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The Future of VR-Based Video Games in Indonesia

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Abstract

VR devices are now part of the world's gaming industry, VR is here to make the gaming experience more immersive. The potential for these VR devices to play video games, which in general is very rarely found and used by gamers in Indonesia, VR devices are more often used found in campus computer laboratories for experimentation, or as a learning process, and gamers in Indonesia also don't see VR devices as a new medium to get new experiences in playing games, this paper raises several issues to the surface regarding the future of VR in Indonesia.

Keywords: Gamers, Indonesia, Video games, VR

INTRODUCTION

According to a forecast by Goldman Sachs Global Investment Research, the AR/VR market in the US is estimated at 35.0 bn $ by 2025. Nowadays, video game companies are massively using this technology to create simulations that allow players to enter virtual reality or bring the world of games into reality (Machała et al., 2022, p. 2988); VR is characterized by the requirement for the user to perform movements on the interface, which are then translated into movements within the virtual worlds (D'Armenio, 2022, p. 2). Industry VR is growing annually, further propelled by the COVID-19 pandemic. By some estimates, the global VR market reached $15.81 billion in 2020, and the VR market value will continue to grow at an annual rate of approximately 30% (Kostyk & Sheng, 2022, p. 1). VR is commonly used in the entertainment industry. Many game developers have turned their business focus to creating various VR video games. (Syamimi et al., 2020, p. 409).

In the past few years, as we all know, especially in Indonesia, the emergence of VR games had experienced significant growth, especially when the HTC Vive was released in 2016;. However, after that, the trend has decreased, it seems that progress has started to slow down with the hype and not heard from again until Meta (formerly known as Oculus) released Quest 2 in 2020. Various VR brands have started releasing multiple kinds of VR products. Data shows that VR users are constantly increasing every year and even experiencing quite consistent growth; this is supported by the market VR games produced by local game developers are growing yearly. The two most considerable portions of VR users in Indonesia are divided into two, namely: VR users and VR headset users. From the data, you can also see that the VR headset user portion is the lowest, and this looks reasonable considering the hardware required is still relatively high, even though as a

VR headset device, it's already cheap, even though the required VR supporting hardware is still rather expensive, but you can see the projections going forward, that VR technology is still very, very wide open, especially in the game industry using VR. the fastest progress and development. Right now, the most high-end VR product on the market is the XR3 from Varjo. Users of this type of VR technology are starting to be able to feel a "little bit" of the expected metaverse in the future. Such as being able to handle an immersive experience, "escape from reality" (Ardiyanto, 2022) and Varjo's VR output uses a headset with technology that is still very expensive, where the user finds it difficult to feel the difference between reality and the world that can be seen through the VR. Still, of course, technology comes at a price that follows the industry, namely at 6500 USD or approximately 90 million IDR.

The law of technology, as we all understand, will continue to experience price reductions and will trickle down to a lower level or mass adoption; for example, the price of display monitors used to be IPS panels, which were very expensive, and TN (twisted nematic) panels were the cheapest option. For a display after that IPS prices are reasonable; however, refresh rates above 60 Hz are even more expensive. Also, it's the same with OLED and QLED TV panels, all of which will experience a decrease in price because the industry will continue to manufacture mass production, so production costs will also become cheaper.

VR technology in Indonesia can be likened to children aged 5-13 years, so they are not yet teenagers. Like children's growth, VR technology will still be significantly hindered by many things. We can all see that the progress of VR in the local Indonesian market tends to stagnate, with only lots of games for the benefit of experimentation, training, and education, which are built in individual campus classrooms. If you look globally, any product will be successful if it is supported by the entertainment industry and format wars that always side with the port industry, such as in 2005, there was a war between HD DVD and Bluray because the global industry chose to adopt Bluray. Finally, there was a systemic impact on where the industry is moving en masse to the Bluray format. Also, if you look at the use of the internet in Indonesia in the early days with the presence of a trigger, namely video streaming, the internet in Indonesia became cheaper and more affordable

Adoption of VR in Indonesia in terms of adoption rate is still low because there are not many users in Indonesia who don't feel the need to use VR yet. After all, the industrial ecosystem for using VR has not yet been formed. Meanwhile, users of cheap VR headsets are increasing. Using Meta Quest 2, for example, you can compare it with the HTC 5 or 5 Pro; this means that the option rate continues to increase, and one of the contributing factors is the price problem, not only the price of the headset but the price of the entire system needed. So if a user uses VR only for consumption, this media is not too expensive. Still, if you use it for gaming purposes, it will be a bit burdensome to Indonesian gamers' financial ability. Because there is a gap where video games use VR, VR is one of the immersive technologies in the current era where the user is completely shifted from a real environment experience to a fully immersive virtual environment. (Eswaran & Bahubalendruni, 2022, p. 261). In practice, VR is an interactive medium that requires high specifications, so the essence of video games using VR devices is that computing systems must render 2x the graphics of non-VR game products that gamers usually play on monitors because

the game must be rendered in the left eye and in the right eye. from two different perspectives. Technologically there are many ways and methods that are used so that graphics get a higher perceived frame rate. So not only via technology such as FSR or DLSS but also asynchronous reprojection. Unreal Engine, 4 and Unity 3D, are two main tools for developing VR Game-like applications. (Liagkou & Stylios, 2019, p. 452) Ultra-flexible production environments require platforms capable of representing, modeling, controlling, and visualizing highly complex systems (Zarco et al., 2021, p. 792) because soon, UE 5 (unreal Engine) will also use its built-in upscale method, which will make games much more accessible for many people. Finally, VR in video games can be a prominent part of social life, help relax and cope with everyday life, and support identity construction. In addition to gaming, young people engage with gaming cultures (Meriläinen, 2023, p. 1), and this has become a phenomenon.

Methods

Qualitative articles refer only to articles using any of these three methods. Other methods, such as case study or discourse analysis, were not included for various reasons, including their ambiguity or rarity (Jamali, 2018, p. 202) in an individual's experiences, including ongoing and "mediated" behavior, feelings, and cognition. In all these respects, the complexity of experience becomes especially evident in specific investigative contexts, such as the one we decided to explore (Alhazmi & Kaufmann, 2022, p. 1). The use of literature in phenomenological research aims to compare and unify the findings from previous studies and to determine similarities and differences in findings from recent research. As with phenomenological research, and social criticism theory research, the use of literature aims to compare and unify the findings from research conducted with findings from previous literature. The result is to determine the latest knowledge about a social condition.

DISCUSSION

There are several findings related to video games that are played using VR devices as a result of observations in the field about the extent to which VR devices affect Indonesian gamers.

MIDDLE-LEVEL GAMERS

Video games have been one of the most popular, profitable, and influential forms of entertainment worldwide. (Jiang & Zheng, 2020, p. 2) Most Indonesian gamers are at the mid and platform level, so especially gamers with mid-class PC platforms, you can see that most gamers in Indonesia are still using GTX 1060, which includes the old VGA. And only has 6 GB of VRAM. Next is the RX 580 with 8 GB with VRAM using a larger resolution. Not only horsepower is needed but also high VRAM usage, so in conclusion, 1060 or 580 is ideal for 1080 px or 1920 x1080 px. Whereas, VR with the highest adoption as of now is the VR Meta Quest 2 product, where each eye (right and left) uses a resolution of 1920 x 1832 px for its resolution or means that VGA needs to render at a resolution where theoretically the maximum is at 5408 x 2736 px for the two eyes, namely the right and left eyes. Because of these limitations game, developers cannot make games that are too heavy in specifications because if the graphics are heavy, then the game will not be able to be played by the majority of people plus, it must be compared to the number of Indonesian

gamers who want to buy a VR headset of course for middle-end users it will not buy a VR headset product because it is still relatively expensive and prefer to upgrade their VGA card. Data on Indonesian gamers' interest in using VR in playing games can be seen in the image below.

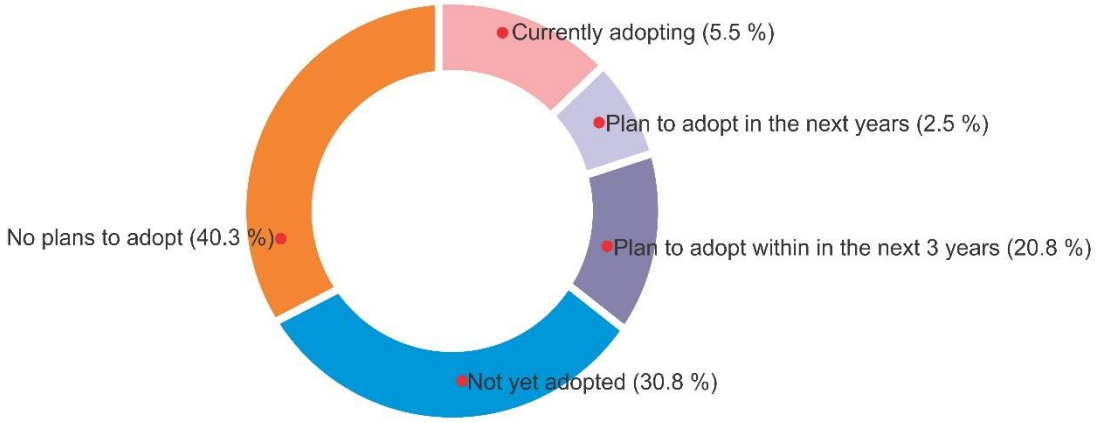

Figure 1: Percentage of VR Game enthusiasts from 100 Respondents (Source: Katadata)

Motion Sickness Problem

There are still many Indonesian gamers who are afraid of the feeling of motion sickness produced by VR devices. In VR systems and simulators, it was reported that the phase delay between the refresh rate of real motion and visual display (Ugur & Konukseven, 2022, p. 769). Although from the discussion results, several users use Meta Quest 2 devices who do not experience these problems. But the facts on the ground are that there are still many people who are afraid of owning a VR device. Because when using VR, it still feels dizzy when used to play games. This effect of fear of loss makes Indonesian gamers not interested in using VR devices. Besides that, accessing AAA games with VR devices is also not as easy as accessing non-VR games. Mitigation strategies need to be carried out in VR, many of which have been arrived at through trial and error by content designers on a more solid theoretical footing. (Fulvio et al., 2021, p. 9) .For example, strategies like reducing the field of view or using teleporting to move around a virtual environment are known to reduce motion sickness. However, how users might experience these symptoms during longer video game play in VR remains unknown (Marinho et al., 2022, p. 2).

Sports Gamers

The number of gamers using VR in Indonesia is still not as enthusiastic as non-VR games. Where Katadata is sourced from Newzoo data (2022), demographically, gamers in Indonesia are still dominated by male gamers, with a percentage of 66%. Games still dominate games with sports genres such as PES, NFS, and casual mobile phone games, platforming or sides-scrolling models; Indonesian gamers' culture is close to folk games, and the power of local wisdom which socially results in making the portion of games with other types of genres such as adventure, survival horror, and others only get a small portion compared to the sports game genre, this illustrates that video games can engage the audience in reflection on social issues. (Penix-Tadsen, n.d., p.

250), whereas VR-type games are more in the non-Sport genre than sports. With the growth of VR and the popularity of games as a means of storytelling, another type of simulation game is growing, like Walking Simulators' (Ferguson et al., 2020, p. 2), but the game's existence will not have much effect on gamers in Indonesia because the genre is less desirable, considering the relationship between game genres and users' ratings and rating downloads of VR experiences. Action, Shooter, and Simulation are the most frequently downloaded genres; Action and Music/Rhythm are the most highly rated; and Simulation and Music/Rhythm occur at a statistically higher rate in VR than non-VR. (Foxman et al., 2020, p. 237) Video games are a dynamic form of interactivity, focusing on the relationship between the game and the player. The nature of this relationship determines both video game usage and the time players spend (Potard et al., 2020, p. 2). Some gamers think that the games they often play do not need to experience conversion to VR because they are not worthy; the game industry in Indonesia has reached a phase where developers must try to get gamers interested in playing games that are played by a small number of gamers and at the same time developers must try to make these games exciting and want to be played by VR headset owners.

VR HAS NOT BEEN POPULAR

Gamers in Indonesia still think that VR devices are still too expensive; VR manufacturers need to make products whose headsets are cheap and affordable but need to be supported by game developers who create games for their VR devices; for example, there is a collaboration between Meta and game studios that support using their VR headset or optimized for VR products, for example, Meta Quest 2 like a game called Bonelab. so from this you can see that VR still has quite a lot of challenges for mass adoption in the future but that doesn't mean the quality of games in VR is low. One of the most intriguing VR games and giving a big leap in terms of gameplay and graphic fidelity and explicitly designed for VR, there are 3, namely Half-Life: Alyx (2020) from Valve, Boneworks (2019) from Stress Level Zero, and the last one from Medal of Honor VR (2020) from EA Games, so these three games provide a springboard that can make gamers interested in wanting to have a VR headset but outside of these games there are many implementations of VR games which are very, very interesting by giving the world newness and immersiveness that many traditional gamers have never experienced. The immersive level can be done by increasing the essential aspects of immersion, including the resolution of the display, wide field of view vision, number of Degrees of Freedom (DOF), low latency from head-tracked movement to display (for vision) and quality (stereo/ surround) sound. (Verhulst et al., 2021, p. 3) To attract Indonesian gamers to play the game, there must be efforts from game developers to make game prices cheaper. Games with VR being sold are experiences. This experience will give you an addictive feeling if the experience while playing the game is really appropriate—experiences of playing video games and connections to the self outside of the game. Interpretive phenomenological analysis reveals that adolescents perceive video gaming as providing opportunities for identity formation, including trying new possible selves, experiences of competence, and attenuating feelings of stress. (Arbeau et al., 2020, p. 2) the incident will determine the VR function. Although at the same time, consumers are also skeptical because a few years ago, the VR industry was estimated to be worth hundreds of billions of dollars. But the estimate was not realized. In 2015,

Digi-Capital estimated that the value of the AR/VR industry would reach US$150 billion by 2020, with US$120 billion divided between the AR industry and the remaining US$30 billion for the VR industry. At that time, they say, the VR industry will be supported by 3D games and films, according to a report by TechCrunch (2015). Meanwhile, VR headsets are expected to be the same as console prices. If you compare the estimated value of the AR/VR industry from several years ago with the actual value of the AR/VR industry in 2021. Based on data from Statista, the value of the AR/VR industry this year only reached US$30.7 billion, far less than estimates before. (Ichlasa Amalia, 2021). The following data can be seen in the image below.

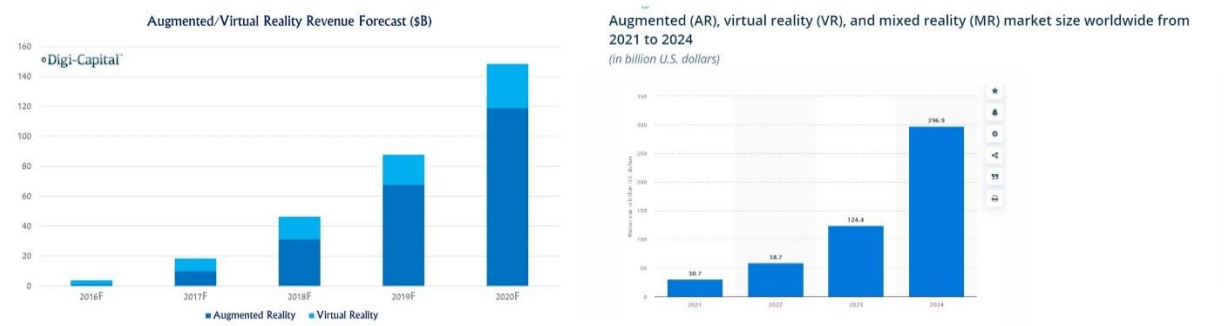

Figure 2: Comparison of estimated VR sales in 2015 (left) and market performance in 2021 (right) (source: Techcrunch and Statiska)

Number One in Piracy

The free as well as economic factor is a big issue why many gamers in Indonesia choose to play pirated games; despite the variety of legal connotations, downloading copyrighted files without paying are considered to represent the primary practice of piracy (Tomczyk, 2019, p. 1). even though it is known that this is included in copyright infringement. Many factors cause frequent piracy, especially in the video game industry. This mindset continues to stick in the minds of gamers who see that pirated games are much more affordable and even free. World game pirated products are equivalent to 175,000 games and $3.7 million in revenue (Dring, 2021). For the portion in Indonesia itself, out of 1000 respondents, as many as 45.7% of respondents who still practice piracy also revealed that, on average, they play 1-3 pirated games during their lifetime. (Galih, 2022) Data from Kominfo if the game industry market in Indonesia is $ 3.8 billion (Bestari, 2021) this is equivalent to $ 1.7 billion in today's modern era; with only internet access, gamers can easily get the game they want without having to spend a penny. Especially if you have to buy a VR device if the gamer's ability to buy the game is very low. Although to be honest, the issue of piracy in the game industry occurs not only in Indonesia but throughout the world. Moreover, Indonesian gamers are known not to be afraid that by playing pirated games, their computers will be infiltrated by viruses, pirated video games being an ideal vector for malware distribution (Karthik et al., 2020, p. 2).

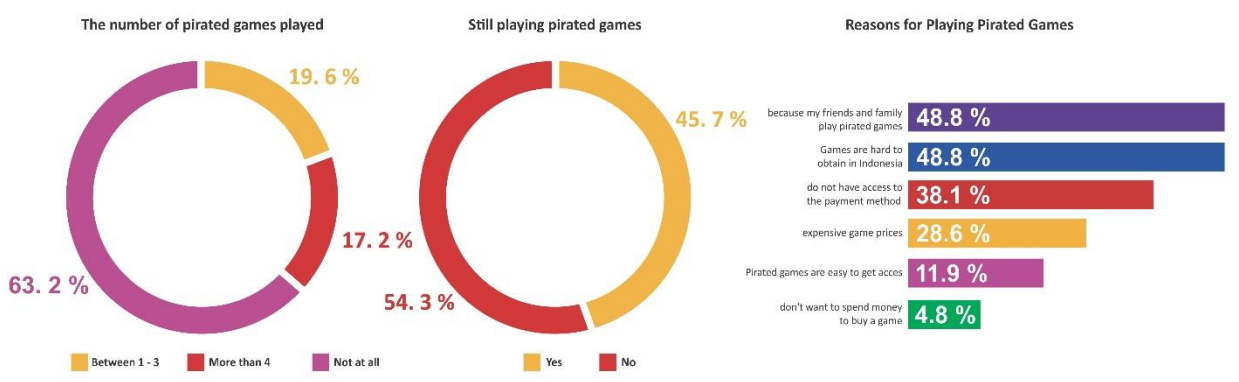

Figure 3: Data on the number of pirated game users and the reasons why they play pirated games in Indonesia (source: Kominfo 2021)

CONCLUSIONS

Gamers in Indonesia can adopt VR devices if supported by an easy and inexpensive market ecosystem. VR devices can be used and explored by VR games by presenting a world that is not only immersive but can also produce games with AAA game levels. It is not enough to have high graphics power; the GPU that plays the games must have access to VR devices. . 2 years will convey the image that VR devices in Indonesia will become increasingly common because in reality, VR game developers are increasingly popular. This trend will continue to increase every year, constantly growing sales and improving technology.

One form of progress that can be seen in the local market is the progress of peripheral factors such as PCs, GPUs, and VR headset prices that can go down; this effect can also spur gamers to be aware not to play pirated games as well as provide an opportunity for midlevel gamers to buy second VR device. In e-commerce, there are many kinds of people selling second VR. Gamers who have experienced playing games using VR can admit that VR provides a much more fun and engaging experience. So you could say that currently, there are a lot of old games made for the VR version, people are slowly starting to upgrade their PCs, and it's getting easier for VR games to be produced or run so they can run on their VR headsets, for example, Resident Evil 7 (2017). If you play the RE 7 game is still not scary, gamers can try to play it using VR; of course, it will be a completely new sensation, and when gamers play their favorite games using VR devices, the future of VR-based video games will be one part of the game industry which is very overgrowing, especially in 2023.

Console gamers can also enjoy exclusive and higher quality VR games like Sony's PlayStation because this is very reasonable and meets expectations. The VR game Paper Beast (2020), available on PS4, is an improvement, especially considering how low the PS4's specifications are. The game can be run on PS4 with excellent quality, even though the Paper Beast game if played in terms of performance and fidelity, will be much higher. Both on PC but the future of VR games will be highly optimized on consoles; the presence of the PS5 and Xbox Series X generations, especially after Sony announced VR 2 for the PlayStation 5 console, gamers will start seeing games with high-production quality with AAA game class titles.

Coupled with its implementation in AR in VR, such as the latest headset device made by Facebook, it can be a solution for everyday use using a laptop, so you have an additional virtual or augmented monitor and video games designed so that games are tied to the world built through pictures and stories, and game mechanics and eventually VR will become a way to take a break and escape from the everyday world. VR can provide that with higher and higher hardware advancements like the GTX 4000 Series and RX7000 series will make that VR more reasonable with high & GPUs able to run games AAA at 60 FPS native resolution 4K to 8K.

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