Designing an Interest-Based English Language Arts Curriculum around Esports

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Esports has grown as a worldwide culture, expanding to more than just players and spectators to include an infrastructure of organizers, strategists, content creators, and entrepreneurs (Anderson, et al, 2018). As esports grows in popularity and acceptance, educators have looked to connect the skills developed in esports with college and career opportunities. The North America Scholastic Esports Federation (NASEF) is the governing and organizing body created from the collective partnership of the University of California, Irvine (UCI) School of Informatics, Connected Learning Lab, Orange County Department of Education, Orange County STEM Initiative, and the Samueli Foundation. Each contributing organization leverages its assets and specialties to support NASEF's mission to bridge esports with student college and career readiness. Over two years, the team developed the first high school English Language Arts curriculum (ELA) with esports as its main content. Spanning 4 years, the esports curriculum melds ELA standards, Science, Technology, Engineering and Mathematics (STEM) practices, career-technical education (CTE), and social-emotional learning (SEL) under the umbrella of esports. In this paper we present the rationale for each step in the design process, and show how teacher feedback and student workshops shaped the curriculum and led to the design of other supplemental materials. We detail how the curriculum ties each set of standards together and report on first implementation efforts. Finally, we examine challenges that arose in the design process.

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INTRODUCTION

Esports grew up as a dominant worldwide culture, especially among youth. The World Championship of League of Legends, the most popular multiplayer online battle arena (MOBA) genre esports title, showed a steep increase in unique viewership from 27 million viewers in 2014 to 57.6 million viewers in 2017 (Goslin, 2017). Successful esports titles have already surpassed traditional sports in terms of viewership and player salary. In 2016, the NBA final match was viewed by 31 million people, while the *League of Legends World Finals* had 36 million unique viewers. The salary of esports players varies by teams and leagues, but *Faker*, the best and most widely known professional *League of Legends* player, earns $2.5 million a year as basic salary, $1.1 million from prize pools, and even more from streaming on *Twitch* with more than 1.5 million followers (Newell, 2018). Esports is no longer a cult-like phenomenon; it is a contemporary consumer culture among youth (Seo & Jung, 2016).

As this culture grows, colleges and high schools across the United States have begun to develop esports programs for their students. The first scholarship esports team in the U.S. was announced at *Robert Morris University* in 2014 (Tyson, 2014). According to *ESPN*, there are 126 institutions of higher education with varsity esports programs in North America as of February 2019 (Morrison, 2018). These varsity esports programs are similar to the varsity programs of traditional sports in several ways: Many of these collegiate programs offer scholarships to students, the same way they may for their traditional sports programs (Reitman, et al., 2019). Scholarship players are expected to train and practice routinely with their regular teammates and to play for their team in the collegiate leagues as traditional sports players do (Seo & Jung, 2016). The collegiate championships are broadcast live from the same studio as professional matches, giving students and players a stage to aspire to and an understanding of the number of people and professions necessary to produce a high caliber tournament (Reitman, et al.,

2019). The remarkable growth of esports as a school-based activity in U.S. is noteworthy, indicating a slow but sure decline of the stigma of video games and their rise as an alternative leisure activity. This wide and solid base of competitive esports players cultivates a richer environment across all tiers of esports competitions.

Beside the expansion of varsity esports programs in the last several years (Bauer-Wolf, 2019), high school leagues are developing rapidly in the U.S. (Schwartz, 2018). Organizations like the *North America Scholastic Esports Federation (NASEF)* support high school clubs across the nation and host nationwide high school leagues for different esports titles. Beyond appealing to the international popularity of esports among students, scholastic esports leagues are acknowledged as potential instruments for engaging high school students in learning (Reitman, et al., 2019). While diverse questions, opportunities, and challenges are presented by esports' presence in a high school context, so far little research has been done on the scope, structure, rationale, and potential benefits and drawbacks of the presence of esports in the high school environment (ibid.). Various stakeholders in education, including administrators and parents, may doubt the value of video game play in a school setting; bad press surrounding toxic play and behavior in "gamer" culture may be their only reference point, despite past research suggesting pro-social benefits in cooperative game play (Kovess-Masfety et al., 2016; Velez et al., 2016; Steinkuehler & King, 2009). But beyond that, incorporation of esports into high school brings specific challenges and opportunities, such as student and parent engagement, extracurricular activities, and interest-driven learning (Reitman, et al., 2019).

In this paper, we present the development of the first high school English Language Arts (ELA) curriculum that uses esports as its main content. In the first section of the paper, we explore why esports is a good vehicle for high school education: we briefly scan the status quo of esports-related activity in high schools and explain the rationale of an esports' approach to bridging students' interest and engagement in learning. In the second section, we illustrate the collaborative curriculum development process with experts and teachers of the *Orange County Department of Education (OCDE).* The third section describes the actual design of the curriculum approved by OCDE and implemented at high schools in Orange County. The last section of the paper depicts the first implementation of the curriculum in a high school class, from the perspective of teachers who participated in the curriculum design. Finally, we conclude the paper by presenting challenges we confronted while designing and implementing the curriculum.

RATIONALE OF CURRICULUM DESIGN

A landscape analysis of high school esports

Our group's recent research on high school esports (Reitman, et al.,2019) presents current approaches to esports implementation in high schools, summarizes common themes among them, and makes recommendations on this emerging field. Commonly described benefits of esports in high school include increased student engagement, academic and professional skill development, interest-driven learning, and social and emotional learning. Barriers for esports in high schools include convincing parents, teachers, and school administrators of the value of esports for interested students, and maintaining professionalism of the program itself. Recommendations for esports programs in educational institutions (Reitman, et al., 2019) include the following:

- Combine strong engagement at the local level with a stable central organizing body for schools to interface with

- Engage and educate parents, teachers, and school administrators

- Organize so that teachers and administrators offer a broad range of support to students

- Remain an interest-driven space

- Build close relationships between high schools and colleges across the nation

- Consider the educational aspects of selected games

- Encourage student engagement in school and community

- Foster skill learning for professional and academic development

- Emphasize development of social and emotional learning.

The rationale of our high school esports curriculum reflects in large part just these recommendations. The topic of esports fits well with the students' interests and provides an interest-driven learning environment for students. This interest is connected to the development of academic and professional skills, especially by fostering STEM skills. The social aspects of team play in esports emphasize social and emotional learning among students. And the creation, publication and implementation of the esports curriculum fills a gap between students' interests and the school and community.

Connected Learning

Our rationale for integrating esports with curriculum design builds on the Connected Learning approach (See Figure 1). Connected Learning combines interest-driven learning, supportive social relationships, and educational, economic, or political opportunities (Ito et al., 2013). In an age of abundant access to information and social connection, connected learning involves building more diverse entry points and pathways to opportunity by leveraging the affordances of new media (Ibid.). Esports provides a great opportunity for education from this perspective: esports is a peer culture of great popularity (Interest) that entails cooperative activity (Relationships) with promising authentic connections to STEM, CTE and potential career options (Opportunities).
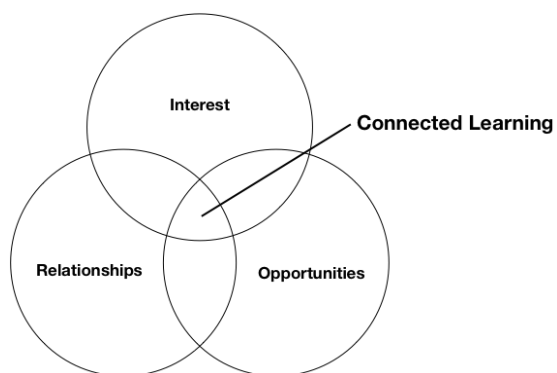

Figure 1. Concept of Connected Learning (Ito et al., 2013)

Context of Curriculum Design

The North America Scholastic Esports Federation (NASEF) is the governing and organizing body whose mission is to bridge esports with student college and career readiness. Founded in January of 2018, NASEF is a collective partnership between the *University of California at Irvine (UCI) Department of Informatics, Connected Learning Lab (CLL), Orange County Department of Education (OCDE), Orange County STEM Initiative,* and *Samueli Foundation*. Each contributing organization leverages its assets and specialties to take aim at NASEF's mission.

In its infancy, NASEF brought the novel concept of an esports league to high schools. Students with the passion to play League of Legends and other game titles could now do so under the banner of and with the approval of their schools. Research on aspects of science, technology, engineering and math (STEM) conceptualization, along with social-emotional learning, could be conducted through league play. However, the goal of NASEF was to more directly marry esports with learning and not simply through

play. Aware or not, student esports participants navigated real-world applications of various skills with positive career implications. For instance, students creating logos for their esports team utilized digital media arts. Recognizing the opportunities for more explicit learning in a more inclusive esports structure, NASEF veered away from advocating for the team-only structure.

Instead, NASEF purposely highlighted a "club" structure. Preliminary research (Anderson, et al, 2018) on the professional and collegiate esports scene revealed a more diverse and complex ecosystem than just competing teams. Figure 2 (below) illustrates the five role categories that comprise the esports community. As detailed in Lee & Steinkuehler (2019), *Content Creators* are artists, streamers and journalists across diverse platforms and variety of media (visual, audio, written and video) with demonstrated expertise across academic domains, skillsets, and tools. *Entrepreneurs* extend the boundaries of esports practice, supporting innovation and creating new products, deliverables, services, and opportunities. *Strategists* include coaches and analysts, whose primary focus is on gameplay data analysis for direct improvement of a specific team, and community contributors (theory crafters), who maintain the game knowledge base or "meta." *Organizers* handle the administrative details of the team's roster and finances, the online/offline competitions and marketing events, and the technical infrastructure needed for live competition and spectating. The NASEF esports club was thusly designed to reflect this broad ecosystem, including not only competitive teams but just as crucially, key leadership roles for students with various interests beyond the game itself. The positive opportunities for the actual application of student passions nested within the esports club grew exponentially as social media managers, website creators, shoutcasters, coaches and analysts all found a home within the esports ecosphere.

Figure 2. The esports ecosystem (Anderson, et al, 2018).

Research across the first year of the league was primarily exploratory in nature, investigating the existing and potential alignments of students' naturally occurring activity with core standards in STEM, English Language Arts (ELA), Career Technical Education (CTE), and Social-Emotional Learning (SEL). We also investigated important patterned changes to students' affiliation with school, peers and adults. Across six school sites selected for maximum variation in terms of income and ethnicity, we collected field observations (20 hours of fieldnotes) and focus group interview data with student club members (n=39), teachers serving as on-site General Managers (n=11), online virtual near peer coaches (n=5), and parents (n=10). Qualitative results showed strong potential alignments to standards across all domains (Tsaasan et al. 2019). Students' spontaneous activity within the first-year clubs included game data analysis, writing expository and persuasive text, computer setup, individual and team communication and relationship work, and increased affiliation with school. These first-year activities served as embryonic units and activities that we then chose to cultivate and amplify as the basis of our curricular designs. We took students' organic practices related to the league and used them as the basis for more structured and formal (standards-aligned) units, building on their existing esports interests to better engage them in topically-relevant and context-sensitive scholarship.

DESIGN PROCESS

Figure 3 (below) illustrates our curriculum design process which was iterative but proceeded along the following steps: draft-writing by teachers (January 2018), student workshop (February ~ March 2018), teacher workshop for instruction materials (June 2018), student summer camp (July 2018), and toolkit production for high school esports clubs (August 2018). Throughout each part of the design and development, researchers, teachers, district administrations and club student leaders were in constant conversation with each other to design materials and artifacts that would best leverage each stakeholder to support students and players. As development continued, materials built previously

would be repurposed and adjusted to inform future materials.

The curriculum design team was constructed to balance teacher practitioners, researchers and professional viewpoints and resources within the overall design. Following the creation of the first draft, a selection of activities was fleshed out for deployment as weekend workshops through the UCI Esports Arena. These weekend workshops were first piloted as parts of the preliminary curriculum as standalone activities with high school students. Alongside these lessons were topics that were interesting and natural points of discussion in esports learning but did not meld very easily into an ELA curriculum, such as building a PC or analyzing game statistics. Activities featuring esports skills such as shoutcasting or streaming were initially covered in the curriculum but were later pulled out and redeveloped as stand-alone practitioner workshops.

Even when the curriculum was approved and ready, we found that districts were hesitant to fully buy into a 4-year alternate curriculum. At a teacher workshop for creating instruction materials, teachers requested more reference materials, particularly resources to support ELA teachers unfamiliar with esports terminology or specific game communities. In response, we developed such materials as well as smaller "toolkits" to support teachers who wanted small, teachable segments to "taste" with their students. Such toolkits consisted of a host of esports resources, information about areas of the esports ecosystem, and sample activity ideas based on the weekend workshops.

Draft-Writing Workshop.

The curriculum design team was built to include equal parts researchers and practitioners to collaboratively, iteratively, and systematically engage with the creation and continuous improvement of curriculum design. The first workshop was organized as a 3-day session to draft the curricula and included 15 high schools teachers from Orange County, 2 curriculum specialists from University of California Curriculum Integration, 3 STEM, 2 CTE, and 1 ELA experts from Orange County Department of Education, and 6
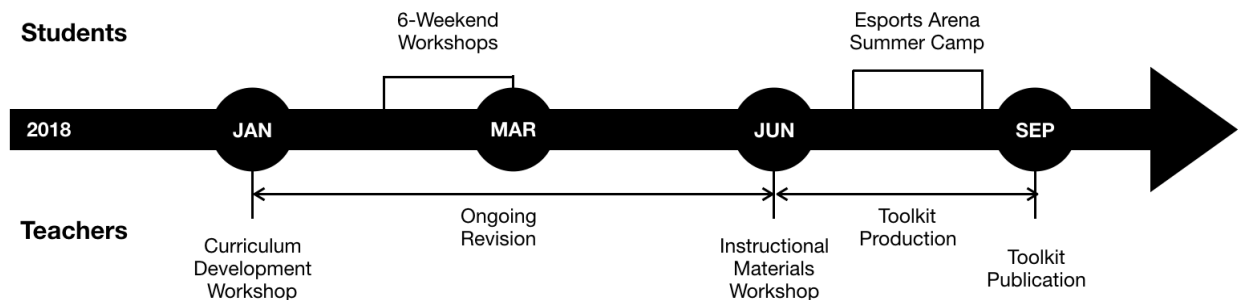

Figure 3. Timeline of curriculum development

Grade 10: Esports and Entrepreneurship			
Unit title	**ELA**	**CTE**	**STEM**
Unit 1 Who is an entrepreneur?	Argument writing, character analysis, creative and expository writing	Introducing the concept of entrepreneur	Obtaining, evaluating, and communicating information effectively.
Unit 2 What makes an entrepreneur do the things they do?	Reading Norse Mythology and Frankenstein (graphic novel). Analyze characters.	Evaluate strengths and weaknesses in order to compare their readiness	Developing a conceptual model for how entrepreneurs identify and address problems
Unit 3 The entrepreneur and the game	Listening to and making journal entries about Seth Godin's Top 10 Rules for Success.	Investigate rules and apply them as they prepare to promote their esports products and services	
Unit 4 The art of winning - the entrepreneur and funding	Reading Moneyball: The Art of winning an Unfair Game by Michael Lewis	Understanding the importance of financial position, and the need to use statistics and analytics to run a successful business.	Obtaining reliable data, analyzing the data, and engaging in argument from evidence
Unit 5 Culminating unit: the true business for you	Writing a logically sequenced executive summary following the conventions of the English language	Synthesize components of the esports business Plan and finalize the executive summary	Present the final models by using a multimedia presentation and evidence-based claims.

Table 1. Outline of esports and entrepreneurship curriculum, Grade 10

researchers from Connected Learning Lab. Five collegiate League of Legends players were also invited as guest consultants to provide deeper knowledge about games and experiences as student players. The equal parts research and teacher practitioner teams ensured that teachers could drive the development of the curriculum but have enough support from experts to create a curriculum that genuinely engaged in CTE and STEM practices. Researchers and players helped ensure that esports was used and represented faithfully.

Before the first workshop, we set our agenda for each of four different grades. Grade 9: Esports and Game Design, Grade 10: Esports and Game Entrepreneurship, Grade 11: Esports and Game Marketing, and Grade 12: Esports and Game Hospitality/Recreation. Before starting to write drafts, researchers and teachers reviewed previously approved English 9 and Game Design curriculum as a sample to inform the requirements and structure of Orange County school curricula. Researchers prepared suggested topics for each grade to give teachers ideas for potential connections between

esports games and learning. Each grade consists of 4 or 5 units, and each unit consist of 4-5 key assignments. Table 1 (above) outlines units from the Esports and Entrepreneurship (Grade 10) curriculum; Table 2 (below) presents sample key assignments for one of these units.

For each grade level, researchers provided lists of academic materials such as books, papers, and online resources to help establish a theoretical background for the curriculum. For teachers who were less familiar with video games and concurrent cultural practices around video games, researchers also provided materials that helped explain the game itself and other surrounding culture such as streaming and esports spectating. In our case, *League of Legends* was chosen as the target game because of its wide fan base and overall longevity; we provided supplemental materials such as *Riot Games'* official guide for playing *League of Legends*, videos of well-known *League of Legends* game streamers, and play videos from official World Championship events.

Assignments of Unit 2, Grade 10: What Makes an Entrepreneur Do the Things They Do?
1. Way up norse!
1. Read Norse Mythology by Neil Gaiman—decisions made by the gods. Mythological characters often make decisions that prove to result in some pretty extreme complications. Students choose one of the stories from Norse Mythology and rewrite the story by having the characters make different choices. 2. In continuing their examination of decision making as related to entrepreneurs, students read article "why are so many video game developers going Norse in 2015" – In a framed, formal discussion, students answer What decisions were made and why? Students read THE HOBBIT and decide which characters are based on Norse mythology. In class discussion, students answer the following: • Why do you think Tolkien chose Norse mythology? • What does Norse mythology add to the story? Students then write a character analysis, in which they discuss the decisions made by the characters. To help guide their analysis, students may use the Decision Quality requirements and the percentages of the "Frame and Values" found in the materials from Decision Quality Education Foundation.
2. Frankenstein: Entrepreneur or Monster?
1. Students will read a graphic novel version of Mary Shelley's Frankensteinand write a literary analysis essay in which they explore the notion that Dr. Frankenstein shares the same motivations and traits as many entrepreneurs. 2. Using a graphic visual, students synthesize the information found in the following articles and present their understanding of the ethical tipping point between "successful entrepreneurs" and "monsters." • Revisit the research that shows entrepreneurs often exhibit signs of loneliness (Read: Being an entrepreneur can get lonely. Here's how to overcome it. • Research also shows that entrepreneurs often operate from fear: "The 7 Fears that all Entrepreneurs Must Conquer" In making the visual, students will also consider the following: • Entrepreneurs often succeed at the cost of great personal sacrifice (families, hobbies, health, etc.) • How far is too far when it comes to being successful? Example: In Frankenstein, who is the monster and who is the victim? • Entrepreneurs are known for being adrenaline junkies
3. The Fears
After class discussion about the extrapolation found in the genre of science fiction, students write an analysis to the following prompt: Ultimately, Frankenstein, at the end of the novel, speaks about himself with the same woeful, self-condemning language the monster applies to himself. Has Frankenstein become the monster? How might this evolution (or devolution of Frankenstein) reflect the fears Shelley may have had for society? Use your text analysis and your understanding of science fiction to explain.
4. Fears of Society concerning Esports—the Play
Students create a scenario where esports may go wrong. They write a script and present their skits using multimedia, props, and creative costumes. In writing the script, students should consider the traits of a successful entrepreneur and the steps for overcoming, or not overcoming obstacles. The play should clearly show the dangers of an entrepreneur in the esports ecosystem and the perceptions of the audience, both intended and unintended.

Table 2. Key Assignments for Unit 2, Grade 10 of the Esports and Entrepreneurship Curriculum

As a result of this workshop, teachers and staff wrote the first draft of curricula for grades 9 to 12, meeting standards for the California Common Core; English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects (CA CCSS for ELA/Literacy); Career Technical Education (CTE); International Society for Technology in Education (ISTE); California Next Generation Science (CA NGSS); and Collaborative for Academic, Social, and Emotional Learning (CASEL).

Weekend design charette

Based on the initial outlines from the first teacher workshop, researchers and the *UCI Esports program* hosted 6 weekend workshops from February to March 2018. Student participants joined from high schools in Orange County, California and many of them were participating in esports club activity in their own schools. The number of participants varied by each week (Min: 13, Max: 20), but the size of the workshop was appropriate for hands-on activities and group presentations.

For each workshop, a local high school teacher joined to lead the session to simulate the activities in a classroom-like environment. Additional experts were invited according to the topic and helped develop content and lead the session with detailed information. For example, 'Get Started with Your Build' workshop was planned and led together with *iBuypower*, a well-known company that sells customizable gaming PCs, and coaches and players from the *UCI League of Legends collegiate team* joined as guest lecturers for the 'Analyzing the Game' workshop. Each workshop lasted for 3 hours, and was followed by an optional hour of free gaming in the UCI esports arena.

The topic of the workshops was selected from the units and assignments of the curriculum draft. The research team also added details to the topics under the themes of STEM, social-emotional learning, and healthy gaming. Activities that encourage scientific thinking or mathematical analysis were designed for STEM related content and activities that include consideration of social relationships and emotional regulation were designed for social-emotional learning (SEL) content. Each workshop included hands-on activities followed by group discussion to encourage active learning of students. Table 3 presents a brief list of content for each week.

By running the workshop, the research team could foster a semi-formal environment for addressing targeted educational content outside the experimental lab setting. One of the invited teachers commented that "it was a good start for core subjects," and "individual [teachers] should review this core curriculum each year and adjust specifics."

Workshop Title	STEM	SEL	Activity	Other
Get started with your build	Hardware / Building a PC	Code of Conduct	Meet the players	Self introductions
Analyzing the game	Analyzing and presenting characters by numbers	Group presentations	Laning	Healthy Gaming
Improving your game	Analyzing your game play & mindset	Reflecting on self	Reflecting on self	
Casting your game	Technical set-up	Professional Communication	Cast Reviews	Biomechanics of gaming
Streaming your game	Computer networking; define a persona	Responding to trolls	Set up a stream	
Tournament organization	Human Design & Rules	Organization & Teams	Outline a tournament	Next Level Nutrition

Table 3. Esports workshop plans by content focus and activity.

Curriculum creation and refinement.

In June 2018, a group of teachers assembled to develop lesson plans and materials for the upcoming school year. These teachers from Samueli Academy would be in the vanguard of the curriculum implementation process, fleshing out the initial curriculum into individual lesson plans and activities. In the process, they also generated a list of standalone lesson subjects and identified areas in the esports ecosystem where they may need more support. For example, even for teachers already familiar with games and game communities, they identified how a glossary of esports terminology would prove useful as a resource for educators. During this process, the teachers were mindful of shielding this curriculum of criticism from existing ELA departments and schools, so the lessons were written embracing Common Core standards in a breadth of reading and writing genres. They were also strategic in selecting poems, novels, and nonfiction that teachers could find online, making the implementation of this curriculum possible and free for any teacher with access. With notes and a list of useful subjects, we were able to develop a series of "toolkits" and teacher resources that could not only support an interested teacher in onboarding to the curriculum, but also provide standalone lesson activities to work into existing schedules or lesson plans.

After the first year of implementation at Samueli Academy, a host of other private and public schools are piloting the program for their districts, and new levels of curriculum are being developed by a small

team under the OCDE for junior high ELA. Some sites are diving in with the 9th grade class, whereas others are squeezing the odd section into its existing master schedule. For example, one site is starting its 11th Esports ELA course as that is the most fitting spot in that site's course offerings. However, the intention for many sites is to create Esports pathways to capitalize on student interest thereby creating a competitive edge with neighboring schools in an era of declining enrollment.

Credentialing process & final revisions.

In order to give gravitas and legitimacy to the curriculum, the design team determined it was vital the curriculum be certified by the governing body in California. The University of California, Office of the President (UCOP) reviews and approves curriculum that qualify high school students as having met the prerequisites to apply and attend University of California or California State University schools throughout the state. Labeled A-G courses (A - history/social science, B - English, C - math, etc), this system has become the gold standard for California high school students and an important metric for college and career data. In order to have serious relevance on a high-school campus, a course-- particularly an ELA course-- must be A-G approved.

The UCOP certifying staff did not initially know what esports was or understand how esports could be successfully embedded in standards-based content. Similar to how messaging assured parents, teachers and administrators of the potential for using esports for learning purposes, the UCOP was convinced of the learning potential of an esports-centered curriculum. Over a three-month communication, UCOP and OCDE fine-tuned each course. For example, UCOP requested more poetry needed to be added to one of the courses, additional novels to another. Different assessment options were also requested and added. Since each of the four ELA courses was completed at different times, they were submitted for A-G approval with UCOP on a rolling basis.

THE CURRICULUM DESIGN

The curriculum was designed to span four years of ELA education. Using esports as a specific space and context, the curriculum connects ELA standards with career-technical education (CTE) subjects while integrating STEM skills or social-emotional learning (SEL). Each grade level focuses on a different esports and CTE intersection while remaining within the scope of the ELA standards for that level. As stated above, the design of the curriculum contains interest, relationships and opportunities, following the theory of connected learning (figure 3.). In 9th grade, students

focus on understanding narrative through an exploration of the game design process, 10th grade examines rhetoric through marketing, 11th grade highlights argumentation in entrepreneurship, and 12th grade practices writing as documentation as used in hospitality. While the curriculum is designed to serve all four years of ELA requirements, it is not necessary to take all four years; each course is self-contained and students can jump in or out of the esports-ELA track throughout their high school years.

As these courses have had a soft implementation during 2018-2019 at the Samueli Academy, they have been reexamined, revised, and refined by a small group of teachers from different schools. This group was comprised of two Samueli teachers with a year of experience teaching these courses and four educators who anticipate teaching the curriculum in the fall of 2019. All aspects of these courses are reviewed by this team throughout the year to ensure the curriculum is serving the students well. It is likely that the curriculum will be continually refined as more gain experience as ELA Esports teachers. In what follows, we detail two units from grades 10 and 12 respectively.
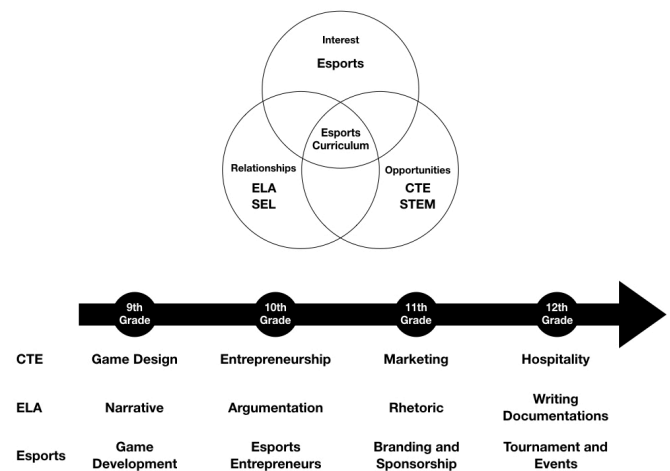

Figure 4. The structure of 4-year esports curriculum.

Grade 10: Blue Sky Beginnings: Understanding the Exile of Entrepreneurship

In sophomore year, students use fiction and nonfiction readings to explore themes in entrepreneurship, ultimately building a business pitch within the esports space. The first half of the curriculum explores the concept of entrepreneurship in esports, including the ecosystem of characters involved, characteristics of entrepreneurs, and issues in esports. The second half then scaffolds a student-driven pitch and business plan, allowing students to put themselves into these shoes and stretch their own entrepreneurial muscles.

The curriculum begins with a unit on *"In the Blue Sky Beginnings (Starting from Nothing)"* which introduces students to the theme of human connections, loneliness, and niches. Students examine this first in a literary setting, then in an esports setting: The first key assignment uses Aldous Huxley's dystopian novel *Brave New World* as a springboard for exploring the condition of exile. Specifically, students explore the "essential sadness" and the "enriching" potential of exile. The second key assignment pivots towards esports: students read T.L. Taylor's introduction to esports *Raising the Stakes: E-Sports and the Professionalization of Computer Gaming.* Students watch an esports tournament and identify a pain point or perceived need in the esports ecosystem. Then they pitch an original product or service that could fill the need. In writing their justification for the product or service, students are exploring what human needs and connections can be met, experiencing the loneliness of innovation, and identifying a niche in the community.
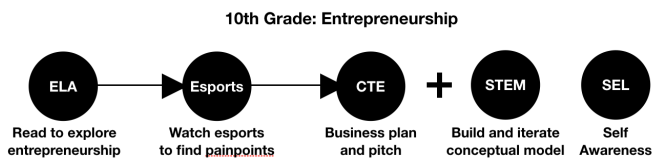
10th Grade: Entrepreneurship

ELA	Esports	CTE	+	STEM	SEL
Read to explore entrepreneurship	Watch esports to find painpoints	Business plan and pitch		Build and iterate conceptual model	Self Awareness

Figure 5. Design structure of 10th grade curriculum (entrepreneurship)

This introductory unit sets the foundation for a working conceptual model of what entrepreneurship is and what esports constitutes. Mirroring the STEM practices of building and iterating on conceptual models, students are building an expansive understanding of what constitutes esports entrepreneurship throughout the curriculum. Character analyses in ELA texts are included not only to provide a deeper engagement of the texts but also to examine the entrepreneurship condition. With each assignment, students are asked to read, annotate, analyze and write. This unit highlights the Self-Awareness core competency of CASEL's Self-regulation framework by engaging with emotions explicitly, but it also explores themes of self-management—motivation, self-discipline, and goal setting, in both the personal and entrepreneurial experiences.

Grade 12: There Be Dragons Here!: Grit in the Hero's Journey

By their senior year, students are encouraged to take charge of organizing a school-wide esports tournament and festival— the units of the year scaffold the different roles of the tournament (such as players, shoutcasters, streamers) and highlight how to plan successful and welcoming events. Working in groups, students develop, brand and plan for the tournament, finally bringing their tournament to life at the end of the year.

About halfway through the year is the *"There be Dragons Here!"* unit, situated so that students can build familiarity with their tournament plan while developing an appreciation of the grit involved in drafting and executing a tournament plan. For example, there are three key assignments within the unit: for *"The Nitty Gritty,"* students dive into the details of planning their tournament by compiling a Tournament Project Managers' Book of Knowledge (PMBOK) Binder. Divided into teams such as marketing and publicity, shoutcasting, catering or facilities managers, students work to flesh out a small part of the tournament and then combine it with other teams to establish a coherent tournament plan. *"The Hero's Journey"* assignment supplements this process with readings about Angela Duckworth's psychological construct of grit and viewings of a film where the characters undergo the classical literary vehicle of a hero's journey, demonstrating grit and persistence in the face of setbacks. Finally, the assignment *"Fire and Fury"* challenges students to confront potential setbacks to their developing tournament plan: as students devise suggestions and practices for dealing with the unexpected, they develop and refine contingency plans which are added to the Tournament Binder.

From CTE and STEM practice standpoints, this unit is about breaking down a plan or model system into smaller, interacting component systems. Students are working together, using collaborative technologies, to build towards a common, real-world goal. On the ELA side, students write and document their tournament plan. They also analyze the role of grit in the hero's journey, then apply this to overcoming obstacles and setbacks directed at their own plans. These skills in overcoming obstacles and last-minute setbacks were identified as essential in hospitality work; they are also directly mentioned in the Self Management SEL core competency. Through constant iteration of their tournament plans, students in their team roles are identifying problems, analyzing situations, evaluating possible paths of action, reflecting on their decisions, and finally communicating their suggestions with other teams. In addition to familiarizing students with their plans, this iterative process gives students the opportunity to build upon the Relationship Skills and Responsible Decision-Making core competencies. All of this is encapsulated within a single unit where students are building an appreciation and understanding of grit while practicing with their own projects.
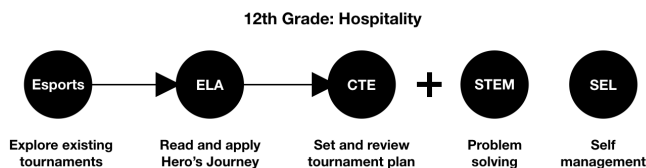
12th Grade: Hospitality

Esports	ELA	CTE	+	STEM	SEL
Explore existing tournaments	Read and apply Hero's Journey	Set and review tournament plan		Problem solving	Self management

Figure 6. Design structure of 12th grade curriculum (hospitality)

While taken from separate curriculums, both example units illustrate how the curriculum weaves together five sets of content. STEM practices such as model building and systems thinking underlie the curriculum. ELA skills such as communicating analyses and writing skills comprise the core skills that each unit develops in a new format. CTE themes guide the ELA activity and provide a link between classical literature texts and concerns in the 21st Century world of work. Disciplines such as entrepreneurship and the many forms of hospitality and customer service are represented throughout the curriculum. Each unit of activities encourages SEL competencies not only through group cooperation and communication, but also by providing time for individual reflection. Finally, esports is the context for all these activities, serving as the space framing the learning. By looking at the living esports ecosystem around them, students can find concrete examples The 10th and 12th grade examples were taken from the beginning and middle of the year, respectively, but both structure assignments to connect themes in literature, such as character isolation or persistence in the hero's journey, to a theme in the esports ecosystem, such as esports entrepreneurship or event planning. While individual assignments may not capture all five content areas, other assignments in the unit provide an inclusive context.

Digital Toolkits

After a series of workshops, the research team and NASEF published esports toolkits for starting high school esports clubs. These toolkits serve as guidelines for managers to start and run a new esports club, and for members to pursue specific interests during club activities. Also, teachers or club managers who wanted to pilot an activity but could not commit to the entire curriculum can take advantage of the supporting toolkits as they consist of diverse hands-on activities we piloted from our previous student workshops. The toolkits also include additional interesting and important ideas and resources that did not map easily onto the formal curriculum.

Club management toolkits were published by NASEF, given as a fundamental resource to review by club managers. These toolkits contain essential

information to create (i.e. Create a club, Recruit club members), operate (Produce a stream, Hold a tournament), and maintain a club as a sustainable organization (Draft and approve a club charter, Hold a club fundraiser).

Supporting toolkits are designed for non-player club members who participate in the club. Based on the esports framework, this series of toolkits provides diverse activities which students can experience in an esports club setting while searching for potential career paths as they engage in club activities. This series of toolkits is more activity-driven compared to the club management toolkits. The toolkits suggest a few different expertises such as shoutcaster (Shoutcasting your game), event organizer (Planning a Tournament), journalist (Esports Journalism), or marketer (Marketing your team).

Club management toolkits	Supporting toolkits	
• Create a Club (or make your Club stronger) • Recruit club members • Develop team website(s) • Hold a club fundraiser • Hold a stream • Hold a club meeting • Hold a club event • Hold an info night for parents • Hold or attend a tournament	Basics	• Esports 101 • Clubs & Teams 101 • Being a Successful Esports Athlete
	Strategies	• Teamwork & Conflict Resolution • Using Data to Improve Your Game
	Content Creation	• Shoutcasting Your Game • Streaming Your Game • Fan Art: World-building and Storytelling
	Organizing	• Building a Gaming PC • Planning a Tournament • Esports Journalism
	Entrepre-neurship	• Fundraising for Team • Marketing Your Team • How to Make a Team Video • Making a Website

Table 4. Structure of esports club management toolkits and supporting toolkits.

Toolkits were arranged to be helpful for people in different positions, with a wide spectrum of esports knowledge. Managers or teachers who are relatively new to the world of esports can benefit from "Esports 101", which provides information about the culture of esports, general statistics about esports around the world, common mechanics of games commonly

played widely, and guides to understand esports players and fans.

FIRST IMPLEMENTATIONS

Being on the frontlines of any new programmatic implementation in the K-12 world is often fraught with staggering pitfalls. These include among colleagues, with the parent community and in the eyes of administrators. Notice that the group not mentioned would be students. From the first breath that esports took as a high school English course, students received it with nodding approval. In fact, when one of the primary course writers visited a pilot classroom, students actually applauded her for the work.

Teacher buy-in to the concept was necessary for the courses to be created and was equally required for its implementation. The curriculum often replaced a cozily familiar program of study that a teacher massaged and perfected over many years in a classroom. To bring in something radically different that challenged and stretched a teacher's comfort zone meant it needed to provide great interest to students and value to the educator. In the end, that is what happened.

Students blindly enrolled in the courses having only gotten a spotlight overview the previous spring during an assembly. Incoming freshmen blindly signed up to take the course based on the wording of a flyer they received while still 8th graders. When asked why they took a chance on this version of ELA, responses generally revolved around boredom with "traditional" English courses and expressing great interest in video games.

As for the teachers who first implemented the curriculum, they often described the process as "building the plane while flying it." This was unpacked in midyear and ongoing dialogues as their having sufficient knowledge of the course content, the itinerant activities and the learning objectives (as the teachers in question had all participated in the original drafting and reworking of said content prior to inaugural use in 2018), but still feeling unsure and, in some instances, bewildered by how to actually execute activities that had been theoretical premises only months earlier.

CHALLENGES

Throughout the process there were many challenges that arose in the development of the curriculum. We briefly address six of these: The first two challenges discuss the relationship of the curriculum to specifically STEM and ELA standards; the next two address challenges with the development of the curriculum because of competing standards and lack of teacher familiarity with esports. Finally, we address

a logistical and moral consideration of building a curriculum around esports.

The first two challenges discuss the relationship of the curriculum to data science and ELA standards. The initial curriculum goal was to make explicit the natural connections of esports and STEM skills. While there was ample opportunity to bring in science and data science practices, there was *less data science incorporated than expected*. A curriculum addressing these data science would not combine into a cohesive equivalent of college-prep STEM course. Further, other math or analytical skills would be needed to build up separately--in order to do some of the analytics, other statistical skills need to be understood. Ultimately, we chose to build the STEM and data science heavy connections into separate, standalone workshops. These could be easily integrated into a course for a few days, but not require an entire class to experience. As we examined the roles of the esports ecosystem, we found more positions that dealt with communication than data analytics. This led to the turn towards an ELA-rooted course. Despite the shared goals of esports and ELA practices, *ELA teachers were not our natural allies*. College-prep level language arts has an extensive and existing canon of material. The curriculum developers were ELA instructors from a variety of schools, some which afforded their teachers more or less leeway to deviate from this literary canon. The reconciliation to these tensions seems to be reading books in the literary canon for themes that connect to the esports experience. Some of the teachers expressed great interest in using other forms of literature such as poetry, graphic novels, or film to supplement readings and help emphasize the cross-platform nature of the themes. Therefore, the curriculum was written to include suggestions or options that teachers might explore to satisfy the expectations of their sites.

As we found connections between esports and CTE, STEM practices and ELA content, school affiliation and SEL opportunities, more sets of standards became layered onto the curriculum. While this meant the curriculum was rich with opportunity and experience, tracking and addressing many different sets of standards all at once led to perhaps *too many standards to meet and too much going on*. Certain standards were more applicable or easier to work within the context of this curriculum. In terms of pedagogy, it would be ideal to have time to explicitly state and discuss the overlapping goals of each lesson (Durlak, 2011). With so many overlapping standards though, addressing these would eat into the time and essential focus of the course. Finally, we noted that *teachers knew little about esports,* so we needed to design the curriculum-building workshops and curriculum itself accordingly. For the creation of

the curriculum, a group of two ELA teachers, two CTE experts, and one esports researcher worked on each grade level's content. A pool of professional esports players and personnel also floated throughout the groups to offer insight. By structuring the development sessions this way, we hoped to allow experts to share content expertise and ideas. While this generated interesting connections, we did notice that different professionals had different vocabularies, and little esports vocabulary. During the workshops, we brought in content experts and professionals, but not all of these knew how to effectively engage and interact with students. On the other hand, teachers knew little about the esports space, even when they had other experience with games. Thus, toolkits built from curriculum or tangential ideas were written with minimal prior knowledge expected of the teachers and even included an Esports 101 toolkit. Much of the toolkit activities revolves around a constructionist pedagogy, asking students to build their learning via personally relevant projects. While this puts the onus of esports knowledge on the students, a teacher with minimal knowledge of esports can still help point students to different directions.

Finally, as the authors participated in the curriculum development, we found that we were constantly balancing *the corporatization of play critically without endorsing one company or another.* That is, esports is a very corporatized space and a discussion of the products cannot be distinguished from a discussion of the companies associated: teams are sponsored by companies, specific hardware pieces are developed by companies, and even games themselves are products of game companies. The curriculum is game-agnostic in order to allow the classes to adjust in relation to students' interests, but in some instances, it was hard to create a unit assignment that did not presume some team or competitive structure.

CONCLUSION

In this paper, we present the development process of the first high school ELA curriculum that incorporates esports, in cooperation with teachers and experts of the Orange County Department of Education. It includes the entire process of the curriculum publication from the initial curriculum design workshops to credentialing final approval process by the University of California, Office of the President (UCOP). We also introduce the highlight of the curriculum which embraces ELA standards and CTE subjects for each grade under the topic of esports.

The entire design of the curriculum reflects the theoretical background of connected learning (Ito et al., 2013). The incorporation of esports under an official ELA curriculum emphasizes school and parent's engagement in students' interest-driven

learning toward the opportunities of academic and career education. Also, a cooperative nature of esports play fosters socio-emotional learning, and the implementation of this new digital media as a gateway of learning involves STEM education opportunities.

Besides curriculum for high school classes, we also developed activity-based toolkits for starting esports clubs after a series of workshops with high school students and teachers. Club activity enhances engagement of students with the school and peers, and esports can be leveraged as a great entry point for them to retain social connections.

In our past research works (Reitman, et al., 2019), we have found concerns from parents and teachers on esports being incorporated as an activity at high schools. The anxiety comes from the imperfect and negative understanding of 'gamer cultures' that are nascent to the older generation. The development of esports curriculum bridges the gap of understanding of parents and teachers to the students' interest with the formalized incorporation of esports into schools. By embracing esports as a catalyst of educational interest, we expect that schools will be able to enhance engagement of students into the existing subjects and expand the scope of career education to emerging career paths around students' interest.

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