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# International Journal of Esports



## Esports.edu: An Inventory and Analysis of Global Higher Education Esports Academic Programming and Curricula

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### Abstract

This study aims to discuss the purpose of higher education esports academic programs, offer the first known comprehensive worldwide inventory, and conduct a comparative content analysis of their curricula. Data was collected through structured internet searches, global esports academic research networks, and personal correspondence. Underpinned by Diffusion of Innovations Theory's construct of innovation adoption (Rogers, 2003), data was analyzed through a systematic iterative comparative content analysis. Findings revealed 95 esports bachelor's degree, master's degree, technical degree (i.e., diploma), certificate, or undergraduate minor programs delivered by 74 higher education institutions, primarily located in North America and Europe. The vast majority of these programs (80%) focused on esports business (e.g., management, marketing) and, on average, these programs required 5.7 (SD = 3.4; range 1-15) esports-specific courses (i.e., modules). Moreover, findings also revealed that there are at least 16 other higher education institutions that provide stand-alone esports courses that do not also offer esports academic programs. Current trends and ideas around esports content being taught and career opportunities regarding future directions of esports academic curriculum are presented. Program content and structure discussed are important for esports industry job hiring decision-makers, prospective esports students, esports faculty members, esports researchers, and higher education administrators.

**Keywords:** esports degree, certificate, diploma, course, curriculum, instruction, #EsportsEDU

### Highlights:

- A detailed figure categorizing esports related professions is provided, which has been translated into English, French, German, Japanese, Portuguese, and Spanish (Appendix A).

- At least 74 higher education institutions worldwide have offered 95 different esports bachelor's degree (35), certificate (27), undergraduate minor (13), master's degree (11), or technical degree/diploma (9) programs.
- The majority of found higher education esports academic programs are offered in English (62%) with the bulk (80%) focused on esports business-related majors (i.e., management, marketing, entrepreneurship).
- The average program where curriculum was available (n = 77) required about 6 different esports-specific courses (i.e., modules).
- An analysis of 404 esports-specific courses (i.e., modules) offered by 59 different higher education institutions that deliver esports academic programs revealed the most commonly included courses related to esports business/management (22%), introduction to/history of esports (13%), and esports media production/communication (12%).

## Introduction

On May 23, 2020, Staffordshire University London Digital Institute (@staffsunildn) tweeted about an upcoming presentation regarding their esports academic degree program that stated, “Soon, working in Esports will require a university degree.” This tweet was then quickly deleted after a re-tweet with a comment by @DeKay (2020) was “liked” more than 1.2k times that said, “The fuck it will. I will battle until death against people who claim this BS. GTFO. Deleted now of course so they can run back and frame it a different way before posting again.” Moreover, in response, Adam Fitch (2020), an editor with both the *Esports Insider* and *The Esports Journal*, interviewed a Staffordshire University student enrolled in the esports academic program to address this recent discussion and learn more about what an esports degree entails. At the outset, it appears that some individuals within the esports industry may be skeptical regarding the value of the curricular contents of an academic esports degree. In addition, higher education professionals and potential students should also be aware of the current academic esports landscape, foci of current esports education, and potential opportunities for future esports education programming.

### ***Growth of Esports Globally***

Since the beginning of 2010, esports has become increasingly popular in our digitized society (Jenny et al., 2018; Scholz, 2019). With the emergence of streaming platforms (i.e., Twitch, YouTube) around 2010 in the Western world, the release of new video games (e.g., *Starcraft II*, *League of Legends*), and the advent of new video game industry business models (i.e., free-to-play), esports has gone from a niche practice reserved for insiders to a widespread entertainment industry (Gawrysiak et al., 2020). Between 2010 and 2019, the number of esports players who earned cash prizes rose from 3,435 to more than 27,700, while the cumulative cash prizes distributed each year increased from \$6.3 million to \$235 million USD<sup>1</sup> over the same period (Esports Earnings, 2020). Spectators of major esports competitions (e.g., *League of Legends World Championships*, *Counter-Strike Majors*) continue to increase each subsequent year, and 495 million people around the world are regular or occasional esports spectators (Newzoo, 2020). Finally, despite a lack of consensus on the market value of the esports industry, projections show a clear growth over the last decade (e.g. Grand View Research, 2020; Newzoo, 2020), with Ahn et al. (2020) estimating the 2019 esports revenue size at nearly \$25 billion USD.

### ***Growth of Esports Higher Education Academic Programs***

The number of higher education academic esports programs worldwide is increasing. To our knowledge, the first esports degree program was offered in 2004 by Danube-University Krems in Austria, called a Master of Science in E-Sport and Competitive Computer Gaming (Füricht-Fiegl, 2004). Shortly after, in 2007, Chunnam Techno University in South Korea started offering a two-year “Esports” degree focused on esports performance and casting (i.e., broadcasting) (Denyer & Kim, 2019). Likewise, in 2016, Ahlman College in Finland started a one-year “Esport-linja” degree also focused on performance esports (Secuianu, 2020). Then, in 2018, Becker College in the United States, Staffordshire University in the United Kingdom, and Kajaani University of Applied Sciences in Finland each became the first higher education institution in their respective

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<sup>1</sup> We deliberately chose not to take into account data for the year 2020 due to the cancellation of some major esports events (notably Dota2's *The International* and Fortnite's *World Cup*) due to the global health crisis related to COVID-19.

countries to offer undergraduate esports degrees (Becker College, 2018; British Esports Association [BEA], 2019; Kanter, 2017).

Presently, while this list is not exhaustive, one or more higher education institutions within the following countries now offer undergraduate or graduate esports academic degree programs: Austria, Canada, China, England, Finland, France, Germany, Spain, South Korea, and the United States (Burton, 2019, Chan, 2019). Moreover, at the secondary school level, in April 2020 the BEA (2020) announced a partnership with education company Pearson to offer the world's first Business and Technology Education Council (BTEC) secondary school leaving qualification in esports. This is now being mimicked at the secondary vocational level in the Netherlands (ROC van Amsterdam, 2020). In addition, the New York Institute of Technology's (2021) Center for eSports Medicine, Harrisburg University of Science and Technology's Center for Applied Research in Esports (2020) in the United States, the University of Limerick's (2019) Lero Esports Science Research Lab in Ireland, and the University of Augsburg's Research Center for Esports Law (2021) in Germany all facilitate empirical esports research. Likewise, the *Esports Research Network* (2021) fosters esports research collaborations with academics worldwide. Finally, the *International Journal of Esports* (2021), the *Annals of Esports Research* (2021), and the *International Journal of eSports Research* (IGI Global, 2021) are new platforms for disseminating esports research. These entities are all appearing to capitalize on the aforementioned massive acceleration in global esports popularity.

However, despite the rapid growth of esports and the emergence of worldwide esports degree programs, no empirical research could be found that has investigated curricular contents of higher education academic esports programs. In addition, an expansive listing of global esports degree programs is lacking where prospective students and academic administrators might further be able to investigate these higher education opportunities.

Thus, the purposes of this paper are to provide: 1) a discussion of the potential purpose of an esports academic degree, 2) an extensive inventory and overview of the current existing higher education esports academic programming and curricula offered globally; 3) a comparative content analysis of these programs, including type of program, program goals/objectives, and esports course curriculum – with future directions of esports academic curricula in mind. This content analysis is framed through the theoretical lens of Diffusion of Innovations Theory (Rogers, 2003), highlighting the academic institutions and specific career fields which appear to be early adopters, early majority, late majority, or laggards within this space. However, prior to introducing this theory, a brief discussion of the aim of esports academic programs as well as non-higher education entities offering esports education is provided to further contextualize the current study.

### ***General Purpose of Esports Academic Programming and Curricula***

The professionalization of a field is inextricably linked to job education within that sector. Therefore, institutions of higher education are beginning to recognize the potential value of an esports education as the esports industry continues to grow (eFuse, 2020). The collegiate competitive space has seen steady increases as the academic side of esports has grown. The general purpose of academic esports programs are to prepare students with the knowledge, skills, and abilities to successfully enter various career fields within the esports ecosystem. Esports related professions are categorized in Appendix A, which is provided in English, French, German,

Japanese, Portuguese, and Spanish. As one can see, the esports ecosystem and accompanying careers span across a plethora of sectors. Correspondingly, numerous esports and gaming-specific jobs listing platforms exist to offer these types of positions. These include, for example, Hitmarker (2021), ReKT Jobs (2021), and the NAC Esports (2021) job board. Esports coaching, teaching, and managing jobs within higher education can also be found in such job boards as HigherEdJobs (2021) and the Chronicle of Higher Education's (2021) job board. From 2018 to 2019, the total number of esports jobs grew 87%, from 5,869 to 11,027 jobs, respectively (Hitmarker, 2019). Regarding the overall availability of esports jobs in 2021, Hitmarker alone lists over 12,000 esports job openings, offering a rough idea of the demand side of the esports labor market.

A common misconception is that esports academic programs exist to train players to compete professionally, but the majority of current programs are in place to educate and train a future workforce in support of the professional and amateur competitive esports scenes. Esports curricula look different at each institution, but the main purpose is to prepare students to work in positions within and tangential to esports.

As is evident from this study, a vast array of diverse esports academic programs exist. Each of them has unique aspects specific to that institution and the faculty that teach that program. These programs are housed under diverse academic departments, such as business, sport management, media studies, kinesiology and physical education, or computer science, as a few examples. Moreover, each program's curricula are divergent in the amount of esports specific courses, the total number of credits in esports or esports-related content required, esports experiential learning requirements (i.e., internships or field experiences), electives, etc. Institutions develop their own esports curriculum dependent on their institution's requirements (e.g., total degree credit hours, general education credit requirements, accreditation requirements, capstone/internship requirements, etc.), their existing academic strengths as an institution and across faculty qualifications and expertise, and goals and outcomes of the academic program being offered. Some institutions may rely on adjunct faculty to teach certain courses within the program who may have esports industry experience specific to the course. Currently, no esports education accreditation exists so programs are not bound to conform to any formal competency requirements outside of standard higher education accreditation or institutional requirements.

Existing programs that integrate esports curriculum often cite the industry's massive amounts of revenue and continued growth, facilitating new employment opportunities, while assisting in teaching similar concepts to traditional academic programs, but with unique characteristics, most often relating to sport business/management, media/communication, sport science, and/or game design (Chan, 2019). For instance, traditional sport management concepts can be applied through the lens of esports relating to such areas as marketing, sponsorship, branding, media deals, event/venue management, governance, consumer behavior, etc. Furthermore, pedagogy utilized may move beyond traditional lecture and provide experiential learning modalities (i.e., internships, field experiences, practicums).

Broadly, esports education aims to facilitate students in learning more than theoretical or practical esports skills solely in the classroom. There are benefits that exceed classroom learning which can prepare students for future careers. Transferable skills such as teamwork, communication, and adaptability can be obtained through esports gameplay participation, with offerings for this type of participation increasing at institutions of higher education (BEA, 2017).

Digital intelligence and cognitive skills are additional areas that can be learned by gamers through competition, again, outside of the traditional academic setting (Smithies et al., 2020). Further, esports on campus should try to integrate an institution's competitive esports teams with academic esports programs to provide additional curricular and co-curricular learning opportunities (Freeman et al., 2020). These collaborative opportunities can help foster experiential learning opportunities for students to complement their classroom learning engagements.

### ***Current Non-Degree Awarding Entities Offering Esports Education***

This paper explores the current landscape of academic esports programs at institutions of higher education, but that is not the total offering for esports training. There are some other platforms that offer esports education as stand-alone credentials not tied to academic institutions, and many of them do not focus on competitive esports skill performance. These bodies exist to provide stand-alone credentials for individuals interested in esports education outside of a traditional higher education model. Such courses range from esports management to broadcast production to coaching, and several other areas. Example entities include the Aperion Global Institute (2020), Learn2Esport (2020), Esports Meta Group (2021), Gamer Sensei (2021), International Federation of Esports Coaches (2021), Skillshot Academy (Skillshot Media, 2020), and the Varsity Esports Foundation (2020). Some prospective students may find these an attractive option since a number of these courses are available in an asynchronous, online format.

The National Association of Esports Coaches and Directors (2020) Certification Program (NAECAD-CP) is another example of an entity outside of traditional academia offering online certification programs in esports. They have one of the most extensive programs of study in esports, with interested participants being able to choose preferred area(s) of focus from a long list of online modules. Other example entities offer single classes or smaller programs of study in a more prescribed fashion, such as Sports Management Worldwide's (2020) "The Business of Esports" course. This type of professional development offers various resources for people interested in learning more about esports in a formal fashion, but not interested in enrolling as a student at higher education institutions. The quality of any of these programs or courses are suspect and unknown, particularly with for-profit entities. While these may be a meaningful way to obtain knowledge of esports and the esports ecosystem, these types of programs are not included within the scope of this study. However, prior to revealing this study's methods, the underpinning theory is introduced next.

### ***Theoretical Framework: Diffusion of Innovations Theory***

The construct of innovation adoption within Rogers' (2003) Diffusion of Innovations Theory may help explain and categorize this growth of global esports degree programming. This theory aids to elucidate how innovations (i.e., new products, ideas, services, etc.) are adopted within populations. Obviously, innovations are adopted at different rates by varying segments of a population (Hayden, 2019). According to Rogers (2003), this rate of adoption follows a bell-shaped "adoption curve" that classifies innovation adopters into five ordered categories: a) *innovators* (independent; first to adopt; take risky chances; typically have financial resources to cover losses), b) *early adopters* (embrace change; well-respected role models and opinion leaders), c) *early majority* (need external motivation and are influenced by evidence, opinion leaders, and mass media; innovation becomes mainstream in this stage), d) *late majority* (question change until

innovation is an established norm or an economic necessity; modest financial resources; influenced by peers), and e) *laggards* (conservative and traditional; suspicious of innovation; isolated from social environment; often lower self-esteem and less educated) (Hayden, 2019). Within this categorization, Diffusion of Innovations Theory also estimates the following percentages of the population adopting an innovation over time: <3% innovators, 14% early adopters, 34% early majority, 34% late majority, and 16% laggards (Cottrell et al., 2018). Within this paper, while not attempting to distinguish whether this is a good or bad idea, we purport that offering an esports degree program is an innovation.

## Methods

### *Research Design*

This research utilized a comparative content analysis design. Comparative content analysis is a method of analyzing text in a systematic and objective means of illustrating and quantifying occurrences (Elo & Kyngäs, 2008). “Content analysis systematically examines primarily print and media materials’ words and images for their topics, themes, concepts, and ideas through qualitative examination, often followed by quantitative analysis. The goal is to examine aspects such as frequency, type, correlation, and absence in a body of data” (Saldaña & Omasta, 2018, p. 153). Qualitative data in this study included: program goals/objectives and focus areas, course/module titles, course/module descriptions (when available), and the determination of esports-specific courses. Quantitative data entailed frequency counts of qualitative data along with corresponding descriptive statistics.

### *Definition of Terms*

Academic esports programs are offered across a number of different levels of study. Like more traditional areas of academia, esports academic programs exist as bachelor’s degrees, master’s degrees, technical degrees/diplomas, certificates, and undergraduate minors; as well as stand-alone individual esports courses (i.e., modules) that are not a part of an esports-specific program of study. To be able to provide some context and clarification, it is important to establish operational definitions of esports and the types of programs being discussed and analyzed within the context of this work. First, we define esports as organized video game competitions (Gawrysiak, 2016; Jenny et al., 2017; Taylor, 2012). Other operational definitions for the varying types of academic programs are as follows:

- Bachelor’s degrees refer to three or four-year, undergraduate degrees. This degree type entails a specific area of study, such as esports.
- Master’s degrees are postgraduate advanced degrees achieved beyond the bachelor’s degree. These types of programs demonstrate mastery of a specific subject.
- Technical degree/diploma are used in this work to refer to degree programs that do not require four years of study, but rather typically two years at the undergraduate level. These are programs that offer shorter-term study in a specific area.
- Certificates are used as a blanket term in this work in reference to programs that offer a complete credential in esports, but not a degree. They can vary in size and length, but all of them are a complete focus of study with a credential rewarded upon completion. These primarily exist at the undergraduate level, graduate level, and internationally to varying



degrees and most take one year or less, depending on the required number of courses/modules.

- Undergraduate minor is a focus of study where there is not a degree awarded upon completion, similar to that of certificates, but are being done in conjunction with a larger area of study for an undergraduate degree. This is considered a secondary, and thus smaller, area of study.
- Individual courses, commonly known as “modules” outside of the United States, refer to specific classes that do not award any type of degree or credential upon completion, other than fulfilling program requirements and imparting new knowledge to those that complete the course (i.e., module). These offer a specific area of focus but are offered as part of a larger program of study.

### ***Inclusion and Exclusion Criteria***

To be included in our esports inventory of past or present global higher education esports academic programming and curricula, inclusion criteria required that the term “esport”, “e-sport”, “esports” or “e-sports” appear in the title of the “degree”, “certificate”, or “minor” program awarded by a higher education institution. With computer science degrees dating back to the 1940s (IBM, 2020) and video game design degree programs originating in the 1990s (DigiPen, 2020), programs solely focused on video game design were excluded from the study. To be clear, none of these excluded “game design” degree programs included esports in their title, but some of the included esports programs may have included a game design concentration or individual game design course (i.e., module).

### ***Procedures***

Global higher education esports academic program and curricula data collection occurred first through extensive Internet searches, focusing on locating esports academic program websites and esports education media news articles, employing the aforementioned inclusion search terms. The researchers also utilized personal correspondence with colleagues involved in these programs, primarily emails or direct messages soliciting information from the members of two groups: a) Esports Research Network (2020) (n = 164), and b) “Global Esports Studies” discord server (n = 122) consisting of primarily esports education students and faculty. Information requested entailed a web link to the esports academic program website and the term and year the program started, which is often not posted publicly. Data collection started in 2018 and continued through March of 2021. To improve internal validity, when possible, data was triangulated across media news articles, academic institution esports program websites, and personal correspondence. When available, data collected included the year the program started, its exact title, its objectives, its format (face-to-face or online), program course titles, and course descriptions. Google Translate was employed to translate any text not in English or French.

### ***Data Analysis***

Microsoft Excel was employed to organize and categorize all qualitative and quantitative data. First, comparative content analyses were performed independently by two separate researchers on all qualitative data. Data was examined and coded following the iterative process, as themes (i.e., common occurrences) were categorized across the data. Then, constant comparisons of the initial qualitative analyses were performed and discussion between the researchers occurred until a final

agreement was made (Given, 2016). All descriptive statistics were performed utilizing Microsoft Excel.

## Results

### *Inventory of Global Higher Education Esports Academic Programming and Curricula*

Results of the global higher education esports academic programs inventory are provided within the sub-categories of degree programs (Appendix B), certificate programs (Appendix C), undergraduate minor programs (Appendix D), and individual esports courses (i.e., modules; Appendix E). Cumulatively, 74 different higher education institutions were found that offer an esports undergraduate degree, graduate degree, technical degree/diploma, certificate, or undergraduate minor. Shenandoah University in the United States has the most amount of esports academic programs with eight (degrees, certificates, and minor). Table 1 offers a breakdown of institution (n = 74) country location.

*Table 1 - Countries Where Higher Education Institutions Reside that Offer Academic Esports Programs*

Country	% of Higher Education Esports Programs
United States (n = 33)	44.6%
France (n = 13)	17.6%
Canada (n = 6)	8.1%
United Kingdom (n = 5)	6.8%
Germany (n = 4)*	5.4%
Austria (n = 2)*	2.7%
Belgium (n = 2)	2.7%
China (n = 2)	2.7%
Finland (n = 2)	2.7%
Spain (n = 2)	2.7%
Argentina (n = 1)	1.4%
Japan (n = 1),	1.4%
Netherlands (n = 1)	1.4%
South Korea (n = 1)	1.4%

*Note.* Many institutions have multiple campuses within their respective country and \*Hochschule für angewandtes Management has locations in two different countries (Germany and Austria).

Correspondingly, Table 2 provides a listing of the instructional language utilized within these programs (n = 95). It is no surprise English is the most utilized language as the United States affords the most institutions that offer higher education esports programs.

The following continuation of our results provides the findings of the comparative content analysis of these programs, including type of program, program goals or objectives, and esports course curriculum. First, Table 3 provides a tabulated categorical overview of the 95 higher education esports education programs listed across Appendices B, C and D.

Table 2 - Language Utilized within Higher Education Esports Academic Programs

Language (number of programs)	% of Programs Taught in that Language
English (n = 59)*	62.1%
French (n = 19)	20.0%
German (n = 5)	5.3%
Spanish (n = 3)	3.2%
Dutch (n = 3)	3.2%
Japanese (n = 2)	2.1%
Mandarin (n = 2)	2.1%
Finnish (n = 2)*	2.1%
Korean (n = 1)	1.1%

Note. \*Kajaani University of Applied Sciences is bilingual (Finnish and English).

Table 3 - Tabulated Global Esports Higher Education Programs Found

Esports Program Type	Total Number Found (percentage of total)
Bachelor's Degrees	35 (36.8%)
Master's Degrees	11 (11.6%)
Technical Degrees/Diplomas	9 (9.5%)
Certificates: Undergraduate (9) Graduate (9) 1-Year International (5) Other (4)	27 (28.4%)
Undergraduate Minors	13 (13.7%)
<b>Total:</b>	95

Note. One program within both the master's degrees and 1-year international certificates are no longer offered. In other words, the total number of esports programs found that currently exist is 93.

Next, Table 4 delivers the results of an analysis of the focus areas of the higher education esports degree and certificate programs listed in Appendices B-D. Categories were created via the process explained in the previous data analysis section. Regarding the Table 4 program focus area(s), the researchers chose to take a broad approach to include all business-related areas in the same category due to too much crossover of related curriculum that made dichotomous categories not feasible. For instance, program titles ranged from "Esports Business" to "Esports Management" to "Esports Business Management". In addition, as previously mentioned, there appears to be little consistency in where these programs are housed (i.e., department or colleges) across institutions. It appears most programs are housed within the program focus area, and more importantly, where the program faculty members' expertise resided.

Table 4 - Focus Areas of Global Higher Education Esports Academic Programs (n = 95)

Program Focus Area(s)	Program Type	Number of Programs within Focus Area	% of Focus Area Specific for Program Type	% of Focus Area across all Programs (n = 95)
Administration/Business/Economics/Entrepreneurship/Event Management/Management/Marketing	Bachelor's Degrees	29	82.9%	80.0%
	Master's Degrees	8	61.5%	
	Technical Degrees	5	55.6%	
	Certificates	22	81.5%	
	Undergrad Minors	12	92.3%	
Broadcasting/Communication/Media/Production/Public Relations	Bachelor's Degrees	4	11.4%	15.8%
	Master's Degrees	3	23.1%	
	Technical Degrees	2	22.2%	
	Certificates	4	14.8%	
	Undergrad Minors	2	15.4%	
Coaching/Performance/Sport Science	Bachelor's Degrees	3	8.6%	12.6%
	Technical Degrees	3	33.3%	
	Certificates	5	18.5%	
	Undergrad Minors	1	7.7%	
Game Design/Information Technology	Bachelor's Degrees	6	17.1%	10.5%
	Master's Degrees	1	7.7%	
	Certificates	3	11.1%	
General Esports	Master's Degrees*	1	7.7%	3.2%
	Technical Degrees	1	11.1%	
	Certificates*	1	3.7%	
Gambling	Bachelor's Degrees	1	2.9%	1.1%

Note. Undergrad = Undergraduate. Technical “degrees” are sometimes referred to as “diplomas.” Percentages add up to more than 100% because many programs afford multiple focus areas (i.e., tracks or concentration areas). \*The master’s degree and certificate program in the “general esports” category both no longer exists.

### Esports Education Programs’ Goals and Objectives

The goals and objectives for programs listed in Appendices B-D were compiled in an effort to draw commonalities and differences across programs. While some programs (n = 56) have a clearly stated goal or objective, others provide either unclear or no information about these publicly on their program website. This makes it difficult to draw reliable results across all programs; however, some themes were still evident across the stated goals and objectives.

The most common themes that emerged across programs for stated goals and objectives revolve around concepts of career/job attainment, developing a global and/or international understanding of esports, understanding esports from a business perspective, including some type of experiential learning during the course of study, and/or understanding esports event

management. These themes indicate where the current emphasis for intended program results reside, which should also correspond to the program's curriculum. Moreover, commonly recurring differences existed among stated program goals and objectives, which may provide unique learning opportunities based on the stated outcomes. The largest differences among analyzed programs centered around how much planned experiential learning students may gain from the program, how much actual game training students will receive to improve their performance, and how much research training students will receive.

### *Esports-specific Courses (i.e., Modules)*

Moreover, Table 5 provides the average number and range of the number of esports-specific courses required across each program type where curriculum was available ( $n = 77$  programs). The number of esports-specific courses (i.e., modules) required for each program was displayed in Appendices B-D. This is a very rough effort to broadly examine the amount of esports-specific content taught within each esports academic program. We define an "esports-specific course" as a course or module that intentionally targets teaching unique components or aspects of esports. First, all courses with esports in the course title were included. In addition, when available, course descriptions were used to make further determinations. For example, a course titled "Business Management" would not be considered an esports-specific course, while a course titled "Introduction to Esports Management" would. Courses that included game design were also included in this analysis if they were a part of the esports academic program. As previously discussed in the data analysis section, comparative content analyses were performed independently by two separate researchers and then constant comparisons were made with discussion between the researchers occurring until final classifications and categorizations were settled (Elo & Kyngäs, 2008; Given, 2016).

*Table 5 - Average and Range of the Total Number of Esports-specific Courses Required per Program Type*

Esports Program Type	Average Number of Esports-specific Courses	Range of Number of Required Esports-specific Courses
Bachelor's Degrees ( $n = 26$ )	7.3 (SD = 3.9)	2 - 15
Master's Degrees ( $n = 10$ )	6.6 (SD = 3.2)	3 - 11
Technical Degrees/Diplomas ( $n = 5$ )	5.6 (SD = 2.1)	3 - 7
Undergraduate Certificates ( $n = 9$ )	4.0 (SD = 1.4)	2 - 6
Graduate Certificates ( $n = 9$ )	5.4 (SD = 4.4)	1 - 14
1-Year International Certificates ( $n = 3$ )	4.7 (SD = 1.5)	3 - 6
Other Certificates ( $n = 3$ )	5.3 (SD = 1.5)	4 - 7
Undergraduate Minors ( $n = 12$ )	3.2 (SD = 1.4)	1 - 6
<b>Total Across all Programs (<math>n = 77</math>):</b>	<b>5.7 (SD = 3.4)</b>	<b>1 - 15</b>

*Note.* Course information was not available for all programs, explaining the reason why the total number of programs per program type does not parallel Table 3.

Moreover, Table 6 provides an analysis of how common individual esports-specific courses (i.e., modules) are offered at higher education institutions ( $n = 59$ ) that deliver esports academic

programs listed in Appendices B-D where the course curriculum could be found. In total, 404 different courses were found and categorized in this analysis.

*Table 6 - Analysis of Individual Esports-specific Courses/Modules Offered by Higher Education Institutions that deliver Esports Academic Programs*

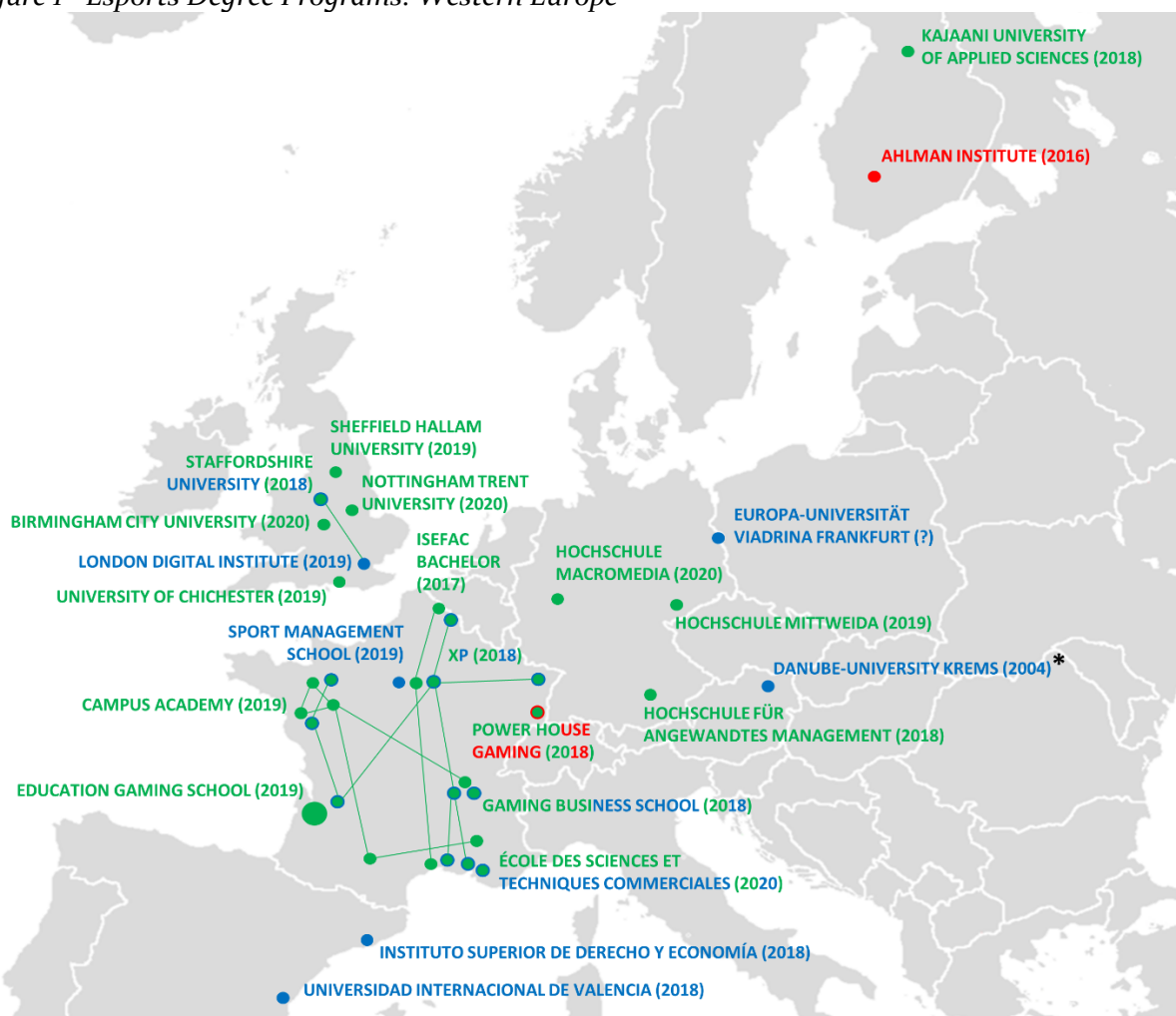
Course/Module Focus Area(s)	Sample Course/Module Titles	Number of Courses (Percentage of Total)
Esports Business/Management	The Business of Esports; Managing Esports; E-sport League Operations	88 (21.8%)
Introduction to/History of Esports	Introduction to the Esports Ecosystem; Overview of Esports	53 (13.1%)
Esports Media Production/Communication	Media & Broadcasting in Esports; Esports Gaming & Digital Media	50 (12.4%)
Esports Event/Venue Management	Esports Event Management; Esports Project Management: Live Events	43 (10.6%)
Esports Performance/Coaching	Intro. to Esports Coaching; Game Analysis; Skills & Strategy Development	32 (7.9%)
Video Game Design/Studies	Introduction to Game Design; Game Development; Intro. to Game Studies	27 (6.7%)
Esports Internship/Practicum	Esports Professional Immersion; Esports Management Practicum	26 (6.4%)
Esports Marketing/Branding	E-sports Marketing & Branding; Marketing in Esports	22 (5.4%)
Esports Ethics/Law/Governance	Esports Integrity Regulation & Risk; Advanced Law for Esports Orgs.	19 (4.7%)
Esports Trends/Current Issues	Contemporary Issues in Esports; Esports Industry Trends	19 (4.7%)
Esports Sociology	Sociological Impact of E-sports; Esports in Society; Esports Sociology	9 (2.2%)
Esports Capstone/Thesis/Dissertation	Capstone in E-sports; Dissertation; Thesis; Masters Project	8 (2.0%)
Esports Medicine/Health	Esports Injuries & Rehabilitation; Health & Wellbeing for Esports Comp.	5 (1.2%)
Esports Research Methods	Research Methods and Esports Data; Methods in Esports Research	3 (0.7%)
	<b>Total:</b>	<b>404 Courses</b>

*Note.* The total number of esports-specific courses (i.e., modules) analyzed is different than the total number listed across Appendices B-D due to some programs offering options that afford several different esports courses within the same program, as well as the same courses being required across multiple esports programs at the same institution, which were not counted twice. The “esports performance/coaching” category may be slightly inflated due to several of these courses only being one credit each.

### Global Higher Education Esports Degree Programs

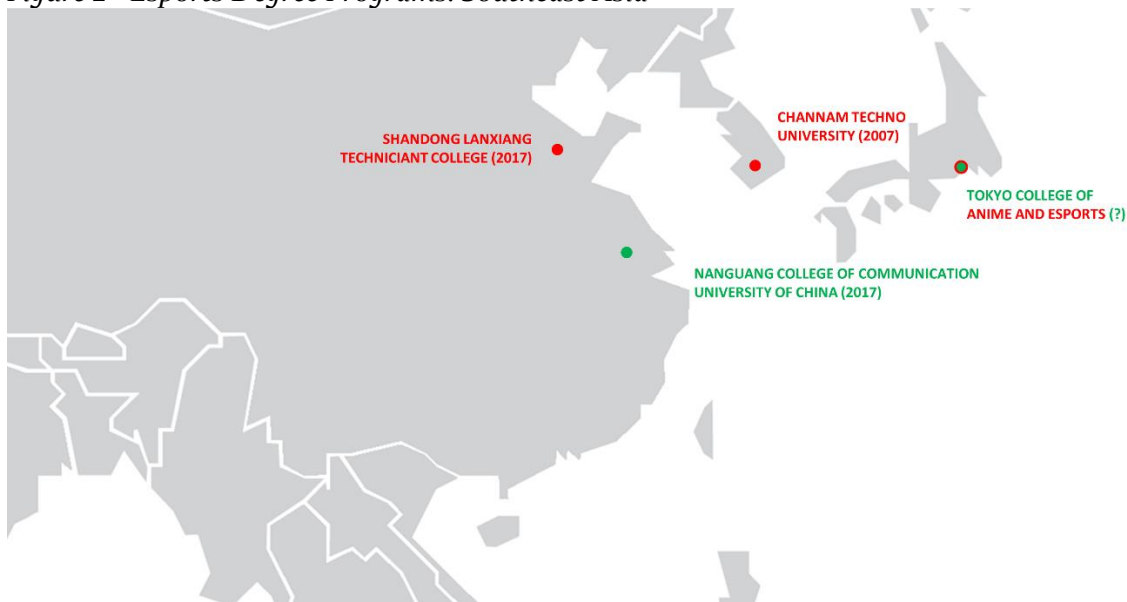
Appendix B lists the found higher education esports degree programs globally, with 35 bachelor, 11 master, and 9 technical degree programs (Table 3). Moreover, to provide more precise clarity regarding the geography of these programs, the following figures display the location of esports degree programs in Western Europe (Figure 1), Southeast Asia (Figure 2), and North America (Figure 3). These figures reveal that these degree programs are mainly concentrated across Western Europe, Scandinavia, and in the northeastern United States and southeastern Canada. Worldwide, esports degree programs vary from one to the next in terms of location, language, area of focus, and requirements for completion.

Figure 1 - Esports Degree Programs: Western Europe



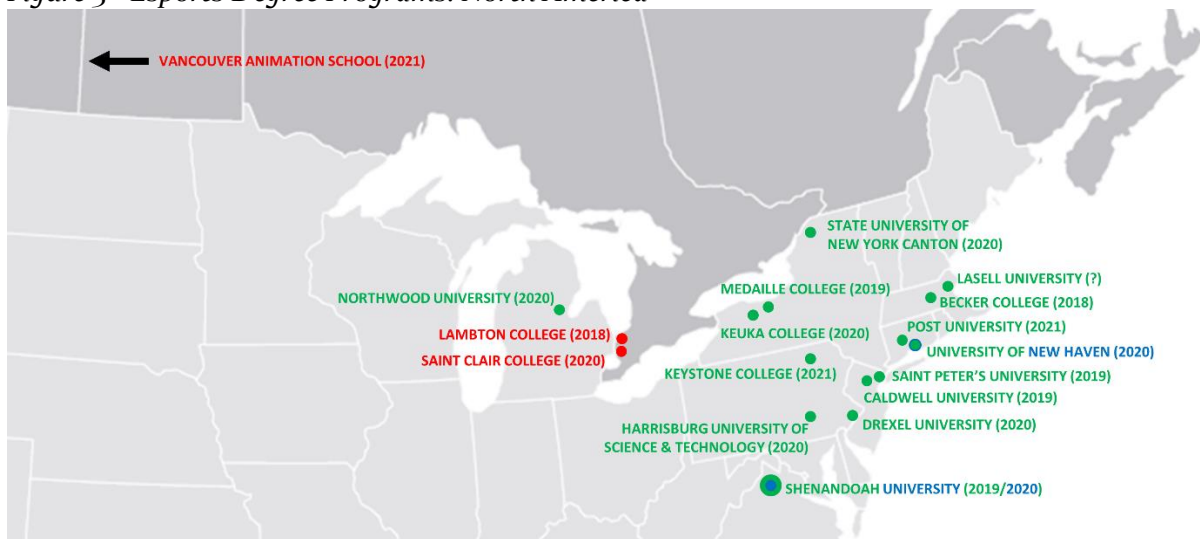
Note. ● = undergraduate degree; ● = graduate degree; ● = technical degree/diploma; \* = program no longer exists. Multi-colored text signifies having both types of programs. Lines between locations (i.e., nodes) indicate multiple program sites. Program start dates, listed after each institution, range from 2004 to 2020.

Figure 2 - Esports Degree Programs: Southeast Asia



Note. ● = undergraduate degree; ● = technical degree/diploma. Program start dates, listed after each institution, range from 2007 to 2017.

Figure 3 - Esports Degree Programs: North America



Note. ● = undergraduate degree; ● = graduate degree; ● = technical degree/diploma. Multi-colored text signifies having both types of programs. Program start dates, listed after each institution, range from 2018 to 2021. The geographic location of the Vancouver Animation School is further west in Canada, as indicated by the arrow.

Now, each of these three types of degree programs will be discussed separately: bachelor's, master's, and technical degree programs.



### *Esports Bachelor's Degrees*

The most commonly found esports higher education programs are Bachelor's degrees (Table 3). This is interesting because one might think that the general fundamentals to be learned should be taught at the Bachelor's degree level, and specializations should start at the Master's degree level (or offered as a certificate or minor). In other words, it could be argued that if *esports* is a "specialization" within a certain field (i.e., business, management, media studies, sports science, etc.), then higher education esports degrees should primarily be offered at the postgraduate degree level for advanced study after fundamentals are already learned during an undergraduate degree program. However, others might argue that undergraduate esports degree programs simply use esports as a lens to teach fundamental concepts within the field of study.

Moreover, it is evident within program websites that many institutions market themselves as being the "first" esports higher education program within a certain geographic vicinity, but one must pay attention to semantics. For example, while Becker College (2018) offered the first esports bachelor's degree in the United States, Shenandoah University (2021) claims to offer the "first multi-track" undergraduate esports degree in the United States. Moreover, in Europe, Hochschule für angewandtes Management (HAM) touts as offering Europe's first bachelor's degree in "eSports Management" (para. 1, IES Institut für eSports, n.d.), but both Staffordshire University (United Kingdom) and Kajaani University of Applied Sciences (Finland) both started their esports bachelor's degree programs before – the only difference is that they were not precisely called "esports management."

Table 4 shows that the vast majority (83%) of areas of focus for esports bachelor's degree programs are business/management. Game design/information technology (17%), broadcasting/communication (11%), coaching/performance (9%), and gambling (3%) followed behind. Since there is already so much emphasis on the business management of esports, there may be more potential for growth with esports bachelor's degree programs in other fields, such as broadcasting/communication and coaching/performance. Finally, several esports bachelor's degrees are offered at multiple sites by the same institution, a trend principally found in France and Germany.

### *Esports Master's Degrees*

As seen in Appendix B, the genesis of esports master's degree programs is Europe. Interestingly, no esports master's degree programs were found outside of Europe ( $n = 9$ ) and the United States ( $n = 2$ ). The University of New Haven (2021) claims to offer the first "esports business" master's degree in North America, but Shenandoah University started their Master of Business Administration (M.B.A.) "esports management" program the previous year, again highlighting semantics used in marketing. Table 4 provides information about the breakdown of the areas of concentration globally for the found esports master's degree programs. Similar to the bachelor's degree areas of focus, business/management makes up the largest percentage (62%), although the differences in offerings are not as great as the bachelor's degrees. Broadcasting/communication (23%), game design/information technology (8%), and general esports (8%) follow behind the business management area. There were no master's degrees in esports coaching/performance or gambling found in this study, nor were there any found doctoral-level esports graduate degree programs. Future academic programs may develop in these untapped markets.

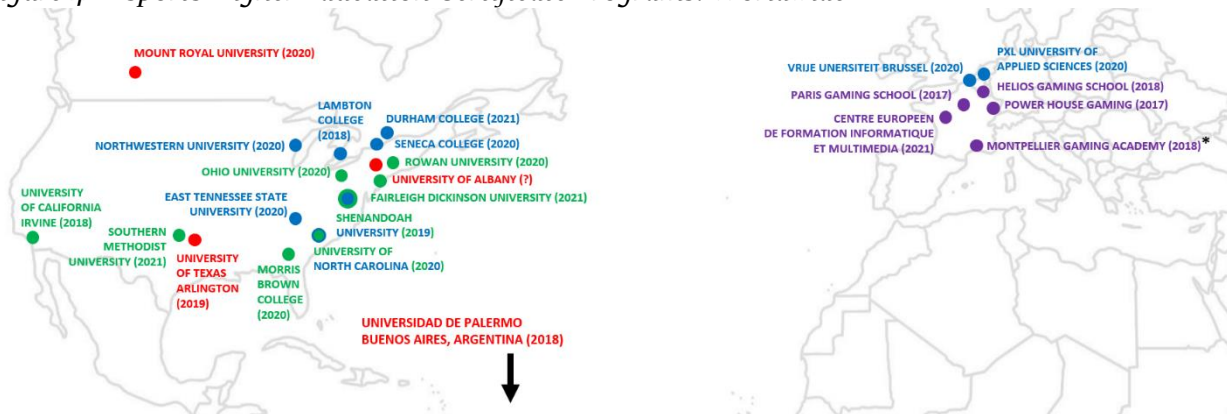
## Esports Technical Degrees

Esports higher education technical degree (i.e., diploma) programs were primarily one to two-year programs. Found programs resided in Asia ( $n = 4$ ), Canada ( $n = 3$ ), and Europe ( $n = 2$ ). The majority of these programs focused on esports business/management (56%), followed by coaching/performance (33%), broadcasting/communication (22%), and general esports (11%). The higher education community college system within the United States, which primarily offers associate's degrees equivalent to what we term technical degrees in this study, have yet to tap into the esports academic market.

## Global Higher Education Esports Certificate Programs

Appendix C presents the inventory of the different higher education certificate programs found dedicated to esports throughout the world. In addition, Figure 4 offers a map providing the geographic representations of where these academic certificate programs are located globally. The first certificate initiatives emerged in 2017 in France, and since then, we count 27 in total. Figure 4 reveals that these programs are mainly spread over two geographical areas of the world: North America ( $n = 19$ ) and Western Europe ( $n = 7$ ). There is also one in Argentina, but this happens to be the only esports higher education program found in South America throughout our investigation. Future studies might determine if more esports higher education programming proliferates to other South American institutions from this lone certificate program. Of note, the one-year certificates all reside in French-speaking countries (France and Canada) and this structure appears cultural.

Figure 4 - Esports Higher Education Certificate Programs: Worldwide



Note. ● = 1-year certificate; ● = undergraduate certificate; ● = graduate certificate; ● = other certificate; \* = program no longer exists. Multi-colored text signifies having both types of certificates. Program start dates, listed after each institution, range from 2017 to 2021.

Moreover, as displayed in Table 3, one-third of these certificates are graduate certificates. Typically, higher education certificate programs are shorter-term programs of study that can be earned in one year or less that concentrate on a specific content area. These certificates typically afford the opportunity to earn a credential in a shorter timeframe, with less coursework than a full degree program typically requires. Often, graduate certificates enable students who have an undergraduate degree to specialize in a certain topic, and this could be a major direction esports higher education programming may lead. Many graduate students may prefer online programs as

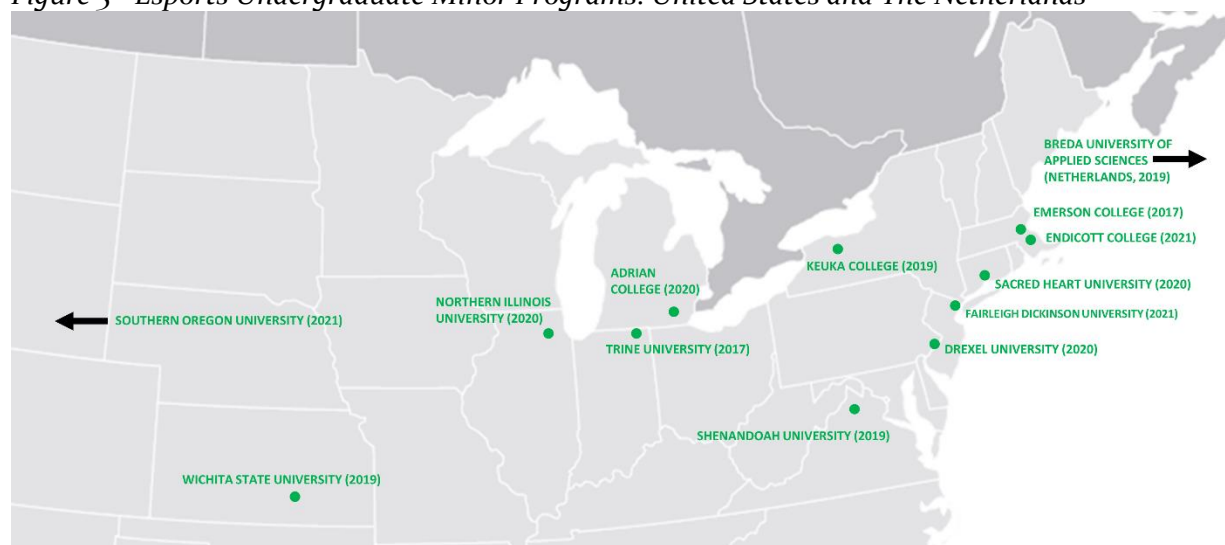
they enable full or part-time employment in a different geographic location from the educational institution. This type of program catered to distance education students as nearly half of the found certificate programs are taught online. It was not determined whether online instruction was typically synchronous or asynchronous, but it is surmised that it may be a combination of both. At the moment, the future of higher education is in limbo as COVID-19 forced many institutions to transition to online instruction, so more types of programs (i.e., Appendix B and D) may continue to be offered online if it appears to be advantageous moving forward.

Table 4 reveals that the vast majority of these programs focus on esports administration, business or event management (82%), followed by esports coaching and performance (19%) and communication and broadcasting (15%). Interestingly, several of the French programs are multidisciplinary and holistic in nature, as they focus both on esports performance (i.e., coaching, playing esports) and an overview of varying professions within the esports industry. In other words, rather than specializing in a specific aspect of esports (e.g., communication, event management), these programs attempt to develop versatility by multiplying student experiences across diverse projects over many sectors of the esports ecosystem. One could argue this approach does not provide a deep understanding of any one sector then.

### ***Global Esports Undergraduate Minor Programs***

According to our research, Emerson College was the first institution to offer an esports undergraduate minor, which started in 2017 (Appendix D). Esports undergraduate minors are smaller areas of study than full degree programs, but still represent a concentration in esports made up of a number of courses (i.e., modules). As indicated in Appendix D and Table 3, this study found 13 esports undergraduate minor programs. Figure 5 displays where these esports undergraduate minor programs are located. Only one program resides outside of the United States (The Netherlands), with the majority found in the northeastern United States.

*Figure 5 - Esports Undergraduate Minor Programs: United States and The Netherlands*



*Note.* ● = undergraduate minor. Program start dates, listed after each institution, range from 2017 to 2021.

Fairleigh Dickenson University's undergraduate minor and undergraduate certificate programs are a joint program (i.e., the same courses are required for both), while Keuka College and Shenandoah University are the only other institutions that offer other esports academic programs of study beyond the minor program. It is possible that the other institutions may be "testing the waters" regarding student enrollment and course evaluation feedback of these esports minor courses to determine whether they want to pursue a more extensive esports bachelor's degree if a positive response is received.

Table 4 provides a breakdown for the areas of focus for the undergraduate minors in esports. Similar to bachelor's degrees in esports, undergraduate minors in esports with a focus on business/management far outnumber (92%) any other area. This is not surprising as undergraduate minor programs often include a sub-set of bachelor's degree courses within the same area of focus. The only other two focus areas for found esports minors were in broadcasting/communication (15%) and coaching/performance (8%), demonstrating the gap and emphasis on the business/management areas of esports over other facets of the esports ecosystem.

### ***Global Individual Esports Courses Offered at Higher Education Institutions***

Appendix E provided a sampling of stand-alone esports courses (i.e., modules) offered at 16 different higher education institutions that do not also offer esports academic programs. Outside of the United States, these are commonly referred to as "modules." The majority reside in the United States (n = 10), with the remaining institutions located in Denmark, France, Germany, Hong Kong, Spain, and the United Kingdom, indicating that this is not just an American phenomenon. In line with Table 6, nearly half of these courses relate to esports business (i.e., management, marketing, gambling), but the remaining focused on diverse esports topics such as psychology, law, content production, and technology. Some of these institutions may be simply offering these courses to provide a more diverse curriculum that appeals to existing students as it is not likely that stand-alone courses recruit new students.

Moreover, the vast majority were undergraduate courses, probably due to these types of programs often affording more flexibility for electives compared to graduate programs. Some institutions may offer a single esports course so that they may then watch enrollment to consider further esports curriculum if a positive student response is evident. Other institutions may offer a stand-alone esports course simply due to having an available expert to teach it – often current or recent graduates of an academic program where the course is offered, as was the case at the University of South Carolina (USC; Wallace, 2016) and the University of Hawai'i at Mānoa (2019). Of note, the USC and the University of Nevada–Las Vegas esports courses were first offered during the fall semester of 2016 and these courses have yet to expand to full esports academic programs at these institutions.

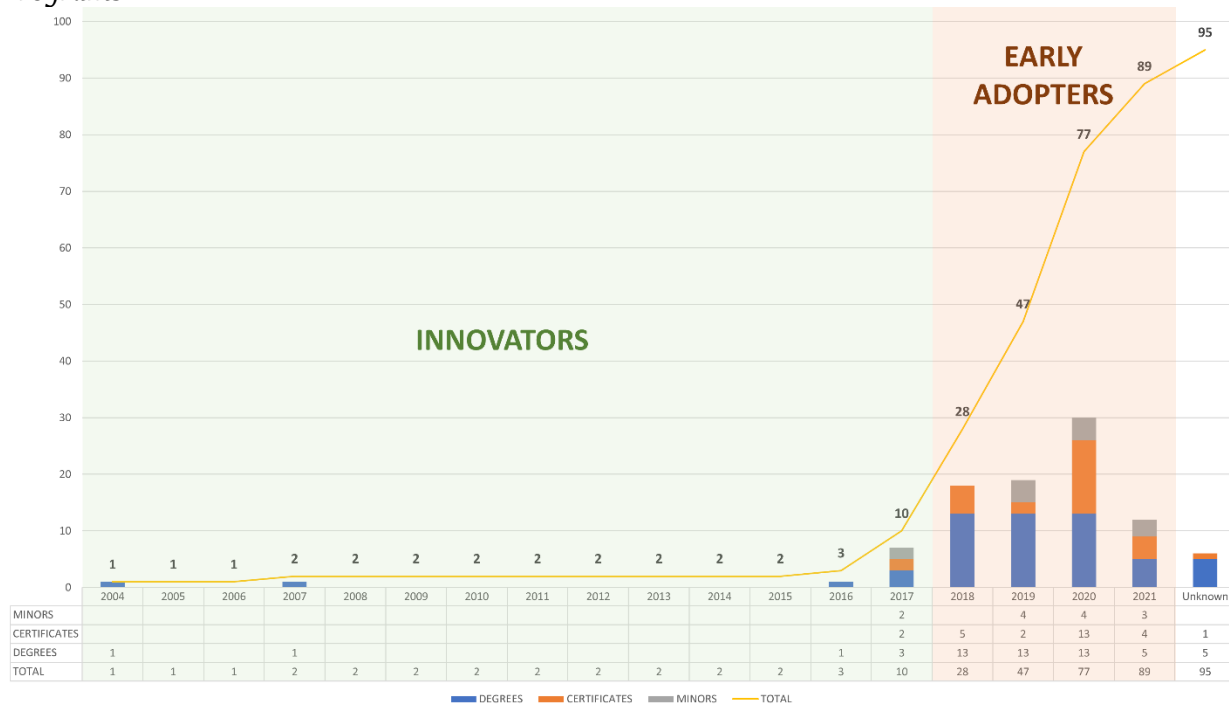
## **Discussion**

### ***Diffusion of Innovations Theory***

Analyzing this data through the lens of Diffusion of Innovations Theory's (Rogers, 2003) construct of innovation adoption, we propose that offering an esports academic program is an innovation (i.e., new idea or product). Again, we do not imply that this is "good" or "bad", but an innovation,

nonetheless. As previously described, within this theory, the adoption curve classifies innovation adopters into five groups: a) innovators, b) early adopters, c) early majority, d) late majority, and e) laggards. As seen in Figure 6, the number of esports higher education programs spiked during 2018. Therefore, we ascertain institutions that started their program(s) prior to Fall 2018 as “innovators” as they acted primarily independent, were the first to adopt, and took a risky chance (Hayden, 2019). Interestingly, not all of these programs survived. Next, we establish institutions that start programs between Fall 2018 and approximately Spring 2024 as “early adopters” as they appear to embrace change and have not been overly influenced by other institutions as the success of these types of programs is still in limbo due to the lack of current enrollment or graduation data (Hayden, 2019). For example, if a traditional four-year undergraduate degree program started during Fall 2018, this type of program data would not be available until after Spring 2022. Additionally, the higher education academic curriculum process is multi-layered and can take a long time (i.e., six months to two years), impacting the commencement of new programs should other institutions decide to start one. Therefore, we believe that institutions that start esports academic programs around Fall 2024 will initiate the “early majority” phase as these institutions will likely be influenced by evidence (e.g., program enrollment figures, esports job placement rates for program graduates, etc. – assuming positive evidence exists), mass media, and well-established higher education institutions (i.e., opinion leaders) offering these programs (Hayden, 2019). If this stage occurs, having an esports higher education academic program would then be considered mainstream (Cottrell et al., 2018).

Figure 6 - Innovation Adoption Curve relative to the Evolution of Global Higher Education Esports Programs



Note. Adapted from the Diffusion of Innovations Theory (Rogers, 2003). “Unknown” indicates programs where the start date could not be found (n = 6).

Similarly, one can analyze the career fields (i.e., higher education related majors) that appear to be embracing esports higher education programming through the Diffusion of Innovations

Theory. Reviewing Appendices B-D and summarized in Table 4, early “innovator” programs focused on esports performance (e.g., Ahlman College, Chunnam Techno University). Of note, the number of performance-related programs are currently quite small. This may be due to practitioners within the fields of sport science, health and physical education, coaching, or sports medicine who question whether esports is a sport, or more importantly, express concern over its traditionally sedentary nature (Jenny et al., 2017), potentially impacting interest and expertise in these areas. An alternate hypothesis may be that performance esports (e.g., training, practice, competition) could be perceived as something that should be taught within a club, recreation, or sporting environment, outside of academia. Another possible explanation is that these fields may heavily rely on research, and empirical investigations in these fields involving esports is still in its infancy. This may change if more research elucidates performance increases as a result of involving these types of health-related professionals into esports, which may then support more of these types of employment opportunities. However, it is apparent that business-related programs (i.e., management, marketing) are currently driving the increase in esports academic programming, thus resulting in this career field currently residing in the “early majority” phase. The esports communication and media fields (i.e., broadcasting, production, public relations) may be nearing the end of the “innovators” phase, with new programs entering as “early adopters”. As a reminder, exclusive endemic game design programs were not targeted in this study.

Finally, if we roughly viewed the regions of the world offering higher education esports programs (Figures 1-3) through the lens of Diffusion of Innovations Theory, we might call Asia and Europe “innovators”, and North America as the “early majority”. A major factor in this is that these regions, in general, may be able to make more risky decisions due to having more financial resources to cover losses, as well as esports potentially being more prevalent in these regions (possibly due to greater technology infrastructure). However, this does not explain Asia’s lack of esports academic program growth. Moving forward, other regions of the world (e.g., South America, Africa, Oceania) could then be classified as the “early majority”, “late majority” or “laggards” if/when they produce more esports academic programs. Time will tell whether well-known graduates from esports higher education programs will garner high-level positions within the esports industry, similar to elder game design programs that tout famous alumni of their programs (e.g., eFuse, 2020).

One phenomenon that Figures 3 and 5 revealed is the concentration of academic esports programming clustered in the northeastern United States and southeastern Canada. This is peculiar as many well-known video game publishing companies, such as Activision Blizzard, Electronic Arts, Riot Games, and Valve Corporation are headquartered in the western United States (Game Designing, 2021). It is possible North American institutions are highly influenced by other institutions within close geographic proximity and word-of-mouth. Thus, a rippling effect may continue west across North America as more well-respected role model institutions add esports academic programming.

## **Global Esports Higher Education Programming and Curricula: Similarities and Differences**

### *Similarities*

The current landscape of esports educational programs appear to aim to teach and help students get jobs in the expanding esports industry, which is consistent with an obvious goal of higher education academic programming (i.e., attain a job relating to the educational program's core content). The professionalization of esports in recent years appears to have accelerated higher education programming that aim to supply unique skills specific to this sector, but critics of this path may alternatively believe that simply gaining esports industry work experience would be more authentic and effective. However, this can be a double-edged sword if one finds difficulty in attaining a paid job in esports.

The current programs also tend to focus on global and business competencies as they relate to esports, a theme that correlates to the program focus areas as shown in Table 4. In addition, experiential learning is used widely across esports academic programs as a means to achieve the commonly stated goal of helping students secure a job in esports. Another related common theme across many programs is that esports event management can be an experiential learning opportunity within academic programs. Internships with esports businesses or organizations, coaching an esports player or team, hosting an online or face-to-face esports event, visiting an esports venue, or attending an esports event are all examples of esports experiential learning activities.

Other similarities drawn from the analysis of the programming and curriculum of academic esports programs include a face-to-face delivery method, use of some form of an advisory board for input, the emphasis placed on traditional business concepts as they relate to the esports industry, and the inclusion of experiential learning opportunities. The emphasis on face-to-face as a primary means of instruction is evident as the vast majority of programs implemented that mode of instruction. There are instances of online instruction and these are most commonly certificate programs (discussed previously). The increased number of face-to-face programs could indicate that these programs may want to facilitate in-person experiences or verbal discussion, may lack instructors who have the skillset to effectively teach online, or administrators or faculty may simply value face-to-face instruction more. As the COVID-19 global pandemic forced many higher education institutions to temporarily move programming online, a rippling effect could occur where some of these programs may stay online.

Using some form of an advisory board made up of members outside the institution is also seen among some programs. This is often used in other areas of higher education (Schaeffer & Rouse, 2014), especially where there is a new area and there is a dependence on experiential learning, consistent with these results. As noted earlier, an emphasis on the business of esports and implementing experiential learning are the other similarities among programs for their curriculum. With most programs names corresponding to elements of business and stated goals and objectives relating to business across programs, this is expected that the curriculum aligns with esports business concepts. Including various experiential learning elements in the curriculum, is also expected as it aligns with stated goals and objectives.

### *Differences*

While providing students with experiential learning in order to help them attain jobs upon completion is a commonality of stated program goals or objectives, the amount of required

experiential learning appeared to differ greatly. This may demonstrate that some programs have more of a stated emphasis on “real-world” training in addition to classroom learning. Beyond this, other programs differed regarding having a stated goal or objective focused on esports player performance (i.e., competing at a high skill level) or teaching research methods to train future esports researchers. This, again, speaks to the contrasts across programs and may correspond to the type or location of the institution.

Other differences found in the analysis of the various curricula of esports academic programs include where the academic program is housed within the institution (i.e., department, college, etc.), global differences on what type of program is offered (degree, certificate, minor), what type of institution (for-profit or non-profit) offers these programs, and the lack or inconsistency of offering degrees related to esports performance/coaching. These differences were expected since esports degree programs and the corresponding curricula are so new and continue to be developed differently dependent upon the institution size, location, goals, and market demands. There is little consistency amongst esports curricula as best practices and standards have not yet been developed. As governing and/or accrediting bodies for esports develop, these differences in curricula will, theoretically, be lessened.

There will continue to be differences between institutions with varying goals, especially those that are non-profit and for-profit. Further, there will continue to be expected differences in curricula for esports programs dependent on the area of focus and expertise of the faculty, which was not investigated. Both of these factors will cause continued difference in not only where the program is housed at the institution, but also the esports-specific content courses required for the completion of the degree. It is important to recognize these differences, but not necessarily to make recommendations for change within this study. Variance in curricula of similar degree programs can be observed in more traditional areas of study, which may also depend on the goals of the individual institutions.

### ***Esports-specific Courses and Program Quality***

Previously, we defined an esports-specific course as a single course or module that deliberately aims to teach esports-specific content. Tabulating the number of these courses in each program (Appendices B-D), when available, was a rough attempt to estimate the amount of esports-specific content delivered in each program. While some may mistakenly look at these numbers and equate them as a fully accurate assessment of program quality, there are several problems with this rationale.

As earlier noted, no esports education accreditation presently exists. Accreditation is a formal program review process performed by an external independent entity with expertise in the field of study that conducts a quality standard review and assesses minimum competency requirements. Items that could be included within a program quality evaluation might include assessment of program goals and objectives, course curriculum and objectives, and program resources; interviews with students and faculty; tracking of data such as student enrollment, class sizes, faculty-to-student ratio, graduation rates, graduate employment data; faculty educational and occupational background in relation to the field of study (e.g., esports); program advisory boards and industry partnerships (e.g., game publishers, esports organizations, esports practitioners, etc.). Thus, it is difficult to evaluate the quality of the higher education esports programs found in this study superficially.



### *“Esportifying” a Curriculum*

Table 5 provides an estimate of the range of the total number of esports-specific courses required across program type. According to our analysis, there are several programs that appear to take an existing program (e.g., sport management, business, management), add a very small number of esports courses to this program, and then term the program an “esports” degree, minor, or certificate. For example, one institution offers a four-course “Online Graduate Certificate in Esports,” where three courses were taken from their Master’s degree in Sports Administration and a fourth class was added called “The Business of Esports”, leading to requiring only one esports-specific course in the certificate. Likewise, a four-course undergraduate “Minor in Esports Management” is offered at another institution where one esports-specific course is required (“Overview of Esports”) and the rest of the minor is made up of courses from the institution’s bachelor’s degree in sport management.

We propose, then, that requiring only one or two esports courses in a new esports program curriculum, utilizing the existing program curriculum for the remainder of this new program, and then calling it an “esports” degree, certificate, or minor is what we now term “esportifying” a curriculum. These instances are one of many reasons why some remain skeptical of higher education esports programming as these examples appear like the institution is being predatory and why some may not see the value of an esports degree. Overall, esportifying a curriculum does a major disservice to students if esports-specific skills and content are not taught within the program. It appears some higher education institutions are utilizing a marketing ploy by simply renaming a current degree program and adding esports to the front of the program name (e.g., “Esports Management”), without adding many esports courses within the program.

Obviously, it is impossible to know at the surface level whether esports content is actually being taught in other courses without “esports” or “gaming” in the course title. Others skeptical of esports higher education programs may also have concerns regarding the faculty’s experience in the esports sector, which is also open to opposite criticism as an industry veteran is not necessarily a good teacher. An esports education accrediting body is certainly needed.

### *Limitations and Future Research*

The scale of this inventory undertaking was a grand endeavor and was not without limitations. First, the research team was comprised of English and French language natives. Thus, while Google Translate was utilized, internet-based esports academic program searches may have been impacted by language barriers. Moreover, Google Translate may not have translated data such as course or program titles accurately into English prior to analysis. Further, as some program information was obtained through word-of-mouth, a possible bias towards institutions residing in the United States and France may have occurred. While global esports networks and specific esports researchers in Asia were consulted for this study, this may explain the reason for the low number of found programs in Asia (i.e., more may exist). Further, logic would posit that less marketed higher education esports programs were less likely to be found by our research team. Moreover, desired program details varied by each institution’s website, resulting in some data not being available as noted throughout. Likewise, it is not customary to publicly publish an academic program’s starting date (unless it is new), thus media reports or personal communication were utilized when needed, which may have adversely impacted accuracy. Finally, due to higher

education being a constantly dynamic landscape, presented programs and/or curriculum may no longer exist or may have changed after data collection.

Future research might attempt to objectively track the student enrollment, graduation, and job placement data of these programs, as well as average program cost and class sizes. In addition, the effectiveness of these programs (e.g., knowledge, skills, and abilities obtained by students) might also be investigated. Moreover, future research might investigate esports backgrounds of higher education esports faculty members. Other future studies might focus on the formal acceptance of esports academic programs by the esports industry, academic research being conducted in areas beyond business and management (e.g., performance, coaching), the acceptance of esports textbooks in education, larger public institutions offering academic esports programs, and, as mentioned earlier, the creation and acceptance of an esports academic program accrediting body.

Finally, in France, two example education institutions that support professional esports players is the Tony Parker *Adéquat* Academy (2020) and the Gaming Academy (2020). These academies offer a cultural-specific holistic approach to assist current professional esports players in continuing their secondary or higher education degree programs while gaming. Future research might determine the effectiveness of these types of programs and investigate whether similar programs exist elsewhere globally.

## Conclusion

This paper provided an extensive inventory and analysis of higher education esports education programming and curricula worldwide. Through this inventory, contrasts and similarities have been made to illustrate comparisons of esports academic programs around the world and their respective curricula. Despite esports business and management is clearly where the majority of esports academic programs focus, other esports focus areas continue to emerge and new programs continue to be established globally. To draw some conclusions from this study, it is important to address each of the purposes of this work.

First, the stated purpose of esports higher education programs serves to advance the esports ecosystem globally by providing training and an understanding of the operation of specific aspects within the esports industry. Beyond this, esports academic programs aim to educate students within a field in which they are passionate about and lessons and concepts taught should be transferable to other industries to fully capitalize on the value of esports academic programming.

Next, the worldwide inventory of esports higher education programs was provided in order to show the amount, diversity across, and locations of programs at the time of this study. Areas for potential growth were also highlighted. It is evident that the number of programs continues to increase globally, with Europe and North America currently offering the most programs. With higher education esports programming in its infancy, future growth may not only include the number and location of programs, but also changes in the areas of focus, which is likely to mimic esports industry market demands. One major potential concern of industry stakeholders that may facilitate skepticism toward esports education programming are questions surrounding the absorption of all of these esports students by the sector. For a hypothetical example, if the number of full-time esports jobs in France is approximately 650 and annually about 300 students graduate from esports higher education programs located in France, it is not likely the French

esports job market would be able to consistently absorb all of these graduates. Teaching transferrable skills applicable to outside of esports could assist with this quandary.

Finally, this study provided a comparative content analysis of these programs, examining the program type, focus areas, and corresponding curriculum. While this study did not specifically evaluate the “quality” of these programs, it is likely that there are high-quality programs that are trying to do their best to teach knowledge, skills and abilities relevant to the needs of the esports industry, and there may also be low quality predatory suspicious programs with a priority of generating institutional income over student learning. Thus, it would stand to reason that the “best” programs may survive while the lower quality programs will fizzle out, but only time will reveal the highest quality or greatest esports industry-relevant programs.

### Conflicts of Interest and Source of Funding

Dr. Joey Gawrysiak is the director of the esports academic programming at Shenandoah University. Also, Dr. Seth Jenny assisted in designing this program. No financial disclosures pertaining to this manuscript exists.

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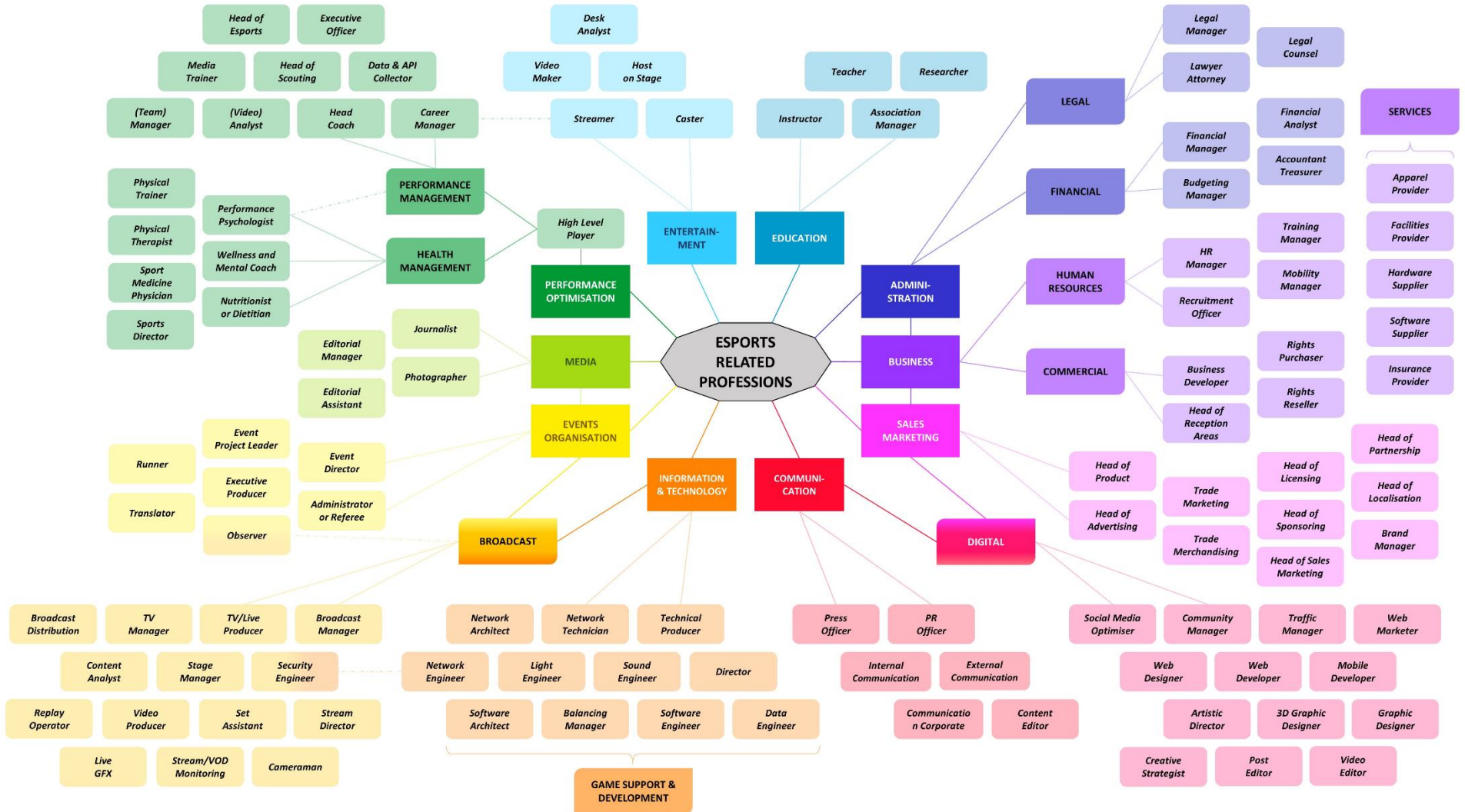
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Appendix A

Esports Related Professions (English)



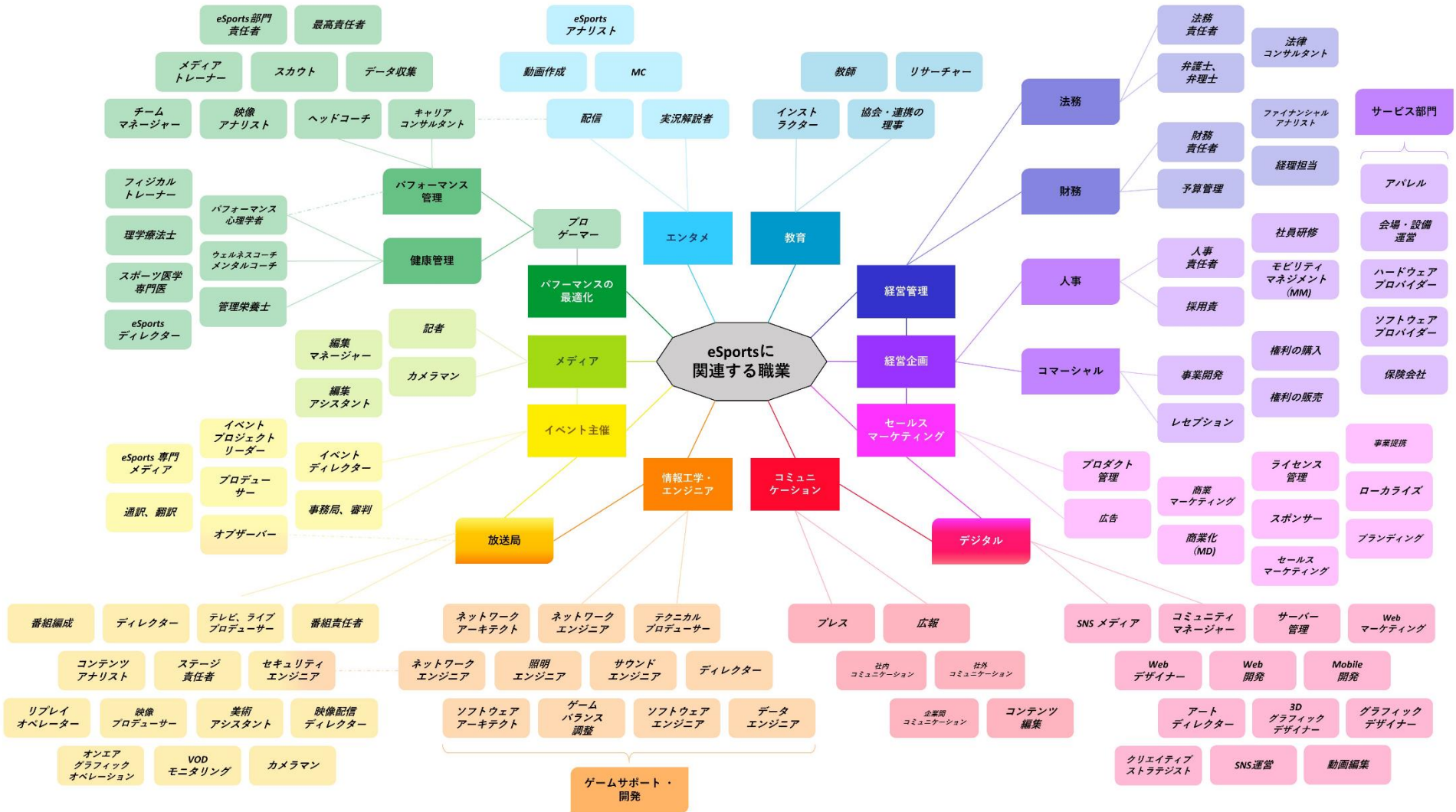
### Esports Related Professions (French)



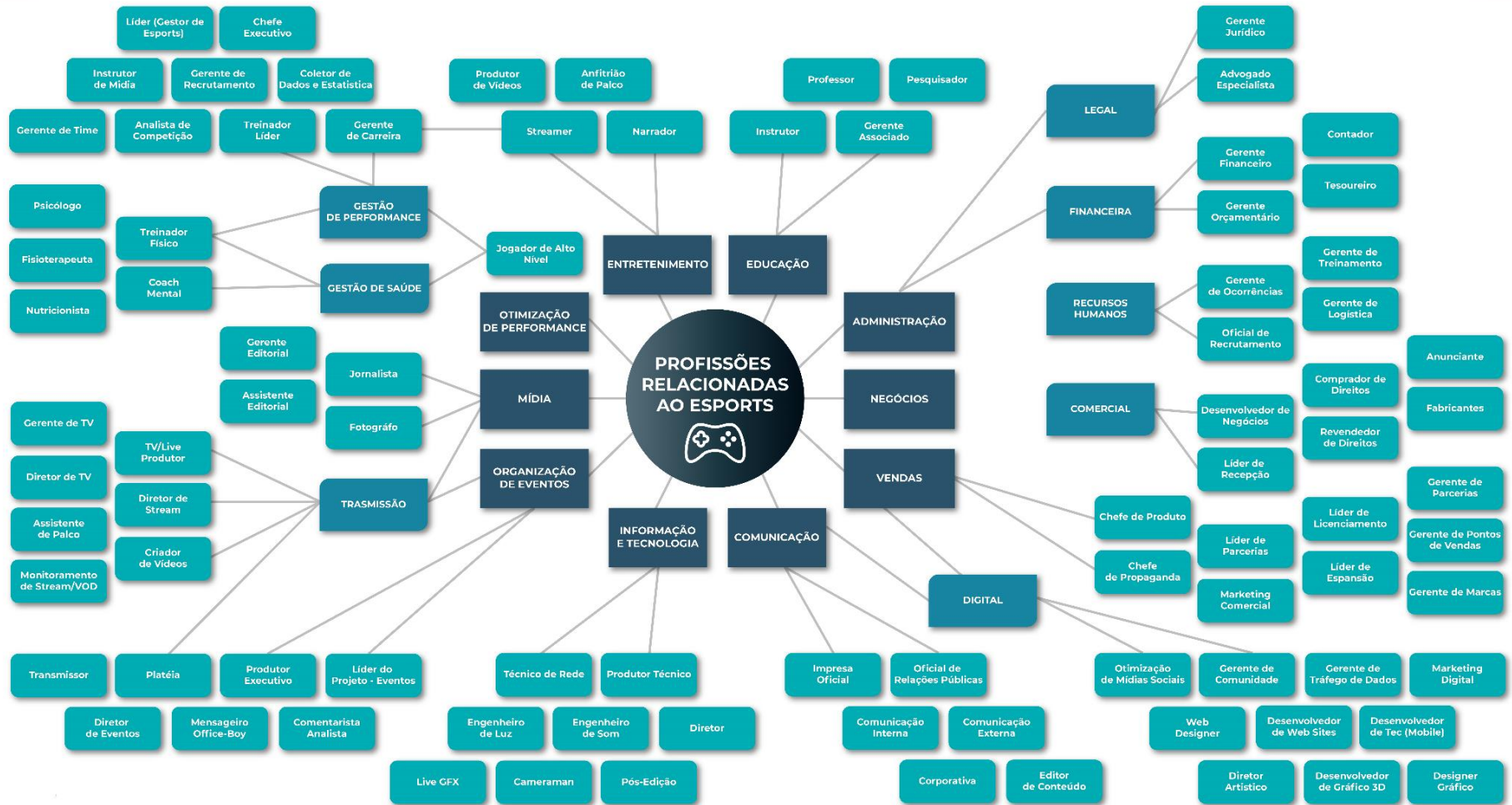




Esports Related Professions (Japanese)

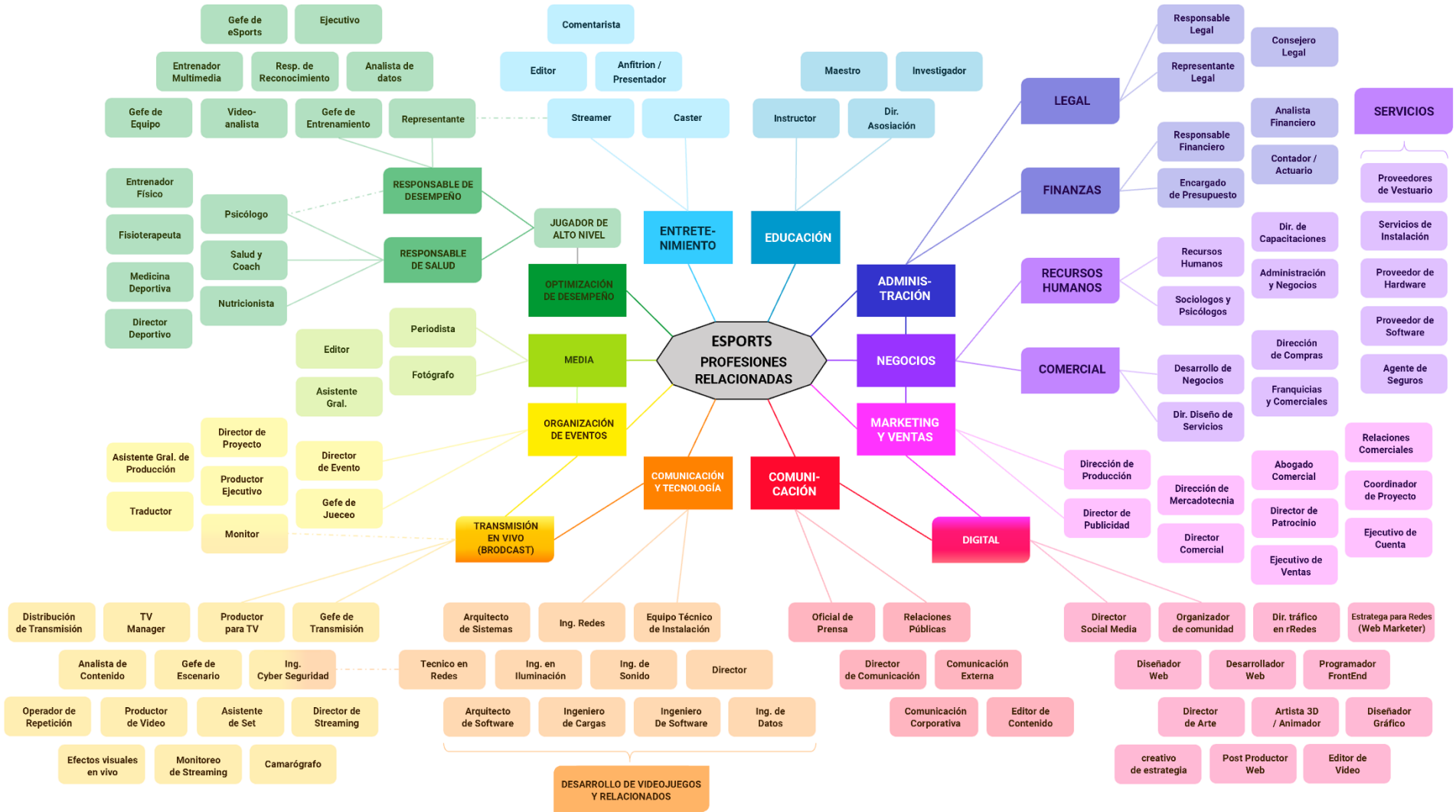


Esports Related Professions (Portuguese)



Note. Translated to Portuguese by Gabriel Vinicius. The color of this figure was altered by the translator, but the terms remain consistent.

### Esports Related Professions (Spanish)



Note. Translated to Spanish by Rubik Adams.

## Appendix B

## Global Higher Education Esports Degree Programs

Higher Education Institution	Location (Language, if not English)	Year Degree Program Started	Esports Degree Offered	Esports Degree Focus Area(s)	Approx. Number of Esports-specific Courses
Ahlman College	Orivesi, Finland (Finnish)	2016	Esport-linja (1 year program)	Performance	n/a
<a href="https://ahlman.fi/koulutushaku/esport-linja">https://ahlman.fi/koulutushaku/esport-linja</a>					
Becker College	Worcester, MA, USA	2018 F	B.S. Esports Management	Business Management	10
<a href="https://www.becker.edu/academic/academic-programs/design-technology/esports-management">https://www.becker.edu/academic/academic-programs/design-technology/esports-management</a>					
Birmingham City University	Birmingham, UK	2020 F	B.A. (Hons) Esports Management	Management	11
<a href="https://www.bcu.ac.uk/courses/esports-management-ba-hons-2020-21">https://www.bcu.ac.uk/courses/esports-management-ba-hons-2020-21</a>					
Caldwell University	Caldwell, NJ, USA	2019 F	B.S. eSports Management	Sport Management	5
<a href="https://www.caldwell.edu/programs/esports-management">https://www.caldwell.edu/programs/esports-management</a>					
Campus Academy International	Multiple Sites in France (French)	n/a	Bachelor eSports University	General Esports	n/a
<a href="https://campus.academy/formation/bachelor/e-sport-university">https://campus.academy/formation/bachelor/e-sport-university</a>					
Communication University of China	Nanguang, China (Mandarin)	2017	B.A. and Technology (Esports Analysis)	Management ; Game Design	n/a
<a href="http://edu.sina.com.cn/gaokao/2016-12-24/doc-ifyxusa5136315.shtml">http://edu.sina.com.cn/gaokao/2016-12-24/doc-ifyxusa5136315.shtml</a>					
Chunnam Techno University	Jeollanam-do, South Korea (Korean)	2007	Esports (2 year program)	Performance ; Broadcasting	n/a
<a href="https://www.washingtonpost.com/world/asia_pacific/in-south-koreas-hypercompetitive-academia-esports-gamers-carve-out-larger-niche/2019/08/22/e92dedba-8e08-1e9-b6f4-033356502dce_story.html">https://www.washingtonpost.com/world/asia_pacific/in-south-koreas-hypercompetitive-academia-esports-gamers-carve-out-larger-niche/2019/08/22/e92dedba-8e08-1e9-b6f4-033356502dce_story.html</a>					
Danube-University Krems	Donau, Austria (German)	2004	M.S. E-Sport and Competitive Computer Gaming	Program no longer exists	4
<a href="https://www.presstext.com/news/der-computer-als-sportgeraet.html">https://www.presstext.com/news/der-computer-als-sportgeraet.html</a>					
Drexel University	Philadelphia, PA, USA	2020 F	B.S.B.A. Esport Business	Business	4
<a href="https://www.lebow.drexel.edu/academics/undergraduate/areas-of-study/esport-business">https://www.lebow.drexel.edu/academics/undergraduate/areas-of-study/esport-business</a>					
Education Gaming School (The Digital Gaming School)	Talence, France (French)	2019	Bachelor Esports Training - Digital Careers	Business; Marketing; Information Technology	n/a
			Bachelor Business School - Esports Training		
			Bachelor Esports Training - Computer Engineer		
<a href="https://www.digital-gaming-school.fr">https://www.digital-gaming-school.fr</a> <a href="https://www.marketing-gaming-school.fr">https://www.marketing-gaming-school.fr</a> <a href="https://www.computer-gaming-school.fr">https://www.computer-gaming-school.fr</a>					

École des Sciences et Techniques Commerciales (ESTC) School of Management	Marseille, France ( <i>French</i> )	2020 F	Bachelor in Gaming & Esport Marketing	Marketing	n/a
		2021 Sp	Master in Gaming & Esport Marketing & Business Development	Marketing; Business	n/a
<a href="https://www.presentiel.estc.fr/bachelor-mastere-gaming-et-esport-marseille">https://www.presentiel.estc.fr/bachelor-mastere-gaming-et-esport-marseille</a>					
Europa-Universität Viadrina Frankfurt	Frankfurt, Germany ( <i>German</i> )	n/a	Masters International Business Administration	E-Sports: Economics & Management	11
<a href="https://www.wiwi.europa-uni.de/de/studium/neue-studienangebote/iba-master/fine/e-sports-economics-and-management/index.html">https://www.wiwi.europa-uni.de/de/studium/neue-studienangebote/iba-master/fine/e-sports-economics-and-management/index.html</a>					
Gaming Business School	Lyon, France ( <i>French</i> )	2018 F	Bachelor of Video Games & Esports Management	Business; Management	5
		2018 F	M.B.A. Video Games & Esports Management (3 specializations)	1. Marketing & Digital Comm. 2. Entrepreneurship, Project Mgt & Innovation 3. Esports Mgt	4
<a href="https://gaming.bs/bachelor-management-jeux-video-esport.html">https://gaming.bs/bachelor-management-jeux-video-esport.html</a> <a href="https://gaming.bs/mba-management-jeux-video-esport.html">https://gaming.bs/mba-management-jeux-video-esport.html</a>					
Harrisburg University of Science & Technology	Harrisburg, PA, USA	2020 Sp	B.S. Esports Management, Production, & Performance	Production; Management	8
<a href="https://harrisburgu.edu/courses/esportsmanagement-bs">https://harrisburgu.edu/courses/esportsmanagement-bs</a>					
Hochschule für angewandtes Management [HAM] (University of Applied Management)	Multiple sites in Germany plus Vienna, Austria ( <i>German</i> )	2018 W	B.A. Esports Management	Sports Management	11
<a href="https://www.fham.de/studiengaenge/bachelor/esports-management">https://www.fham.de/studiengaenge/bachelor/esports-management</a>					
Hochschule Macromedia University of Applied Sciences	Multiple sites in Germany ( <i>German</i> )	2020 W	B.A. Media Management (Esports & Games Management)	Media; Management	2
<a href="https://www.macromedia-fachhochschule.de/bachelor-studium/medienmanagement/esports-und-games-management.html">https://www.macromedia-fachhochschule.de/bachelor-studium/medienmanagement/esports-und-games-management.html</a>					
Hochschule Mittweida University of Applied Sciences	Mittweida, Germany ( <i>German</i> )	2019 W	B.A. Media Management (Esports & Games Marketing)	Marketing; Management	n/a
<a href="https://www.me.hs-mittweida.de/studienangebote/informationen-fuer-bewerber/medienmanagement.html">https://www.me.hs-mittweida.de/studienangebote/informationen-fuer-bewerber/medienmanagement.html</a>					
Instituto Superior de Derecho y Economía	Barcelona, Spain ( <i>Spanish</i> )	2018 F	Master Esports Business	Business; Media	11

<a href="https://isde.es/en/course/master-esports-business-isde">https://isde.es/en/course/master-esports-business-isde</a>					
ISEFAC Bachelor	Multiple sites in France ( <i>French</i> )	2017 F	Bachelor of Esports & Gaming	Business; Coaching; Management	10
<a href="https://www.isefac-bachelor.fr/bachelor/esport-et-gaming">https://www.isefac-bachelor.fr/bachelor/esport-et-gaming</a>					
Kajaani University of Applied Sciences	Kajaani, Finland ( <i>Finnish &amp; English</i> )	2018 F	Bachelor of Esports Business	Event Management	8
<a href="https://www.kamk.fi/en/Applicants/International-Degrees/Bachelors-Degree-in-Esports-Business/cob4b339-642a-43b5-a527-6fbbd7363de4">https://www.kamk.fi/en/Applicants/International-Degrees/Bachelors-Degree-in-Esports-Business/cob4b339-642a-43b5-a527-6fbbd7363de4</a>					
Keuka College	Keuka Park, NY, USA	2020 F	B.S. Esports Management	Management	4
<a href="https://www.keuka.edu/academics/programs/esports-management">https://www.keuka.edu/academics/programs/esports-management</a>					
Keystone College	La Plume, PA, USA	2021 Sp	B.S. Esport and Gaming Management	Management	5
<a href="https://www.keystone.edu/academics/majors/esport-gaming-management">https://www.keystone.edu/academics/majors/esport-gaming-management</a>					
Lambton College	Sarnia, ON, Canada	2018 F	Esports Entrepreneurship & Administration (2 year Diploma)	Business; Marketing	7
<a href="https://www.lambtoncollege.ca/ESEA">https://www.lambtoncollege.ca/ESEA</a>					
Lasell University	Newton, MA, USA	n/a	B.S. Esports and Gaming Management	Management	2
<a href="https://www.lasell.edu/academics/schools/school-of-business/programs/esports-and-gaming-management.html">https://www.lasell.edu/academics/schools/school-of-business/programs/esports-and-gaming-management.html</a>					
Medaille College	Rochester, NY, USA	2019 F	B.S. Esports Management	Management	5
<a href="https://www.medaille.edu/academics/esports-management-bs">https://www.medaille.edu/academics/esports-management-bs</a>					
Northwood University	Midland, MI, USA	2020 F	B.B.A. Esports Management	Management	5
<a href="https://www.northwood.edu/academics/esports">https://www.northwood.edu/academics/esports</a>					
Nottingham Trent University (Confetti Institute of Creative Technologies)	Nottingham, UK	2020 F	B.Sc. (Hons) Esports Production	Production; Business	10
<a href="https://confetti.ac.uk/courses/bsc-hons-esports-production">https://confetti.ac.uk/courses/bsc-hons-esports-production</a>					
Post University	Waterbury, CT, USA	2021 Sp	B.S. in Gaming & Esports Management	Event Plan/Mgt; Entrepreneurship	n/a
<a href="https://post.edu/academics/undergraduate-degrees-certificates/bachelor-of-science-in-gaming-and-esports-management">https://post.edu/academics/undergraduate-degrees-certificates/bachelor-of-science-in-gaming-and-esports-management</a>					
Power House Gaming	Mulhouse, France ( <i>French</i> )	2018	Sport Business, Esports & Gaming (2-year Diploma)	Sport Business	3
			Bachelor Sport, Esport & Gaming management & marketing	Management ; Marketing	3
<a href="http://www.powerhousegaming.fr/cursus-sport-esport">http://www.powerhousegaming.fr/cursus-sport-esport</a>					

Saint Clair College	Windsor, ON, Canada	2020 F	Esports Administration & Entrepreneurship (2 year Diploma)	Admin- istration	8
<a href="https://www.stclaircollege.ca/programs/esports-administration-and-entrepreneurship">https://www.stclaircollege.ca/programs/esports-administration-and-entrepreneurship</a>					
Saint Peter's University	Jersey City, NJ, USA	2019 F	B.B.A. Esports Business	Business	n/a
<a href="https://www.saintpeters.edu/promo/esports">https://www.saintpeters.edu/promo/esports</a>					
Shandong Lanxiang Technician College	Jinan, Shandong, China (Mandarin)	2017	E-sports Management Senior Mechanic	Management	6
<a href="http://www.lxjx.cn/pinzhuan">http://www.lxjx.cn/pinzhuan</a>					
Sheffield Hallam University	Sheffield, UK	2019 F	B.A. (Hons) Esports	Event Management	4
<a href="https://www.shu.ac.uk/courses/event-management/ba-honours-esports-with-foundation-year/full-time/2020">https://www.shu.ac.uk/courses/event-management/ba-honours-esports-with-foundation-year/full-time/2020</a>					
Shenandoah University	Winchester, VA, USA	2019 F	B.S. Esports Management	Management	9
		2019 F	B.S. Esports Media & Comm.	Broadcast- ing; Comm- unication	9
		2020 F	B.B.A. Esports Management	Management	5
		2020 F	M.B.A. Esports Management	Management	3
<a href="https://www.su.edu/esports">https://www.su.edu/esports</a>					
Sport Management School	Paris, France (French)	2019 F	M.B.A. eSport Business & Management	Business	11
<a href="https://www.sportsmanagementschool.fr/masters/mba-esport-business-management">https://www.sportsmanagementschool.fr/masters/mba-esport-business-management</a>					
Staffordshire University (London Digital Institute)	Staffordshire & London, UK	2018 F	B.A. (Hons) Esports	Business	15
		2019 F	M.A. Esports	Management	5
		<a href="https://www.staffs.ac.uk/course/esports-ba">https://www.staffs.ac.uk/course/esports-ba</a>		<a href="https://dilondon.staffs.ac.uk/courses/esports-ba">https://dilondon.staffs.ac.uk/courses/esports-ba</a>	
		<a href="https://www.staffs.ac.uk/course/esports-ma">https://www.staffs.ac.uk/course/esports-ma</a>		<a href="https://dilondon.staffs.ac.uk/courses/esports-ma">https://dilondon.staffs.ac.uk/courses/esports-ma</a>	
State University of New York Canton	Canton, NY, USA	2020 F	*B.A.A. Esports Management	Business; Game Design	5
<a href="https://www.canton.edu/business/esports">https://www.canton.edu/business/esports</a>					
Tokyo College of Anime and e-Sports	Tokyo, Japan (Japanese)	n/a	Super E-sports (3 year diploma)	Event Staff	n/a
		n/a	E-sports (2 year diploma)	Professional Gamer; Video Distribution; Broadcasting	n/a
<a href="https://www.anime.ac.jp">https://www.anime.ac.jp</a>					
Universidad Internacional de Valencia	Valencia, Spain (Spanish)	2018 F	*Máster en Gestión de Esports	Management	5
<a href="https://www.universidadviu.es/master-gestion-esports">https://www.universidadviu.es/master-gestion-esports</a>					



University of Chichester	Chichester, UK	2019	B.A. (Hons) Esports	Sports Science; Business	15
<a href="https://www.chi.ac.uk/department-creative-digital-technologies/courses/ba-hons-esports">https://www.chi.ac.uk/department-creative-digital-technologies/courses/ba-hons-esports</a>					
University of New Haven	New Haven, CT, USA	2020 F	B.S. Esports & Gaming	Gambling; Game Studies; Performance	15
		2021 Sp	*M.S. Esports Business	Business	7
<a href="https://www.newhaven.edu/business/undergraduate-programs/esports">https://www.newhaven.edu/business/undergraduate-programs/esports</a> <a href="https://onlinedegrees.newhaven.edu/programs/ms-master-esports-business">https://onlinedegrees.newhaven.edu/programs/ms-master-esports-business</a>					
Vancouver Animation School	Vancouver, BC, Canada	2021 W	*Esports Diploma Program (1 year)	General Esports	4
<a href="https://www.vanas.ca/career-programs/esports-diploma">https://www.vanas.ca/career-programs/esports-diploma</a>					
XP (The International Esport and Gaming School)	Multiple sites in France ( <i>French</i> )	2018 F	Bachelor International Esport & Gaming	Business; Management	4
		2018 F	M.B.A. Esports (4 specializations)	1. Esport & Gaming Brand Management 2. Esports Events & Public Relations 3. Team Management 4. New Tech & Esport Innovation	5
<a href="https://www.xp.school">https://www.xp.school</a>					

*Note.* \* = 100% online option (may be synchronous or asynchronous); B.A. = bachelor of arts; B.S. = bachelor of science; F = fall semester; Hons = honors; M.B.A. = Master of Business Administration; Mgt = management; n/a = not available; Sp = spring semester; W = winter term. Focus areas and number of esports-specific courses (i.e., “modules”) interpreted by the authors based upon courses listed on the program’s website. Year degree program started are approximated from media reports or personal communication as most program websites do not list an exact program start date. More information about each program can be found via the weblink(s) listed under each program.

## Appendix C

## Global Higher Education Esports Certificate Programs

Higher Education Institution	Location (Language, if not English)	Year Started	Level	Esports Certificate	Esports Focus Area(s)	Approx. Number of Esports-specific Courses
Centre Européen de Formation Informatique et Multimédia (CEFIM)	Tours, France (French)	2021 Sp	1-Year Certificate	Esports Communication	Communication	3
<a href="https://www.cefim.eu/formations/formation-charge-de-communication-esport">https://www.cefim.eu/formations/formation-charge-de-communication-esport</a>						
Durham College	Oshawa, ON, Canada	2021 F	Grad	Esport Business Management	Business	14
<a href="https://durhamcollege.ca/programs/esport-business-management-graduate-certificate">https://durhamcollege.ca/programs/esport-business-management-graduate-certificate</a>						
East Tennessee State University	Johnson City, TN, USA	2020 F	Grad	*Esports Management	Management	4
<a href="https://www.etsu.edu/coe/serk/graduate/esport.php">https://www.etsu.edu/coe/serk/graduate/esport.php</a>						
Fairleigh Dickinson University	Teaneck, NJ, USA	2021 F	Undergrad	Esports	Sport Management	3
<a href="https://www.fdu.edu/program/esports-minor">https://www.fdu.edu/program/esports-minor</a>						
Free University of Brussels	Brussels, Belgium (Dutch)	2020 F	Grad	Expert Class in Esports Management	Management	1
<a href="https://expertclass.be">https://expertclass.be</a>						
Helios Gaming School	Multiple Sites in France (French)	2018	1-Year Certificate	Esports (4 specializations)	1. Event Management 2. Communication 3. Info. Tech. 4. Esports Player	n/a
<a href="https://www.heliosgamingschool.fr">https://www.heliosgamingschool.fr</a>						
Lambton College	Sarnia, ON, Canada	2018 F	Grad	Esports Management	Management	5
<a href="https://www.lambtoncollege.ca/custom/LambtonApps/Programs/International.aspx?id=2147523473">https://www.lambtoncollege.ca/custom/LambtonApps/Programs/International.aspx?id=2147523473</a>						
Montpellier Gaming Academy	Montpellier, France (French)	2018	1-Year Certificate	Esports	Program no longer exists	n/a
Morris Brown College	Atlanta, GA, USA	2020 F	Undergrad	eSports Performance	Business	3
<a href="https://morrisbrown.edu/wp-content/uploads/2020/08/Flyer_eSports.pdf">https://morrisbrown.edu/wp-content/uploads/2020/08/Flyer_eSports.pdf</a>						
Mount Royal University	Calgary, AB, Canada	2020 F	Extension Certificate	*Esports Management	Management (Program partnered with UCI-Irvine)	4
<a href="https://www.mtroyal.ca/ProgramsCourses/ContinuingEducation/businesstraining/EsportsManagement/index.htm">https://www.mtroyal.ca/ProgramsCourses/ContinuingEducation/businesstraining/EsportsManagement/index.htm</a>						

Northwestern University	Evanston, IL, USA	2020 F	Grad	*Esports	Business	1
<a href="https://sps.northwestern.edu/information/esports-grad-certificate.php">https://sps.northwestern.edu/information/esports-grad-certificate.php</a>						
Ohio University	Athens, OH, USA	2020 F	Undergrad	Esports	Management; Game Design; Info. Tech.	2
<a href="https://www.ohio.edu/scripps-college/mcclure/esports/esport-certificate">https://www.ohio.edu/scripps-college/mcclure/esports/esport-certificate</a>						
Paris Gaming School	Paris, France ( <i>French</i> )	2017 F	1-Year Certificate	Esports (5 <i>specializations</i> )	1. Content Creation 2. Marketing 3. Communication 4. Info. Tech. 5. Event Management	6
<a href="https://paris-gaming-school.com">https://paris-gaming-school.com</a>						
Power House Gaming	Mulhouse, France ( <i>French</i> )	2017	1-Year Certificate	Cyberathlete	Performance Training	5
<a href="http://www.powerhousegaming.fr/phg-academy">http://www.powerhousegaming.fr/phg-academy</a>						
PXL University of Applied Sciences	Hasselt, Belgium ( <i>Dutch</i> )	2020 F	Grad	Esports Business Architect	Media; Technology; Business	3
<a href="https://www.pxl.be/Pub/Opleidingen/Postgraduaat/Postgraduaat-Esports-business-architect.html">https://www.pxl.be/Pub/Opleidingen/Postgraduaat/Postgraduaat-Esports-business-architect.html</a>						
Rowan University	Glassboro, NJ, USA	2020 F	Undergrad	Esports Industry & Entertainment Experience	Communication; Production	4
<a href="https://global.rowan.edu/programs/esports-industry-and-entertainment-experience-certificate-of-undergraduate-study.html">https://global.rowan.edu/programs/esports-industry-and-entertainment-experience-certificate-of-undergraduate-study.html</a>						
Seneca College	Toronto, ON, Canada	2020 F	Grad	*Esports Marketing Management	Marketing; Management	11
<a href="https://www.senecacollege.ca/programs/fulltime/EMK/courses.html">https://www.senecacollege.ca/programs/fulltime/EMK/courses.html</a>						
Shenandoah University	Winchester, VA, USA	2020 F	Undergrad	*Esports Coaching	Coaching	3
		2019 F	Undergrad	Esports Management	Management	5
		2020 F	Grad	Esports Management	Management	4
<a href="https://www.su.edu/esports">https://www.su.edu/esports</a>						
Southern Methodist University	Dallas, TX, USA	2021 Sp	Undergrad	*Esports Business Management	Management	6
<a href="https://www.smu.edu/Pro/Certificates/Certificates-Online/Esports">https://www.smu.edu/Pro/Certificates/Certificates-Online/Esports</a>						
Universidad de Palermo	Buenos Aires, Argentina ( <i>Spanish</i> )	2018 F	n/a	*Esports Executive Program	Sport Management	7
<a href="https://www.palermo.edu/up-en-los-medios/e-sports.html">https://www.palermo.edu/up-en-los-medios/e-sports.html</a>						
University of Albany	Albany, NY, USA	n/a	Micro-credential	eSports	Business	n/a
<a href="https://www.albany.edu/micro-credentials/catalog-micro-credentials">https://www.albany.edu/micro-credentials/catalog-micro-credentials</a>						

University of California Irvine	Irvine, CA, USA	2018 F	Undergrad	*Esports Management	Management	4
<a href="https://ce.uci.edu/areas/business_mgmt/esports/default.aspx">https://ce.uci.edu/areas/business_mgmt/esports/default.aspx</a>						
University of North Carolina – Wilmington	Wilmington, NC, USA	2020 F	Undergrad	*eSports Performance & Management	Performance; Management	6
			Grad	*eSports Performance, Management & Leadership	Performance, Management & Leadership	6
<a href="https://uncw.edu/ed/esports">https://uncw.edu/ed/esports</a>						
University of Texas – Arlington	Arlington, TX, USA	2019 F	Pro. Dev.	*eSports Management	Management	5
<a href="https://web-ded.uta.edu/wconnect/CourseStatus.awp?&amp;Course=certpage">https://web-ded.uta.edu/wconnect/CourseStatus.awp?&amp;Course=certpage</a>						

*Note.* \* = 100% online program (may be synchronous or asynchronous); F = fall semester; n/a = information not available; Sp = spring semester. More information about each certificate can be found via the weblink listed under each program.

## Appendix D

## Esports Undergraduate Minor Programs (United States and The Netherlands)

Higher Education Institution	Location	Year Minor Started	Esports Minor Offered	Esports Minor Focus Area(s)	Approx. Number of Esports-specific Courses
Adrian College	Adrian, MI	2020 F	Esports and Gaming Administration	Administration	3
<a href="http://adrian.edu/academics/academic-departments/minor-in-esports-management">http://adrian.edu/academics/academic-departments/minor-in-esports-management</a>					
Breda University of Applied Sciences	Breda, Netherlands ( <i>Dutch</i> )	2019 F	Esports Event and Media Management	Management	n/a
<a href="https://www.kiesopmaat.nl/modules/nhtv/AGM/141596">https://www.kiesopmaat.nl/modules/nhtv/AGM/141596</a>					
Emerson College	Boston, MA	2017 F	Esports Communication	Communication; Business	3
<a href="https://www.emerson.edu/majors-programs/undergraduate-majors-minors">https://www.emerson.edu/majors-programs/undergraduate-majors-minors</a>					
Drexel University	Philadelphia, PA	2020 F	Esports	Business	2
<a href="https://www.lebow.drexel.edu/academics/undergraduate/areas-of-study/esport-business">https://www.lebow.drexel.edu/academics/undergraduate/areas-of-study/esport-business</a>					
Endicott College	Beverly, MA	2021 F	E-Sport Management	Management	6
<a href="https://catalog.endicott.edu/preview_program.php?catoid=36&amp;poid=3036&amp;returnto=1335">https://catalog.endicott.edu/preview_program.php?catoid=36&amp;poid=3036&amp;returnto=1335</a>					
Fairleigh Dickinson University	Teaneck, NJ	2021 F	Esports	Sport Management	3
<a href="https://www.fdu.edu/program/esports-minor">https://www.fdu.edu/program/esports-minor</a>					
Keuka College	Keuka Park, NY	2019 F	Esports Management	Management	4
<a href="http://keuka.smartcatalogiq.com/en/2020-2021/College-Record/Business-and-Management/Esports-Management-Minor">http://keuka.smartcatalogiq.com/en/2020-2021/College-Record/Business-and-Management/Esports-Management-Minor</a>					
Northern Illinois University	Dekalb, IL	2020 F	Esports Industry Professions	Business; Performance	4
<a href="https://www.niu.edu/esports">https://www.niu.edu/esports</a>					
Sacred Heart University	Fairfield, CT	2020	e-Sports	Communication; Media	2
<a href="https://scma.sacredheart.edu/program/minors">https://scma.sacredheart.edu/program/minors</a>					
Shenandoah University	Winchester, VA	2019 F	Esports Management	Management	5
<a href="https://www.su.edu/esports">https://www.su.edu/esports</a>					
Southern Oregon University	Ashland, OR	2021 Sp	Esports Management	Management	2
<a href="https://sou.edu/academics/esports/program">https://sou.edu/academics/esports/program</a>					
Trine University	Angola, IN	2017 F	Gaming and Esports	Analytics; Administration	3
<a href="https://www.trine.edu/academics/majors-degrees/undergraduate/gaming-esports-minor">https://www.trine.edu/academics/majors-degrees/undergraduate/gaming-esports-minor</a>					

Wichita State University	Wichita, KS	2019 F	Esports Management	Sport Management	1
<a href="https://www.wichita.edu/academics/majors/esports_management_minor.php">https://www.wichita.edu/academics/majors/esports_management_minor.php</a>					

*Note.* F = fall semester; n/a = not available; Sp = spring semester. More information about each minor can be found via the web link listed under each program. All programs are located in the United States except for Breda University of Applied Sciences, Netherlands.

## Appendix E

## Global Individual Esports Courses Offered at Higher Education Institutions

Higher Education Institution	Location (Language, if not English)	Year Course Started	Course Level	Esports Course(s) Offered	Related Academic Program(s) Offering Course(s)
Boise State University	Boise, ID, USA	2018 Sp	Undergrad	Lifetime Esports	Educational Technology
<a href="https://www.boisestate.edu/registrar-catalog/files/2020/03/2020-21-Boise-State-University-Undergraduate-Catalog.pdf">https://www.boisestate.edu/registrar-catalog/files/2020/03/2020-21-Boise-State-University-Undergraduate-Catalog.pdf</a>					
Colegio Oficial de la Psicología de Madrid	Madrid, Spain (Spanish)	2021 Sp	Undergrad	Online expert in Psychology and Esports	Psychology
<a href="https://www.copmadrid.org/web/formacion/actividades/20201028115954133249/sd02101-curso-experto-psicologia-esports">https://www.copmadrid.org/web/formacion/actividades/20201028115954133249/sd02101-curso-experto-psicologia-esports</a>					
Hang Seng University of Hong Kong	Hang Shin Link, Hong Kong (Cantonese)	2018 W	Undergrad	Introduction to eSports in the Social Sciences	General Esports
Personal Correspondence with Module's External Examiner (Tobias Scholz)					
New York University	New York, NY, USA	2018 F	Undergrad	The Business of Esports	Business
<a href="https://www.sps.nyu.edu/homepage/academics/courses/TCSB1-GC2150-the-business-of-esports.html">https://www.sps.nyu.edu/homepage/academics/courses/TCSB1-GC2150-the-business-of-esports.html</a>					
Point Park University	Pittsburgh, PA, USA	2018 F	Undergrad	The Business of Esports	Business
<a href="https://www.pointpark.edu/news-business/Point-Park-University-Ahead-of-the-Game-in-the-eSports-Industry">https://www.pointpark.edu/news-business/Point-Park-University-Ahead-of-the-Game-in-the-eSports-Industry</a>					
Saint Joseph's University	Philadelphia, PA, USA	2020 F	Undergrad	Esports Marketing	Marketing
<a href="https://www.sju.edu/news/saint-josephs-university-launches-multi-faceted-esports-program">https://www.sju.edu/news/saint-josephs-university-launches-multi-faceted-esports-program</a>					
State University of New York Cortland	Cortland, NY, USA	2020 Sp	Undergrad	Inside Sports Video Gaming	Sport Management
<a href="https://www2.cortland.edu/news/detail.dot?id=1d8e81d3-cba2-4b33-ae38-fbddd4a9a1f4">https://www2.cortland.edu/news/detail.dot?id=1d8e81d3-cba2-4b33-ae38-fbddd4a9a1f4</a>					
Sup de Pub	Paris, France (French)	2019 Sp	n/a	32 hours Esports "Seminar"	Marketing, Brands & Events Communication
<a href="https://www.supdepub.com/niveaux-detudes/formation-master-2/sp5-sport-marketing-brands-events-communication">https://www.supdepub.com/niveaux-detudes/formation-master-2/sp5-sport-marketing-brands-events-communication</a>					
University of Augsburg (Research Center for Esports Law)	Augsburg, Germany	2018	Undergrad	Working with and in front of the Computer; Propaedeutic Seminar on Esports Law; Esports, Digitalization, Criminal Law	Law
<a href="https://www.esport-recht.de/en-gb/teaching">https://www.esport-recht.de/en-gb/teaching</a>					
University of Central Oklahoma	Edmond, OK, USA	2020 F	n/a	"2 Esports Courses"	n/a
<a href="https://www3.uco.edu/press/prdetail.asp?NewsID=26833">https://www3.uco.edu/press/prdetail.asp?NewsID=26833</a>					

University of Copenhagen	Copenhagen, Denmark (Danish)	2018 Sp	Undergrad	Introduction to Sport and eSports Psychology	Psychology
<a href="https://psy.ku.dk/uddannelser/Bachelorstudiet/pensum_f20_ba/ba_ka_sports-psychology">https://psy.ku.dk/uddannelser/Bachelorstudiet/pensum_f20_ba/ba_ka_sports-psychology</a>					
University of Hawai'i at Mānoa	Honolulu, Hawaii, USA	2019 Sp	Undergrad	Esports and Society	Esports Ecosystem
<a href="https://www.hawaii.edu/news/2019/04/14/esports-as-a-career">https://www.hawaii.edu/news/2019/04/14/esports-as-a-career</a>					
University of Nevada – Las Vegas	Las Vegas, NV, USA	2016 F	Undergrad	eSports Gambling Innovation Lab	Hospitality; Gambling
<a href="https://catalog.unlv.edu/search_advanced.php">https://catalog.unlv.edu/search_advanced.php</a>					
University of South Carolina	Columbia, SC, USA	2016 F	Grad	The Business of Esports	Business
<a href="https://sc.edu/uofsc/posts/2016/11/uofsc_offers_class_on_business_side_of_growing_e_sports_industry.php">https://sc.edu/uofsc/posts/2016/11/uofsc_offers_class_on_business_side_of_growing_e_sports_industry.php</a>					
University of West Georgia	Carrollton, GA, USA	2020 F	Undergrad	Fundamentals of Esports	Event Mgt; Esports Ecosystem
<a href="https://www.westga.edu/academics/course_details.php?course=GFA-3500">https://www.westga.edu/academics/course_details.php?course=GFA-3500</a>					
University of York	York, UK	2018 F	Undergrad	Esports Content Production	Content Production
<a href="https://www.york.ac.uk/tfti/news-events/news/2018/esports-content-production">https://www.york.ac.uk/tfti/news-events/news/2018/esports-content-production</a>					

Note. F = fall semester; Mgt = management; n/a = not available; Sp = Spring term; W = winter term.