Assignment #4 -

Curriculum Implementation Plan

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EDTC 807: Implementation and Evaluation of Curriculum

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Introduction

Virtual Reality (VR) and Augmented Reality (AR) are rapidly developing technologies that have the potential to revolutionize education. The North Bergen School District recognizes the value of these technologies and would like to incorporate a proposal for Virtual Reality/Augmented Reality (VR/AR) class program to enhance student learning. This paper provides an overview of the proposed program, its benefits, challenges, and potential impact on student learning.

The Visual and Performing Arts program consists of various art and music classes which have been incorporating technology into its curriculum. Furthermore, these areas are a natural fit for integrating VR and AR technologies, as they offer endless possibilities for enhancing the creative and expressive potential of students. This paper presents an implementation plan for incorporating VR and AR curriculum into the visual and performing arts program for shows.

Virtual Reality

VR is a computer-generated simulation of a 3D environment that can be interacted with using specialized equipment such as head-mounted displays (HMDs) and handheld controllers (Maurugeon, 2011).VR technology allows users to experience immersive and interactive environments that can simulate real-world scenarios or fictional ones. The possibilities for incorporating VR into the Visual and Performing Arts Program for shows are endless. For example, students could use VR technology to create virtual sets and environments for theatrical performances, design and animate 3D characters and objects for animated films, or create immersive environments for music concerts.

Augmented Reality

AR is a technology that overlays digital information onto the real world, enhancing the user's perception of reality (Sutherland, 1965). AR technology can be accessed using smartphones or tablets equipped with specialized software or HMDs. AR technology allows students to interact with virtual objects and information overlaid onto the real world, creating new opportunities for learning and creative expression. In the visual and performing arts program for shows, AR technology could be used to create interactive art installations, enhance theatrical performances with digital overlays, or create immersive environments for dance performances.

Initiative

VR and AR technologies are rapidly changing the way artists create, share, and experience art. In the Visual Arts field, VR and AR enable artists to create immersive 3D environments, allowing audiences to explore their artwork in new and interactive ways (Zyda,2005). VR and AR can also be used to create virtual exhibitions, allowing artists to showcase their work to a global audience. The use of VR and AR in the visual arts also extends to the creation of digital installations, which can be experienced in virtual reality in various shows such as plays, musicals, modeling club shows, concerts, and art exhibits in our school district.

VR and AR technologies can create immersive theatrical experiences, allowing audiences to be fully immersed in a performance. AR can be used to create interactive dance performances, allowing the audience to interact with the dancers in real-time. AR can be used to augment music performances, creating a multi-sensory experience that engages the audience in new ways.

According to Furth (2011), the intention of "virtual realities" is to encourage the human mind to use its imagination and become fully immersed to the point where it disconnects from the present reality.

Rationale

The integration of VR and AR technologies in the North Bergen School District's visual and performing arts program initiative is important for several reasons. VR and AR technologies offer student artists new ways to create and share their work. These technologies allow artists to create immersive and interactive experiences, engaging audiences in new and exciting ways. VR and AR technologies also provide new opportunities for audience engagement.

The use of VR and AR technologies in the visual and performing arts allows audiences to be fully immersed in a performance or exhibition, creating a more engaging and memorable experience. The usage of VR and AR technologies in the visual and performing arts can lead to increased accessibility. Virtual exhibitions and performances can be accessed from anywhere in the world, allowing artists to reach a global audience. This is particularly useful when parents/guardians or others in the community cannot attend a show due to disabilities. This is a problem that exists amongst various students in our school district.

Background

Visual and performing arts programs are an essential component of the K-12 education system, as they provide students with opportunities to explore and develop their creative and expressive abilities. These programs encompass a wide range of disciplines, including music, theater, dance, and visual arts. Traditionally, these programs have relied on face-to-face

instruction and live performances to showcase students' work. However, with the advent of VR and AR technologies, new possibilities have emerged for enhancing the creative and expressive potential of these programs. Mendiburu (2021) suggests that design education in disciplines like graphic design, media design, fashion design, and product design is under pressure to adapt to the use of new technologies. With that being stated, there exists a pressing requirement to incorporate these technologies into the educational curricula of students during their academic pursuits.

Implementation Plan

The following is an implementation plan for incorporating VR and AR curriculum into the visual and performing arts program for shows.

Step 1: Identify the Learning Objectives:

The first step in implementing VR and AR curriculum into the visual and performing arts program for shows is to identify the learning objectives. These objectives should align with the program's overall goals and should be specific to the VR and AR technologies being used. For example, learning objectives for incorporating VR into the theater program might include creating virtual sets and environments, designing and animating 3D characters and objects, or developing immersive experiences for audiences.

The following are the specific objectives for VR and AR technological use:

1. To provide students with the skills and knowledge required to develop virtual and augmented Reality experiences for the visual and performing arts.

2. To enhance the audience's experience by incorporating virtual and augmented reality into the visual and performing arts shows.
3. To explore the potential of virtual and augmented reality in the arts entertainment industry.

Step 2: Curriculum Development

The curriculum development process for incorporating virtual and augmented reality into the visual and performing arts program involves the following steps:

1. Identification of the learning outcomes: The first step is to identify the learning outcomes that will be achieved through the curriculum. These learning outcomes should be specific, measurable, achievable, relevant, and time-bound (SMART).
2. Development of learning objectives: Based on the identified learning outcomes, the learning objectives will be developed. These objectives should be clear and concise, and they should specify what the students should be able to do by the end of the curriculum.
3. Selection of the course content: After the learning objectives have been developed, the course content will be selected. The course content will cover the theoretical and practical aspects of virtual and augmented reality in the arts.
4. Curriculum delivery: The curriculum will be delivered through a combination of lectures, practical exercises, and projects. The lectures will cover the theoretical aspects of virtual and augmented reality, while the practical exercises and projects will provide students with the opportunity to apply what they have learned.

5. Assessment: Assessment will be carried out through a combination of assignments, practical exercises, and projects. These assessments will be designed to measure the students' knowledge and skills in virtual and augmented reality.

Step 2: Hardware and Software Requirements

Identify the hardware and software requirements for the VR/AR program. The hardware should include VR/AR headsets, controllers, and computers capable of running VR/AR applications. The software should include VR/AR creation tools and software for editing and displaying VR/AR content.

Step 3: Training and Support

There must be training and support to the faculty and students on the use of VR/AR tools and software. This can be done through workshops, online tutorials, and one-on-one training sessions. Our school district can also hire VR/AR experts to provide guidance and support to the students and faculty.

Step 4: Integration into the Curriculum

Integration of VR/AR into the visual and performing arts curriculum. This can be done by creating new courses or by incorporating VR/AR into existing courses. For example, theater students can use VR/AR to design and create sets, costumes, and props. Music students can use VR/AR to create immersive music videos. Film students can use VR/AR to create interactive films.

Step 5: Assessment and Evaluation

There will be an assessment and evaluation of the effectiveness of the VR/AR program. This can be done by measuring student engagement, creativity, and technical skills. The school district can also assess the impact of VR/AR on the quality of the performances and the audience's response.

Evaluation Plan

The purpose of this evaluation plan is to assess the implementation and effectiveness of incorporating Virtual Reality (VR) and Augmented Reality (AR) in the Visual and Performing Arts (VPA) school district program. The evaluation plan will assess the integration of VR and AR technology in the VPA program, identify the challenges that might arise during implementation and suggest possible solutions for overcoming these challenges.

Incorporating VR/AR into the North Bergen School District's Visual and Performing Arts curriculum can offer students a unique opportunity to explore their creativity and engage with their audiences in innovative ways. The implementation plan outlined in this paper can serve as a starting point for the school district looking to incorporate VR/AR into their arts programs. As VR/AR technologies continue to evolve, the possibilities for creative expression and audience engagement in the arts are limitless.

This specific Virtual/Augmented Reality course will utilize the 2001 revised version of Bloom's Taxonomy. This was developed by Anderson and Krathwohl, as an assessment tool to ensure that students are comprehending the concepts being taught. Bloom's Taxonomy is divided into six stages, namely Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating (Anderson & Krathwohl, 2001). This will be applied to each stage (marking period) of the course. The approach aims to encourage students to utilize the information taught in a

creative manner to improve their final projects. Most of the final projects will be geared towards being presented and exhibited in all live events such as concerts, musicals, shows, and exhibits in the North Bergen school district and community. To monitor the progress of students throughout the course, various assessments, such as examinations and in-class and out-of-class assignments, will be administered regularly.

To evaluate the success of the first stage of Bloom's Taxonomy (Remembering), students will be asked to define important terminology that is relevant to all areas of the Visual and Performing Arts Immersive Theater and Virtual/Augmented Reality Technology. This stage can be assessed using different types of questions, including multiple-choice and true/false questions. Having a solid understanding of key terms and concepts can be an advantage for students who are new to the particular field of study, as it enables them to communicate more effectively. However, it is important to note that remembering important terminology is not limited to the first stage of Bloom's Taxonomy but is instead an ongoing process that is relevant across all stages.

The second stage of Bloom's Taxonomy (Understanding) will be assessed through similar methods as the “Remembering" stage. However, the emphasis will be on the student's ability to explain and comprehend the material rather than just recalling it. Assessments for this stage may include short answer questions and matching-type questions. It is crucial for students to excel in the “Understanding" stage because it indicates their ability to link information together and understand how different concepts impact one another. Once students demonstrate their ability to interpret and identify patterns in the material given, they can move on to the third stage, "Applying".

In the “Applying” stage, students will apply the information and relationships they have

found to other scenarios such as even stepping outside of the Visual and Performing Arts area. Students can start to create video game platforms and other technological apps. Evaluations for this stage will include short answer questions and essays to encourage deeper learning. Success in this stage indicates that students can effectively use the information they have learned and apply it to areas of interest other than the Visual and Performing Arts field.

The fourth stage of Bloom's Taxonomy (Analyzing) will be assessed through questions that ask students to compare and contrast, as well as explain concepts. Success in this stage means that students can explain why something is happening using the terminology and concepts they learned in the previous stages. This stage places a lot of emphasis on the connectivity of information, as well as the fifth stage of Bloom's Taxonomy, "Evaluating".

In the Evaluating stage, students should be able to evaluate the information and relationships they found during the analysis stage and provide alternative solutions or defend their chosen approach. This allows students to engage more personally with the material and express their opinions on the topics provided. The combination of the first five stages leads students to the final stage, “Creating”. The ultimate goal of the course is for students to take all the information and concepts they have learned and use them to create Virtual/Augmented Reality designs for their chosen school and community shows in the North Bergen School District and community.

Possible Scenarios

Scenario 1: Successful Implementation

The successful implementation of VR and AR in the VPA program results in improved student engagement, creativity, and critical thinking. Teachers report that students are more

interested in VPA classes and actively participate and enroll in these given VR/AR classes. According to reports, first-year students have acknowledged that the integration of VR and AR technology has improved their learning experience and enriched their Visual and Performing Arts (VPA) classes with greater excitement. Furthermore, VPA teachers and administrators have observed that the incorporation of VR and AR technology has resulted in higher levels of student engagement and achievement within VPA classes, as well as in district-wide events.

Scenario 2: Implementation Challenges

The implementation of the proposed VR/AR program will come with several challenges. The cost of VR/AR technology can be expensive, and the school district will need to invest in the necessary hardware and software to support the program. There may be technical challenges that arise, such as ensuring that the technology is working correctly and providing adequate technical support to students and teachers.

Vignettes

Vignette 1: A student's experience with VR and AR technology in VPA classes

Sophia, a high school student, takes a VPA class that incorporates VR and AR technology. She reports that the technology has made the class more exciting and engaging. For example, in a recent lesson on painting, she was able to use AR technology to overlay images of famous paintings on her canvas, which helped her understand the techniques used by the artists. She also enjoyed using VR technology to visit virtual art galleries, which allowed her to see artwork from around the world.

Vignette 2: A teacher's experience with integrating VR and AR technology in VPA classes

Ms. Johnson, a VPA teacher, integrates VR and AR technology into her lesson plans to enhance student learning. She reports that the technology has made it easier to demonstrate complex concepts to her students. For example, she used VR technology to show her students how to create a 3D model of a sculpture. However, she faced challenges in integrating the technology into her lesson plans and needed additional technical support and training to overcome these challenges.

Conclusion

There are many ways that the school district can assess students in this given course. The course can have different evaluation methods such as Response to Intervention (RTI), which is a three-tiered system that identifies struggling students and provides them with intervention to help them catch up with their peers. RTI can only take place after the course is completed. This will help VR/AR teachers to continue to build this new program year after year.

Another evaluation tool is the Hexagon Tool, which assesses the adequacy of the course's resources and content using evidence-based data analysis. Blase (2013) states the Hexagon Tool is divided into six stages: Need, Fit, Resources, Evidence, Readiness, and Capacity, and is used to determine how well the course's content can be implemented into a curriculum".

Benefits

The proposed VR/AR program offers several benefits to the North Bergen School District. This particular program will provide students with more engaging and interactive learning experiences that will enhance their understanding and retention of educational content.

The program will also provide students with access to cutting-edge technology that will prepare them for the future workforce. Finally, the program will enable teachers to create personalized and differentiated learning experiences that cater to individual student needs.

Potential Impact

The VR/AR program that is being proposed has the potential to profoundly influence student learning in a positive way. Through its implementation, students will be afforded a more dynamic and interactive learning experience that will promote better comprehension and retention of educational material. Additionally, this technology will empower educators to craft customized and differentiated learning experiences that cater to the unique needs of individual students. Finally, this program will provide students with access to state-of-the-art technology that will help to prepare them for the demands of the future workforce.

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