or all groups, that could indicate a problem or an excessively difficult challenge.

Appendix 3. Supplemental resources that may be included

<p>OFFICE HOURS APPOINTMENT CARD:</p> <p>Date:</p> <p>Unfortunately, our group has stalled in class (insert name of class). Would you please override Module # _____ Level # _____ for Class # _____ so our group can access the next assignment in the module. We understand that our group will not earn any EGCs for the bypassed assignment.</p> <p>Thank you,</p> <p>_____ (Signatures of all group members are required)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____ (Group #)</p> <p>** Upon redemption of this card, it becomes the property of the instructor. This card is valid for a single use only. Cards are not transferable. Cards have no monetary value.</p>
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The modules can be added to, removed, or changed from one semester to the next. Further, the Escape the Building approach can be used across the whole curriculum. A modified, more focused, Escape the Major version could also be created. Or, an Escape the Course version could be created for just one class offering. The structure is flexible, adaptable, and can be aligned to the specific competencies chosen by a School of Business.