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Academic Paper
<u>Overview of the problem</u>

The problem that is being addressed is the lack of Cyber Security awareness in children. The reason why this is so concerning is because of the prevalence of social engineering attacks as the primary attack vector.

Let's dive deeper into the important issue we're tackling, many kids don't know enough about staying safe online, and that's a problem we want to fix. It's a big deal because some tricky people use sneaky tricks, especially something called social engineering, to try and fool kids online. We think this is a problem that needs more attention. Not many people talk about it on the news or anywhere else, and we want to change that.

Bad People keep trying to bother kids using technology. Why? Because kids might not know all the cool tricks to be safe on the internet, and that's where Cyber Security comes in. Kids these days have to deal with more online problems than ever before. Think about it, lots and lots of kids face online troubles every single day. To help with this big problem, we've come up with a plan, a fun interactive game. It is a digital escape room game, and we're also making a website to go along with it. This game isn't just for fun, it's got two jobs. It teaches people about Cyber Security, so they know how to stay safe online, and it helps them make better choices in the digital world.

We want everyone to benefit from our game, so we made it for all ages. We gave it a rating of "E for Everyone." Even though we're focusing on kids, anyone can use our game to

learn how to stay safe online, no matter how old they are. We're on a mission to make the internet a safer place for everyone, and our game is a step in that direction!

Some context to put into this., Social engineering attacks are on the rise. Since the novel coronavirus (COVID-19) pandemic, social engineering cyber-attacks have become the major attack vector to exploit victims (Hijji, and Alam 2021). Since significant advancements have been made in the technical aspects of cybersecurity over the past decade, these advancements have made it increasingly challenging for attackers to exploit systems and they have now shifted their focus towards exploiting the human factor instead (Carpenter and Kai, 2022).

As we do know with any problem that you are trying to address and solve, there are always barriers in the way to fix the problem. Launching a business involves navigating various challenges, with one of the primary hurdles being the need for initial revenue. However, the success of our project hinges on addressing significant barriers, particularly in obtaining the necessary ratings from both the Pegi and ESRB rating systems. Additionally, meeting contractual obligations and startup deposits for distribution on platforms like Steam (operated by Valve Corp.) poses a considerable challenge.

To ensure legal compliance and strategic planning, the services of a seasoned Indie developer attorney become indispensable. An attorney with expertise in the gaming industry will guide us through the intricacies of forming an LLC, ensuring that the business structure aligns with our goals and provides the necessary legal protections. Their insight will prove invaluable in navigating potential legal challenges that may arise during the development and launch phases of the project.

Furthermore, the financial aspects of business formation and planning require the expertise of an accountant. Retaining the services of a knowledgeable accountant ensures that

our financial strategies align with our business objectives. They play a crucial role in managing startup funds, addressing tax considerations, and developing a sustainable financial framework for the business. After barriers there are also technical issues that come into play within have a game designed and done. One problem of this multifaceted journey involves navigating through programming challenges, a complex subject where developers grapple with intricate coding intricacies to bring the envisioned game to life. These challenges extend beyond mere code creation, encompassing the need for continuous adjustments to align the program with updated industry standards, ensuring the game remains relevant and compatible with the ever-evolving technological landscape.

Literature used to describe the problem and innovation

The issue we've pinpointed revolves around a noticeable gap in children's understanding of cybersecurity—an area of heightened concern considering the widespread use of social engineering attacks as the primary method of unauthorized access. In simpler terms, many kids are not fully aware of how to protect themselves online, and this is worrisome because cybercriminals often use tactics that exploit human behavior rather than relying on technical vulnerabilities.

In today's world, where technology is a big part of our lives, children are spending more time online and interacting with various digital platforms. Unfortunately, this increased exposure also makes them more susceptible to potential cyber threats. The lack of awareness puts not only their personal information at risk but also poses a broader problem for society as a whole. Essentially, without proper knowledge of cybersecurity, children unintentionally become vulnerable entry points for cyber attackers.

Understanding why cybersecurity matters in our interconnected world is crucial, and addressing this concern early on is essential. Social engineering attacks, which involve manipulating individuals into divulging confidential information, highlight the need for a comprehensive approach to teaching cybersecurity. By instilling a culture of awareness and digital literacy in children, we can empower them to recognize and respond effectively to potential threats, ultimately reducing the risks associated with social engineering attacks.

"Children are the most vulnerable segments of society and can be easily exploited in the online world due to their low level of perception. With the development of modern technologies, large scale availability of Internet services, and transition to E-learning, it has become easy for cybercriminals to manipulate children. One of the immediate solutions that can be taken to protect children in cyberspace is to raise awareness through education content. Families and teachers can play a substantial role in accomplishing better awareness regarding cyber platforms threats to children." (AlShabibi and Al-Suqri, 2021). As we know children are falling victim way too much when it comes to these cyber criminals.

The problem will never be solved if we do not step up as a world to figure out this problem and solve it which is why we decided to take charge of this. This is a priority to have this fixed if we want to better our safety for our children in the world against these predators. A study published by the Institute of Electrical and Electronic Engineers (IEEE) recognized that children faced a higher level of exposure to the digital realm and associated cyber threats than any previous generation (AlShabibi and Al-Suqri, 2021).

Within seeing how much of a problem that there is with this ongoing in the U.S. the one innovation that we have come up with to help solve this problem is by Developing an interactive game. A digital escape room software application with a corresponding website. The game will

serve dual purposes, raising cybersecurity awareness among users and guiding their online behavior to encourage safer choices in the digital realm. To give a brief description of the game,Embark on an interstellar adventure in "Cosmic Intrusion," an immersive space-themed escape room game that combines the thrill of puzzle-solving with the vastness of outer space. Your mission, Stop the alien hackers attempting to take control of your spaceship, the Nebula Voyager.

The game concept, "Cosmic Intrusion" places players in the heart of a futuristic spaceship, where each department serves as a challenging escape room. To outsmart the alien hackers, players must navigate through various sectors, solving puzzles and overcoming obstacles unique to each department. Game play will revolve around Escape Room Challenges: Each ship department presents a distinct social engineering escape room challenge. Solve puzzles, crack codes, and discover hidden clues to progress.Interactive Department Environments: Explore the spaceship's designed rooms: The Bridge Command Center, Engineering Bay and the Biodome Garden to name a few that will explore the different attack vectors that the aliens will attempt to use to gain control over the Nebula Voyager. Collaborative Play: Team up with fellow players to strategize and conquer the challenges together.

There is going to be a storyline that comes with this game to make it more interesting and to get the audience in the game to be more focused on learning. As players progress through the game, instructional videos provide context and advance the narrative. Unravel the story of the alien hackers, their motives, and the urgent mission to safeguard the Nebula Voyager from an imminent cosmic threat. One of the biggest things is to understand the game you are making, which should be the most important part.

"After you do the market research and you make your game you need to be clear what type of game you are making. I know you think you know but I have talked to so many devs who are not aware of the market surrounding the type of game they are making."(zukalous, 2021). Knowing your game and how to market it will be the biggest impact for us and the budget when it comes to game development. The gaming industry is very competitive and different from a lot of different industries so that's why also we have to make sure that it will make people want to keep coming back.

"Voluntary programmes in the US and elsewhere teach cyber literacy in greater depth than most national standards require. They range from cyber summer camps and national competitions to education modules for teachers to use in the classroom. But many are designed primarily for middle school and high school students. In Israel, for example, the Cyber Education Center's Magshimim programme teaches high school students computer programming skills and how to mitigate different types of cyberattacks." (Mee, P. (2023). This is why we are focusing on a game for educational purposes that should be driven deeper.
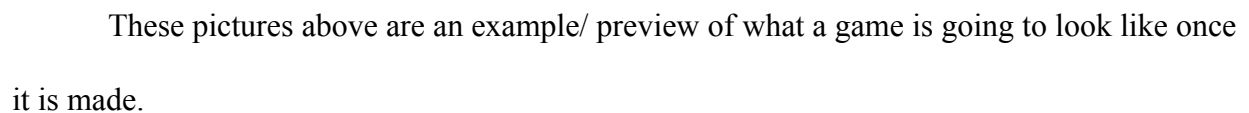
There are a lot of barriers that can come up within this innovation and with solving this problem as there are always barriers. Formation and Legal Setting aside the obvious need for revenue to start the business launch, The largest barriers for this project will fall down to the process of obtaining the appropriate ratings (both on the Pegi and ESRB ratings systems), and meeting the contractual obligations and start-up deposits for Steam (Valve Corp.) However, the formation of the Limited Liability Corporation or LLC and Business plan must be formed before those steps can be made.

"Costs are high when companies launch games in untapped markets. New teams have to be deployed and servers have to be built, which can support the additional influx. All

these costs eat into the revenues."(Sgame Pro 2018). To simplify, programming challenges, adjustments to program to meet updated standards, solid update format instituted, marketing goal set and collaborator needs met, Anti-Cheat software creation or adoption etc. The financial part of this whole innovation process can be a problem when it comes to starting the game and keeping it running. "For many new developers raising enough money to hit the target is incredibly difficult. In an age where there is still financial uncertainty around the world, persuading people who don't know you, to part with their hard-earned cash."(David K, 2020).

Other than the need for funds, the selection of a Banking partner can be a barrier in its own right. A bad banking partner could hinder a starting enterprise. With picking a banking partner there are a lot of different things that need to be considered to make sure this will be a great choice for the business to run successfully. As we know, funds are the only thing that keeps anything running smoothly.

" Digital technologies are breaking down traditional boundaries between customers and businesses, opening the door for geographic expansion. With customers equipped to learn about and interact with brands in new, more intuitive ways, and with import and export opportunities ever-expanding, organizations must be prepared to operate across national borders. This means managing customer interactions, employment, foreign currency risks, and supply chain issues across the globe." (comerica 2023). Within all of this lastly our innovation will all be based off of an assessment basically. As we know this game will be on Steam and we will be able to get data and analytics back from the game to see how it is doing in many aspects.

These pictures above are an example/ preview of what a game is going to look like once it is made.

How your innovation relates to material covered in class

The innovation at the core of this entrepreneurial class encourages a mindset of "thinking outside the box," a philosophy I've always embraced, especially when delving into the realm of Cybersecurity. While the class's primary focus is on motivating us to explore unconventional paths to success beyond the conventional 9-5 workweek, my innovation remains rooted in this unconventional thinking, even within the realm of cybersecurity. For instance, devising creative ways to teach children about cybersecurity reflects a distinctive approach.

The process involves employing design thinking, navigating budgeting considerations, and deciding where to commence. The class serves as a guide, systematically aiding in the creation of unique business ideas. Utilizing the business model and, notably, design thinking, the class instills essential skills for success in this dynamic business landscape. In the development of our cybersecurity game, design thinking takes precedence, ensuring the game is not only enjoyable for children but also effectively imparts the desired knowledge. Each step in the innovation process aligns with the class's principles, focusing on business opportunities, educational initiatives, corporate training, innovation showcases, promoting cybersecurity culture, networking, collaboration, and brand building.

Engaging with a cybersecurity game is more than just a creative endeavor; it cultivates a security-conscious, risk-aware, and adaptable mindset, vital for navigating the complexities of the digital age within the entrepreneurial landscape. Entrepreneurs encounter multifaceted challenges, and the game serves as a platform to develop problem-solving skills, particularly in the context of cybersecurity, which can be applied to broader business challenges. Entrepreneurial ventures often demand teamwork, and the game simulates the collaborative nature of business, emphasizing effective communication and collaboration among team members.

Financial literacy is another critical aspect addressed in the class, preparing entrepreneurs to make informed financial decisions, manage budgets, and plan for the future. In essence, this innovation is not merely a project but a practical application of the entrepreneurial principles learned in the class, contributing to the development of well-rounded entrepreneurs equipped to navigate the intricacies of the business world.

<u>How to determine whether your innovation works</u>

In the intricate process of determining the efficacy of our innovative game-based application, an optimistic approach is crucial. Given that our product falls within the realm of gaming, a strategic method for evaluation involves hosting the game on platforms such as Steam or similar outlets. This decision is paramount in gauging the game's popularity and identifying areas that warrant improvement. The utilization of such hosting sites not only facilitates the assessment of our game's standing in the gaming community but also provides valuable insights into potential enhancements.

Subsequent to this evaluation phase, we would be able to discern necessary modifications, thereby contributing significantly to the game's overall effectiveness. Moreover, the choice to host the game on platforms like Steam enables us to access comprehensive data on player demographics and behaviors, which serves as a crucial component in refining our gaming experience.

Of paramount importance in this evaluation process is the scrutiny of the game's analytics. This analytical lens allows us to gauge our performance with the audience and ascertain whether players are genuinely engaging with and learning from the game. Notably, our game holds an E rating, signifying its accessibility to players of all ages. Consequently, our focus shifts from catering to specific age groups to ensuring a universally enjoyable and educational gaming experience, aligning with the core purpose of our game and innovation.

Within the multifaceted realm of analytics, specific categories demand our attention, with User Feedback and Player Engagement emerging as focal points. These metrics provide invaluable insights into the game's reception and ongoing popularity. This ongoing process extends across months, with the initial launch period holding particular significance. The first

month becomes a pivotal time frame for the collection of feedback and the monitoring of metrics, presenting a dichotomy of either a positive or negative impact on the community engaging with the game.

To streamline this assessment, our emphasis on User Feedback involves actively seeking and incorporating player perspectives. Simultaneously, the focus on Player Engagement involves scrutinizing metrics such as average playtime, retention rates, and session frequency to gauge the game's lasting appeal. By prioritizing these categories, we establish a robust foundation for continuous improvement, ensuring that our game not only entertains but also fulfills its educational objectives. This holistic approach aligns with our commitment to creating an innovative gaming experience that resonates positively with a diverse audience.

What is needed to turn the innovation into reality

Turning our innovation into reality involves overcoming various challenges in the process. While we have a clear understanding of the innovation's problem-solving nature, value proposition, and potential impact, there are specific barriers that need addressing.A significant hurdle in realizing our innovation lies in navigating the requirements set by Steam (Valve Corp), a prominent platform for game distribution. To bring our innovation to the gaming community, we need to obtain the appropriate ratings, meet contractual obligations, and manage start-up deposits as per Steam's guidelines. This involves thorough research and compliance with the platform's regulations, ensuring a smooth launch on this widely-used gaming platform.

Programming the game itself is another crucial step in bringing our innovation to life. This can be achieved either by developing the game in-house or by securing funds to hire external programming talent or a company. Programming a game demands time and precision to

align with our vision. It's not just about creating a functional product but also ensuring it complies with regulations and the specifications required for online deployment.

Funding becomes a pivotal aspect of this journey. Securing the necessary financial resources to cover development costs, compliance fees, and other expenses is vital. Seeking investors who share an interest in our innovation and its potential impact is a strategic move. However, we must carefully select investors who not only provide the needed funds but also align with our vision and won't overly exploit the revenue generated from the innovation.

Understanding the market landscape is paramount in addressing these challenges effectively. Thorough market research ensures that we consider all aspects necessary to turn our innovation into a successful reality. Identifying potential investors, understanding user preferences, and staying informed about industry trends will be key elements in our strategy to get all of this actually accomplished.Overcoming barriers related to Steam's requirements, programming the game, and securing funding are critical steps in the journey from innovation to reality. Diligent market research and strategic decision-making will play a pivotal role in navigating these challenges and ensuring the successful launch of our innovative game on the internet.

Engaging with entities like Shark Tank presents a valuable opportunity that extends beyond mere conversation, it opens the door to potential collaboration and investment, a crucial aspect for bringing our cybersecurity game innovation to fruition. The prospect of connecting with investors through platforms like Shark Tank aligns seamlessly with our primary goal of securing the necessary financial support to turn this innovative concept into a tangible reality. Investors play a pivotal role in the entrepreneurial journey, offering not just capital but also expertise, mentorship, and strategic guidance.

In the dynamic world of cybersecurity, securing the right investors can be a game-changer. It goes beyond financial backing, it involves finding partners who understand the intricacies of the industry and are passionate about the innovative solutions we aim to provide. Engaging with Shark Tank provides a unique platform to pitch our cybersecurity game, allowing us to showcase its unique features, educational value, and potential impact on the market.

The investment obtained from such endeavors can serve various purposes critical to the development and success of our innovation. It can fund the programming and development phase, ensuring that the game meets the highest standards of security and user experience. Additionally, it can support marketing efforts, creating awareness and interest among potential users, parents, and educators. Furthermore, the investment can contribute to the continuous improvement of the game, allowing us to stay ahead of emerging cybersecurity trends and maintain a competitive edge in the market.

What Have I learned From The Project

Embarking on the innovative journey has been nothing short of a profound transformation, leaving an indelible mark on both my personal and professional development. This venture, designed to bring a cybersecurity game to life, has been a multifaceted odyssey that goes beyond the immediate confines of the innovation, delving into diverse realms of knowledge and skill acquisition. One of the standout lessons from this endeavor has been the sharpening of financial acumen. The intricacies of budgeting, funding mechanisms, and financial planning have become integral aspects of my entrepreneurial toolkit. Navigating the financial landscape has not only been crucial for the success of the cybersecurity game project but has instilled in me a broader understanding applicable to various aspects of entrepreneurial ventures.

Beyond the financial sphere, the exploration of different facets of business structure has been an enlightening journey. Unraveling the complexities of organizational frameworks, decision-making hierarchies, and the strategic alignment of resources has provided me with a comprehensive view of how businesses operate and evolve. This newfound knowledge serves as a robust foundation, not merely for the immediate demands of the cybersecurity game, but as a strategic compass for navigating the broader entrepreneurial landscape.

Critical thinking has emerged as a beacon guiding me through the challenges of this project. The ability to analyze situations, entertain multiple perspectives, and devise effective solutions has become second nature. The iterative process of refining the cybersecurity game concept, incorporating user feedback, and adapting to evolving requirements has underscored the paramount importance of adaptability and resilience in the face of dynamic entrepreneurial challenges. Each hurdle has become an opportunity for intellectual growth and innovative problem-solving.

Networking, a skill often cited as indispensable in entrepreneurial endeavors, has played a pivotal role in this learning journey. The exposure to effective networking strategies within both the cybersecurity field and the broader professional world has been a cornerstone of my growth. Establishing meaningful connections, seeking mentorship, and learning from seasoned industry experts have not only enriched my understanding of cybersecurity intricacies but have also provided a nuanced perspective on diverse entrepreneurial approaches. Networking, in this context, is not merely a means to an end. It has become a continuous process of knowledge exchange, fostering a more holistic entrepreneurial mindset.

In essence, this innovation journey has transcended the development of a cybersecurity game. It has become a comprehensive education in finance, business structure, critical thinking,

and networking, an invaluable foundation upon which I continue to build my entrepreneurial aspirations. As I navigate the complexities of this project, I am acutely aware that the lessons learned and the skills honed are instrumental not just for the present but for shaping a future marked by resilience, innovation, and entrepreneurial success.

Bibliography

1. comerica, comercia. (2020). 5 key things to look for when evaluating a potential banking ... - comerica. Key things to look for when evaluating a potentialbanking. https://www.comerica.com/content/comerica/en/home/insights/business-finance/5-key-things-to-look-for-when-evaluating-a-potential-banking-partner.html

2. Kiriakidis, D. (2017, November 14). The expensive problem with video games. Fleximize. https://fleximize.com/articles/002825/funding-for-the-gaming-industry

3. Suzanne Prior, Karen Renaud, "Who Is Best Placed to Support Cyber Responsibilized UK Parents?", Children, vol.10, no.7, pp.1130, 2023.

4. AlShabibi, A. (2021). Cybersecurity awareness and its impact on protecting children in Cyberspace. IEE Explore. https://www.semanticscholar.org/paper/Cybersecurity-Awareness-and-Its-Impact-on-Children-AlShabibi-Al-Suqri/0dbfec5b073669f350241e236024aaa0747002a3

5. G, Z. (2022, December 28). How to market your indie game: A 10 step plan. How To Market A Game. https://howtomarketagame.com/2021/07/12/how-to-market-your-indie-game-a-10-step-plan/

6. Mee, P. (2021). We need to start teaching young children about cybersecurity.

    Marsh McLennan.

    https://www.marshmclennan.com/insights/publications/2020/apr/we-need-to-start-

    teaching-young-children-about-cybersecurity.html

7. Streiff, J. (2019). Escaping to cybersecurity education: Using manipulative

    challenges to ... Escaping to cybersecurity education.

    https://www.proquest.com/openview/867daf96b3eda42dc6f741c89fb276d2/1.pdf

    ?pq-origsite=gscholar&cbl=396495

8. G, A. (2021). A multivocal literature review on growing social engineering based

    ... A multivocal literature review on growing social engineering .

    https://ieeexplore.ieee.org/document/9312039

9. Pro, S. (2018, June 6). Challenges facing game publishers. Medium.

    https://medium.com/@sgamepro/challenges-facing-game-publishers-22fab82842b

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10. VALVE. (2023). At Valve we make games, Steam, and hardware. Retrieved from

    valvesoftware.com: https://www.valvesoftware.com/en/about

11. Stanton, L. (2020, December 26). How to Sell a Game on Steam. Retrieved from

    Alphr: https://www.alphr.com/how-to-sell-a-game-on-steam/