Rethinking the Future Direction of Game Design Education

An Interdisciplinary Game Design Curriculum

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Abstract*—This paper examines the growing need for an interdisciplinary approach to game design education in response to the increasing complexity and diversification of the global game industry. Contemporary game development demands not only technical proficiency but also creative, managerial, and analytical competencies that span multiple disciplinary domains. The study argues that integrating diverse fields, such as game design, game programming, artificial intelligence, art and aesthetics, data analytics, and management, can better equip students to understand the full lifecycle of game development and to respond effectively to industry challenges. The paper first reviews the historical development of curriculum design in creative and design education, highlighting the limitations of traditional mono-disciplinary models. It then discusses the significance of interdisciplinary curricula in fostering innovation, adaptability, and problem-solving skills. Focusing on the Hong Kong context, the study critically evaluates existing game-related programmes, identifying structural gaps between academic training and market expectations. To address these issues, a market survey was conducted to investigate the needs and perspectives of both industry stakeholders and students. Based on the findings, the paper proposes a re-envisioned interdisciplinary game design curriculum that emphasizes integrated learning and applied practice. The proposed curriculum aims to cultivate graduates capable of creatively applying advanced concepts in game design, game programming, and artificial intelligence, enabling them to address real-world challenges not only within the game industry but also across related sectors such as education, cultural industries, and digital entertainment.

***Keywords*—Design Education, Design Curriculum, Game Design, Interdisciplinary Approach, Educational Reforms**

I. Introduction

Curriculum design in game design education should embrace an interdisciplinary approach. By incorporating multiple disciplines, students can develop a well-rounded understanding of the complexities of game development and management for diverse market needs. An interdisciplinary curriculum encourages collaboration, fosters innovation, and prepares students for the dynamic and evolving nature of the game industry. It allows students to explore the intersections between different fields, encouraging them to think critically, problem-solve, and create games that are not only visually appealing but also engaging and immersive. By breaking down traditional disciplinary boundaries, game design education can equip students with the diverse skill set and knowledge needed to thrive in this rapidly evolving and interdisciplinary industry.

This paper initiates a compelling discussion on rethinking the game design curriculum in design education. It delves into the brief history of curriculum design in design education, emphasizes the significance of an interdisciplinary game design education curriculum, explores the market needs for such a curriculum in Hong Kong Design Education, examines the existing mono-disciplinary undergraduate programs in game design and digital entertainment in Hong Kong, and proposes a reevaluation of curriculum design for game design education. The study includes a pilot market survey that investigates the demands of both markets and students, leading to the presentation of a new interdisciplinary game design curriculum. This innovative curriculum aims to cultivate a new generation of talented individuals who possess a deep understanding and the ability to creatively apply advanced technological and multi-dimensional concepts, strategies, and solutions, such as Game Design, Game Programming, Artificial Intelligence, and AI for robotics. These skills will enable graduates to effectively tackle real-world challenges across sectors such as business, education, sports, arts, healthcare, and social and community services.

II. A Brief History Of Curriculum Design In Design Education

Before the establishment of formal design education in the 1880s, manual training and housecraft subjects were initially taught in technical and trade schools and later expanded to other elementary education settings in Britain and North America. However, these subjects were often seen as vocational training with a focus on specialized practical skills rather than a multi-dimensional and/or interdisciplinary development. Otto Salomon played a significant role in shaping craft education by emphasizing formative and utilitarian objectives. Some educators also explored intellectual approaches to materials, incorporating character training alongside practical applications. Over time, craft education gained recognition and was included in exams at the British school certificate and Higher School certificate levels in the 1940s. In the 1960s, the emergence of "Design Education" as a subject redefined the use of materials and highlighted creative problem-solving. While the traditional focus on doing, thinking, and clarifying the design process persisted, teachers delved into theoretical aspects like

Received: May 30, 2025; received in revised form: April 11, 2026; accepted: February 10, 2026; available online: April 30, 2026.
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Cite this article as: K. W. Lau, "Rethinking the Future Direction of Game Design Education: An Interdisciplinary Game Design Curriculum", Journal of Games, Game Art, and Gamification (JGGAG) 11(1), 08-17, 2026.

creativity and adaptability. The curriculum aimed to foster students' decision-making abilities through hands-on material exploration and the integration of first-hand experience and knowledge [1].

From 1968 to 1973, the British School Council launched the "Design and Craft Education Project" at the University of Keele, which had a profound impact on design education [2]. This project emphasized problem identification and problem-solving skills through hands-on mastery of materials, integrating intellectual and practical activities. The influential report titled "Education through the use of materials," published in 1969 greatly influenced design education in the UK [2]. Similar projects were undertaken by universities like Goldsmiths' College, Exeter University, Loughborough College of Education, and the Royal College of Arts. The early 1970s witnessed significant development in design education with various studies and literature published on the subject. Additionally, the National Association for Design Education was established during this decade as the first professional association for design education in the UK [2].

In the early twentieth century, there was a notable movement to bridge theoretical knowledge and practical skills in design education, influenced by cultural and philosophical revolutions [3]. It would be the first step to promoting an interdisciplinary design curriculum in design education history. Visionary design educators such as Moholy-Nagy, Klee, and Kandinsky worked towards integrating artistic exploration with functional purposes, culminating in the establishment of Germany's Bauhaus School in 1919 [3]. The Bauhaus School became a paradigm for successfully merging art and practicality in design education, providing pedagogical frameworks and curriculum structures that would influence future design schools. Following World War II, the Bauhaus School relocated to Chicago, where Moholy-Nagy and Charles W. Morris developed a ground-breaking curriculum that expanded students' understanding of art, science, and technology [4]. Another influential institution, the Hochschule für Gestaltung Offenbach (HfG), was revived in the 1960s by Max Bill and his colleagues, becoming one of the most influential design schools post-World War II [3]. The evolution of design education since the late 19th century in the United Kingdom, continental Europe, and North America has witnessed transformative reforms. Craftsmanship training gradually gave way to a broader intellectual education encompassing art, science, and technology. This shift paved the way for a deeper exploration of theoretical and intellectual aspects of design education, particularly from a multi-dimensional perspective.

III. The Importance Of Designing An Interdisciplinary Game Design Education Curriculum

In the late 1970s, design education underwent a transformation towards a more imaginative and cognitive approach that incorporated emotions and problem-solving, as highlighted by Wooff [5]. Fitriyah and Sajidan [6] advocate for the advancement of a comprehensive, holistic approach to design education. Zha and colleagues [7] suggest the interdisciplinary design approaches that enhance experiential learning and promote creative collaboration across diverse domains. Berglund [8] indicates that design education requires a deliberate and structured transformation, adopting a more systematic and functionally oriented operational framework to ensure coherence and effectiveness in pedagogical practice. Ultimately, design education involves recognizing evolving needs and providing experiences that cater to those needs within an industrial society [2].

The interdisciplinary design contents in design education have been emphasized since the German Bauhaus School, where influential figures like Gropius, Klee, and Kandinsky taught. They encouraged students to focus on the diverse design contents and elements over the end result, emphasizing simplicity, purity of forms, and material properties (Bauhaus School). This approach spread across Europe and North America, particularly in foundational design courses at art colleges. Despite criticism [9] highlights the design education should be more domain-specific aligned to industry. Post-1970s, design education emphasized the development of the design process and students' diverse conceptual growth. Eggleston [1] identified key aspects of the design process, including active participation in decision-making, evaluation and comparison of ideas, understanding the social context of human behavior, and meaningful employment of craftsmanship and skills. Fostering students' intrinsic motivation to develop advanced design competencies within art and design education is essential for achieving sustained engagement and professional growth [10]. Concurrently, design education should aim to cultivate adaptable professionals who possess integrated competencies in design thinking, engineering literacy, and humanistic sensibility [11]. Enriching diverse experiences is crucial in arts and design education, as a narrow view of culture can hinder creative education [2].

Design education grapples with the task of accommodating various design disciplines, each with unique processes. Standardization is challenging due to designers' distinct abilities, but common creative processes exist across domains. Design education's values, like design thinking, could benefit other disciplines [3]. Indeed, the design education and its curriculum design have progressively moved from specialized skill training to a multidimensional approach.

IV. A Market Needs To Design An Interdisciplinary Game Design Curriculum In Hong Kong Design Education

Game design and innovations, also including game development and production, is one of the key creative domains under the "Talent List in Hong Kong" [12], which sets out the most pertinent top-notch talents that Hong Kong needs to support its development into a high-value-added and diversified economy. Thus, the Government's Report on Manpower Projection to 2027 [13] highlights the pressing need for professionals in creative, innovative technology and related industries. A new interdisciplinary game design curriculum in design education would make valuable contributions to the clusters of Cultural and Creative Industries (CCI), Information Technology and Information Services (ITIS), and Innovation and Technology Industries (ITI). According to the report, the projected growth rate of manpower in these industries is expected to range from 0.9% to 4.3% by 2027 locally. In 2017, the actual manpower in gaming requirement for these industries was 328, 100 personnel, and an additional 57, 600 personnel will be needed

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by 2027. This projected figure demonstrates a strong and growing demand for the design of a new interdisciplinary game design curriculum for creative industries.

Besides, the latest report of a large-scale survey by the Hong Kong Digital Entertainment Association (HKDEA) implies that the major development and need for manpower in the digital entertainment industry (See Figure 1) are expected to rapidly expand, creating an urgent need for new talents [14] in interdisciplinary game design and innovations. The result suggested that a vast majority of digital entertainment-related companies (82.2%) encountered recruitment difficulties. This survey collects data from diverse key companies in the Hong Kong digital entertainment industry, such as companies from (1) interaction design; (2) game design; (3) digital effect; (4) computer animation; and (5) comics. It is essential to note that the local game industry has reached 35.6% of the total sample, which implies that the results significantly reflected the urgent manpower needs of the interdisciplinary game industry in Hong Kong and the Greater Bay Area (GBA). According to the initial market survey and personal interview with the chairman of the HKDEA, Mr. Gabriel Pang, in March 2023, he pointed out the insufficiency of related programmes launched locally and therefore there is an urgent need for new talents in this area.

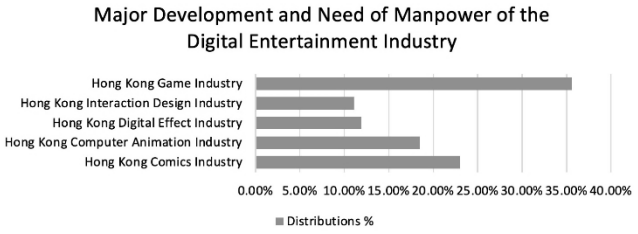

Fig 1. Distribution of participating companies [14]

The HKDEA report also indicates that over 60% of participating companies are planning to expand and/or transfer their digital entertainment business to the China market. The report also shows an urgent need for new talents in this industry – 46.8% of the responding companies urge for related training provided by colleges and universities, as well as developing local colleges (See Table 1).

TABLE I. THE MOST IMPORTANT WAYS TO TRAIN TALENT [14]

	2015		2018	
	%	Freq.	%	Freq.
Government Offers Financial Assistance to Hire Overseas Experts to Provide Training	25.6 %	(22)	33.0 %	(36)
Colleges Strengthen Professional Training of Students	46.5 %	(40)	46.8 %	(51)
Strengthen Training of College Teachers on Industry Knowledge	36.0 %	(31)	32.1 %	(35)
Fund Joint Research and Development of Colleges and the Industry	45.3 %	(39)	47.8 %	(51)
Strengthen Training for the Industry	46.5 %	(40)	52.3 %	(57)
Offer Financial Assistance to Employees to Attend Overseas Industry Conference	23.3 %	(20)	17.4 %	(19)
Others	8.1 %	(7)	3.7%	(4)
1) Number of respondents: 109(2018); 86(2015)				
2) Individual artists in the Comics Industry were not asked this question				
3) Respondents could choose up to three options, so the percentage figures added up to more than 100%				

The need for new talents in interdisciplinary game innovations, such as digital entertainment and game development is also demonstrated by the Vocational Training Council (VTC) Manpower Survey [15] regarding the demand for digital and new media professionals (See Table 2). The forecast for new talents in this area is 1128 personnel with an annual growth of 7.2%. While these figures show an urgent need for new talents for the expansion of the local and regional digital entertainment and game industry, there are insufficient related curriculums and training programmes introduced by the local universities and institutions. Thus, the design of a new interdisciplinary game design in design education will equip our new generations with knowledge and skills in digital entertainment, game solutions and interdisciplinary management, and will be well-placed to fulfil the urgent market needs of Hong Kong and GBA.

TABLE II. THE FORECASE TALENTS IN THE DIGITAL/NEW MEDIA SECTOR [15]

Chart Title: Manpower Demand		
Sector Name: Digital / New Media		
Year	Manpower	Description
2019	855	Actual
2023	1128	Forecast
Average Annual Growth	7.2%	-

Furthermore, the digital revolution is also changing the pattern of local and global needs for digital entertainment and game development. The global and local digital revenue is expected to grow by 64.0% and 63.3% respectively [16]. Figure 2 shows the expected entertainment and media revenue of Hong Kong will reach US$ 9bn by 2024.

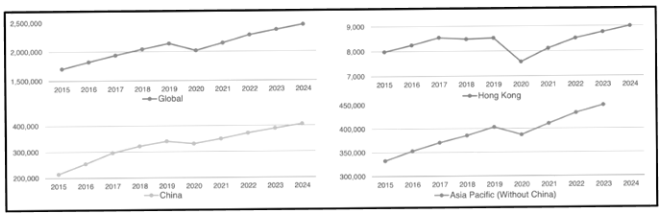

Fig. 2. Entertainment and media revenue 2015-2024: Global vs. Hong Kong [16]

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The digital game industry (See Figure 3) will be the third fastest growing segment in Hong Kong, expected to hit US$ 1.1bn by 2024, which is a 6.2% growth since 2019 [16]. These figures indicate the needs and opportunities for our new generations to be involved in the digital entertainment and game development business. It is important to note that this is only the figure for game development. There is a huge potential market for other organizations and business and social service sectors that are willing to apply digital entertainment and game technology in their projects.

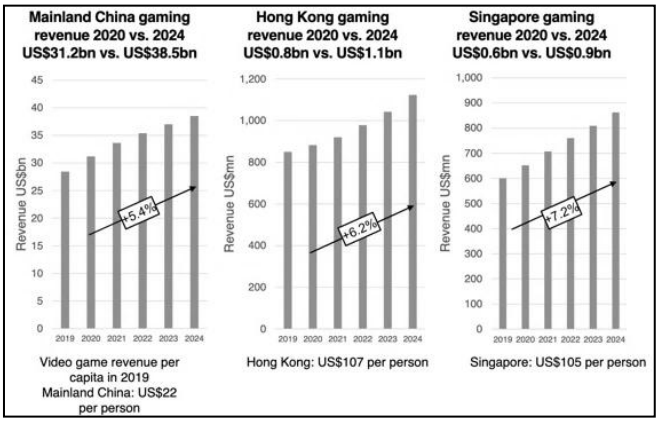

Fig. 3. The gaming revenue 2015-2024 [16]

It is also important to note that he Mobile and Fixed Internet Connection speeds in Hong Kong increased by 18.5% and 31% respectively [17]. A similar report from Kepios Analysis [18] also indicates that the number of social media users in Hong Kong has reached 88.1% of the total population with a 3.7% increase between 2021 and 2022. These figures show that the popularity of using the Internet and mobile services has increased tremendously in the local market that had been reshaping the traditional ways of digital landscape and ecology. The patterns of consumer/user behaviour have been rapidly transformed from conventional ways of digital entertainment to digital behaviours in many areas of their lives during the pandemic period [16]. According to the Global E&M Outlook 2020-2024 report, there are four key consumer behaviour changes (See Table 3).

TABLE III. SHIFTING PATTERNS OF CONSUMER BEHAVIOR [16]

From	To
Attending live music events (e.g., concerts, festivals)	• Live performances streamed online. • Viewing concerts on gaming platform event.
Viewing movies in the cinema	• Viewing films on over-the-top (OTT) platforms.
Attending fitness classes at studios	• On-demand online fitness classes • Live-streamed fitness classes.
Attending B2B trade shows	• Virtual events, online digital tours and multimedia.

Hong Kong is no doubt a regional distribution centre and gaming hub for interdisciplinary game design and innovation. As said by Thomas Rosenthal, General Manager of Asia Pacific, Digital Bros [19]: "*Hong Kong being an integral part of this region is the perfect location for Digital Bros to tackle both Chinese and overseas business*". However, to cope with the change in the digital landscape and consumer/user behaviour, entertainment, and media companies should collaborate more to reshape the future of the industry [20]. At this point, the curriculum design of existing local programmes needs to better anticipate these new patterns of consumption as well as the ever-changing market needs. In this case, a more interdisciplinary and humanistic approach to curriculum design for nurturing new talents in design education would be an urgent need to maintain the international and regional positioning of Hong Kong.

Considering the 2022-23 Budget [21] the Hong Kong Government has increased funding for the "Hong Kong Growth Portfolio" by setting up another HK$5 billion to foster the development of innovative technology enterprises and projects. Likewise, another HK$16 million has been provided for the Technology Start-up Support Scheme and HK$40 million has been allocated to facilitate the application and development of arts technology. Meanwhile, the finalized "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" report [22] indicates that there is a demand for at least 340 hectares of land for promoting the development of science, innovation, and technology-related industries. Similarly, according to the latest executive summary report [23] of the "Our Hong Kong Foundation", the HKSAR government has established a HK$50 billion research and development fund to support applied research and increase public research and development funding of innovation and technology to 1% of the gross domestic product in the future. All these budget allocations from the HKSAR are intended to expand the development of the local technological innovation landscape and ecology, in which game development is one of the key foci. Thus, nurturing new talents for the game and digital entertainment industries would be an urgent task for local universities and institutions.

Similarly, the interdisciplinary game design curriculum should align with the latest Policy Address [24], emphasizing the provision of professional education and training at the university level. Besides the proposed budget allocation for the establishment of universities of applied sciences and the Alliance of Hong Kong Youth Innovation and Entrepreneurial Bases in the Great Bay Area (GBA), the policy also encourages the development of local talents in applied science and information technology domains. With a focus on applied digital game technologies, the design of the curriculum should cater to this niche area, offering a curriculum designed to cultivate professional practices. Consequently, the programme serves as an avenue for local and GBA undergraduates to pursue advanced degrees in a professional and applied science area.

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V. The Mono-Disciplinary Undergraduate Programmes In Game Design And Digital Entertainment In Hong Kong

Until January 24, 2024, there are five related undergraduate programmes have been introduced by five different local universities and institutions which relate to game design and digital entertainment. Most of these programmes address digital media, media broadcasting, game design and digital entertainment. However, an ideal interdisciplinary game design curriculum should be unique in combining (a) innovative ideas development for digital entertainment and game design; (b) a multi-dimensional knowledge approach to entertainment, game, A. I. and social robotic design; and (c) interdisciplinary project management for social science/business practices, which hitherto no similar programme has been introduced locally and internationally. As shown in Table 4, the existing curriculums in the five related undergraduate programmes in game and digital entertainment provided by Caritas Institute of Higher Education, The Hong Kong Polytechnic University, The City University of Hong Kong, Hong Kong Baptist University and Lingnan University Hong Kong respectively. All these programmes offer students fundamental knowledge in game design, animation and a range of electives which focus on different subject areas. However, most of these existing curriculums aim to provide students with basic training in game design and creative interactive media by emphasizing the use of technical programming, and visual and graphic design. In contrast, students lack the chance to explore an interdisciplinary approach to applying digital entertainment and gaming technologies to various multi-dimensional domains. The interdisciplinary game design curriculum should also focus on management and communication for digital entertainment and game design.

TABLE IV. COMPARISON OF RELATED UNDERGRADUATE PROGRAMMES IN GAME DESIGN AND DIGITAL ENTERTAINMENT IN HONG KONG

Funding(s)	**Self-financed**		**UGC-funded**		
Institution(s)	**CIHE**	**HKPolyU**	**CityUHK**	**HKBU**	**LUHK**
School/Department(s)	School of Computing and Information Science	School of Design	School of Creative Media	School of Communication	Digital Arts and Creative Industries
Emphases/Degree(s)	BSc (Hons) in Digital Entertainment Technology	BA (Hons) in Scheme in Design (Interaction Design)	BAS (Hons) in New Media	BC (Hons) in Game Design and Animation	BC (Hons) in Animation and Digital Arts
1. Game Design and Development	✓		✓	✓	✓
2. Game Programming	✓		✓	✓	
3. Interactive Media	✓	✓	✓	✓	✓
4. 3D Modelling and Animations	✓	✓	✓	✓	✓
5. Virtual and Augmented Reality Applications	✓	✓	✓	✓	✓
6. Digital Entertainment Technologies	✓				
7. Artificial intelligence	✓		✓	✓	
8. A.I. Robotics					
9. Digital Entertainment and New Media Studies			✓	✓	✓
10. Digital Humanities			✓	✓	
11. Digital Business/ Marketing		✓			
12. Communication and Management in Digital Game/Entertainment		✓		✓	✓
13. Interdisciplinary Studies					
14. eSports					
15. Professional/Industrial Internships	✓	✓	✓		

Further to Table 4, both the Self-financed institution and UGC-funded universities are mainly focusing on either game design and programming and/or 3D animations and digital media studies. Some have a strong emphasis on programming and artificial intelligence applications (e.g. CHIE), Digital Humanities (e.g. CityUHK), and 3D modelling (e.g. LUHK). These curriculum designs are not able to nurture our new talents with an all-rounded knowledge and skills that cover all areas of game design and digital entertainment with interdisciplinary knowledge and industrial internships. An interdisciplinary game design curriculum should adopt a multi-dimensional approach (e.g.

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Professional Production Courses and (b) Multi-dimensional Knowledge Courses) to programme curriculum design. It is expected to be an integrated area of study that helps students make sense of interdisciplinary applications of digital entertainment technologies, game production, artificial intelligence, and social robotics skills in collaborative projects. This approach is hitherto a pioneer attempt to nurture new types of game and digital entertainment professionals.

VI. Rethinking The Curriculum Design For Game Design Education

An interdisciplinary game design curriculum should aim to establish a unique positioning of graduates for urgent market needs. Different from other similar local programmes that aim to provide students with production and programming skills in digital entertainment, game design and interactive media, the interdisciplinary game design curriculum major addresses the growing need for digital professionals who fluidly combine (a) professional and technical skills of digital entertainment and gaming applications; (b) knowledge and vision of various social science and business domains; and (c) project management and communication skills in interdisciplinary and collaborative projects for social science/business practices. The curriculum design trains students to operate as a hub (See Figure 4) for developing technological solutions in the context of social science/business practices. The proposed interdisciplinary game design curriculum is a hitherto unique positioning in the digital entertainment and gaming industries that meets urgent market needs.

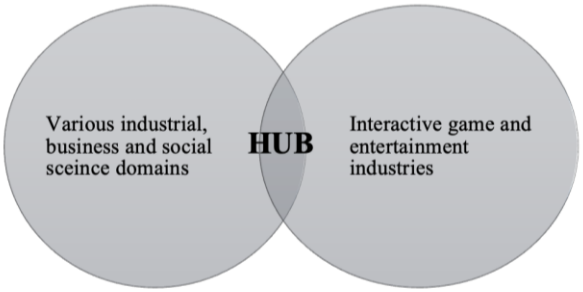

Fig. 4. The positioning of the graduates from the interdisciplinary game design curriculum

The proposed interdisciplinary game design curriculum should adopt a holistic approach to programme curriculum design which is a unique multi-dimensional approach to programme curriculum design. It involves an integrated area of study that helps students make sense of interdisciplinary applications of digital entertainment technologies, game production, artificial intelligence, and social robotics skills in collaborative projects. As Figure 5 shows, the proposed interdisciplinary game design curriculum contains two types of courses: (a) Professional Production Courses (PPC); and (b) Multi-dimensional Knowledge Courses (MKC).

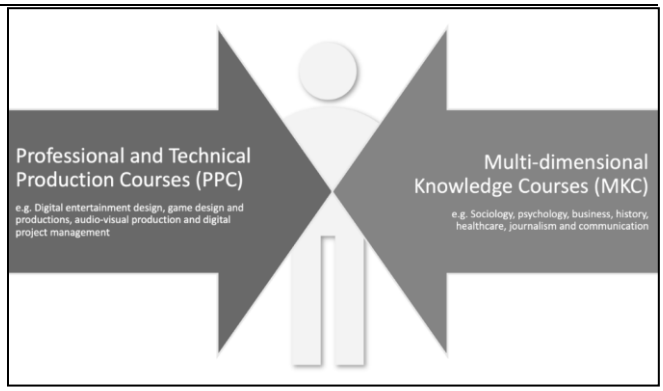

Fig. 5. The multi-dimensional approach

Interdisciplinary and collaborative project-based learning is one of the distinct features of the interdisciplinary game design curriculum. It is expected to operate as a "Hub" incorporating the actual design and production of digital entertainment and gaming technologies and the digital development of other social science and business domains. A set of unique collaborative group projects should be introduced. Students can professionally design and develop creative solutions in digital entertainment and gaming for multidomain real-world problems.

Students under the new curriculum are expected to study game design and development, digital entertainment applications, AI programming, human behaviour research, social robotics, business strategies, and other social science concepts. In this case, the curriculum design should also provide students with a multi-laboratory learning experience. Laboratory work is an essential component of learning in areas such as game design and development, digital entertainment applications, AI programming, human behaviour research, and social robotics practices.

The professional work-integrated learning approach is equally essential in the proposed disciplinary game design curriculum. The programme initials should invite professionals and experts from the digital entertainment, game, and interactive design industries to deliver guest seminars, workshops, lectures, and mentorship for students in order to develop a strong connection with related local associations and industries. Students can acquire hands-on experience and networks through these professional work-integrated learning approaches. From the inception of this work-integrated learning approach, the programme initials should actively seek business/industry collaborations within relevant creative industries to provide opportunities for both staff and students to enhance their existing knowledge and acquire new skills in digital entertainment, game solutions, and AI in robotics. This initiative involves establishing strong networks with industries through partnerships with professional internship providers. This approach can provide valuable referrals and connections for industrial attachment opportunities, assist in developing research project ideas for the students, and enable close collaboration with industry practitioners in the field of digital solutions to tackle real-world problems.

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VII. A Pilot Market Survey For Understanding The Needs Of Markets And Students

Regarding the particular manpower requirement for the game innovations and digital entertainment industry, the previously indicated Hong Kong Government's "Report on Manpower Projection to 2027" [13] has shown the need for professionals from the actual figure 328, 100 personnel in 2017, and an additional 57, 600 personnel will be needed by 2027. While these figures indicate a strong and increasing demand for new graduates from the said industry. Similarly, the anticipated demand for related undergraduate programmes is continuously increasing. According to the report on the Joint University Programmes Admissions System (JUPAS) in recent years, digital entertainment and interactive media are among the top five competitive programmes with a huge number of applications from the first band of choices. There are about 1,764 to 3,142 student applications in the 2022-23 cohort for each local-related programme in the creative industry, digital entertainment and gaming. However, the existing places of undergraduate programmes in local universities are insufficient to fulfil students' demands.

To gauge market demand and potential students' needs, the author of this paper has conducted (a) a pilot market survey on the stakeholders of the creative and digital entertainment industries, and (b) a student survey on potential applications from local secondary schools and associate degree programmes. The two quantitative surveys use a 5-point Likert scale to assess respondents' attitudes or opinions, ranging from "Strongly Disagree" to "Strongly Agree." This scale enables participants to express varying degrees of agreement or disagreement with specific statements, offering a detailed understanding of their perceptions. The results of these two surveys are as follows:

A pilot market survey on the stakeholders of the creative and digital entertainment industries

A market survey was also carried out with stakeholders of the creative and digital entertainment industries to understand their opinions about the "skills in demand of graduates". The duration of this survey was from February to March 2023. Using snowball sampling, the survey collected 12 valid responses from anonymous stakeholders in the digital entertainment, gaming, and creative industries in Hong Kong. As revealed in the survey results in Figure 6, 58.33% and 25.00% of the respondents rated the proposed interdisciplinary game design curriculum as excellent and good respectively. 75.00% of respondents strongly agree or agree that the curriculum design is unique in the market. 83.34% of respondents strongly agree or agree that the curriculum design is professional and practical. 83.34% of respondents strongly agree or agree that graduates from the proposed programme can fulfil market needs. 75.00% of respondents strongly agree or agree that their company/organization will consider employing graduates from this programme.

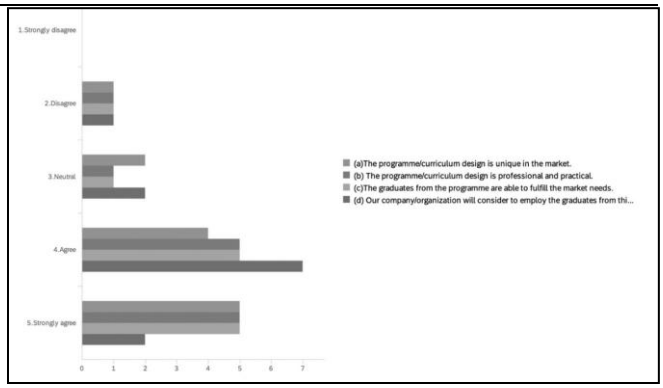

Fig. 6. The urgent market needs from the result of the instant industrial survey

A pilot student survey on potential applications from local secondary schools and associate degree/higher diploma programmes

A survey of potential applicants involving 57 HKDSE candidates from 2 local secondary schools and 48 associate degree students from 3 local tertiary institutions was conducted from January to February 2023. The first section of the questionnaire questioned the skills and knowledge that potential students preferred to learn. The results show in Table 5 that for most of the factors (DeD = Digital entertainment design; GdP = Game design and productions; AiL= A.I. and Machine Learning; RfE = Robotics for Entertainment) over 90% of respondents chose "Strongly Agree". This figure implies that the interdisciplinary game design curriculum is in demand by potential students. The highest score (94.30%) is for Game Design and Productions (GdP).

TABLE V. POTENTIAL STUDENTS PREFER THE INTERDISCIPLINARY GAME DESIGN CURRICULUM THAT EQUIPS THEM WITH CERTAIN SKILLS AND KNOWLEDGE

Acquired Skills & Knowledge		HKDSE Candidates (57) Secondary				AD Students (48) Tertiary			
		DeD (n=57)	GdP (n=57)	AiL (n=57)	RfE (n=57)	DeD (n=48)	GdP (n=48)	AiL (n=48)	RfE (n=48)
	m	92.63	94.30	89.57	92.11	84.65	86.72	81.77	89.83
	s.d.	7.79	7.88	7.01	6.78	7.20	7.45	7.56	7.02

Regarding the potential students' interest in applying to the proposed interdisciplinary game design curriculum (See Table 6), the HKDSE group scored 76.33% and the associate degree group scored 84.01%. Both groups of students indicated high interest in this new game design curriculum. The results of both industry and student surveys echo the actual local market needs for related professionals and skill sets.

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TABLE VI. POTENTIAL STUDENTS' INTEREST IN THE NEW GAME DESIGN CURRICULUM

Interested in the Game Design Curriulum		HKDSE Candidates (57) Secondary	AD Students (48) Tertiary
		(n=57)	(n=48)
	m	76.33	84.01
	s.d.	7.09	6.92

Limitations

The surveys have a limitation in that they only sampled a small segment of the population, which may not fully represent the broader context. However, this pilot study aims to provide immediate insights for curriculum development rather than generalize findings. By focusing on a specific group, the study seeks to identify trends and perceptions that can inform future educational strategies, while recognizing the need for further research with a larger, more diverse population for wider applicability.

New Curriculum Design for New Talents in The Game Design Arena

The interdisciplinary game design curriculum extends beyond traditional digital entertainment and gaming, encompassing a diverse range of areas such as serious gaming, advergames, edutainment, health games, and human-care robotics. Graduates of the programme are equipped to pursue careers in interactive game design, digital entertainment, artificial intelligence in robotics, and other creative industries. Besides business and commercial sectors, students can also seek academic positions as researchers or game designers working for museums, NGOs and government agencies. According to Figure 7, a sample career path for a student interested in becoming a serious game designer involves taking specific courses. In the Professional and Technical Production Courses (PPC) domain, recommended courses include Gaming for Social Design, Game Engines for Development, and Game Programming Studio. Simultaneously, in the Multi-Dimensional Knowledge Courses (MKC) domain, courses such as Education Psychology, Digital Humanities, and Art and Society are suggested to provide a broader understanding and multidimensional knowledge relevant to the field.

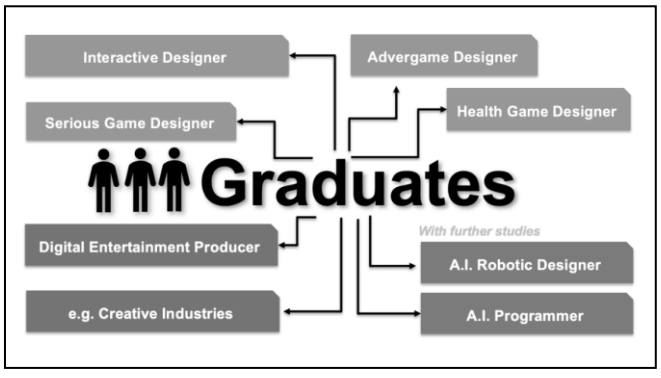

Fig. 7. The job opportunities of BSc-DSEGA graduates

According to LinkedIn Insights (accessed 30th January 2024), there is strong demand for professionals with skills in (1) Machine Learning and AI (20, 981); (2) Media, Entertainment and Edutainment (7,443); and (3) Game Design, Game Play and Game Programming (2,423). The existing pool of local professionals is insufficient to satisfy the urgent market needs. The demand for professionals in the creative, digital entertainment and gaming industries, according to LinkedIn Insights, is in Table 7.

TABLE VII. DEMAND FOR PROFESSIONALS IN THE CREATIVE, DIGITAL ENTERTAINMNET AND GAMING INDUSTRIES (LINKEDIN TALENT INSIGHTS)

Skill(s)	No. of Professional(s)	Hiring Demand
Game Development	1,193	*Very High
Game Design	741	*Very High
Game Programming	187	*Very High
Mobile Game Development	156	*Very High
Game Play	146	*Very High
User Experience	9,148	*Very High
User Interface Design	5,611	*Very High
Artificial Intelligence	8,800	*Very High
Machine Learning	12,181	*Very High
Robotics	1,344	*Very High
Robotic Programming	49	*Very High
Virtual Reality	735	*Very High
Media and Entertainment	7,443	*Very High
Audio Visual System Design	116	*Very High
Cloud Computing	15,993	*Very High
Digital Project Management	465	*Very High
Edutainment	113	*Very High
Online Advertising	12,930	*Very High
Healthcare Technology	697	*Very High

** Very High = This talent is very hard to hire*

The above search for jobs and skills is only in Hong Kong SAR; if the search is extended to the Greater Bay Area (GBA), the figures will be enormous. The hiring demand figure represents the need for manpower, according to LinkedIn's description, the term "Very High" means this talent is very hard to hire.

In a search for game design jobs in Hong Kong on Recruit.net on December 27, 2023, there were 451 "game design" related job posts advertised. When "digital entertainment" was searched, 189 job ads were found. Similarly, in a job search on LinkedIn on December 28, 2023, 409 "game design" related job posts within the last 30 days by companies such as Ogilvy, Tencent and Cronos were found. When "digital entertainment" was searched, 580 job ads, also within the last 30 days by companies such as

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Emperor Group, Merlin Entertainments and Hong Kong Disneyland, were found. This indicates that a new type of game designers and digital entertainment professionals are in high demand in a wide range of industries.

VIII. CONCLUSION AND IMPLICATIONS

Digital entertainment, game development, and game production are crucial industries for Hong Kong's economic growth and diversification [25][26][27][28]. Reports indicate a high demand for local talents in the digital entertainment and game application sectors, with projected growth of an additional 57,600 personnel will be needed by 2027. However, there is currently a shortage of interdisciplinary game design curricula in undergraduate programmes to meet the industry's needs and students' demands [29] [30]. The evolving nature of the industry requires professionals who possess advanced technical skills [31][32][33] in areas such as game design, game programming, artificial intelligence, and AI robotics. These talents are essential for addressing real-world challenges in various fields, including business, education, sports, arts, healthcare, and social and community services [34][35].

This proposed interdisciplinary game design curriculum in this paper aims to cultivate new talent who possess a comprehensive understanding and can effectively apply advanced technological and multi-dimensional concepts, strategies, and solutions. This includes areas such as game design, game programming, artificial intelligence [36], and AI for robotics [37]. The programme aims, echoes to some current researchers [38][39], to nurture creative problem-solving skills in various real-world domains such as business, education [40], sports [41], arts [42], healthcare [43], and social [44] and community services [45].

The new curriculum addresses the increasing demand for talent in the complex and specialized digital entertainment and gaming industry. It offers a unique combination of Professional Production Courses (PPC) and Multi-dimensional Knowledge Courses (MKC) to meet market needs. The programme aims to go beyond traditional digital entertainment and gaming by preparing graduates for various applications, including serious gaming, advergames, edutainment, health games, and human-care robotics. The curriculum takes a holistic approach, integrating interdisciplinary knowledge and providing industrial internships to ensure students gain comprehensive skills in game design and digital entertainment. Students can choose internships in various industries, including digital entertainment agencies, game development companies, marketing and advertising organizations, education institutions, museums, NGOs, government agencies, and public service organizations.

REFERENCES

[1] J. Eggleston, Developments in Design Education, London: Open Books, 1976.

[2] P. Green, Design Education: Problem Solving and Visual Experience, Great Britain: B T Batsford Ltd, 1974.

[3] R. Buchanan, "Rhetoric Humanism, and Design". In R. Buchanan & V. Margolin, Ed, Discovering Design: Explorations in Design Studies, USA: The University of Chicago Press, 1995.

[4] A. Findeli, "Design Education and Industry: The Laborious Beginnings of the Institute of Design in Chicago", Journal of Design History, Vol 4, no. 2, 73-113, 1991.

[5] T. Wooff, Developments in Art Teaching: The Changing Classroom, USA: Open Books Publishing Ltd, 1976.

[6] I. J. Fitriyah and S. S. Sajidan, "Research Trends in Design Thinking Education: A Systematic Literature Review from 2014 to 2024," European Journal of Education Research, vol. 14, no. 2, 2025, doi: 10.12973/eu-jer.14.2.381.

[7] S. Zha, D. Zhao, M. Li, W. Gong, Q. Hu, and Z. Li, "An interdisciplinary design framework for creative collaboration," in IASDR 2023: Life-Changing Design, Milan, Oct. 2023, pp. –, doi: 10.21606/iasdr.2023.550.

[8] A. Berglund, "Design thinking: catalysing change in the educational ecosystem – a framework for future challenges," Design Science, vol. 10, 2024, doi: 10.1017/dsj.2024.39.

[9] L. Brosens, A. Raes, J. Renny Octavia, and M. Emmanouil, "How future proof is design education? A systematic review," Int. J. Technol. Des. Educ., vol. 33, pp. 663–683, 2022, doi: 10.1007/s10798-022-09743-4.

[10] T. Z. Oo, T. Kadyirov, L. Kadyjrova, and K. Jozsa, "Enhancing design skills in art and design education," Frontiers in Education, vol. 10, 2025, doi: 10.3389/feduc.2025.1521823.

[11] D. Jinben, X. Zhang, and H. Wu, "Interdisciplinary Integration in Design Education for the AI Era: A Case Study of Ceramic Product Design," International Journal of Education, Culture and Society, vol. 10, no. 2, 2025, doi:10.11648/j.ijecs.20251002.18.

[12] Hong Kong Special Administrative Region, "Talent List Hong Kong", Online Article: Information retrieved dated 18 Jan 2023 at https://www.talentlist.gov.hk/en/index.html, 2022.

[13] Hong Kong Special Administrative Region, "Report on Manpower Projection to 2027", Online Article: Information retrieved dated 16 Jan 2023 at https://www.lwb.gov.hk/en/other_info/mp2027_en.pdf. 2019.

[14] Hong Kong Digital Entertainment Association, "Hong Kong Digital Entertainment Industry Survey (Second Round)", Information retrieved dated 14 Sep 2022 https://www.hkdei.hk/download.php, 2018.

[15] VTC Manpower Survey, "Manpower Survey: Digital/New Media Manpower Demand", Online Article: Information retrieved dated 16 Sep 2022 at https://manpower-survey.vtc.edu.hk/industry/media-and-communications/digital-new-media-sector/manpower-demand-tab, 2022.

[16] PWC, *"Global Entertainment and Media Outlook 2020-2024: Hong Kong Summary", Online* Article: Information retrieved dated 15 Sep 2022 at https://www.iabhongkong.com/sites/default/files/2020-12/china-entertainment-and-media-outlook-2020-2024.pdf, 2020.

[17] OokLA, "Hong Kong (SAR)'s Mobile and Fixed Broadband Internet Speeds", Ookla Speedtest Global Index, Online Article: Information retrieved dated 28 Sep 2022 at https://www.speedtest.net/global-index/hong-kong-(sar)#fixed, 2022.

[18] Kepios, "Digital 2022: Hong Kong, Global Digital Reports", Online Article: Information retrieved dated 28 Sep 2022 at https://datareportal.com/reports/digital-2022-hong-kong, 2022.

[19] InvestHK, HKSAR, "Stepping up in the Asian Gaming Market via Hong Kong", Online Article: Information retrieved dated 22 Sep 2022 at https://www.investhk.gov.hk/en/case-studies/stepping-asian-gaming-market-hong-kong.html, 2020.

[20] Deloitte Insights, "Digital Media Trends", 16th Edition: Toward the metaverse, Online Article: Information retrieved dated 15 Sep 2022 at https://www2.deloitte.com/us/en/insights/industry/technology/digita-media-trends-consumption-habits-survey/summary.html, 2022.

[21] Hong Kong Special Administrative Region, "Development of Industries (I&T and Financial Service): The 2022-2023 Budget", Online Article: Information retrieved dated 16 Sep 2022 at https://www.budget.gov.hk/2022/eng/re.html, 2022.

[22] Hong Kong Special Administrative Region, "Finalised Report of Hong Kong 2030+ Promulgated", Online Article: Information retrieved dated 22 Sep 2022 at https://www.pland.gov.hk/pland_en/p_study/comp_s/hk2030plus/index.htm, 2021.

[23] Executive summary report, "Our Hong Kong Foundation", Online Article: Information retrieved dated 16 Sep 2022 at

Cite this article as: K. W. Lau, "Rethinking the Future Direction of Game Design Education: An Interdisciplinary Game Design Curriculum", Journal of Games, Game Art, and Gamification (JGGAG) 11(1), 08-17, 2026.

https://ourhkfoundation.org.hk/sites/default/files/media/pdf/20200904_TTR_EN_EXE_SUM.pdf, 2022.

[24] Hong Kong Special Administrative Region, "Policy Address 2023", Online Article: Information retrieved dated 01 November 2023 at https://www.policyaddress.gov.hk/2023/en/policy.html, 2023.

[25] A. Chiu, "An industry or a sport: media framing of esports development in Hong Kong," Social Transformations in Chinese Societies, vol. 21, no. 1, pp. 97–108, Apr. 2025, doi: 10.1108/STICS-07-2024-0009.

[26] PwC, "Global Entertainment & Media Outlook 2024–2028: Hong Kong Summary," PwC Hong Kong, Hong Kong, 2024.

[27] Invest Hong Kong, "Gaming: Hong Kong Advantages and Opportunities," Hong Kong SAR Government, 2024.

[28] CCIDAHK, "Creative Industries: Economic Driver for Hong Kong," Hong Kong SAR Government, 2024.

[29] Y. Y. Lam and K. W. Lau, "The curriculum design in design education: An inquiry of challenges and implications in Hong Kong," Art, Design & Communication in Higher Education, vol. 23, no. 1, pp. 69–83, 2024, doi: 10.1386/adche.

[30] K. W. Lau, "Learning game innovations in immersive game environments: A factor analytic study of students' learning inventory in virtual reality," Virtual Reality, 2023, doi: 10.1007/s10055-023-00811-1.

[31] R. Breejon Robinson and A. Alvarez, "Toward a design and play-focused approach to teaching technical game design," in Proc. 19th Int. Conf. Foundations of Digital Games (FDG), Worcester, MA, USA, May 2024, pp. 1–7, doi: 10.1145/3649921.3650003.

[32] Cyberport, "Annual Report 2023/24". Hong Kong: Hong Kong Cyberport Management Company Limited, 2024.

[33] World Economic Forum, "The Future of Jobs Report 2023". Geneva, Switzerland: World Economic Forum, 2023. [Online]. Available: https://www.weforum.org/publications/the-future-of-jobs-report-2023/

[34] OECD, "Education at a Glance 2023: OECD Indicators". Paris, France: OECD Publishing, 2023. [Online]. Available: https://www.oecd.org/education/education-at-a-glance/

[35] Deloitte, "2024 Global Human Capital Trends". Deloitte Insights, 2024. [Online]. Available: https://www.deloitte.com/ua/en/about/press-room/human-capital-trends.html

[36] A. Christofferson, A. James, T. Rowland, and I. Rey, "How will generative AI change the video game industry?" Bain & Company, 2023. [Online]. Available: https://www.bain.com/insights/how-will-generative-ai-change-the-video-game-industry/

[37] R. Rato, F. Correia, A. Pereira, et al., "Robots in games," International Journal of Social Robotics, vol. 15, pp. 37–57, 2023, doi: 10.1007/s12369-022-00944-4.

[38] Z. Zhan, L. He, and X. Zhong, "How does problem-solving pedagogy affect creativity? A meta-analysis of empirical studies," Frontiers in Psychology, vol. 15, Feb. 2024, doi: 10.3389/fpsyg.2024.1287082.

[39] S. G. Isaksen, "Developing creative potential: The power of process, people, and place," Journal of Advanced Academics, vol. 34, no. 2, pp. 111–144, 2023, doi: 10.1177/1932202X231156389.

[40] C. Myers, L. Piccolo, and T. Collins, "Democratising digital educational game design for social change," *Journal of Learning for Development*, vol. 10, no. 1, 2023, doi: 10.56059/jl4d.v10i1.714.

[41] M. Á. López-Cabarcos, J. Caby, S. A. Sixto-Lugilde, and J. Piñeiro-Chousa, "An approach to innovative eSports from a business perspective," Journal of Innovation & Knowledge, vol. 9, no. 4, Art. no. 100555, Oct.–Dec. 2024, doi: 10.1016/j.jik.2024.100555.

[42] P. Atkinson and F. Parsayi, "Institutionalized aesthetics: Video games and the contemporary art gallery," Games and Culture, vol. 21, no. 2, 2024, doi: 10.1177/15554120241246839.

[43] R. Damaševičius, R. Maskeliūnas, and T. Blažauskas, "Serious games and gamification in healthcare: A meta-review," Information, vol. 14, no. 2, Art. no. 105, 2023, doi: 10.3390/info14020105.

[44] A. Hasanah and R. C. Baars, "Empowering youth: The potential of serious games," International Journal of Adolescence and Youth, vol. 30, no. 1, Art. no. 2510993, 2025, doi: 10.1080/02673843.2025.2510993.

[45] Ng, S. Zhu, Y. Li, and J. van Ameijde, "Digitally gamified co-creation: Enhancing community engagement in urban design through a participant-centric framework," Design Science, vol. 10, Art. no. e17, 2024, doi: 10.1017/dsj.2024.17.