Brushed Realities: Balancing Open and Closed Modes of Thinking in Creativity Through the Integration of Traditional Painting and Augmented Reality

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Abstract

The study aims to address a persistent challenge faced mainly by Multimedia Arts students, seeking to raise awareness about the modes of thinking, particularly in finding balance between open and closed modes. Inspired by John Cleese's (1991) conceptualization of open and closed modes of thinking, where open mode involves exploration and experimentation, while closed mode focuses on refinement and execution. Through integration of traditional painting and augmented reality to promote a more effective and balanced approach to creativity. The study explores how these fusion benefit artists, examines the role of technology in facilitating this integration and the potential benefits for artists in terms of productivity, portfolio development and artistic exploration, emphasizing continuous improvement, ensuring that the proposed framework addresses the current challenges faced by student artists at Asia Pacific College (APC). By promoting continuous improvement, the proposed framework aims to address current challenges encountered by student artists in APC, providing insights into optimizing their creative processes.

Keywords: modes of thinking, technology integration, John Cleese, artistic exploration

Introduction

Within the concept of creativity, there is a mode of operating which artists may not know about. Creative individuals have been having a hard time becoming productive and exerting creativity effectively. Describing what creativity can be a challenge, it is often hard to grasp and can seem like some people have lots of it, while others do not have as much (Leon, 2019). This introspective study aims to bring the concept of Open and Closed mode by John Cleese (1991) to life through the integration of traditional painting and augmented reality, emphasizing the creative transition and balance between these modes, while having a deeper understanding of one's creativity.

Creating art lets the researcher to disconnect from the noise of the world. Leaning towards the feeling of being stressed and tends to delay tasks, this pattern often hinders the ability to adapt to challenges effectively. In these situations, the researcher tends to feel overwhelmed, and it results in overthinking the level of competence with creativity. This has led to the question whether this struggle only occurs or if it is a common experience for others as well. The researcher learned about the Closed Mode and Open Mode concept on a study titled "The Mode Shifting Index (MSI): A new measure of the creative thinking skill of shifting between associative and analytic thinking" (Sowden & Pringle, 2017) which was theorized by the comedian/actor John Cleese. Likewise, from a blog where the author explained that they often spend a significant amount of time in the Closed Mode, to transition to the Open Mode, they found drawing to be a helpful tool, as discussed by Nishiyama (2017). The author described Closed Mode as a stressful, anxious state characterized by feeling overwhelmed with tasks and responsibilities. In contrast, Open Mode was portrayed as a calmer mental state, promoting introspection, curiosity, and playfulness where pressure is alleviated.

Discovering learned experience also happens among others, inspired the researcher to explore it further. This introspective analysis involves finding balance between the two modes of thinking essential to enhance the thinking process of creativity. Sharing this valuable insight to others highlights that this experience is a common occurrence among young adult artists and not just a feeling.

John Cleese's insightful lecture video talking about Creativity in Management in 1991 provided a formula for nurturing creativity, asserting that creativity does not rely on talent, but rather a way of operating, according to his interpretation, this implies that any individuals can access their creative abilities (Rasmussen, 2021). He differentiates this between two operational modes in work, known as Open and Closed. Individuals typically operate in the Closed mode, which can hinder creativity due to pressure and narrow focus, identifying it with five (5) basic conditions for a more creative and productive way of thinking, space, time under constraint, time with freedom, confidence, and humor (Brady,2021).
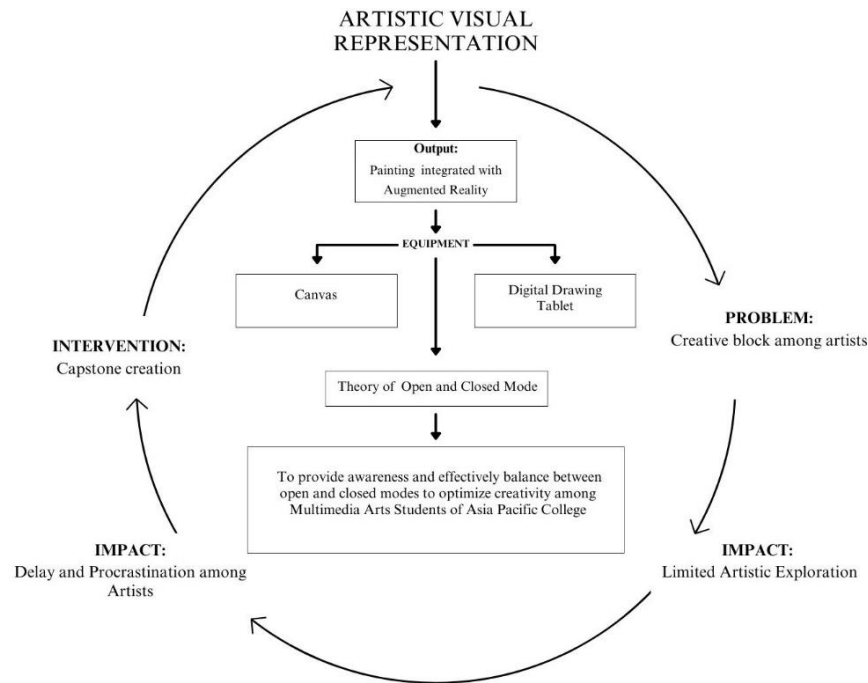
The artist's philosophy revolves around exploration and introspective reflection, getting inspiration in the challenges of reality with having a hard time generating creative ideas, normalizing the creative process. Aims to inspire others to explore their own creative tendencies and find ways to embrace their unique creative selves while also encouraging balance between the two modes of thinking in creativity. The curiosity to explore the two modes of thinking, highlighting the importance of achieving a balance between them and how it can be attained. In this journey, the researcher aims to understand and figure out the steps to achieve this balance. This study aims to address the following questions:

1. What is the difference between open and closed modes of thinking?

2. How does the balance of both modes of thinking contribute to enhancing creativity?

3. How can this Traditional Painting and Augmented Reality Art demonstrate balance and inspire individuals to explore their own creative thinking?

To provide answers to the study's stated questions, the researcher will create (2) 4 x 3 introspective artwork featuring traditional painting mixed media accompanied by Augmented Reality (AR) to portray John Cleese's (1991) Closed mode and Open mode from his Modes of Operation Theory. A scannable AR trigger marker embedded in the painting activates an immersive AR experience, dynamically presenting both modes. The traditional painting will represent the two modes of thinking in a cartoon-like art style. On the closed mode side, it has a minimalistic yet peaceful effect with muted tones to represent a focused state. While on the open mode side, maximalism is used, with the use of vibrant colors. This is both complemented by the digital art in AR in a magical, cartoon-like art style with animation. It represents the concept of open mode being playful and imaginative. While AR gives the concept of open mode, it also can be used in closed mode showing balance integration of spontaneity and structure is possible.

Figure 1

*Framework of the Visual Representation of Balancing Open and Closed Modes
of Thinking in Creativity*

ARTISTIC VISUAL
REPRESENTATION

Output:
Painting integrated with
Augmented Reality

EQUIPMENT

Canvas

Digital Drawing
Tablet

PROBLEM:
Creative block among artists

INTERVENTION:
Capstone creation

Theory of Open and Closed Mode

To provide awareness and effectively balance between
open and closed modes to optimize creativity among
Multimedia Arts Students of Asia Pacific College

IMPACT:
Limited Artistic Exploration

IMPACT:
Delay and Procrastination among
Artists

The **creative framework** illustrates the researcher's process leading to the conclusion, presenting the impact of unawareness and the inability to balance both modes of thinking through an illustration. The researcher began with an objective of determining the presence of a specific problem within the artistic community, specifically whether artists are aware of it as well. Also, the researcher, as an observer of their own creative process, researched how the lack of creativity affects artists. Recognizing the problem and its impact, the study found a link between limited artistic exploration which leads to delays and procrastination among artists. To address this issue, the researcher conducted this study and provided an intervention which aimed to improve artistic creativity and give awareness of open and closed mode of thinking which can help artists. The intervention consists of two paintings that is integrated with Augmented Reality, connecting color schemes with the specified problem, using the Theory of Open and Closed Mode as its main foundation. The researcher used the Theory of Open and Closed Mode to find the root causes of lack in creativity. The interactive component of Augmented Reality was added to actively engage the target audience, allowing for a deeper understanding of the intended meaning. By integrating this theoretical framework, the researcher aims to make the audience relate, raise awareness, and balance the two thinking modes.

The **target audience** comprises of creative individuals, specifically Multimedia Arts students at APC aged 18 to 26 years old.

For the **research design**, the researcher interviewed two (2) APC Multimedia Arts students as the primary data gathering method. The purpose was to explore other APC Multimedia Arts students' creative processes through interviews to gain direct insights and personal experiences. This firsthand information is crucial for providing a deeper understanding of how these students balance two modes of thinking in their creative processes, identifying common challenges, and effective strategies that can be applied to enhance creativity and productivity within the field.

Along with online literature research and examination of past thesis works of APC students available in the library, the researcher comprehensively reviewed existing scholarly works not only available on online platforms, specifically Google Scholar and other reliable sources, but also through the institution's academic archives. In addition, the researcher watched creative videos and explored articles related to traditional painting and augmented reality (AR) to gain a deep understanding of how to integrate these two mediums. This included understanding how colors can be effectively used to tell a story within illustrations and to enhance the overall creative dimension of the study. These approaches ensured a thorough and deep understanding of the research topic.

For the **design process**, this study presents a structured approach to seamlessly merge traditional painting with Augmented Reality (AR), aiming to create an engaging and interactive art experience. The goal is to have both mediums complement each other, ensuring a balanced and aligned presentation without one overpowering the other. To gain a deeper understanding of the topic, the researcher began by researching the open and closed modes of thinking. Following that, research was conducted on AR and traditional painting techniques. A journal was then started to document an introspective study, relating to the two thinking modes. The researcher then started to establish a color direction by creating a narrative shape, outlining how colors would transition from traditional to AR and vice versa, moving from vibrant and muted tones. Thorough planning involved outlining color tones, themes, and schemes for each thinking mode.
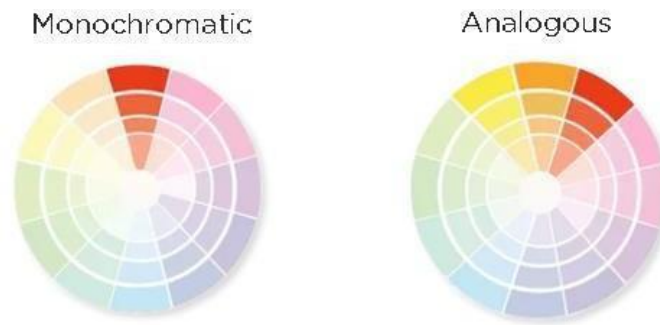
Figure 2

Narrative Shape
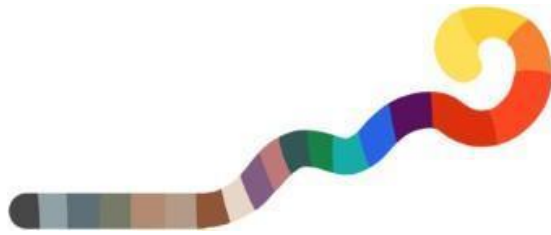
The shape begins with a straight line to symbolize the structured and analytical focus of closed thinking, using muted cool tones. It then transitions into flowing curves to signify the free-flowing nature of open thinking, explorative and full of boundless creativity, expressed through vibrant warm colors.

Figure 3

Color Schemes

Analogous and monochromatic color schemes create visual harmony and unity, it will help the researcher convey emotion and balance effectively while keeping the essential elements prominent. The simplicity of these color schemes encourages viewers to engage deeply with the theme and emotions presented in each canvas.

Muted tones will be used to symbolize a grounded and focused state, balancing the interplay of creativity with the structured nature of the closed mode of thinking. While vibrant and playful tones to symbolize a more imaginative and exploratory approach, conveying enthusiasm, energy, and curiosity, representing the open mode of thinking.

Sample works and sketches were created using digital art to plan the painting and AR assets. After establishing a clear plan, the researcher proceeded to execute the first painting titled "What It Seems To." Using acrylic paints, this artwork aims to transform a calm serene into something vibrant. It explores the idea that what may initially seem noisy can be surprisingly calming, and conversely, what seems to be calming can be turned into a lively form of expression, turning a sunset into a shout for creativity. This artwork represents the open mode without limitations, inviting viewers to ponder the nuanced interplay between perceived calmness and the dynamic energy of creativity. This balance is complemented by the Augmented Reality (AR) component, where clouds extend, colors are muted, and serene elements such as floating characters, islands and planets are introduced, creating an immersive experience that evokes calmness. The second painting, titled "I Need To", represents the idea of a person transitioning from an enclosed state to a creative awakening. Depicting a person within a calm environment, waiting for inspiration, the painting emphasizes the need to step out of the comfort zone. The title 'I Need To' encapsulates the spirit of taking steps into the unknown, fostering creativity and growth which will be shown in AR, allowing the individual to unleash their creative potential.

Pre-production Stage

Firstly, an in-depth analysis about the concept articulating the message that the researcher wants to convey through both mediums as well as researching into Augmented Reality technology, understanding its capabilities and limitations. Additionally, it involves visits to museums for inspiration, observing the shift from closed mode to open mode, and achieving balance between both modes of thinking and incorporating that into the idea of the artwork. Further, to gain a better understanding of a color palette that aligns with this introspective journey. Slide AR will be used for planning and testing out the Augmented Reality component. In preparation for the traditional painting aspect, the researcher has gathered necessary materials, including canvas, brushes, and acrylic paints.

Production Stage

The physical artwork is then created using traditional painting techniques on a 4 x 3 feet canvas using acrylic paints. Both paintings embrace a cartoon art aesthetic, with one featuring bold, vibrant colors representing open mode, while the other adopts muted tones to convey closed mode. Consideration is given to how each painting will interact with the augmented reality layer. Augmented reality integration involves the appropriate development tools that align with the project, creation of elements and assets, and mapping how it will be anchored on the traditional painting for seamless integration and interaction. The process involves creating digital illustrations using Photoshop and Adobe Illustrator. Elements are then animated using After Effects. Then, everything is imported into Adobe Aero, to give depth to the layers, anchoring it and adding a trigger marker on the traditional painting for scanning. While the researcher aimed to make it accessible to both IOS and Android devices, the researcher decided to provide an IOS device instead, and stick with Adobe Aero. Finally, the artwork is scanned and tested on both Android and IOS devices.

Post-Production Stage

After completing both artworks, extensive testing and feedback collection from a diverse audience using the provided IOS device, to ensure the elements of the Augmented Reality are integrated well and smoothly aligned with the physical artwork. This gives the opportunity for flexibility to further refine the artwork and reflect on potential improvements before reaching its concluding phase. The final phase involves showcasing the artwork in an exhibit space, encouraging attendee interaction and garnering insights for future developments in Augmented Reality enhanced projects.

Review of Related Literature

This section presents the related studies and articles that serve as a foundation in understanding the interplay between the Open and Closed mode by John Cleese (1991), traditional painting, and augmented reality in the context of creativity management.

What is Open and Closed Mode?

To optimize creativity, it is essential to understand the open mode and closed mode of thinking and be able to balance and shift within the two. John Cleese, a renowned actor, comedian, and writer, introduced these concepts in 1991, with the aim to help comprehend creativity and problem-solving. In his framework, the "closed mode" is characterized by a focused, analytical approach, while the "open mode" encourages a more relaxed and imaginative mindset (Collins, 2020).

A crucial aspect highlighted by Cleese is the necessity of striking a balance between the closed and open modes, that creative individuals must work within open and closed modes for a more effective creative process. While the closed mode is crucial for productivity and getting things done, it often causes stress and can delay creativity of many artists. In contrast, the open mode is the source of creativity and innovation. An optimal balance between the two ensures efficient problem-solving and decision-making, and improved performance with creativity. Both can become purposeful, as open mode encourages creativity without judgment, ideal for generation of new ideas like free sketching and brainstorming, particularly without pressure. While "closed mode" is also valuable to those who are prone to procrastination, with a concentrated and analytical approach it helps eliminate the distractions and be focused with a task within a strict time frame. Achieving the balance between these modes boosts creativity, sharpens abilities, and ensures meeting project deadlines (Collins, 2020).

John Cleese's insights regarding the closed and open modes provide guidance for enhancing both creativity and productivity. His insights highlight the advantages of embracing a well-balanced approach to creativity and productivity. By recognizing the importance of striking a balance between focused, analytical thinking and a relaxed, creative mindset, individuals can unlock their full potential and achieve a harmonious blend of creativity and productivity.

Factors in Enhancing Creativity

Over time, the perspective on creativity has shifted towards the idea that everyone possesses creativity, some individuals manage to show that they have this better. A key attribute of a creative mind is playfulness, which is an essential part of how individuals learn. However, creative thinking becomes meaningful when it is accompanied by strategy and action. Cleese (1991) highlights some fundamental conditions that manages the transition from the closed mode to the open mode, managing the balance using this enhances creativity (Leon, 2019). Cleese outlines five (5) factors that can enhance one's creativity. Firstly, he emphasized the importance of having a dedicated space, a sanctuary that allows individuals to think freely and playfully without the pressures and distractions of a noisy environment. Secondly, allocating a specific timeframe for focused work is vital. This involves concentrating and enhances focus solely on tasks aligned with the goal. Thirdly, providing as much time as possible for the mind to roam, without getting derailed by trivial distractions that neither contribute or hinder progress from projects. Resisting the temptation to take shortcuts and embracing a relaxed, unhurried approach around problems for a proper decision making. Fourthly, confidence, embracing experimentation and playfulness, adopting a mindset of aspiring to become and achieve, a vital element in the creative process. The fear of making mistakes can be a hindrance to creativity, and push individuals stuck into the closed mode, resulting in creativity block and procrastination. Lastly, humor plays

a crucial role in promoting creativity, as this can swiftly transition an individual from closed mode to open mode more than anything else. Its primary significance lies in teaching individuals to be playful, making the subject less serious and more enjoyable. It has the potential to attribute new meanings, further stimulating creative thinking (Leon, 2019).

In conclusion, fostering creativity should be an ongoing and habitual practice, with individuals dedicating themselves to regular engagement in creative activities. It is about discovering that flow, establishing the right environment, and allocating the appropriate amount of time (Leon, 2019). Undoubtedly, maintaining a gentle and relaxed mindset is beneficial for getting into creative endeavors consistently, but it is equally important to take action, rather than waiting for inspiration to strike.

Shifting Between Two Modes of Thinking

John Cleese's insights have laid the foundation for understanding creativity as a mode of operating. He emphasized that creative thinking comprises various processes and implies that to be creative, one must be able to transition between these modes of thinking. They suggest that when individuals confront problems, they should engage with an open, exploratory mindset, and subsequently transition to a focused, solution-oriented approach to implement it. This forms the basis for comprehending the dynamics of creativity, particularly in terms of generating and refining ideas for specific purposes (Pringle & Sowden, 2017).

The creative thinking process, characterized by these open and closed modes, strongly resonates with the research of Pringle and Sowden (2017). Their study introduced a method to gauge creative thinking skills with the ability to seamlessly shift between two forms of thinking, which is associative and analytical thinking. The open mode aligns with associative thinking, fostering the generation of ideas and concepts, while the closed mode corresponds to analytic thinking, which leans toward the concentrated and refinement of these ideas. The interplay between these modes is fundamental to the effective generation and subsequently refining of creative ideas. The correlation between maintaining a sharp focus which is the analytic mode and adopting a more relaxed and associative mode mindset, showed studies that individuals who can flexibly transition between the two modes, tend to have an increased performance on measures of divergent thinking and exhibit greater creative potential. Their aim of awareness is to let an individual's comprehension recognizes transitions between these modes, and the capacity to exert control over this shifting process (Pringle & Sowden, 2017). The Modes of Shifting Index (MSI) framework, as introduced by Pringle and Sowden (2017), serves as a tool for navigating the utilization of open and closed modes. This framework serves as a valuable tool to enhance one's awareness of their effectiveness in shifting between cognitive modes, allowing for the monitoring of transitions between these modes. Furthermore, this enhanced awareness of the shifting mechanism encourages individuals to exercise control over its operation, having a deeper understanding of thinking flexibility.

Their aim to develop a self-report measure of "mode shifting", designed to assess this fundamental skill in creative thinking, highlights the role of cognitive modes and their adaptability in the creative process. It also unleashes the potential for shaping an effective framework that gives a deeper understanding of how individuals can seamlessly transition and can balance between open and closed modes, and how these relate to associative and analytic thinking. The heart of creativity flourishes within the balance of these thinking modes. The wisdom of John Cleese (1991), enriched by the insights from Pringle and Sowden's (2017) research, underscores the significance of these thinking modes. Understanding how individuals transition between these modes and their interactions with associative and analytic thinking is indispensable for a comprehensive exploration of creativity.

Using Augmented Reality to Compliment Traditional Painting

The exploration of Augmented Reality (AR) and its potential to enhance traditional image-making practices will be discussed. The evolving field of augmented reality art practice as a medium for creative expression, extending beyond the studio and gallery to impact public engagement with underappreciated spaces. By merging physical and digital spaces to create immersive, multi-layered visual narratives, AR adds an exciting dimension to traditional art forms (Young & Marshall 2023).

Expanding AR applications beyond, can challenge conventional approaches to drawing and painting. AR is recognized as a technology that enhances the connection to physical space, described as an environment where the physical and digital collaborate, potentially re-establishing the user's connection to physical space. The impact of AR on society depends on who has access to its creation and their intentions. This opens new possibilities for artists to extend and enhance their traditional artworks by incorporating AR elements. For instance, artists can create augmented reality layers that provide viewers with additional information, context, or interactive elements related to the traditional paintings (Young & Marshall 2023). Giving another realm or meaning to the physical artwork, pushing the boundaries of traditional, making it a more interactive and engaging experience for creative individuals

By discussing the potential for AR to tell multiple stories and offer various perspectives, encourages repeated engagement with AR experiences. Highlights how AR when integrated with traditional painting, can offer a fresh and innovative perspective on art creation and presentation, providing viewers with a layered and immersive understanding of art and its environment (Young & Marshall 2023). AR serves as a medium to extend and enhance physical artworks rather than completely transforming them, just being a complementary element.

Two Modes of Thinking and Their Influence on Art Perception

Two distinct modes of thinking have been identified as the "open mode" and the "closed mode." These modes significantly affect how individuals perceive and engage with various aspects of their thinking including art. With this influence, this study seeks to offer a deeper understanding of the relationship between open and closed mode with artistic expression. (Marrou et al., 2018, p.282).

The "closed mode" represents the state of mind during work and tasks that require a structured approach. In this mode, individuals often experience a sense of urgency, driven by the belief that numerous tasks must be accomplished promptly. It is said that when individuals view artworks while in closed mode, they may have feelings of confusion and a lack of comprehension regarding the artwork's meaning. The closed mode is characterized by a sense of urgency and an active, goal-oriented mindset. When it comes to art galleries, this mode often tends to lean towards in historical facts and to meticulously analyze artworks during a visit. While this mode is essential for in-depth analysis of the historical and technical aspects of artworks, it does not naturally nurture creativity (Marrou et al., 2018, p.282). In contrast, the "open mode" is characterized by a state of mind where curiosity thrives freely. This mode encourages playful and thinking and embraces unexpected ideas without constraints. It offers a mental space for natural creativity to emerge without the weight of expectations or criticism. Understanding the interplay between these modes is important, not only in the context of cognitive psychology, but also in the art appreciation and interpretation (Marrou et al., 2018, p.283).

The way individuals engage with artworks is influenced by their mode of thinking at the time of the encounter, impacting their perceptions and interpretations of artistic expressions. (Marrou et al., 2018, p.283). This insight explores the implications of these two modes of thinking

on art perception and interpretation. Understanding the interplay between open and closed modes, aiming to connect this gap with mode of thinking and the arts, gives a perspective on how individuals and researchers can harness this knowledge to enrich their understanding and influence appreciation of artistic creations.

Review of Related Works

        This section discusses the techniques that will be used to create the researcher's painting and graphic elements for the Augmented Reality aspect. It provides insights into how the researcher conceptualized the visual representation, incorporating elements like materials, themes, and colors to shape the overall design of the study outputs.

Figure 4

Interview: Digital artist Susi Vetter on Augmented Reality and Art, 2021

        In today's art world, technology and creativity have given rise to new forms of expression in the constantly changing world of modern art, such as Augmented Reality (AR). Zegenhagen (2021) anticipates the future of Augmented Reality (AR), and that the use of it is only getting started. Their interview with Susi Vetter provides an intriguing exploration of the growing connection between technology and the realm of art. According to Vetter (2021), experiences and perspectives highlight how Augmented Reality (AR) opens a new dimension for artistic storytelling, captivating audiences in immersive and engaging ways, how the perception of reality can be blurred, showing this in a series of augmented reality illustrations called "Take Me There." This multi-dimensional approach will be used for the final creative output, it will help the researcher in conceptualizing the layers, will take inspiration from the art style, choosing a color palette that will complement with the physical painting, going beyond the limitations of 2D illustrations integrating animated and surreal elements.

Figure 5

Acqua Alta - Crossing the mirror, 2020

Acqua Alta by Adrien M and Claire B (2022) is a pop-up book that serves as a unique canvas for augmented reality storytelling. The book's illustrations and physical dimensions are transformed into a dynamic stage through a custom augmented reality application, viewed using a tablet or smartphone. The ten double-pages of the book come alive, offering a short performance that unfolds a mesmerizing blend of black and white ink drawings. Through the fusion of traditional art and technology, the researcher can gather insights to highlight interactive and multi-dimensional aspects, where the digital artwork is seamlessly integrated with the physical painting, inviting audiences to explore into an immersive realm.

Figure 6

Creative Instagram Reels Ideas - Super Easy Augmented Reality In Adobe Aero
Mimimoo Illustration, 2021
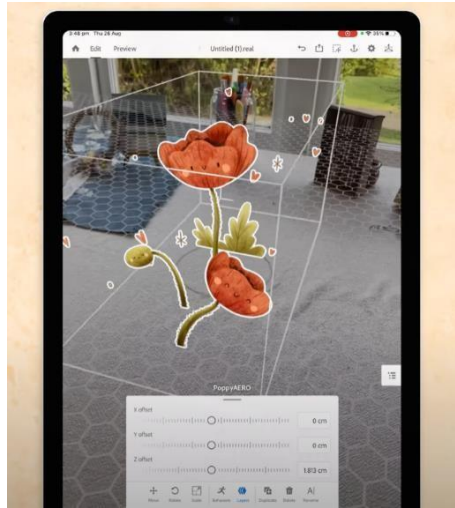
      Mimimoo Illustrations (2021) goes into the fascinating world of augmented reality in their YouTube video. In this informative content, they unveil the captivating process of infusing augmented reality to give life into 2D illustrations. Taking viewers through the creative process, first, they create a digital drawing, separating each layer. Then, they make it move with animation in After Effects. But the real magic happens when they split the drawing into different layers into Adobe Aero, anchoring it, and giving it a trigger marker, making it look like the art is in the real world. This is a helpful guide for the researcher learning the process of making the augmented reality component. It will help with visualizing and drawing inspiration from the cartoon artistic style and the use of a vibrant color palette

Figure 7

How to Make Your Acrylic Paintings POP! (Bright and Saturated Colour) - Studio Wildlife, 2022

  In a YouTube video made by Studio Wildlife (2022), it focuses on various acrylic painting techniques aimed to enhance the impact of an artwork. The video illustrates how acrylic paint can appear dull and muted when not combined with the right color tones, making it quite a challenge to make a painting vibrant. It emphasized the significance of proper acrylic layering for texture ensuring the colors remain saturated. Selecting the appropriate color palette and effective combinations are discussed as ways to accentuate the artwork's details. Furthermore, the video highlights the importance of adding intricate details to add depth and vibrancy to enhance a seemingly simple scene. These techniques serve as a valuable guide for the researcher's production in creating detailed and vibrant paintings, particularly in the context of the Closed Mode aspect of this project.

Figure 8

How to make Levitating Art 3D | pop-up art | Augmented reality (AR) using Procreate and slide AR - Oneartatatime, 2021

Oneartatatime (2021) made an insightful YouTube video tutorial on 3D levitating art through Procreate and Slide AR. The artist guides viewers through the process of creating separated layers in Procreate, to be used in Slide AR. The tutorial demonstrates adjusting layer settings and spacing, resulting in a captivating 3D pop-up effect. This tutorial serves as a valuable resource for the researcher, as it introduced the Slide AR application, offering a user-friendly and a cost-free alternative through the application's free version. This is ideal for experimentation and exploring Augmented Reality during the pre-production phase. The tutorial not only assisted the researcher in mastering the application, but also provided guidance and valuable insights on drawing techniques and layer separation, allowing these elements to seamlessly float on top of scannable objects.

Results and Discussion

Interview Results

For the primary data collection, the researcher interviewed 2 APC students aged 18 to 26 years old. An explanation of the thesis topic and the questions to be answered was given to each respondent. The interviews were conducted online.

Participants:

1. Name/Alias: Ari
Academic Year: 2nd Year Multimedia Arts Student

2. Name/Alias: Robert
Academic Year: 3rd Year Multimedia Arts Student

Ari's Familiarity with the Topic:
I didn't really know that there was a specific term for these types of thinking, I only thought that brainstorming was just referred to as brainstorming. I also thought there was no way of telling brainstorming and planning apart, but now I know that there are two types of thinking that separates the two.

Robert's Familiarity with the Topic:
I was not aware that there was a proper terminology for both modes of thinking. But I am familiar with both as I have observed that I used both modes of thinking in both academically and creatively.

Q: How do you balance being focused while also being creative in your projects? What strategies help you switch between these modes?
Ari: I find that I stay focused and creative by setting specific work times using the time block method for scheduling projects. During brainstorming, I use the Pomodoro method to take breaks and refresh my mind. However, when finalizing the project, I turn off the timer to work without interruptions.

Robert: There are 2 ways on how I get my creative mind going. First is by talking to my peers regarding the same project. Talking to them and seeing how they pulled it off helps me in getting into the "zone" when it comes to brainstorming. Second, is by pulling inspiration from my daily life. I try to be as adventurous as I can be as new experiences could lead to new avenues for creativity.

Q: Can you describe a time when switching between these modes helped you overcome a creative block?
Ari: Having a pomodoro timer on when I would brainstorm helped quite a lot, as it was giving me time to step away from the brainstorming process. Sometimes, when I spend so much time brainstorming without breaks, it would make me feel stuck -- I would run into a creative block more often. I feel like it works better for me when I have breaks between jotting down ideas because I don't allow myself to get stuck on one idea only. However, when I switch to closed mode, I turn off the timer and put on some music or a video to listen to instead, and I allow myself to get in the zone, because I feel like I finish my work better when I let myself get zoned into what I'm doing. Having the timer go off and remind me it's time for a break during closed mode would make me feel frustrated and lose momentum.

Robert: Switching between these two modes became helpful when I was brainstorming thesis ideas. Initially, I tried to concentrate, but I couldn't come up with an exciting concept. Then, I decided to

relax, and I overcame my creative block which means I developed my thesis concept when I wasn't pressuring myself. I realized that, personally, I come up with better ideas when I put myself in a relaxed state.

Q: In your experience, does using both traditional and digital mediums impact your creativity? If so, how?
Ari: I find that it is easier for me to work digitally, but sometimes, I also like letting ideas flow on paper before I transfer to a digital medium. I would sketch a few things on paper and write notes about them (brainstorming) and when I am satisfied, I start working on the project digitally.

Robert: Yes, it does impact my creativity because traditional mediums feel more "limited" compared to digital, where there are more techniques and tools available to express my creativity.

Q: What role does self-reflection play in your creative process?
Ari: Self-reflection helps my creative process because it allows me to ask myself questions such as: "am I satisfied with this?" "what can I change to make this look/feel better?" and I can adjust my work accordingly.

Robert: Having a moment to reflect on my work gives me a retrospect view of what I can improve on – It helps me to learn from those past experiences and grow more as an artist.

Q: What challenges do you face when trying to stay in a creative mindset?
Ari: While trying to stay in a creative mindset, I find it hard to stay focused. I tend to get distracted by things happening in my surroundings or the urge to just keep scrolling on my phone.

Robert: The challenge that I faced is staying focused. My mind sometimes wanders to a point where I lose track of my original goal and would go on a tangent.

Q: Now that you've learned about the two modes of thinking, how can you apply them to your daily tasks?
Ari: I think learning the distinction between the open and closed modes of thinking can help me with my daily tasks in the sense that I can now distinguish which tasks would require which mode of thinking. This can help me plan how I'll tackle doing my tasks accordingly, so I can finish them as soon as possible.

Robert: Knowing these two modes of thinking helped me understand myself better on which mode of thinking I use most of the time. Gaining deeper knowledge of the two modes of thinking helped me better strategize when it is the best time to use each mode, as both have their advantages and disadvantages.

Based on the statements provided by both respondents, it is evident that balancing open and closed modes of thinking is vital in the creative process. Both participants emphasized the importance of being in the zone to enhance productivity and complete tasks. Additionally, having a structured plan and finding inspiration are essential for maintaining a smooth flow of creativity and productivity. A common challenge between the two interviewees is maintaining focus, getting easily distracted often results in creative block. Overcoming creative blocks for both involved switching between modes and making sure to have relaxed sessions in between to ease their minds, emphasizing the importance of breaks. Both interviewees recognized the impact of traditional and digital mediums, with one appreciating the flexibility while the other acknowledging both its limitations and possibilities. Moreover, self-reflection does play a big role in the creative process, it helps them critique their own work and learn from it. Despite initial unfamiliarity with the topic, both

respondents developed awareness of the two thinking modes and their influence on creativity. Both believe that this newfound understanding would enable them to better apply these concepts to their creative processes, applying which mode to be in when needed on a certain task and being aware of the balance between the two modes of thinking. These insights contribute significantly to understanding not only their creative process, but also themselves.

With the researcher's output, several challenges were encountered during the design process, one significant challenge was ensuring that the paintings did not merely serve as backdrops for the Augmented Reality, rather, refined as complete works of art to avoid the feel of unfinished paintings. As for the painting, mixing paint and color matching was difficult, making it a time-consuming process for the researcher as acrylic paint darkens in tone as it dries, changing its appearance from when wet. Additionally, the researcher faced a dilemma regarding the choice between offering an Apple device to access Adobe Aero or using Assemblr Studio to make the artwork accessible to all devices. The decision made was to provide a device to ensure that the artwork could be viewed while also eliminating concerns about device compatibility and availability. Another challenge was the decision to move from AR to projection mapping, the decision was made to stick with AR to grant viewers control over their perspectives with the device provided.

Conclusion

Understanding and effectively utilizing the two modes of thinking can enhance the creative process and productivity. The integration of traditional and digital mediums holds potential for enhancing creativity in multimedia arts, allowing artists to surpass traditional boundaries and explore new ways of creativity. This not only improves creativity, but also adds a personal and reflective touch to the artist's work, providing insight into their creative journey and growth. Raising awareness of these thinking modes impacted the researcher's creative exploration, heightening awareness of factors contributing to creative block and reinforcing the importance of action and inspiration. Embracing these modes of thinking can empower students to unlock their own creative potential, representing a step forward in understanding the interaction of art, technology, and creativity.

Recommendations

1. The researcher would suggest exploring the two modes of thinking more to gain a comprehensive understanding and further research into strategies on how being aware of these modes could provide valuable insights for artists seeking to overcome creative obstacles.
2. The researcher would suggest exploring other Augmented Reality applications to ensure accessibility across various devices. By expanding the scope of available applications, more individuals can experience this integration of traditional painting and AR, regardless of device availability.
3. The researcher recommends creating additional artwork to explore various mediums, aiming to gain a clearer understanding of how they influence the balance with the two modes of thinking. Through this exploration, researchers can deepen their comprehension of the interplay between awareness, creativity and artistic expression, unveiling new insights and opportunities for creative exploration.
4. The researcher suggests face-to-face interviews instead of online interviews for more genuine responses.

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