Engaging Students through Esports in K-12 Education

Understanding the value and potential impact

Contents

Executive Summary

Esports are digital games played on electronic devices, such as computers, consoles, and tablets, that players compete against each other in structured formal tournaments, leagues and/or conferences. The games share similarities with traditional sports for developing mental and physical skills to compete recreationally and at the highest competitive levels. Opportunities to play professionally are as difficult to achieve as with traditional sports. From casual to college, to professional, the player pool shrinks significantly. However, there are many opportunities for careers in professional esports organizations such as coaches, fitness trainers, casters, accountants, and administrative assistants. Collegiate courses and degrees in esports fields expands along with athletic scholarships, which gives high school students more opportunities to apply and study in a growing field.

As k-12 schools add esports programs, like clubs, courses, and teams, there are greater opportunities for students. Esports teams, clubs, and courses open access for more students to participate in the school community. Growth in inclusivity and equity can be developed with a focus on involving diversity in gender, ethnicity, and economics. Global Professional Skills (GPS) and the ISTE standards for students, especially Digital Citizenship, can be developed and nurtured through exploration and reflection around digital interactions.

Prior to esports as a formal activity in k-12 schools and colleges, the landscape lacked supportive governance and development of the above skills for young people. Now, the schools and colleges that are committed to esports provide students with the needed guidance and structures to prepare them for the global professional community. These experiences give their students a distinct advantage over schools and communities who do not. This document outlines some initial steps that can be taken to begin building a strong program:

Step 1: Build with the End in Mind
Step 2: Identify and Build the Infrastructure
Step 3: Educate and Build Stakeholder Support
Step 4: Implement Year One

What is esports?

During the summer of 2019, a tournament was held for the best 100 players in the world. Over ten weeks, 40 million competed to make the final hundred. The finalists competed at Arthur Ashe stadium over three days for the top prize. The 100 finalists were guaranteed $50,000. Top ten made between $225,000 to the champion earning three million dollars. The contest was not the US Open Tennis Championships typically held at Arthur Ashe stadium. The competition was Fortnite, an online game that has over 250 million registered players.[i] The winner of the inaugural tournament and three million dollars was Kyle Giersdorf, aka Bugha, age 16[ii]. With the end of summer vacation, one might wonder if his high school was prepared for his return?

If sports are a competition with rules for a game such as football, soccer, and tennis, then esports is the same with electronic games. According to the online dictionary, Lexico by Oxford, "A multiplayer video game played competitively for spectators, typically by professional gamers.[iii]" Esports are digital games played on electronic devices, such as computers, consoles, and tablets, that players compete against each other in structured formal tournaments, leagues and/or conferences. Playing basketball, League of Legends, or Tetris with friends is a casual game. Competing in a league or tournament for basketball, League of Legends, or Tetris is a sporting event.

Esports shares similarities to traditional sports like tennis, football, soccer, and basketball. Players train fulltime to improve physically and mentally. They develop their fundamentals or mechanics of performance skills. They compete under specific rules and supervised by a referee system. Competitions are (mostly) face-face. Although esports events can also happen virtually. There are spectators seated at the matches and others watching through video streams, cheering and groaning depending on how their team is doing. Casters call the play by play and color commentating. Sports analysts make predictions and do post-game breakdown of why one team lost and the other succeeded. Player and coach interviews before and after games gives insights to fans. Teams compete for tournament and league titles and championships.

Professional teams for games like Fortnite, Dota 2, League of Legends, Overwatch, CS-Go and Shadowverse provide opportunities for players to train and compete for up to six-figure earnings. The elite earn more.[iv] For example, in the North America division for League of Legends, the base salary is $75,000 but the average pay is above $300,000.[v]

Many fans also play the games on consoles and computers. Some may imagine playing with their favorite team or player and try to make the same moves as their idols. Other players grind for many hours in ranked solo queue[vi] playing their game for the dream of possibly joining the professional ranks.

However, the harsh reality is that, like traditional sports, the chances of becoming a professional esports player is just as difficult to attain.[vii] The best of the best of the best might get a shot. For example, in the north American League of Legends (LCS) there are ten teams with 5 starting positions and 5 more in their "Academy" level. Only 50 players compete at the highest level with

50 more players who may be promising, yet few will likely get a starting opportunity. The potential player pool for competing for those 100 slots globally was approximately eight million concurrent players as of August of 2019.[viii]

Esports for K-12 Students

Sports is an integral part of school culture and lives of families. From intramurals to tournaments, to leagues, students of all ages compete in sports. Esports is no different in its opportunities for developing positive life skills that support college and career readiness and digital skills as outlined in the ISTE Standards for Students,[ix] which is explored in the section: [Developing Global Professional Skills (GPS)](). Elementary students explore open sandbox games that foster creativity and collaboration, such as Minecraft, simulations, and coding. In the middle grades, competitive games are added to the continued experiences with open sandbox games. Sports-based and player vs player (pvp) games along with tablet and phone games are emerging into their experiences. In some places, fighting games with school approved ESRB ratings[x] are included in the student experience. At the high school level, students are involved with a broader spectrum of games, often with a focus on esports that colleges recruit for their teams. ESRB ratings continue to be a factor.

Another value of esports in K-12 education is that it offers a pathway for students to feel connected to the school culture. Before esports entered schools, there existed groups of students who had little to no interest in what the school culture offered, like traditional sports and clubs. The activities they were most passionate about, digital gaming, was not provided as an opportunity.

As esports experiences enters schools, more students are finding their way to be part of the community. As with other formal sports programs, esports athletes have greater incentive to manage their grades, attend classes, and participate in positive ways in school activities. This is not to say that any gamers do not take care of their academics. Rather, there does exist a population of students who may have struggled in some areas of school culture who now are drawn from being on the outside to developing an invested interest in being a part of the community. Equally important is that their interests and talents are newly recognized because esports has become part of the school culture.

Esports is for the athletes who compete for the school or in intramural leagues. It is also for the students who love to play these games for fun but have either little interest in the competitive side or lack the talent to compete on a team or unable to perform at a high level. As shared previously, few gamers will make it to the professional level, because of the sheer number of people competing for minimal slots. These students may find interests in the esports world regarding work opportunities other than being a player on the team. This large group has been described by many names. The one chosen for use in this document is, Scholar Gamer.[xi] This term describes a student who explores and learns about various roles that supports the esports world, such as content creators, esports casters, coaches, nutritionists, social media marketers, influencers, human resources, and many more careers that support an esports organization or

business. Scholar gamers who go on to work in esports fields have a deep understanding of the gaming culture and how their role can contribute to its success.

Esports and Academics

ISTE Standards for Students, global professional skills, and preparations for college and career opportunities are integrated into curriculum standards in knowledge, application, and higher order thinking. The opportunities for offering courses that support esports are wide and varied. Career Technical Education and STEM/STEAM are obvious options because of content creation through digital media, coding, systems software certifications, and computer building for gaming and production. Gamer scholars can also benefit from integration of esports into core curricular areas or as a standalone pathway for gaining academic skills in context of a topic they are passionate about.

Several organizations have developed or are developing esports related resources that can be used in many traditional courses, such as NASEF[xii] with English courses. Schools looking for flexibility might look at the Esports Learning Guide for Teachers and Coaches (ELGuide) by ALP and Dell.[xiii] This guide contains modules on different aspects of esports and gaming culture and supports learner development of the ISTE Standards for Students, global professional skills, and writing skills. The modules can be used as a standalone course or sifted to use chosen modules in existing courses.

As the course examples will show, esports classes are not about playing games. They are experiential chances for gamer scholars to learn curriculum content and global professional skills in context of esports and gaming. For example, the ELGuide supports the work of schools to have learners be introduced to and explore college and career opportunities while developing important skills in research and information literacy. Participants are not just the esports athletes; rather they are the many scholar gamers.

Developing Global Professional Skills (GPS)

Esports is a global community. Related business intersects with cultures and economics across the world. The skills required to be successful go further than just the training acquired in the core academics. In the past, the term 21st Century Skills was used to describe what students needed to be able to use when navigating any workforce. However, this term seems dated and time dependent. In Australia, the term, General Capabilities, has been used. Global Professional Skills (GPS)[xiv] is the term used here because skills like collaboration, communication, problem-solving, and creativity, among other important professional skills are important across the globe and cultures.

The National Association for Colleges and Employers (NACE) does an annual survey of its members that asks what attributes are most sought from a candidate. The top ten has been relatively consistent over the years. Here are the top twelve from 2020[xv]:

- Problem-solving skills
- Ability to work in a team
- Strong work ethic
- Analytical/quantitative skills
- Communication skills (written)
- Leadership
- Communication skills (verbal)
- Initiative
- Detail-oriented
- Technical skills
- Flexibility/adaptability
- Interpersonal skills (relates well to others.

If these are skills that colleges and employers prize from incoming students and employees, how are they intentionally integrated in the development of students in grades K-12? Building a robust esports program has many of these skills embedded into what scholar gamers and esports athletes do when competing and supporting the games. Embedding a conscious development of these skills in an esports program can enable scholar gamers to raise their quality of work and play in games, production, management, and leadership. Such skills can have a crossover impact on their other studies and activities inside and outside of school.

The ISTE Standards for Students[xvi] establishes internationally recognized categories for development by students while they are in K-12 education. They include:
1. Empowered Learner
2. Digital Citizen
3. Knowledge Constructor
4. Innovative Designer
5. Computational Thinker
6. Creative Communicator
7. Global Collaborator

States like Michigan have adopted these standards and taken a view by age bands[xvii] of 4-7 year olds, 8-11 year olds, and 12-14 year olds. The language is adapted to be aligned to developmental support by age group.

For esports if the global professional skills are the tools for being a successful scholar gamer, then the ISTE Standards for Students are the core categories for applying those skills in gaming, academics, and professional practices.[xviii] For example, the Digital Citizen category is impactful to online professional behavior and informational fluency. Navigating the information-rich online world is challenging. Sites for esports and gaming like Reddit, Twitter, and Twitch are places where rumors and speculations can be presented as facts. This can harm reputations of players, esports personalities, and content creators if false or misinterpreted information turns an audience against them. Digital citizen skills strengthen scholar gamers' toolbox to sift out facts from speculation and to professionally communicate, even defend, from those who troll (attack with malice or bully) them. The skills of research and information literacy are core parts of becoming an adept digital citizen. Esports programs are ways to engage students in wanting to develop these important skills for future life in colleges and/or careers.

Equity and Inclusiveness

Before there was esports in k-12 schools, traditional sports and clubs were the biggest options for extracurricular participation. Students interested in esports could join such clubs as gaming, coding, maker space, or computer building depending on the resources in the school. But when it came to sporting events under the Friday night lights or a gymnasium packed with screaming fans, gamers who lacked the skills in traditional sports were left on the sidelines. Yes, they could cheer in the stands, but they had no place on the field of play.

Middle and high school esports have similar benefits as traditional sports. An important benefit is its inclusiveness. Surveys from the Pew Research Center[xix] found that 92% of boys and 75% of girls have access to game consoles, while 97% of boys and 83% play video games on some device. Such participatory numbers show a shared interest in video games that could be leveraged towards inclusion by most students in a school. Based on interviews in schools across the United States[xx], educators consistently stated that groups of students were participating in esports, where before they had not been involved in school activities. Often, these students were referenced as having limited engagement with school activities prior to esports. Once active, coaches and teachers were able to leverage academic eligibility to encourage those students who lacked motivation in the classroom to make the needed change. As with traditional sports, getting students to become committed to their academics at times can be a struggle, supports for academic eligibility are a toolset that can be readily used because the students want to be on the team. As esports grows in popularity at the professional and collegiate level, the effect on how esports athletes are viewed by their peers and teachers can have an upward positive impact for feeling part of the school community.

Esports programs that offer teams, clubs, and course pathways gives access to all students. Teams can be coed, which is occurring in some schools across the country. A PEW study[xxi] found that women were almost as likely to play digital games as men. Yet, the number of women players participating in esports is dramatically lower compared to men. This disparity in participation can be significantly impacted through k-12 where educators can intentionally build more gender equity and inclusivity into esports programs through education about improving gamer culture[xxii] and by providing opportunities and structures that eliminate the gap in esports and gaming programs. One such program is Girls Who Game.[xxiii] This program gives young ladies rich experiences in the gaming world, both with collaborative and social play, and with exposures to careers such as coding. Competitions and career opportunities are available for everyone, and in K-12 education creating an atmosphere that is both inclusive and teaches how to "be" inclusive are important to combating toxic movements like Gamergate,[xxiv] a movement that targeted women who dared to shing a critical light on the misogyny in gaming. Esports programs that include a focus on the ISTE Standards for Students can help prepare and empower gamer scholars to change gaming culture into a more generally positive community.

Learners having a voice in their education experience is important towards raising student buy-in through engagement.[xxv] Esports programs that include clubs and courses are ideal structures for

fostering and nurturing student voice through self-explorations of career opportunities and immersing in applying such skills as content creation, reporting on games, and other production decisions. Giving students opportunities to use their voice can support self-advocacy.

There are equity decisions to be made with providing access to the games for all students served in the school community. Organizations and companies exist who provide a service to schools of managing and running esports leagues and tournaments for different esports games. Each group has strengths and challenges in relations to equity. When exploring any organization who may manage scheduling and operations of a gaming event, here are some considerations:

Access to in-game assets
Some of the competitive games include a library of champions that players choose from to play when inside the game. Many of the current popular games have over 100 champions.
148: League of Legends
108: Smite
117: Dota 2
30: Overwatch

The first three games on the above list does not give access to all champions at level one. Players must either grind hours of play to level up their account for in-game currency or they must spend money to expand their champion pool. Overwatch unlocks all champions for the starting player, however the game must be purchased (see the next section), whereas the other games are free to play.

Some organizations have relationships with the game publishers who will unlock all champions for in-season play. This means that a school who works with such an organization will be able to give their players immediate access to all resources. Students new to the game can work alongside veterans to learn the game using the champions that interests them the most. Such a setup promotes engagement and perseverance by students new to the game to put in the time to improve skills.

Without such an option, new players are required to grind hours of play to level up and earn the prerequisite number of champions before they can compete. This situation creates several barriers for students and their schools who want to engage players and teams into a league or tournament. They must purchase the champions and spend hours leveling up the account to compete, which greatly reduces time learning the skills and strategies for the upcoming competition. The money cost to purchase the champions could be prohibitive for some. Or players just grind hours to get any champions to hit the required number, which forces players to play champions they may not be interested in.

In esports where champions can be banned from a match, teams with a more limited pool of champions can be forced to play one that they have little interest or experience with by teams with a richer champion pool. Having all champions unlocked and available to all teams is an important equalizer for competitive play.

Access based on fees or costs

Different organizations charge different fees for their services to manage leagues and scheduling. The costs vary. It is important to look into what services are offered such as the valuable feature of unlocking of in-game assets (see the previous section), reliability of service for connecting teams for competitions, and the scheduling system. Another consideration is if the publisher's games are included in the fee. For example, games like Overwatch and Rocket League require purchase of the game for casual play. If not, this is a cost that must be factored when offering to students. Another factor is to look towards the state governing body for guidance about esports. Alignment with that organization is important for providing esports athletes and scholar gamers with a seamless experience to what they can expect when competing for a tournament or championship.

When choosing an organization that charges a per student or school fee, review internal resources and possible community sponsorships. If students are expected to pay the fee, this could create economic inequity for access. Depending on the community, some or many students could be excluded from the rich experiences of esports because of such entry fees. One solution that schools have is to review their resources and those in the community such as sponsorships to address economic needs so that students are not barred from participation.

Career Opportunities

Projected revenue from the esports industry for 2020 is estimated to exceed $1 billion. By 2022, the projected amount is expected to be 1.79 billion dollars USD. Advertisement revenue is estimated to be $200 million in 2020.[xxvi] Another way to look at the business impact of esports is the example of the League of Legends 2019 world tournament. The finals between FunPlus Phoenix of China and G2 Esports from Europe was a three hour best of 5 game matchup. Before a packed stadium and global viewers watching the live online streams, FunPlus Phoenix won the championship 3 games to zero. The total viewership was for match was 44 million. Over 100 million viewers watched the tournament, which exceeded the NFL Super Bowl.[xxvii]

Such viewership attracts advertisers, which brings in millions of dollars for esports organizations and businesses. With opportunities for greater profits, more jobs are created to raise efficiency and quality of competitions, productions, team preparations, and sales. Traditional and new careers are identified and incorporated, which means more work options for students graduating high schools and colleges.

The field of esports contains many opportunities for careers and professional experiences. Some are new while others are traditional pathways with a gamer's flair. Here is a starting list. There are more options than this list shows, but it gives a good perspective of the available opportunities.

Content Productions:
- Creators
- Producers

- Editors

Gamers, influencers and personalities put content onto online streaming sites like YouTube, Twitch and Facebook for public consumption. Media mixing and production are valuable skills. People with such expertise are sought after to take media and turn it into a polished product. The opportunities vary widely from studio employees to independent consultants.

Esports Entertainment
- Casters
- Analysts
- Talk show personalities
- Journalists
- Stage crew

There are the people who perform the show by discussing the game, the players, and the stakes of the competition. Behind the scenes are those who make sure that the production is successful from lighting, sound, video, and other technical fields. The show success is dependent on both groups working in concert for the live and streaming audience.

A related group are the esports journalists. These professionals report the news to fans hungry for more content. Their work is reflected in written articles, podcasts, and videos. Sometimes these three media are combined to reach a wider audience. Social media in esports is taken to a different level as they navigate direct interaction with the very audience that they are presenting news to.

Marketing
- Social media marketers
- Sponsors
- Influencers

Esports is made up of the game publishers, team organizations, and the event organizers. Games might become successful by the nature of its structure. Sustainability and remaining relevant over time are impacted by how stakeholders market themselves and the game. Building a good brand is important. Marketing skills combined with a gaming background is important for understanding the target audience who can be both passionate and opinionated about what is good and bad in how the game is run as an esports.

Business Office
- Human Resources
- Accounting
- Management
- Board
- Investors

The games may be fun for casual players. Esports may be in high demand for consumption by a global audience. Yet, the backbone is the business side. Professionals in this area are important for ensuring that the company or organization stays profitable enough to remain in existence. These roles, while traditional, are stronger when those in them are gamers. Understanding the culture being supported is critical to building a successful business that draws people who want to work for them and for fans who stay interested in their brand and product.

Team Infrastructure
- Coaches and Players
- Support staff, including chefs, personal trainers, nutritionists, sports psychologists, game analysts, role coaches, assistants, and more.

Players in successful organizations get much support. The health and wellness of players goes beyond the mechanics and skills that they honed over many years of playing the game. Personal fitness and mental health are critical for players to sustain their drive through what can be a grueling season that requires many hours of work each day to stay on top of their game. When players and teams compete for long hours in a day, the difference for success could be their fitness training, much like the benefits in traditional sports teams. Logistics of travel and equipment needs are other integral jobs that need capable professionals to tackle so that players and coaches can focus on game preparations.

The opportunities for esports athletes and scholar gamers are far reaching both in the traditional career tracks and areas that came into existence in recent years. Esports programs that include clubs and courses alongside teams can offer immersive and broad experiences into tech and non-tech focused fields so that all learners can learn about potential pathways.

College Opportunities

Esports teams in colleges is the obvious lure for esports athletes. The chance to play at the collegiate level has strong appeal for many students, where before such an option did not exist. In 2018-2019, the National Association of Collegiate Esports reported that universities offered an estimated $16 million dollars in scholarships and aid[xxviii]. This number is expected to grow. Like traditional sports, playing for an esports team may be the best chance for some students to afford getting a college education.

Becoming an esports athlete is not the only option for students. As discussed in the section on Career Opportunities, universities are increasingly developing and offering courses and degree tracks in esports. This enables gamer scholars to pursue a career that can either support esports or become deeply integrated into the culture and community. Such programs that are linked to academics or established departments have grants and scholarships that may not be specifically attached to esports, however a scholar gamer could apply based on their career pathway.

Because of these opportunities for esports athletes and scholar gamers, school districts, high schools and middle schools need to explore and develop support systems for their students

interested in these fields, just as they do for the core academic subjects, Career Technical Education (CTE), and STEM/STEAM. Esports programs can be seamlessly integrated into the existing supports systems. Doing so helps students prepare and plan for college applications and acceptance. Such plans could include subject-embedded or integrated esports experiences inside course curriculum, job shadowing, internships, career portfolios, and other college and career planning strategies.

Suggested First Four Steps

What makes esports into a program is not just having a team that competes. A program is created when a club and/or a course pathway is part of the framework. These components expand access and opportunities for all learners. However, this is easy to say than to do.

The danger is to implement fast and plan along the way. Such actions can lead to poor use of resources, lack of stakeholder support, and failures in execution that are irrecoverable. Witnessing and supporting schools that take the esports journey, there are steps that can help with planning and implementing an esports program that have a clear pathway for support, growth, and success. Here are suggested steps to take when developing or supporting development of an esports program.

Step 1: Build with the End in Mind
There are many schools who have launched esports teams who compete with other schools. Depending on their financial and physical resources, they manage their teams. Many schools have coaches who are responsible for multiple esports teams and manage practices and schedules. Other schools have a general manager who takes over the scheduling and logistics so that coaches can focus on coaching. Sometimes the general manager is also a coach. It is not uncommon for the coach to know less about the esports they support than the students who compete. In some school districts, there are individual teachers or students who quietly run an esports team with no resources or support from district administration, nor sometimes from the school they represent. A lack of a coherent organization structure and plan can make growth of a program challenging to impossible.

An esports team needs a program structure that understands and builds the support network that makes competition viable and sustainable. This is less likely to happen without logistics support and intentional plans for involving scholar gamers through clubs and courses, alongside the team. Developing a multi-year action plan, such as 3 years, is critical for the potential growth and success of an esports program. To this end, schools and districts should consider the following:

A) Research esports and esports programs

There are organizations that offer resources as well as articles written about what is esports in K-12 and suggestions for getting started. Review these resources[xxix] to become more educated on esports as well as some of the professional level games that students know and play. Contact

schools who have esports teams and programs. Learn about their stories, especially the successes and challenges that they faced and/or struggle with. Speak to universities that your students typically apply to regarding their esports programs. What do they offer? What do they see nationally in K-12 schools? What would they like to see from students who apply for their school and esports program?

B) Review the school or district's mission, vision, values, and goals for esports connections

Create a grid where the committee identifies how specifically an esports program aligns with the mission, vision, values, and goals. This alignment helps to communicate to key stakeholders the "Why" esports should be implemented and to identify sources for supporting a program.

C) Develop a multi-year implementation plan for an esports program

A multi-year implementation plan, such as three years, encourages leadership to think of building a systemic structure that can maximize inclusion of all students as esports athletes and scholar gamers. While a multi-year plan can be revised over time, having the end in mind helps ensure that decisions are focused on a common outcome that is aligned to the district or school's mission, vision, values, and goals. Allocating resources should be pre-thought out so that longitudinal data can be used over time to reinforce the steps taken to support. After one such planning session, an educator said that he wished they'd done a multi-year plan four years ago when they'd started because the program would be much further along at the present date.

Step 2: Identify and Build the Infrastructure
Do an inventory of equipment and technical structures. The results will help to identify any equipment needs, software systems adjustments such as scheduled or dedicated ports for accessing the games, bandwidth concerns, and other needs. Identified gaps should be reviewed and planned for how to address for program success.

Step 3: Educate and Build Stakeholder Support
While an infrastructure analysis is happening, a committee should plan their communications to stakeholders, using the research from step one. Stakeholder groups represent a variety of perspectives, such as students, parents, school and district staff, board, and community businesses and organizations. They will have similar and different questions and concerns. Create a messaging plan that address common points to be communicated to all stakeholder, while including additional information that is personalized to the needs of each stakeholder group.

Step 4: Implement Year One
Get started. Go slow to develop efficacy and smoothness of the program before picking up speed. Collect data and communicate progress frequently. Monitoring progress and challenges is important to addressing problems before they get too big to handle. Celebrate the success, big and small. If needed, start with a Year Zero. Use the time to organize committees and initial logistical needs that will support a more successful launch of Year One.

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xxix Some organizations to explore resources include:
NASEF: https://www.esportsfed.org/
PlayVs: https://www.playvs.com/
ByteSpeed: https://www.bytespeed.com/product/esports/hs-esports/ or https://www.bytespeed.com/resources/
Hackernoon: https://hackernoon.com/esports-industry-news-and-resources-596ad4d4c085

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