Visual Edutainment to Engage Online Learners

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Abstract
A challenge exists to engage college students in online learning courses in a meaningful way. To achieve engagement, a course used visual edutainment themes to introduce weekly objectives in the course. This paper provides an overview of the approach and the theoretical basis for this strategy. Visual edutainment can produce learner interaction; improve retention; help provide meaningful, motivational, and memorable learning experiences; engage learners; and decrease the cognitive load of a learning experience. Suggestions for other applications and a synopsis of the Pecha Kucha (PK) style of presenting are also included. We found that using edutainment themes to engage online learners is well received and using PK Create as a tool for students to develop Pecha Kucha presentations is a simple approach.

***Keywords*:** E-Learning, Edutainment, Engagement**,** Pecha Kucha, Visual Literacy

Introduction

What if there was something instructors could do to capture the attention of students in an online asynchronous course? What if a new approach could help them to retain the information? What if they not only retained the information but actually "learned" the intention of instruction? What if such an approach was not only fun and educational, but also included enticing visuals and entertaining music? Would educators change the traditional methods to support a constantly learning environment?

When Dr. Amy Ackerman, the first author, began developing an online e-learning course for graduate students in the instructional technology program at a comprehensive public university in the USA, she knew it was vital to set an example for the best strategies for online learning. How could she design the course to engage these students? What could she do to capture their attention each week?

In this paper, we begin with the problem statement followed by the objective and purpose. The paper then provides a definition and origin of the term, edutainment, along with an overview of the theoretical basis for using edutainment in education. Subsequent topics include engagement via visual edutainment, Pecha Kucha to illustrate a course example of edutainment themes, alternate applications for using visual edutainment themes to engage online learners, results, and summary and conclusions.

Problem Statement

Although overall numbers of students enrolled in higher education are dropping, the number of students enrolling in online courses is growing (Lederman, 2021). COVID–19 has accelerated this growth (Lederman, 2021). With the growth of e-learning in higher education, ensuring the effectiveness of that education is essential. According to Karthik et al. (2019), effective e-learning is dependent on the design and construction of the learning experience. It boils down to this: How can instructional designers ensure that e-learning experiences are effective?

According to Allen (2016), one strategy for creating effective e-learning experiences is to create experiences that evoke learner emotion. This emotional stimulation can help with the retention of information (Allen, 2016). Course designers should consider ways to stimulate the emotions of learners, so they are not merely clicking through course content to get it done.

Objective and Purpose

The objective of this paper is to demonstrate how to use edutainment to increase attention and retention in interdisciplinary online learning modules by framing content in classic visual themes. Edutainment is the use of class materials or multimedia to entertain and educate (Pojani & Rocco, 2020).

The purpose of this paper is to provide examples of visual edutainment themes to introduce weekly objectives in an online graduate course in an engaging manner. Together with graduate assistant Mary Jane Murphy-Bowne, Dr. Amy Ackerman presented this approach in a Pecha Kucha style format at the 53rd annual International Visual Literacy Association (IVLA) Conference, November 5, 2021. This paper shares an overview of the approach and the theoretical basis for this strategy. To assist the reader, the paper includes a synopsis of the Pecha Kucha style of presenting.

Engagement via Visual Edutainment

Origins

Walt Disney (see Figure 1) used the term Edutainment in 1954, referring to any medium to educate and entertain (Disney, 1954). Disney's documentary series *True-Life Adventures,* a 13 series of nature films that were shown in public schools for decades, perfectly illustrates this idea (The Walt Disney Family Museum, 2012). Although Disney coined the term, some feel that Ben Franklin started the practice in his *Poor Richard's Almanac,* teaching while amusing readers with puzzles and math lessons (Beato, 2015).

Figure 1
Walt Disney

Definition

How can we define Edutainment for online students in the 21st century since technology allows for so much more than film and puzzles? Edutainment can be defined as the use of any classroom materials, media, technology, or activities that are enjoyable while being educational (Pojani & Rocco, 2020). Edutainment became popular in the '80s. It was often derided as a way to diminish rigor or force educators to become performers (Pojani & Rocco, 2020). However, Niemann et al. (2020) showed that Science Slams, a visual form of science communication in Germany, provide significant scientific content for participants while entertaining them. See Figure 2 for a science slam example. The reason for the success of edutainment lies in the theoretical basis for using it.

Figure 2
Science Slam Example

Theoretical Basis for Using Edutainment

To understand why edutainment works, we will explore the work of five educational theorists and how they apply to the use of edutainment as a learning strategy. The five theorists we address are: Piaget; Allen; Morena and Mayer; Dwyer; and Sweller.

Piaget - Accommodation Mode of Learning

Jean Piaget's Accommodation Mode of Learning is one way to explain why edutainment works. Piaget discussed two modes of learning assimilation and accommodation (Pojani & Rocco, 2020). While assimilation is associated with memorization, accommodation involves the learner interacting actively with content. Accommodation, therefore, is the mode of learning that is more likely to be retained (Pojani & Rocco, 2020).

In edutainment, learning content using media is provided in a way that produces learner interaction. In this way, edutainment can be associated with better learner retention.

Allen - Meaningful, Memorable, Motivational

Michael Allen (2021), considered a pioneer of e-learning, has more than 45 years of experience designing effective online learning experiences. According to Allen (2015), the key to success for all training experiences is to make sure that the experience is meaningful, memorable, and motivational. A meaningful course should be valuable to the learners and applicable to what they need to know (Allen, 2015). Content is memorable when it engages the students, providing authentic real-world applications, simulations of skills needed, the opportunity to solve problems, and presenting novel situations (Allen, 2015). When we think of motivation in online learning, it should not just be about earning a grade or certification. Motivation truly happens when learner behaviors can change, and performance can improve (Allen, 2015). Carefully selecting media as edutainment in a learning experience can contribute to the content being meaningful, memorable, and motivational.

Moreno and Mayer - Cognitive-Affective Model of Learning with Media - Emotional Design of Digital Material to Impact Learning

Another model may also explain the benefits of edutainment. Moreno and Mayer (2007) developed a model to explain the impact of images and sounds combined with verbal explanations to solidify learning. This Cognitive-Affective Model of Learning with Media (CATLM) is displayed in Figure 3.

Figure 3
CATLM
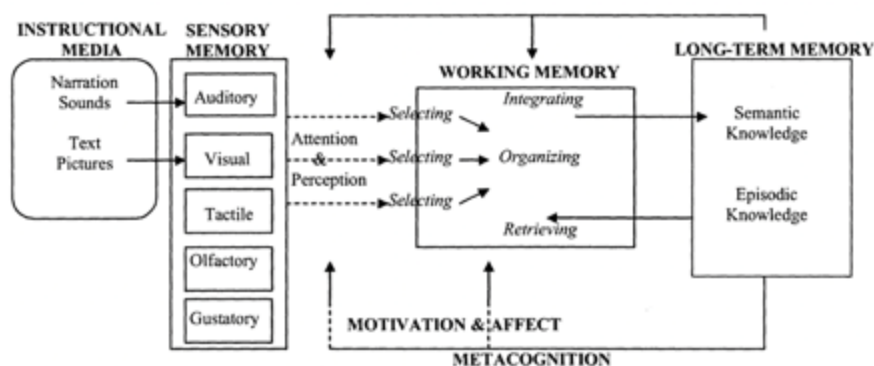
Reprinted by permission from Springer Nature: Nature/Springer/Palgrave. Educational Psychology Review. Interactive multimodal learning environments. Roxana Moreno et al, 2007.

This model explains that the combination of a verbal explanation with images and sounds forces learners to organize both types of information. This stimulates long-term memory (Moreno & Mayer, 2007). Edutainment easily provides a way to combine informational types to engage learners.

Dwyer - Visual Literacy and Learning

Francis M. Dwyer, professor emeritus from the Pennsylvania State University, worked on extensive research in the field of instructional technology (The Pennsylvania State University, 2007). Aspects of this visual learning research also support the use of edutainment. The use of visuals helps students focus on important information (De Romero & Dwyer, 2005). The use of visuals in a learning experience also increases the effectiveness of the session and improves student motivation (Üyesi, 2019). Dwyer and other researchers even developed the Program of Systematic Evaluation (PSE) to explore deeply the impact of visuals in learning design resulting in more than 160 studies (Dwyer, 2007). As there is a visual component of edutainment, this visual component can not only contribute to student visual literacy but can also increase the effectiveness of learning and student motivation.

Sweller – Cognitive Load

If including visuals in the form of edutainment can help students focus on important details in a learning activity, it is important to understand why John Sweller's Cognitive Load Theory can help explain.

John Sweller developed Cognitive Load Theory in the late 1980s (The Education and Training Foundation, 2021). Sweller proposes that humans have a limited ability to hold information in working memory; providing visual and verbal information together can reduce the stress on working memory (The Education and Training Foundation, 2021). When designing a learning experience, controlling cognitive load when providing complex information is so important. It is essential for helping transfer information to long-term memory (Mavilidi & Zhong, 2019).

Now that the theoretical basis for using edutainment has been discussed, the next topic is using Pecha Kucha to illustrate the use of edutainment in a course example.

Pecha Kucha to Illustrate a Course Example of Edutainment Themes

In this section, we address the description of Pecha Kucha (PK), overview of a tool (PK Create), benefits for students, example, and results.

Description of Pecha Kucha as a Presentation Approach

Pecha Kucha, meaning "chit chat" in Japanese, presents information with a visual focus. According to PechaKucha.com (2021), this storytelling presentation style was developed by two architects in 2003. It has grown into a worldwide phenomenon. The idea is to tell a story with 20 slides, talking for 20 seconds for each slide. A key element of Pecha Kucha is that slides should rely on visual images rather than text to convey the story. A focus on visual images may also help prevent cognitive overload.

Overview of Tool Used for the IVLA Presentation

For our IVLA presentation, we used the free Beta tool, PK Create, available at PechaKucha.com to prepare our presentation. This tool enables the 20 images to be uploaded and an audio recording to be created either using the tool or by adding an audio file created elsewhere. The convenience of this tool is that the slide timing is automatic. We discovered this is a challenge when using PowerPoint and automatic slide progressions while recording the presentation. If using a MAC and having PowerPoint through Office 365, the automatic slide progression feature is overridden when recording the presentation. Even using a PC, the workarounds are involved.

Benefits for Students

There are benefits to using Pecha Kucha as a presentation activity for students. When students use this style, they must know their content, rather than read from slides. The emphasis on visuals also supports visual literacy. McDonald and Derby (2015) showed that when using this with undergraduate business students, it improved the student's presentation skills by helping them to condense their thoughts. In student reflections following this study, most students reported this style helped them to avoid filler words like "um" (McDonald & Derby, 2015). McDonald and Derby (2015) compared before and after student surveys and showed that a significant number of students found this activity helped them to understand course material (p<0.10).

Using independent samples *t*-test, Warmuth and Caple (2021) compared traditional presentations and Pecha Kucha presentations and showed audiences significantly understood the material better with the Pecha Kucha format. There was a significant difference in the audience experience in understanding the material covered between a Pecha Kucha presentation (M = 6.09 SD = .78) and a traditional presentation (M = 5.59, SD = 1.18); t (66) = -2.10, p = .040 (Warmuth & Caple, 2021). Using multiple-choice questions, Warmuth and Caple (2021) also compared the immediate and delayed (2 weeks) retention of information for presenters and audience members who participated in traditional or Pecha Kucha presentations. They showed significantly improved immediate retention in presenters who used the Pecha Kucha format (p =.025) (Warmuth & Caple, 2021). For audience members, they showed both significantly improved immediate retention (p = <.001) and delayed retention (p= .003) (Warmuth & Caple, 2021).

Example in an Online Graduate Course

Having provided an overview of the use of edutainment in education and established theoretical theories to support the use of edutainment, we will now provide details about how edutainment was used with visual themes in an online graduate course at a public university in the USA.

Description of E-Learning Course

The featured course is E-Learning. This is a master's level online elective course for the Instructional Technology program. The goal of the 14-week online asynchronous course is to provide interdisciplinary students with the tools to design effective e-learning experiences and improve visual literacy. If you are going to do that in an online course, you must practice what you teach. For this course, the first author, Dr. Ackerman, identified a song consistent with the theme of a weekly module in the course. The edutainment themes were introduced as music videos to support visual literacy development. We will look at each of these major themes, the songs selected, and the objectives for the module. Some modules extended over multiple weeks so we will present the weeks where a theme was introduced.

Theme Examples and Discussion of Content Associated with Each Theme

It is important to note the cultural backgrounds of students at this university since the references used were primarily western centered. In 2019, the population of students was as follows: 66% white, 14% Latinix, 9% African American, 7% Asian, 3% mixed races, and 1% international students (Deloitte Datawheel, 2021).

The theme for week 2 was setting the foundations for the course. One of the major activities of this module was to create a puzzle using e-learning terms and concepts. What better song than *It's a Puzzlement* from the *King and* I? See Figure 4 for the weekly themes.

During week 3, the Pet Shop Boys introduced the module with *On Social Media.* This week students explored components of an online community.

Week 4 was popular with the Seven Dwarfs belting out "Heigh-Ho, Heigh-Ho" as students set to work exploring Michael Allen's success strategies for online learning.

Do you believe in magic? During week 5, students did as they explored the way interface elements can impact motivation for online learning.

Aretha Franklin sang about "chains" during week 6 as students explored ways to use hyperlinks to enhance student engagement in online courses.

Consider 76 trombones or assessment instruments. During Week 7, *The Music Man* set the stage for students to create quizzes for online learning. Students also selected a song of their own this week conveying a personal life view about e-learning. Mary Jane Murphy-Bowne, the second author, selected "Under Pressure" by Queen when she took the course. That is always how she felt about multiple-choice exams as an undergraduate student.

By week 9, students were busy creating an educational game or learning module. What better song to introduce the week than Nat King Cole and *It's All in the Game?*

The full Pecha Kucha presentation can be viewed at
https://www.pechakucha.com/presentations/interdisciplinary-themes-as-edutainment-in-online-learning

Connection to the Theoretical Basis

Using visual edutainment themes in this way can be connected to the educational theories previously discussed. When module themes are introduced in this manner, students interact with the content. This is consistent with the accommodation mode of learning. Certainly, this is a memorable way to introduce the goals of a module, honoring Michael Allen's suggestion for effective e-learning. The combination of images and auditory stimuli should help students organize the information for long-term memory consistent with CATLM. The use of strong images to introduce the content also helps students develop visual literacy by looking for information present in images. Finally, this approach reduces cognitive load. The message is presented in a way that uses images and music and relies only on a minimum of text.

Results of Using Visual Edutainment Themes to Engage Online Learners

Students who were enrolled in this e-learning course responded favorably to the visual edutainment approach. AB, an enrolled student, reported that it was a fun way to connect the content to learn with a song. She shared about being more "engaged, connected, and curious" about what was involved in the upcoming module. AB teaches preschool-aged children and reports that using music to teach this age group is natural. However, it was helpful for her to see how it could also be used with an adult audience.

Figure 4
Weekly Themes

Another graduate student, AT, was inspired to try this approach with his middle school science students. About the experience in INTC 5560, AT reported in his reflection journal: "My aha for this week was how engaging it can be to connect something seemingly unconnected (such as a dwarf from Snow White) to an educational concept such as a Simple Success Strategy. I am planning on using this type of connection to encourage engagement on a project and creativity in the future."

Mary Jane Murphy-Bowne, the second author, shared the approach with her husband who teaches high school English. He loved the idea of using PK Create to help students become better presenters. He plans on using the same idea for a project for his junior year AP English and Composition students.

The first author, Dr. Ackerman, has also started to assign a project in her undergraduate Digital Cultures class using PK Create. Mary Jane Murphy-Bowne has used it to provide a quick overview of textiles for her sustainable fashion course.

Alternate Applications for Using Visual Edutainment Themes

Now that a course example has been illustrated via PK Create for using visual edutainment themes to engage online learners, the next topic in this paper is to provide additional suggestions for the reader.

Other applications exist for using visual edutainment themes with students of all ages. Perhaps these visual edutainment themes could be used as an introduction at the beginning of a course, or a mid-way checkpoint, or even as a self-reflection. When offering online synchronous activities, visual edutainment themes might be used when students collaborate in virtual break-out rooms during group assignments. Dr. Ackerman would quote the Carpenter's song here - "We've Only Just Begun."

Summary and Conclusions

This paper focused on edutainment from the visual literacy perspective. We discussed a definition of edutainment and its origins. Topics also included an overview of the theoretical basis for using edutainment in education. We demonstrated how to use visual and music themes to introduce modules in an online course and some student reactions to this approach. The authors found that using edutainment themes to engage online learners is well received. We recommend visual edutainment themes to help create online learning experiences that are meaningful, memorable, and motivational.

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