



Intisari

Teknologi *stereoscopic* 3D telah banyak digunakan di negara-negara Asia, termasuk Indonesia. Teknologi ini umumnya digunakan dalam film dan permainan (*video game*) komputer. Namun teknologi ini memiliki dampak negatif bagi penggunaannya berupa efek-efek biomedis yaitu *cybersickness*. *Cybersickness* disebabkan oleh mekanisme sistem penglihatan yang tidak wajar saat pengguna melihat tayangan berformat *stereoscopic* 3D, serta adanya konflik antara sistem penglihatan (*visual*) dan sistem keseimbangan (*vestibular*).

Pasar *video game* di Indonesia tumbuh paling pesat dibandingkan dengan negara-negara lain di Asia Tenggara, dengan jumlah pengguna *video game* saat ini mencapai sekitar 34 juta. Hal ini menunjukkan minat dan antusiasme masyarakat Indonesia terhadap *video game* yang semakin tinggi. Namun saat ini belum ada pemahaman yang kuat oleh masyarakat mengenai masalah *cybersickness* yang dapat dialami ketika bermain *video game*, terutama jika *video game* dimainkan di layar *stereoscopic*.

Oleh karena itu, pada penelitian ini penulis menginvestigasi *cybersickness* pada saat bermain *video game* dengan format yang berbeda yaitu 3D dan *stereoscopic* 3D, serta genre yang berbeda yaitu FPS dan *racing*. Penelitian akan menginvestigasi munculnya *cybersickness* dengan menggunakan *Simulator Sickness Questionnaire* (SSQ) dan *gaze tracker*. SSQ diisi oleh partisipan untuk mengetahui kondisi fisik yang dirasakan saat dan setelah dilakukannya eksperimen. *Gaze tracker* digunakan untuk mengetahui *area of interest* mana di dalam *video game* yang paling sering disaksikan oleh pengguna dan hubungannya dengan gejala *cybersickness* yang ditimbulkan.

Hasil penelitian menunjukkan adanya pengaruh dari perbedaan format dan genre *video game* terhadap kecenderungan pemusatan perhatian atau fiksasi di tengah layar. Pemain *video game* yang memiliki kecenderungan memusatkan perhatian di tengah layar selama permainan *game* cenderung merasakan gejala *cybersickness* dengan kadar lebih rendah dibandingkan dengan pemain *game* yang pandangannya tersebar di bagian *peripheral* layar komputer. *Video game* dengan format *stereoscopic* 3D dan genre FPS cenderung lebih mudah menyebabkan timbulnya gejala *cybersickness*.

Kata kunci : *cybersickness, stereoscopic 3D, video game, simulator sickness questionnaire, gaze tracker*



Abstract

3D stereoscopic technology has been widely used in Asian countries, including Indonesia. This technology is commonly used in movies and computer games. But this technology has a negative impact for users in the form of a biomedical effects called cybersickness. Cybersickness is caused by unnatural viewing mechanism when a user look at a view in stereoscopic 3D format, and also by the conflict between the visual system (visual) and system balance (vestibular).

The video game market in Indonesia is growing most rapidly compared with other countries in Southeast Asia, the number of users of video games currently reach about 34 million. This statistic shows the higher interest and enthusiasm of Indonesian society toward video game. However, there is currently no solid understanding by the public about cybersickness that could be experienced when playing video games, especially if the video games were played in stereoscopic display.

Therefore, in this study the author presents investigation of cybersickness when playing video games with different formats (3D and stereoscopic 3D), as well as different genres (FPS and racing). Investigation performed by using Simulator Sickness Questionnaire (SSQ) and gaze tracker. SSQ were filled by all participants to determine the physical condition felt by them during and after experiments. Gaze tracker was used to determine which area of interest in the video games most frequently watched by users and their correlation with symptoms of cybersickness.

The result of this research shows the influence of differences in format and genre of video games to the tendency of focusing the attention to the center of the screen. Video game players who have a tendency to focus on the center of the screen during game playing tend to feel the symptoms of cybersickness at levels lower than those gamers whose views are spread in the peripheral computer screen. Video gaming with stereoscopic 3D format and FPS genre are more likely to cause symptoms of cybersickness.

Keywords : *cybersickness, stereoscopic 3D, video game, simulator sickness questionnaire, gaze tracker*