ESPORTS AND TECHNOLOGY (I.E. WEARABLES)

RISE OF ESPORTS

Esports participation and engagement among young people in the UK has grown rapidly in recent years, with an estimated 4.5 million active esports players - a 50 % increase since 2020 and around 10 million people now watching esports regularly in the country, illustrating its expanding role in youth leisure culture[1].

The growth of esports has been largely driven by rapid advancements of in-home gaming technologies, platforms, video gaming software and console technologies (Gawrysiak et al., 2020). Esports games based on traditional sports have also gained popularity in recent years, as more video game publishers collaborate with traditional sports franchises to develop seasonal tournaments and esports representation of the franchises (Raraport, 2017).

Cranmer (2020) identifies esports as one of the fastest-growing leisure domains among adolescents and young adults in the UK, positioning it as a significant competitor to traditional sport for young people's time and attention. Esports involve structured competition, rules, skill development and organised pathways, offering many of the psychosocial benefits associated with sport, including belonging, community and shared identity, but without a physical activity component. The report emphasises that participation habits form early in adolescence, alongside declines in physical activity, and that esports provide continuity across education stages because it is not tied to specific institutions. Increasing institutional recognition, such as university teams, scholarships and dedicated arenas, further legitimises esports as a mainstream pathway. Participation remains predominantly male, reflecting gendered patterns seen elsewhere in sport.

Kelly's (2021) systematic review of under-18s supports this view that esports compete directly with organised sport and physical activity for time and attention. The review finds that active video games (exergames) can increase energy expenditure and improve enjoyment, motivation and self-efficacy. The review also finds that online gaming can expand social networks and provide identity and status, but excessive use is associated with reduced offline interaction and loneliness. Gaming disorder was found to be more common among younger males and in certain game genres, highlighting clear gender and age patterns.

With the rise in esports and gaming, it is important for this review to look into how this correlates with physical activity levels and physical health. Trotter (2020) found that although many esports' players fall within a normal BMI range, physical activity levels are low: only 19.7% met WHO physical activity guidelines, meaning over 80% did not achieve recommended levels. Interestingly, players in the top 10% of competitive ranking were

[1] Esports Explosion: How Competitive Gaming is Shaping the UK iGaming Industry

significantly more physically active than lower-ranked players, suggesting that higher performance may be linked to better physical preparation.

A later longitudinal study by Trotter (2022) adds nuance by examining developmental outcomes. Adolescents involved in school esports programmes maintained stable levels of personal confidence over time, while confidence declined among a non-esports control group. This suggests a possible protective effect for confidence and social connection. The findings indicate that school-based esports do not appear to harm health or development and may help sustain confidence during periods of disruption, particularly when combined with opportunities for physical activity.

Buzzelli (2021) highlights how collegiate esports has become an established and fast-growing part of university life in the US. The study suggests esports can contribute to student recruitment, retention, and co-curricular learning, linking gaming to wider academic and campus engagement. The survey of 120 collegiate players found that participation was primarily driven by intrinsic motives such as enjoyment, goal pursuit and satisfaction from performance, while public recognition and status were relatively unimportant. For example, the statement *"it is important that others know about my sport involvement"* received an average score of just 40.6 out of 100, making it one of the least important motivations reported by participants. Students strongly perceived social benefits: over 75–80% reported improvements in communication, teamwork, friendships, leadership, and belonging. In contrast, nearly 70% felt esports did not contribute to physical strength, fitness, or weight control, reinforcing the separation between esports and physical activity. For universities, these findings suggest that esports can support engagement, community, and student development, but it is unlikely to substitute for physical activity provision. For sport and activity strategies, this points to the value of recognising esports as part of the wider student engagement ecosystem while maintaining clear pathways that encourage movement and physical wellbeing alongside digital participation.

TECHNOLOGIES SUPPORTING ENGAGEMENT (APPS, WEARABLES, GAMIFICATION)

Technologies such as apps, wearables and gamified platforms are increasingly positioned as tools to support physical activity engagement, particularly among digitally fluent young people. Evidence suggests they can play a supportive role, but their impact depends strongly on design, context and how they are integrated with social environments. A cross-sectional study by Han (2025) shows that wearable sports equipment (e.g. fitness trackers and smartwatches) is positively associated with exercise persistence among university students. Wearable users were more likely to maintain regular exercise habits, monitor activity, and stay engaged over time. Motivation was a key mechanism: features such as goal setting, self-monitoring and feedback strengthened intrinsic motivation and commitment. Social support further amplified these effects, with students in supportive environments more likely to translate motivation into continued participation. Wearables also promoted self-regulation and accountability by allowing users to visualise progress. Together, these findings suggest technology can help students move from intention to action and maintenance, especially when paired with peer encouragement and structured programmes.

Evidence in younger populations shows similar but more cautious patterns. A European systematic review by Dankovic (2023) found that wearable devices generally increase daily steps, moderate-to-vigorous physical activity (MVPA) and reduce sedentary time, with only 2 of 11 studies reporting no increase. Improvements were typically modest but observable even in short interventions (one to seven weeks), and some children were more likely to meet the 60-minutes-per-day MVPA guideline. Self-monitoring and feedback were central drivers of engagement. However, motivation outcomes were mixed: while awareness and enjoyment often increased, some adolescents experienced pressure or guilt linked to targets, and a few studies showed declining MVPA despite higher motivation. Effects were stronger among already motivated youth, suggesting wearables may reinforce existing habits rather than transform disengagement. Novelty effects were common, with engagement often dropping once devices lost appeal. Embedding wearables in school programmes and group challenges improved outcomes compared with stand-alone use.

Research on smartphone apps adds further nuance. A multi-country qualitative study by Gomes (2024) found that adolescents often view physical activity apps as sources of inspiration rather than instruction. Engagement was driven by enjoyment, novelty, and gamification (e.g. reward systems), while repetitive or technical designs quickly lost appeal. Social features motivated some users, but excessive comparison could deter less active adolescents. Personalisation was central: preferences varied by age, gender, and activity level, with girls valuing social interaction and customisation and boys favouring competitive and game-like elements. Time pressure and competition from other digital leisure activities (gaming, social media, entertainment) were major barriers. Wearables were appealing for tracking but sometimes criticised for discomfort or inaccuracy. Overall, the study highlights that enjoyment and belonging tend to precede habit formation, and poorly designed apps risk reinforcing disengagement.

Broader reviews reinforce that digital tools can support activity but rarely solve participation declines on their own. Habik-Tatarowska (2025) notes that adolescent inactivity and mental health concerns are both high, with only 16 to 17% of youth meeting activity guidelines in some European contexts and smartphone use near universal. Mobile health mHealth tools can increase activity by 20 to25% in the short term, particularly when gamified and personalised, but effects often fade with digital fatigue or loss of novelty. Mental-health framing and wellbeing-oriented apps appear more meaningful than fitness-only tools, and digital platforms can reduce barriers such as fear of judgement or logistical constraints. However, inequalities in device access and digital literacy risk widening gaps if not addressed. Integration within schools and health systems improves effectiveness.

A large review of technology-enhanced physical education by Martin-Rodriguez (2015) shows that digital tools can increase enjoyment, engagement and intrinsic motivation when aligned with pedagogy rather than used for novelty. Technologies supported autonomy, competence and self-regulation through feedback and goal-tracking and were linked to improvements in motor skill learning and tactical awareness. Importantly, technology complemented rather than replaced social interaction, and teacher training was essential for meaningful implementation. Digital inequality and data-privacy concerns were identified as growing issues. Related work on youth sport dropout indicates that dropout rates of 30 to70% often begin before mid-adolescence; digital tools such as wearables, exergaming and virtual coaching can support continuity when used intentionally, but unequal access may reproduce inequalities (Pisaniello, 2025). Van Sluijs (2021) similarly concludes that technology can raise awareness and

enjoyment but does not consistently translate into sustained MVPA unless combined with social and school-based support.

Evidence from higher-education contexts mirrors these patterns. Middelweerd (2015) found that university students prefer simple, customisable apps with minimal effort required. Less active students wanted guidance and coaching, while active students preferred detailed performance feedback. Personalised coaching and visible progress were motivating, but many disliked public sharing and preferred small, private peer groups. Engagement often declined once novelty faded, suggesting digital tools alone rarely sustain long-term change. A recent review by Pereira (2025) supports this, showing that mHealth apps typically produce small to medium short-term gains (e.g. SMD ~0.29–0.44) but weak long-term effects. Personalisation (e.g. Cohen's d ≈ 0.33) and behaviour-change techniques such as self-monitoring, feedback and rewards improved engagement, while generic approaches were less effective. Co-creation with adolescents was recommended to ensure relevance.

Digital culture also shapes how young people relate to sport more broadly. Thorpe (2016) shows that in action sports, social media and digital tools influence identity, community, and participation, with athletes and participants acting as both consumers and producers of media. Technologies such as GoPros, GPS devices and smartphones reshape how sport is experienced and shared, while also raising questions about commercial influence and representation. Finally, digital engagement with sport does not always mean physical engagement. McGee (2020) notes that mobile betting apps allow fans to interact with sport continuously, strengthening spectator attachment but potentially shifting sport toward screen-based and financially mediated experiences that may compete with time and motivation for participation.

Taken together, this body of work suggests that technologies can support engagement, motivation, and self-regulation, especially when they are personalised, enjoyable and socially supported. However, effects are often modest and short-term, with novelty fade, digital fatigue and inequalities limiting impact. Technology appears most effective as a complement to supportive social, educational, and cultural environments rather than a stand-alone solution. For universities and youth-sport providers, this points toward blending digital tools with community, coaching, and inclusive design to support sustained participation.