Gamification in Interior Design Curriculum

Appendix 2 - Tools for Interior Design Educators

A Thesis

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Appendix 2 - Tools for Interior Design Educators

This paper now attempts to gather the information learned from the research study and literature review that was part of the thesis and compile it into a useful guide for educators to reference for help in implementing gamified scenarios into the classroom. The gamified elements will be discussed one by one. Educators may opt to include one, two, all or none of the proposed methods discussed.

First this paper will provide a quick review of what gamification is, and some basic gamification definitions. Then the paper will address various badges, including some that are specific to interior design. Then leaderboards will be addressed, as well as how to incorporate leaderboards while honoring FERPA restrictions and regulations. Ideas for special items and rewards will be addressed next. Then current online tools and resources available to educators to assist in creating gamified activities will be provided. After that, additional gamification ideas and activities will be discussed, and the concept of Level-up systems as a grade alternative will be presented. Finally, the paper will address how to create a storyline and quest sequence for a class.

The tools presented here are to give educators ideas around what gamification is, and how it can be applied to an interior design classroom. The items discussed are general ideas or concepts that can be incorporated. Educators can opt to include any, all or none of the mentioned items. To create gamified activities it is not required that all aspects addressed in this paper be included.

Gamification Introduction

Gamification is the application of game elements in a non-game environment (Deterding, Dixon, Khaled, & Nacke 2011). It is the concept of applying game mechanics and game design

techniques to engage and motivate individuals to reach their goals (Dicheva, Dichev, Agre, &

Angelova, 2015, p 75). It uses the application of gaming concepts, such as special items, quests,

storylines, and boss levels (see the below definitions for more information). Other popular

buzzwords for gamification include productivity games, surveillance entertainment, funware,

playful design, behavioral games, game layer, serious play, applied gaming and gamefulness.

Gamification Definitions

Below are a list of gamification definitions that may help when discussing gamification

and gamified elements.

Badges – aka achievements - are visual icons signifying achievements

Competitions – activities that allows participants to compete against one other for rankings

Game Design Elements – basic concepts within an activity that allow participants to reflect on

their accomplishments and strengthen sense of progress

Gamification - the concept of applying game mechanics and game design techniques to engage

and motivate individuals to reach their goals

LARPing – or Live Action Role Playing, where individuals take on specific roles and engage in

activities as said character

Leaderboards - a visual display of rankings for comparison

Non-traditional Teaching Methods – Way of teaching content besides the historical standard

using a combination of lectures and homework.

Quest – tasks that help progress the storyline

Reacting to the Past – consists of elaborate games, set in the past, in which students are assigned

roles informed by classic texts in the history of ideas

<u>Special Items</u> – or rewards are prizes that are given for completion or tasks or achievement of a

      certain status

<u>Storyline</u> - specific events that build on one another

Badges

      From previous research it shows that badges motivate students by providing immediate

feedback to student work (Deterding, 2012). For example, the one star badges are typically

awarded at an early level, to motivate students at a base level. Two-star badges would be a step

above one-star badges, and are awarded as a replacement or upgrade to the previous one-star

badge. Similar a three-star badge signifies a substantial achievement or completion. This is

going to be for most students the highest badge achieved. For those cases where students do

exceptional work, where they go above and beyond normal requirements, a four-star badge is

awarded. For example, a one-star badge may be awarded when students score above 80% on an

exam. If the student scores a 90% on an exam, the two-star badge is awarded. And when

students score 100% on an exam the three-star badge would be given. Then if there was a

student, who either due to curving, or extra credit questions scored above 100%, the four-star

badge would be given.

      In order to incorporate badges into the classroom, first one must determine what student

achievements are the focus of the course. This may depend upon the type of class taught, with

studio courses having different focus than lecture-based classes. Badges can include such items

as scores, attendance, quantity of submission, quality of submission, etc.

      Badges typically have a gradated level to them. The simplest badge within a category to

earn is the lowest ranking. As students progress in that category, the rankings increase. For this

paper the badge rankings have been set-up as a one-star, two-star, three-star and four-star system.

Based on the specific classroom requirements, the educator would determine the exact score or rank for which the one-star changes to a two-star rating. For a large commercial project it may make sense for the badges to be awarded at different requirements than a small residential design project. For example the large commercial project may require a total of 10-15 different elevations, while the smaller residential project may only require five or six. For this purpose the badges have not been set-up with a specific number included on the badge. This allows the educator flexibility to adapt the badges to their specific class requirements.

Once the badges for the class have been determined, the next step is to decide if badges will be awarded for their intrinsic value, or if there will be some sort of extrinsic awards to coordinate with the proposed badges. Assigning a point value to the badges will allow students to redeem badge points for extrinsic awards based systems or special items (to be discussed more later in this paper). The easier to achieve the badge (one-star), the fewer points awarded, while the more rare the badge (four-star), the greater points given.

Badges can be sequential, in that they first earn the one-star badge, then the two-star badge, and so on; or they can be instantaneous depending upon set criteria. An example of sequential badges would be homework submission badge. In general students submit one homework assignment at a time, so the one star badge would be awarded first. Upon submission of more assignments as the course progressed additional badges would be awarded. However, this is not the case with all badges. For example, the "elevations" badges require students to submit a number of high quality elevations as part of one assignment. The student may be awarded the four-star elevations badge immediately, without having to progress through the previous badge ranks. If students do progress through the badge ranks, there is no need to revoke lower ranking badges. Students may have all ranked badges, or just the four-star rank.

By making the badge information available to students upfront they are aware that the more elevations they complete the higher the rank of the badge they will be able to earn.

Making icons for the badges can be simple, as there are a variety of free icons available for download. Additionally, there are free sites such as Make Badges (www.makebadg.es) (Make Badges, 2016) where users can customize and download badges quickly and easily for use in the classroom. This online tool does not track badges, just helps with the creation/design of the badges. Online programs that track badges are discussed below.

While most of these badges are set-up for individual classroom badges, interior design departments can also become involved in awarded badges. These badges may include mentoring opportunities, tutoring sessions, volunteering and other such tasks in which involvement across classes may be beneficial, or where upper class and lower class interaction is encouraged.

The last portion of this is awarding the badges. Currently the majority of Learning Management Systems, such as Canvas, do not incorporate a way of awarding badges as part of the software, so separate badge tracking software is required. Some of the top third party badge software systems include *Open Badges* (www.openbadges.com) by Mozilla (Mozilla, 2016), *Passport* (www.openpassport.org) by Purdue (Purdue, 2016) and *ClassBadges* (www.classbadges.com) by Class Badges (Class Badges, 2016).

Beginning class curriculum with awarding of badges helps students understand the purpose behind badges, and a gamified course (Dicheva, Dichev, Agre, & Angelova, 2015). The ideas presented here typically include a low ranking badge for at the beginning of certain tasks. This is to help students gain motivation to work toward the higher ranked badge, and to provide immediate recognition for their efforts thus far.

Included in this paper are badge icons that were created and designed by the author. They are available free of charge for downloading at www.heidiplumb.com (Plumb, 2016). Both .png and .pdf versions are available. The .pdf versions can be used to create or modify badges to fit the educators individual needs.

In interior design classes the following badge types may be incorporated:

Badges in lecture classes. In lecture-based classes, the end deliverables will be different than that of studio courses. Lectures classes may include readings, exams, and in-class lectures. Class discussions (either in-class or online through a Learning Management System) might be included, as well as other non-traditional teaching methods, such as trivia games or LARPing.

Lecture attendance. Providing students with badges as an additional motivation to attend lectures is one way to encourage students. If students are awarded badges for attending to the lecture, that is the first step in encouraging students to increase their knowledge. As an example, a one-star badge would be awarded when students attending the first lecture. At attendance of five lectures students could receive the two-star badge. When students attend ten lectures the three-star badge would be awarded. And after attending all the lectures the students would be awarded the four-star badge (see Figure 1).

Remember, that the numbers provided here are just examples. Educators can customize the numbers to suit their class needs.

Figure 1. Badges for Lecture Attendance

Assigned reading completion. Most lecture-based classes have some amount of reading associated with the course. Providing students with badges for their course reading is one way in which students can be encouraged to participate. As students complete their first reading assignment, they would be awarded the one-star badge. At the completion of their fifth reading assignment, students will earn the two-star badge. At the completion of ten reading assignments, the three-star is awarded. And to the students who complete all the reading assignments, the four-star badge is awarded (see Figure 2).

It is important to note there that this badge category would be mostly monitored and self-reported by students. Having a system where the students are able to report their own progress may encourage cheating by the students, just to receive the reward of the badge. Some sort of check system may need to be included to minimize student cheating.

Figure 2. Badges for Assigned Reading Completion

Discussions. Many classes use discussions as a way of engaging students. In online classes this could be incorporated as a discussion board. In an actual classroom setting this is more often an in person back and forth dialog. The classroom dialogs would rely solely on the teacher to document and record which students were participating, whereas the online discussions would allow a documented history of a students discussion posts and participations.

Badges can be awarded for student participation in a discussion. For example, if a student provides a quality comment in one discussion they earn the one-star badge. When a student provides quality discussion comments in five discussions, they earn the two-star discussion badge. When they actively participate in ten discussions they receive the three-star badge. And if a student consistently provides comments and insights that are insightful and engaging they are awarded the four-star badge (see Figure 3).

Figure 3. Badges for Discussion Topics

A similar tactic for discussions can be to reward students for the number of comments made during the discussion. For example if a student participates one time, they earn the one-star discussion participation badge. At ten participations they earn two-star, at twenty-five three-star, and at one hundred the student would earn the four-star level. In other words, each time a student comments during the discussion, this would count as an additional participation point (see Figure 4).

Figure 4. Badges for Discussion Participation

Homework. Homework is a standard element in most classes. Badges can easily be applied to a homework style setting, as the natural course of having students submit assignments coordinates easily with the awarding of a badge. The variety of homework badges discussed below, offer a variety of options that the educator can include. It is up to the educator to determine which badges are most applicable to their course. Again, not all of the badges have to be awarded.

The first homework badge could be awarded for completing the first homework assignment. This simple and immediate reward for submitting homework can help give instantaneous recognition to the student when they submit an assignment. The natural flow of this badge would be a one-star badge when one assignment is submitted, a two-star badge for five assignments, a three-star badge for ten assignments and a four-star badge at all assignments (see Figure 5).

Figure 5. Badges for Homework Completion

Another way to motivate students in the progression of homework is to include a badge

for submitting assignments on time. Punctuality should be encouraged amongst the students, and

this simple gesture helps remind students of the importance of being on time. Similar to the

homework completion badge, this would be awarded based on the number of assignments turned

in on time. One assignment submitted on time earns the student the one-star badge. The two-

star badge is awarded after five assignments are on time. The three-star awarded after ten

assignments are on time and the four-star badge is awarded when all assignments are submitted

on-time (see Figure 6). This badge could be awarded for the individual assignments, or for the

student assignments as a whole.

Figure 6. Badges for Homework Submitted on Time

Rewarding students for high scores on homework assignments is the next way in which

students can be awarded badges. If students receives above 70% on an assignment, they would

earn the one-star badge. If students score above 80% on an assignment they earn the two-star

badge. If a student earns 90% on an assignment they will be awarded the three-star badge. For

this category, occasionally it may be possible for students to receive 100% or over 100% (either

through extra credit portions, submitting more than required). If a student does receive 100% or

above 100% on a test, then they would be awarded the four-star badge.   This badge could be

awarded for individual assignments or for the students' assignments as a whole (see Figure 7).

Figure 7. Badges for Homework Score

Quizzes and exams. Receiving high scores on quizzes is cause for awarding badges. If

the student scores above 70% on a quiz they would be awarded one-star. At above 80% they are

awarded two-star. At 90% they are awarded three-star. And 100% or above would be four-star

(see Figure 8).

Figure 8. Badges for Quiz Score

Badges in studio classes. In Interior Design a large amount of the course work is in

studio classes. To incorporate badges into the studio class, it is simplest to break the classes into

their outcomes. As students work to complete a design project there are a variety of tasks that

must be completed on the way to the final outcome. While this relates to the storyline concept of

the gamification, where the overall purpose (storyline) for the course is broken down into smaller

subsets (quests), this section of the paper will focus on the badges awarded as the story

progresses. More information on storylines will be presented later in the paper.

Ideation. With ideation, students are tasked with creating concept space plans for their final project. In theory, the more ideation concepts a student produces and analyzes the more thought out and creative the final solution would be. For this badge, the purpose is to award students for creating a large number of ideation concepts. A one-star badge would be awarded for students who submit only one ideation. Students who submit five ideations would be awarded the two-star badge. Students submitting ten ideations would be awarded the three-star badge. Finally, students submitting over fifteen ideations would be awarded a four-star badge (see Figure 9).

Figure 9. Badges for Ideation

Sketching/drawing. Another way for students to communicate their designs is through sketching or rendering scenes and vignettes. To grant badges in this category students would be recognized based off of the number of quality sketches submitted. After one perspective, students would receive the one-star badge. At two, the student is awarded the two-star badge. At five the student unlocks the three-star badge. And for the exceptional students, at ten perspectives or perhaps an exceptionally detailed sketch the student is awarded the four-star badge (see Figure 10).

Figure 10. Badges for Sketching/Drawing

Elevations. After the initial plan has been selected and drawn up from the various

ideation packages, the next step is to submit elevations relating to the plan. By awarding

students for drawing more elevations, it helps to encourage students to communicate their

designs. As students submit one elevation, they are awarded a one-star badge. At five elevations

the two-star badge is awarded. When students complete ten elevations the three-star badge is

awarded. And for the student who goes above and beyond at fifteen elevations the four-star

badge could be awarded (see Figure 11).

Figure 11. Badges for Elevations

Detailing. The next step in the design process after the elevations are completed is often

details. Students should be confident about the communication of their design intent. As with

the elevation badges, these badges are awarded for the quantity of details produced. After

completing one detail the one-star badge is awarded. Three details earn the two-star badge. Five

details earn the three-star badge, and ten details earn the four-star badge (see Figure 12).

Figure 12. Badges for Detailing

Material selection. As the space begins to flesh out in the students mind, the need will

arise to select finishes for the space. These finishes are critical to the ultimate feel and function

of the space. Students may be awarded badges in this category based on the quantity or quality

of information provided about the finishes selected. The educator should select at which level

the various badges will be awarded based on the specific project requirements. At those pre-

determined levels the educator may award the one-star, two-star, three-star, and four-star awards.

Or if the educator was aiming for a specific characteristic of materials the badges could be

awarded based on the number of Class A rating materials presented, or materials with complete

life cycle analysis (see Figure 13).

Figure 13. Badges for Material Selection

Rendering (coloring). Once the elevations, details, plan views and sketches are

completed and the materials for the space are selected, the final step is to render the drawings

with the finishes selected for the space. This is the final step in helping the client understand the

design intent. Badges awarded in this category are given based off the number of final

renderings submitted. One-star, two-star, three-star and four-star are awarded at one, three, five

and ten (respectively) submitted images (see Figure 14).

Figure 14. Badges for Rendering (Coloring)

Badges that may be used in both lecture and studio classes. There are some badges

that are may be used in both studio and lecture based classes.

In class activities and competitions. Many courses and topics will lend themselves to

activities in which the students can engage in games or activities with a first place win.

Providing badges to students who are the top of their class helps motivate the student to try

harder. Just like the Olympics, badges can be awarded for the student who comes in third place

(one-star medal), second place (two-star medal) and first place (three-star medal). If multiple

games and activities are played throughout the course, the four-star badge would be awarded to

the student who took first the most times (see Figure 15).

Figure 15. Badges for In Class Activities and Competitions

Other badges. While providing badges to students who complete assignments and tasks, the fun part of gamification comes when providing badges for other miscellaneous items. These random badges help encourage students who may not be at the top of their class to still participate and be engaged in the learning process. These badges may be awarded at any time, or at the end of the class.

The above and beyond badge. It seems that in every class there is one or two students whose projects, assignments, or other aspect of the class stands out above the rest. This badge can be awarded to any student who goes above and beyond what was required in completing an assignment (see Figure 16).

Figure 16. The Above and Beyond Badge

The best attitude. This badge would be awarded to the student who reflected the best attitude throughout the class. This student was always cheerful, and encouraged a positive classroom environment. This student is the epitome of optimism and positivity (see Figure 17).

Figure 17. The Best Attitude Badge

The best draftsman badge. The best draftsman badge is awarded to the student who consistently provides highest quality floor plans, elevations, and details. Their drawings reflect the correct line weights, dimension styles, and title blocks (see Figure 18).

Figure 18. The Best Draftsman Badge

The best presenter badge. For the student who consistently presents their projects at a professional and well-planned level, they are awarded the best presenter badge. This badge recognizes the fact that the student has put consistent effort into presenting in unique and engaging ways (see Figure 19).

Figure 19. The Best Presenter Badge

The best rendering badge. The best rendering badge goes to the student who is able to create beautifully detailed renderings (either hand or computer generated). These renderings take their ideas and concepts a step beyond the traditional two-dimensional drawings and bring to life their vision of their design (see Figure 20).

Figure 20. The Best Rendering Badge

The best sketching. The student who is awarded the best sketching artist would be the student who consistently creates the best sketches and perspectives. They have a natural hand at creating vignettes (see Figure 21).

Figure 21. The Best Sketching Badge

The computer whiz badge. This badge is awarded to the student who is the most computer literate. This student shows exceptional understanding of technology and how to use it to create assignments and presentations that stand out above the class (see Figure 22).

Figure 22. Computer Whiz Badge

The cooperation badge.   The cooperation badge would be given to a student (or students) who works exceptionally well with the other students. The student receiving this badge often can be grouped into teams with any member of the class without concern for personality clashes or other conflicts (see Figure 23).

Figure 23. Cooperation Badge

The critical thinker badge.   The student who is awarded the critical thinker badge is the student who takes time to analyze and evaluate every option. This student pauses to think, ponder, debate, and finally select an option that is a well-planned and carefully considered solution (see Figure 24).

Figure 24. The Critical Thinker Badge

The hardest worker.   The hardest worker badge will go to the student who works the most diligently at completing the task at hand. This student who receives this badge focuses intently and deliberately on the task, no matter what other distractions may come their way. This

student is often the one who drives through any obstacle in their path to work through the

problems until a successful resolution is completed (see Figure 25).

Figure 25. The Hardest Worker Badge

The helping hand badge. The helping hand badge would be given to a student (or

students) who go out of their way to help other students. The student receiving this badge often

sees other students struggling and takes time to help the other student (see Figure 26).

Figure 26. Most Helpful Badge

The most improved badge. For the student who works really hard and shows drastic

improvement over the course of the class, they are awarded the most improved badge. This

student has made incredible progress from where they were performing from the beginning of

the class to the end of the class (see Figure 27).

Figure 27. The Most Improved Badge

The not afraid to ask questions badge. This badge is awarded to the student who asks helpful questions. They are not afraid to learn and are eager to clarify any confusion they foresee in order to ensure they do their very best on the assignments in question (see Figure 28).

Figure 28. Not Afraid to Ask Badge

The problem solver badge. The problem solver badge is awarded to the student who is able to look at problems in new and unique ways. This student is able to work toward finding a solution to seemingly any problem (see Figure 29).

Figure 29. The Problem Solver Badge

The slow and steady badge. This badge may be awarded to a student (or students) who worked very hard and meticulously at completing assignments. This student may or may not be at the top of the class, but the rank of the student would not be important for this one. This would recognize students who spent a significant amount of time on an assignment, or in the course (see Figure 30).

Figure 30. Slow and Steady Badge

While this list of badges is not a full comprehensive list of all the badges that can be included in an Interior Design course, it is an effective start. Additional badges can be created and made at anytime by using the website www.makebadg.es. To receive the original versions of these badge files (Photoshop) to allow customizations please reach out to the author of the paper.

Leaderboards

Leaderboards are a visual display of rankings for comparison. Rankings can be highest grades, number of badges, or most improved (see ideas for leaderboards below). The thought process behind posting of ranking is to help motivate students to strive to be the number one rank. In the early 1980's arcade machines utilized leaderboards to encourage participants to play the games, as they strove for the top spot on the chart. Similarly, leaderboards create competition through the course, inspiring students to try for the top spot. While some educators may consider this as a negative aspect, the purpose of this paper is to point out a variety of

methods to engage students. Educators are then able to determine which gamified elements

work best for their specific environments.

While intrinsic incentives of reaching the high score may be sufficient for some students,

the aspect of gamifying content encourages the awarding of extrinsic rewards. This extrinsic

award can be through badges, special items or physical prizes.

As discussed in the literature review, leaderboards were motivating factors for students

who placed in the top few slots. However, students who found themselves in the middle to lower

rankings of the class were actually demotivated (Nicholson, 2013). Leaderboards should be

designed in such a way as to encourage all students to strive for the best.

FERPA. Due to the Family Educational Rights and Privacy Act (FERPA) the topic of

leaderboards is a sensitive subject, and not all programs are open to this sort of application.

FERPA puts restrictions and limitations on what can be publicly posted and what is allowed.

This paper will address the current FERPA laws and what an educator can and cannot include in

leaderboard posts.

FERPA restrictions. FERPA protects students' grades, test scores, identification

numbers, social security numbers, financial records, disciplinary records and class schedules.

FERPA also discourages from circulating a printed class list with students names and grades. If

grades are posted, they cannot be in any recognizable order (such as alphabetical) (FERPA at a

glance, 2016).

FERPA allowances. Per the latest FERPA laws "education records may be released

without consent under FERPA if all personally identifiable information has been removed"

(FERPA, 2008, p. 3). This allows educators to find ways of relaying information as long as the

students' identity cannot be "determined with a reasonable amount of certainty" (FERPA, 2008,

p. 11). Essentially, as long as fellow classmates cannot determine who is who on the

leaderboards, this type of posting is legally allowed.

Incorporating leaderboards. Now that the restrictions and allowances of FERPA have

been discussed, the process of implementing leaderboards can be addressed. There are a variety

of leaderboard options that can be incorporated without having to post the entire class roster and

rank each time an assignment is graded. The leaderboards referenced can be used singularly, or

in combination with other leaderboards. It is also important to note that if a student does not

make the top rank on the leaderboard it does not mean that they received a bad grade on the

assignment. Hypothetically the entire class may have an A grade, but only the top few would be

represented in the leaderboards.

Non-identifiable identifier. The very first step in creating a leaderboard system for the

class is to ensure that FERPA regulations are followed. To do this, students must receive a non-

identifiable identifier to allow them to know where they rank in the classroom, without other

students being able to identify who the other classmates are.

One way of creating this would be to use a random number generator to assign students a

number (whether a four digit, five digit, or so on). This random number would be assigned to

the student, and allow that specific student to see where they fall in the ranking chart, without

being able to identify other students.

Another way of assigning a non-identifiable identifier is using "code names" for the

students. Again, the best option for this is a random word generator. Random word generators

help ensure that FERPA regulations are being met. Often times when teachers are left to create

code names for students on their own it may be easy to unintentionally allow personality traits or

physical characteristics to determine these code names. Once the non-identifiable identifier for

each student has been assigned grades can be posted without violating any FERPA regulations.

     Badges leaderboard. One option for creating a leaderboard would be a leaderboard

based on the number of badges students have earned. Badges can be sorted by quantity of

badges awarded, with the student with the most badges on top. They could also be sorted by the

"rank", for example the student with the most four-star badges first. Badges could also be

arranged by the number of stars each student has, with the highest rank going to the student with

the most stars.

     The top 3 leaderboard. Leaderboards are specifically designed to recognize the top

students in the class. Posting a weekly (or per assignment) top three is one way of posting

leaderboards. Essentially, the students who scored the highest are recognized for their top work

for that task. The purpose is to encourage students to make the top three lists and provide some

sort of incentive for those who do reach this goal.

     Most improved leaderboard. While the Top Three list is great at encouraging students to

strive for the best, historically this only rewards the top few students in the class. By adding

alternative categories such as Most Improved, all students are encouraged to try their best.

     For this leaderboard, the student whose score increased the most dramatically from the

previous assignment/week to the next assignment/week would be recognized. This encourages

students who may feel like they are falling behind to strive for their best on the next assignment.

The rewarding of incentives also encourages students to reach this designation.

     Statistical breakdown leaderboard. One aspect of grading in a Learning Management

System is that grades and assignments can include a statistical breakdown if the teacher allows.

Educators who want to award and incentivize students to do their best can use this leaderboard.

Students who rank above the mean might be posted on one leaderboard. Another alternative is

any student who scores the high in the class (or ties for the high in the class) receives incentives.

Level rank leaderboard. If one of the aspects used in the classroom is a level-up system

(discussed in more detail later in the paper), the levels may be posted as another ranking system.

For example, if the course offers Ten Level Ranks, students may be increasing the levels at

different rates. Therefore, notifying the class that there are four students who have made it to

level six may be a way to motivate the rest of the class to try to level up. It is encouraged that

perhaps only the top few be posted. By not posting all the levels at one time it ensures that the

identity of the students cannot be deciphered, as it is never clear who may or may not be

included in the lists.

Attendance and participation leaderboard. For this leaderboard system, students who

attend class are awarded points. Similarly students who participate and engaged in learning are

awarded points. A weekly ranking system of the students who attend and participate in class

provides immediate rewards and recognition to students. While this metric may be considered

lackluster, this system may help give students a more holistic view about how they are doing in

the class.

Group challenges leaderboard. By creating a group challenge the teacher can award a

group as the winner, without having to worry about FERPA regulations, as no student

information is posted. Group activities can be completed in a competitive fashion where a group

(or groups) can place in the top categories. This will encourage teamwork across a variety of

student personalities.

Special Items or Rewards

Now that badges and leaderboards have been addressed, the subject of rewards or special items can be presented. Special items are awarded to students for a variety of reasons. High scores on homework, earning badges, participation, or any other reason can earn students special items. While this list is not inclusive of all available special items, it is a reference point of ideas to begin with.

Free-life or free pass. The free life special item is an item that allows holders of this item to have a free pass on a homework assignment. Many educators already have a system that allows them to drop the lowest score of a student for homework assignments. This system allows educators to make students earn it somehow. It is important to note that clear guidelines on where this can and cannot be used (final exam, etc.) should be included up front.

Me first/last. This special item allows the user to go first in whatever area they want. This can include being the first to present projects, or being first to have a critique. The holder of this special item, could also use this to opt to go last if desired.

Point booster. Allows Students to get a 10% (or other set amount) increase to their score (up to full point value). So if a student is trying to get their grade from a 87.2% to above 90%, this item can help shift the scores on one specific assignment. Again, it is important to have set guidelines on if this can be used on more major assignments or not.

Phone a friend. The student who uses this card has a free pass to get help from a friend or classmate one question. The student would note on that specific question that they want to use their phone a friend, and indicate which friend they want to receive help. If this is an assignment, the educator reviews what the proposed student answered, and can give the first student credit if the second student received the correct answer.

Immunity. If the classroom has challenges or other similar activities where a top student or winner is declared each week/class session, the winner can be awarded with immunity. The immunity item allows that student to not have to participate in the next group challenge or activity. Alternatively, if they choose to participate, they cannot be the lowest scoring individuals.

Get out of jail free. This card allows the user to have their lowest score dropped from the calculation of their final grade. This is important to have clear exclusions of what is considered acceptable use (i.e. this card cannot be used in place of a final project).

Ideas for creating gamified activities

Gamified activities within the classroom are individual activities that can be applied to a lecture, studio or any other format of classroom. The activities usually result in a winner or winning team. Prizes (special items or rewards) can be provided to help encourage students to try their best to win. Gamified activities can vary from an involved trivia game, to a simple "Where's Waldo" activity. These activities can be incorporated into a lecture or studio class.

Balderdash. The purpose of the game of Balderdash is to try and trick the players into selecting an incorrect answer to the definition of a word. For example, for the term "occupant load" the correct definition is "the number of persons for which the means of egress of a building is designed" (IBC, 2016). False definitions would also be provided. The players would be presented with the correction definition and three alternative definitions. The players who correctly identify the most correct terms wins. This is a great activity to use in the classroom to refresh vocabulary. By dividing into teams, it encourages students to learn definitions of words in order to score more points than the other team. The winning team can be awarded badges or special items.

BINGO. When creating a lecture or other presentation for students, create a

corresponding BINGO game. Include in the BINGO games terminology that will be covered in

the lecture. When the students hear the specific word, they can cross off the square. When

students receive a BINGO, they can shout BINGO. This can prove especially fun in a classroom

setting. Prizes of special items, extra credit or badges can be awarded to students.

Trivia games. Trivia games offer a valuable resource for educators to create games and

activities that question students' knowledge. Educators can prepare students for quizzes and

exams by offering trivia games as a refresher for the information they are expected to know.

There are a variety of Trivia type games that can be used, and the ones discussed below are by no

means inclusive.

Jeopardy. One of the most famous trivia games is Jeopardy. This simple format allows

educators to create various categories of information that students are expected to know, and add

various questions to check student knowledge levels. Answers are categorized with associated

point values. Students can play in teams, or individually to try for a high score. When students

get correct answers they get to go again. If an incorrect answer is provided the play moves to the

other team, and/or they get no points for that question.

Trivial Pursuit. Trivial Pursuit is a board game that asks questions to students from a

variety of categories. Players are required to get one answer correct in each of the categories.

The first person to get all the questions right in each category wins.

Where's Waldo. If educators are creating an online video, power point or other digital

presentation format, where multiple pages/slides will be presented, the educator can include a

"hidden image" or phrase that the students are to watch or listen form. In this case, a picture of

Waldo for the students to find. A special item or badge could be awarded of students are able to

provide the location (slide number, time in the video, etc.) of the Waldo image. This will help

students pay close attention to the presentation.

Resources for Creating Additional Gamified Activities

There are a number of free resources to create gamified activities that educators can then

use to incorporate into their lessons. By taking advantage of these pre-existing tools, educators

can create fun activities with not a lot of additional effort. This list is not an exhaustive list of all

resources available. Resources are listed in alphabetical order for ease of reference.

Bingo Baker. The website Bingo Baker (www.bingobaker.com) is a free (as of April

2016) online web tool that allows individuals to create multiple bingo cards from a list of

provided words or images. Once the list of words/images is provided, users can generate as

many random boards as required. The website will also generate a "call list" for use during the

game. Users can then print up to eight BINGO cards at one time for free, if more than eight at

one time are desired, users must pay a one-time fee of $14.95 (Bingo Baker, 2016).

Crossword Labs. Crossword Labs (www.crosswordlabs.com) is an online web tool that

can create crossword puzzles, complete with answer keys based on content provided. This

simple to use program instantly creates crossword puzzles specific to the content provided. The

generated crossword puzzle can then be saved as a PDF file or Word doc. This is a free (as of

April 2016) resource and does require a login (Crossword Labs, 2016).

Educaplay. Educaplay (en.educaplay.com) is a free (as of April 2016) resource that

allows individuals to create learning games such as matching, riddles, fill in the blanks,

crossword, word search, and more. This program runs on HTML5, allowing it to be accessed

from anywhere that offers internet browsing. This is a free system, but does require a login

(Educaplay, 2016).

FlipQuiz. FlipQuiz (www.flipquiz.me) is a free (as of April 2016) that helps create and play a Jeopardy style game. This system allows educators to create a board game for use in the classroom. These games can be saved (when registering on the site) for use or re-use at any time (FlipQuiz, 2016).

Kahoot. Kahoot (www.getkahoot.com) is a free (as of April 2016) resource that allows individuals to create learning games (called kahoots) from a series of multiple choice questions. Users have the ability to add videos, images, and diagrams to the program. This system is best used in a group setting, such as a classroom. Players can answer questions on their own devices (phones, tablets, laptops or computers) while the overall game screen is shown on a shared screen. This is a free system, but does require a login.

Kubbu. Kubbu (www.kubbu.com) is a free (as of April 2016) resource that allows individuals to create matching games, crossword puzzles and quizzes. This e-learning tool is designed to facilitate and enhance the learning process (Kubbu, 2016). Educators can conduct online exams, and analyze results. Activities can then be shared with other educators.

Jeopardy Labs. Jeopardy Labs (www.jeopardylabs.com) is a website that can be used to create a Jeopardy game, where questions can be asked, categories created, and custom questions can be asked. Each question has the ability to have graphics added if needed. This is a free resource, but does require a log-in (Jeopardy Labs, 2016).

Word Search Labs. The Word Search Lab (www.wordsearchlabs.com) offers a free online tool for creating word searches based off of words provided by users. The generated word search can then be saved as a PDF file or Word doc. This is a free (as of April 2016) resource and does require a login if users want the ability to edit the word search at a later date (Word Search Labs, 2016).

Creating and Implementing a Level-Up Grading System

The next gamified technique to be addressed is the level up system instead of the traditional grade rank. This system is sometimes referred to experience points. The level up method allows students to start the class at Level 1, and as points are earned, they progress in levels. This method moves away from the current method, where students start at whatever grade they received from their first assignment, and must strive to either raise their grade or their grade drops.

Begin by taking the total points available within the class and dividing that by the number of levels planned. For example if the total number of points in the class is 1000 points, and there are 10 levels offered, each level would be gained after 100 points are earned.

Include in the syllabus what levels must be attained for a specific grade. In this example level 6 and below would equal an F grade. Level 7 results in a D grade. Level 8 results in a C grade. Achieving level 9 results in a B grade, and level 10 would result in an A grade (see Table 1). If further variances are required in grading, for example A-, or B+, the total experience points can be further divided so that there are 20 possible levels (see Table 2).

Level	Point Scale	Grade
Level 1	0-99 points	F
Level 2	100-199 points	F
Level 3	200-299 points	F
Level 4	300-399 points	F
Level 5	400-499 points	F
Level 6	500-599 points	F
Level 7	600-699 points	D
Level 8	700-799 points	C
Level 9	800-899 points	B
Level 10	900-1000 points	A

Table 1. Score, Level and Grade Table – 10 Levels

Level	Point Scale	Grade
Level 1	0-49 points	F
Level 2	50-99 points	F
Level 3	100-149 points	F
Level 4	150-199 points	F
Level 5	200-249 points	F
Level 6	250-299 points	F
Level 7	300-349 points	F
Level 8	350-399 points	F
Level 9	400-449 points	F
Level 10	450-499 points	D-
Level 11	500-549 points	D
Level 12	550-599 points	D+
Level 13	600-649 points	C-
Level 14	650-699 points	C
Level 15	700-749 points	C+
Level 16	750-799 points	B-
Level 17	800-849 points	B
Level 18	850-899 points	B+
Level 19	900-949 points	A-
Level 20	950-1000 points	A

Table 2. Score, Level and Grade Table – 20 Levels

Creating a Storyline/Quests

The next gamification technique addressed will be the storyline/quest concepts. In the traditional teaching environment there are a number of assessment methods used. There are tests, quizzes, homework assignments, projects, and participation (among others). To create a storyline, the first step would be to change the names of each of the current classroom elements to be compatible with a storyline. Storyline elements typically include quests (homework) missions (lectures), mini-bosses (quizzes), and final bosses (final projects), to name a few.

The course sequence would not change. The only components that change is the way the assessments are described. A typical flow chart of a traditional course is represented below (see Figure 31). In comparison a flow chart for a gamified course is also presented (see Figure 32). Notice that the flow and structure of the class doesn't change.
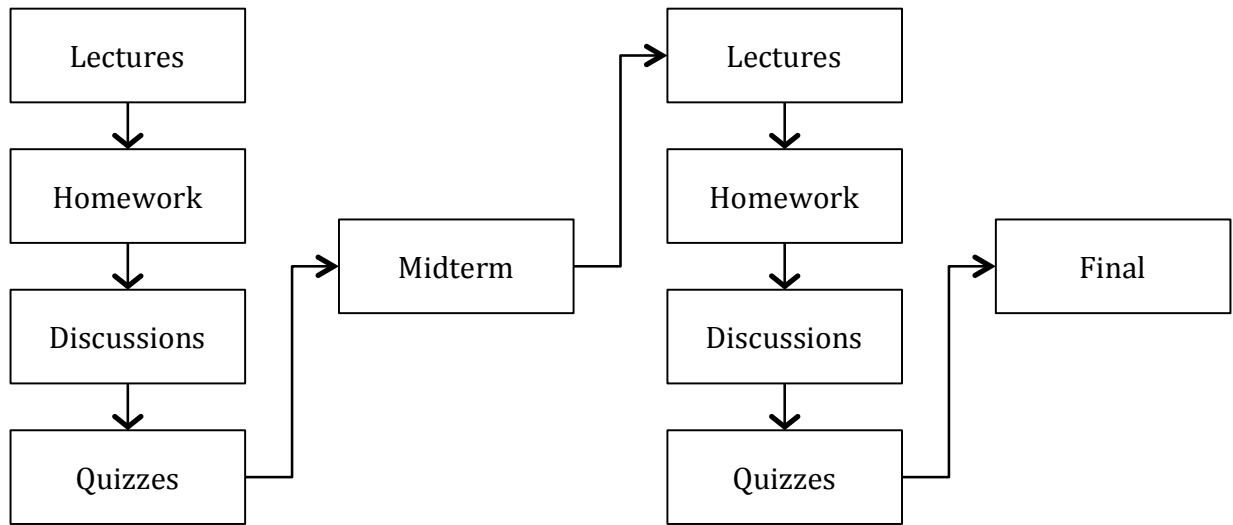
Traditional Course Outline

```
Lectures          →  Lectures
   ↓                    ↓
Homework          Midterm          Homework          Final
   ↓                    ↓
Discussions       Discussions
   ↓                    ↓
Quizzes           Quizzes
```

Figure 31. Traditional Course Outline

Gamified Course Outline

```
Mission              →  Mission
Assignments             Assignments
   ↓                        ↓
Side Quests        Mini Boss    Side Quests      Final Boss
   ↓                            ↓
Guild Wars                Guild Wars
   ↓                            ↓
Epic Quests              Epic Quests
```
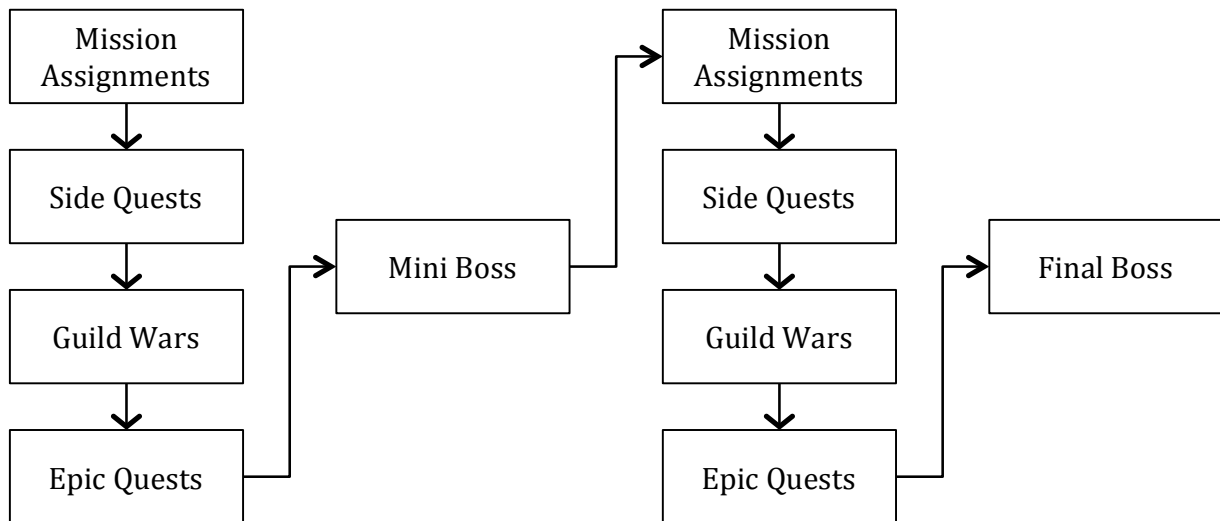
Figure 32. Gamified Course Outline

Lesson plans to storyline. An effective storyline is essential to successfully set-up a gamified classroom. The option can be given to the students on the first day of class to determine their storyline for the class session, or the educator can select and implement a story.

One example of a storyline for an interior design classroom would be a parody of Goldilocks and the three bears. The overall storyline would be that Goldilocks is an interior designer and is trying to design the perfect house for the three bears. Perhaps the first assignment (quest) would be to research and find a suitable chair for each of the bears to sit in. Secondly, an assignment (quest) could be given to select and provide a bedroom layout for the Ma and Pa Bear.

To incorporate a mini-boss or final project, the assignment could be given to design a home that incorporates the previously found chair, and bedroom layout. Provide the information about the three bears, and their program requirements and design aesthetics. The boss is beaten when all criteria is met.

This example of a storyline provides an overall purpose to the course (similar to course objectives) but outlines them in a more playful way. The incorporation of individual quests (homework assignments) help build on and elaborate the overall storyline sequence. The final-boss is the culmination of what has been learned and incorporated from the quests.

Homework assignments to side quests. Homework assignments are renamed and rephrased to be side-quests. These smaller quests typically build on top of each other to allow prepare students to complete larger "epic quests" or "mini-bosses". Homework examples that turn to side quests (again pulling from the Goldilocks analogy), is to have students design an universal kitchen that incorporates the needs of the tall pa bear, the average mother bear and the smaller baby bear. By renaming homework assignments to quests educators are setting students up to be able to take incremental steps to complete the final task.

Discussions to guild wars. Many classes require some sort of participation or discussion as a portion of the classroom environment. Rather than stating that participation is required, the

participation can be restructured to be a form of the storyline as well. By grouping students into guilds (individuals that work together to form a team), educators can then have students engage in guild wars as part of the discussion requirements. Each guild can be assigned a side of the discussion and must defend their position. Educators can also require that all guild members participate to receive the required experience points.

Another example using the Goldilocks analogy is to divide the students into guilds where they represent one member of the family. The instructor could have the papa bear guild, the mama bear guild and the baby bear guild. Each guild each week would be tasked with discussing and debating whose needs were more critical for a certain aspect of the home design.

Quizzes to epic quests. Creating quizzes as "epic quests" is another category and level to the storyline. Educators can call these side quests as well. The variation could come in based on point value. This higher point value assignments and quizzes would get assigned the "epic quest" category. Or these could not be used at all, and the educator could use quests and bosses only. By renaming quizzes to become Epic Quests, this emphasizes that they are more important than standard quests (homework). They serve a higher purpose and are typically worth more experience points.

Mid-Terms or projects to mini-bosses. Halfway through the course it is common for teachers to provide some sort of examination or other assessment method that measures the students' retention and application of the information provided thus far in the course. These larger assessments can be set-up to be the Mini-boss.

Educators can set a minimum level requirement before allowing students to attempt the Mini-boss. Thus requiring students who are struggling on assignments to go back and correct or fix any problems. This is all set to help prepare students to engage in the mini-boss fights.

Finals or large projects to final-bosses. The last step in creating a storyline is the final boss. Similar to midterms, a majority of classes has a final assessment method to which students are subjected. This last evaluation can be equated to a final boss. Again, minimum levels can be required before an attempt at the final boss is allowed.

Conclusion

This paper has addressed achievements and badges, with additional badges that are interior design specific. Leaderboards were presented, with FERPA regulations addressed. Ideas for special items or rewards were presented. Online resources to help educators implement and create gamified elements were offered. Other gamified activities were discussed. Tips for how to create a level-up system within the classroom were elaborated on. Finally examples of creating and implementing a storyline were presented.

Gamification can be a powerful tool to engage students and help students apply the learned information (Michael & Chen, 2006). By incorporating a few of the ideas presented in this paper, educators can more easily apply gamified content to their specific course.

References

Bingo Baker. (2016). Bingo Baker, whip up a batch of bingo cards! Retrieved from:

    https://bingobaker.com

Class Badges. (2016). The free and easy way to award badges to students for all learning

    experiences. Retrieved from http://www.classbadges.com

Crossword Labs. (2016). Crossword Labs. Retrieved from: https://crosswordlabs.com

Educaplay. (2016). Educaplay Free, Activities. Retrieved from: http://en.educaplay.com

FERPA. (2008). Family Educational Rights and Privacy Act (FERPA) Final Rule. [PDF].

    Retrieved from http://www2.ed.gov/policy/gen/guid/fpco/pdf/ht12-17-08-att.pdf

FERPA at a Glance. (2016). FERPA at a glance: a guide for faculty. [PDF]. Retrieved from

    http://www.emich.edu/registrar/registration_info/FERPA/Faculty%20FERPA.pdf

FlipQuiz. (2016). Classroom Review Game for Educators. Retrieved from: http://flipquiz.me

IBC (2016). IBC – Egress. [PDF} Retrieved from: https://www.iccsafe.org/wp-

    content/uploads/IBC-Egress.pdf

Jeopardy Labs. (2016).   Create your own Jeopardy template online. Retrieved from:

    https://jeopardylabs.com

Kahoot. (2016). Learn happy, learn loud. Retrieved from: https://getkahoot.com/how-it-works

Kubbu. (2016). Welcome to Kubbo. Retrieved from: htttp://www.kubbu.com

Make Badges. (2016) Free badge making web software. Retrieved from

    http://www.makebadg.es

Mozilla. (2016). Introducing Open Badges: a new online standard to recognize and verify

    learning. Retrieved from http://www.openbadges.org

Nicholson, S. (2013). Paper presented at Games+Learning+Society 9.0. *Exploring Gamification*

Techniques for Classroom Management., Madison, WI.

Purdue (2016). Passport: Show what you know. Retrieved from

http://www.itap.purdue.edu/studio/passport/

Word Search Labs. (2016). World Search Labs. Retrieved from: https://wordsearchlabs.com