How Does One Become a Game Producer? Trajectories, Gaps, and Curricular Implications

Rafael C Lopes
CESAR School
Recife, PE, Brazil
rcl2@cesar.school

Rodrigo Siqueira
CESAR School
Recife, PE, Brazil
pinipa10@gmail.com

Danilo Monteiro Ribeiro
CESAR School
Recife, PE, Brazil
danilomonteiroo@gmail.com

Abstract

Context: Software Engineering increasingly depends on hybrid coordination roles that articulate technical, creative, and business demands. In digital game production, this hybrid character is particularly visible in the Game Producer, who articulates technical, creative, and business teams. Despite the growing relevance of the role, the academic community still lacks consolidated evidence on how to adequately train these professionals. **Objective:** To characterize the formative trajectories of practicing Game Producers and identify how their competencies can be incorporated into Software Engineering and Game Design curricula, as well as into corporate training programs. **Method:** Qualitative study with 22 semi-structured interviews analyzed via Straussian Grounded Theory. The analysis produced 204 open codes, of which 27 were selected as the most recurrent across narratives and reorganized under a curricular lens to identify typical acquisition sources for each competency. **Results:** 18 of the 22 interviewees (82%) explicitly reported the absence of academic training specific to the role. Although 12 hold degrees in Game Design, only 8 consider this background necessary, while 14 consider it dispensable. Recommended training paths converge around a trio: Project Management, Game Design education, and on-the-job practical learning, with the latter being the most transversal acquisition source across the 27 competencies analyzed. In the interviewees' perception, only two blocks (Project Management and the Game Development Process) find reasonable coverage in the formal education they experienced, while interpersonal and contextual competencies depend largely on practical learning. Formal curricula were not analyzed directly: the mapping reflects reported acquisition experience, not an audit of program content. **Conclusions:** Game Producer training is built in fragmented fashion, at the intersection of Software Engineering curricula, Project Management programs, complementary training, and practical experience. The findings provide concrete input for curriculum design in programs targeting hybrid roles in creative domains.

Keywords

Software Engineering Education, Game Producer, Digital Games Industry, Formative Trajectories, Curriculum, Qualitative Study, Grounded Theory

1 Introduction

Coordination roles have become increasingly central to Software Engineering practice, articulating not only technical execution but also communication across multidisciplinary teams, mediation of conflicts, and management of iterative development under uncertainty. Studies investigating what distinguishes experienced software engineers [18] and effective software team managers [15] converge on a finding: interpersonal, contextual, and leadership competencies play a role as decisive as technical proficiency in the exercise of such functions.

Despite this growing recognition, the empirical literature on Software Engineering Education has not consolidated how traditional curricula address these dimensions when training professionals for hybrid roles, that is, coordination functions that simultaneously articulate technical, creative, and organizational demands. Existing programs in Computer Science and Software Engineering, in Project Management [17, 20], and in agile methodologies [23] were designed for generic domains, and their articulation in training hybrid roles remains an open empirical question.

The digital games industry offers a particularly demanding empirical context for examining this question. Game production is a form of software development [6, 16] subject to high interdisciplinarity, creative uncertainty, and intense iteration between technical and non-technical teams. The sector has consolidated as one of the most expressive segments of the global creative economy, with revenue projected to exceed US$ 200 billion and more than 3 billion players worldwide [19], and applications today span domains as varied as education, health, training, and marketing [12].

Within this context, the Game Producer emerges as a central hybrid coordination role, articulating technical, creative, and business teams across the entire production cycle [6, 16]. Although technical literature and early empirical studies describe attributes of the role [5, 6, 13, 16, 25], there is no systematic treatment of how the set of competencies that characterize the Game Producer can be taught, nor of which available courses are prepared to train these professionals. The formative trajectories observed in practice are heterogeneous, with no single path to becoming a Game Producer [13, 25].

An initial empirical mapping of the role's competencies has only recently appeared in the study of Anonymous [1], a previous work by the same authors. The question of how Software Engineering, Game Design, and Project Management curricula can incorporate these competencies into their programs remains open, leaving academic and corporate training programs without consolidated input to align curricula with the professional practice actually exercised.

In light of this gap, the present study investigates, in line with research that maps attributes and competencies of Software Engineering professionals [15, 18], the formative trajectories of experienced Game Producers, with the purpose of identifying how these competencies can be incorporated into Software Engineering and Game Design curricula and into corporate training programs. The

study adopts a qualitative approach based on Straussian Grounded Theory, with 22 semi-structured interviews conducted with professionals working in Brazilian, North American, and British studios. The research questions guiding the study are:

- **RQ1.** Which formative trajectories (academic, complementary, and on-the-job) characterize experienced Game Producers in the digital games industry?
- **RQ2.** Which gaps between available academic education and the competencies required by the role are perceived by these professionals?
- **RQ3.** How can the competencies mobilized by Game Producers be incorporated into Software Engineering and Game Design curricula and into corporate training programs?

The qualitative approach was chosen due to the exploratory nature of the problem and the absence of validated instruments that cover this phenomenon in its complexity.

The main contributions of the study are:

- **Empirical contribution:** a mapping of the formative trajectories of 22 practicing Game Producers, articulated to the entry routes into the role and to the most recurrent complementary training paths;
- **Analytical contribution:** a replicable content-level lens for Software Engineering Education research, namely the classification of the 27 most recurrent competencies in the role by typical source of acquisition as reported by the professionals themselves, applicable to investigate the training of other hybrid coordination roles in software engineering practice;
- **Contribution to Software Engineering Education:** curricular recommendations for Software Engineering courses, Game Design programs, and graduate Project Management programs, articulated to broader debates in Software Engineering Education on the formation of professionals for hybrid coordination roles [15, 18].

The remainder of the article is organized as follows. Section 2 presents the theoretical background and related work, Section 3 describes the method, Section 4 presents the results, Section 5 discusses the findings and their implications, Section 6 addresses the threats to validity, and Section 7 concludes the work.

2 Theoretical Background and Related Work

2.1 Software Engineering Education for Hybrid Roles

Training Software Engineering professionals for coordination roles articulates three dimensions: personal characteristics, skills, and competencies. Characteristics are individual traits that influence behavior and interactions in professional environments, encompassing both innate and acquired traits [8, 21]. Skills refer to the ability to apply knowledge and techniques to produce specific results and may be cognitive, interpersonal, or emotional [2, 10, 14]. Competencies, in turn, integrate knowledge, skills, attitudes, and values applied to a context of action [11]. In the exercise of hybrid roles (understood here as coordination functions that simultaneously articulate, with comparable degrees of demand, the technical, creative, and business dimensions of software projects, requiring constant transit between distinct vocabularies, methods, and professional cultures), these three dimensions intertwine in particularly intense ways, requiring from the professional not only technical mastery but also interpersonal and contextual maturity.

The literature on training Software Engineering professionals for related roles has advanced substantially in recent years, under an approach that has become known as the "What Makes a Great…" research line. Studies such as Li et al. [18] on experienced software engineers and Kalliamvakou et al. [15] on software team managers used Grounded Theory to map, from primary data, the attributes that distinguish professionals recognized as excellent in their roles. These studies converge on a central finding: interpersonal and leadership competencies (communication, mentoring, mediation, expectation management) play a role as relevant as, or more relevant than, strictly technical competencies in the exercise of coordination functions.

In practice, training for these roles articulates three types of programs:

- Computer Science or Software Engineering courses, which cover technical foundations;
- Project Management programs, structured around frameworks such as the PMBOK [20] and classic approaches such as the one presented by Kerzner [17], which address planning, scope, schedule, costs, and risks;
- Complementary training in agile methodologies, based on references such as the Scrum Guide [23], which provide the operational repertoire for iterative team coordination.

Each of these programs, however, was designed for generic domains. The empirical literature on Software Engineering education does not consolidate how these programs articulate (or fail to articulate) in training professionals for hybrid roles with a creative component.

2.2 The Game Producer as a Hybrid Role in Software Engineering

Among the hybrid coordination roles discussed above, the Game Producer is a particularly intense instance: the professional responsible for the overall coordination of digital game development, acting as the articulation hub between technical, creative, and business areas in studios of varying sizes. Chandler [6] provides the reference definition for the role, describing the Producer as the main communication hub among the teams involved in the project and the person responsible for ensuring all teams move in the same direction. The role, however, goes beyond traditional project management practices. Bethke [4] argues that game development requires the integration of multidisciplinary teams with unique creative and technical demands, subject to iterative cycles of creation and continuous adaptation, characteristics that distinguish game production from other software contexts. Keith [16] extends this argument by showing that agile practices such as Scrum, although widely adopted, require significant adaptation when applied in game studios, given the fluid nature of development and the need to balance technical, narrative, and aesthetic constraints.

At the intersection of these dimensions, the Game Producer mobilizes a broad set of competencies. Together, the technical and professional practice literature suggests that the role articulates

rapid adaptation to changes in scope and deadlines [5], interpersonal skills and a creative dimension to mediate with areas such as design and narrative [6, 12], and market awareness and continuous engagement with the industry [25]. There is also consensus, in the technical literature, that no single path leads to becoming a Producer: professionals from varied areas, ranging from design and programming to marketing and administration, may take on the role [13]. This heterogeneity raises empirical questions that the technical literature, predominantly based on individual accounts, does not address systematically. The recent study of Anonymous [1], conducted with 11 professionals working predominantly in the Brazilian games industry, offers an initial empirical mapping of the role's competencies, identifying communication, adaptability, and management of agile processes as central elements, and confirming the heterogeneity of formative trajectories. The question of how formal Software Engineering and Game Design courses can incorporate these competencies into their curricula remains open.

2.3 Related Work

Studies on the training of Software Engineering professionals in roles related to the Game Producer offer the closest empirical precedent for this work. Li et al. [18], on experienced software engineers, and Kalliamvakou et al. [15], on software team managers, identified interpersonal and contextual competencies as central differentiators relative to mere technical proficiency, with particular weight on mentoring, communication, and expectation management in coordination roles. The present work extends this line of inquiry to the digital games industry.

Specifically on the Game Producer, Anonymous [1], in a previous work by the same authors, offered an initial empirical mapping of the role's characteristics, skills, and competencies, based on qualitative analysis of 11 semi-structured interviews with practitioners working predominantly in the Brazilian games industry. That work identified communication, adaptability, and management of agile processes as central elements, organized the findings under a tripartite taxonomy (characteristics, skills, and competencies) drawn from the classical literature on organizational behavior, and pointed to the heterogeneity of formative trajectories as a recurring observation. The present article builds on that foundation but differs in four substantive dimensions. First, in **empirical scope**: the sample was expanded from 11 to 22 professionals. Second, in **analytical focus**: while the previous work addressed the question of what defines the Game Producer's profile, the present article addresses the distinct question of how these professionals are formed, structured around three research questions on formative trajectories, perceived curricular gaps, and curricular implications. Third, in **analytical lens**: the present article introduces a classification of competencies by typical source of acquisition (traditional Computer Science or Software Engineering programs, Game Design programs, Project Management training, complementary training, and on-the-job practical learning), a content-level lens absent from the previous work and conceived as a replicable analytical lens for Software Engineering Education research. Fourth, in **educational contribution**: the present article uses the empirical findings to derive curricular suggestions for Software Engineering, Game Design, and Project Management programs, an analytical dimension not developed in the previous work. The two studies thus correspond to consecutive phases of a research program rather than to overlapping reports of the same investigation.

The choice of this analytical focus responds to the absence, in the empirical literature on Software Engineering education, of consolidated treatment of training for hybrid roles with a creative component. It should be noted that direct empirical comparison between the findings of this study and those of related work is not feasible in this type of research: each qualitative study operates over a proprietary interview dataset, in a specific context, time frame, and participant profile, which makes the use of common benchmarks unfeasible. The possible approximation, adopted in the Discussion, is conceptual comparison between emerging patterns.

3 Method

3.1 Study Design

We adopted a qualitative, exploratory approach grounded in Straussian Grounded Theory [7, 24], with the goal of building analytical categories from the experiences reported by practicing Game Producers. The choice of Grounded Theory derives from the absence of validated instruments that cover, in integrated fashion, formative trajectories and perceptions of curricular gaps in the digital games industry, and is compatible with precedents in the field [15, 18].

The motivation for RQ1, declared in Section 1, is to empirically describe the formative path of these professionals, on which there is little systematized evidence. RQ2 is motivated by the need to identify, from the perspective of the professionals themselves, where available academic education does and does not meet the demands of the role. RQ3, in turn, uses the empirical findings to derive curricular suggestions: based on the trajectories and gaps raised in RQ1 and RQ2, suggesting how formal courses and corporate training programs could incorporate the competencies mobilized by the role. RQ3 is addressed by the reorganization of the codes under a curricular lens described in Section 4.4.

3.2 Data Collection Instrument

The data collection instrument was a semi-structured interview script composed of 27 initial questions distributed in four blocks:

- introduction and professional contextualization;
- characterization of the role and required competencies;
- specific questions on formative trajectory, recommended training, and professional references;
- closing questions.

By way of illustration, three exemplary questions from the script are: "What is your educational background, and how did you arrive at the Game Producer role?"; "Which competencies do you consider essential to perform the role, and where did you acquire them?"; and "In your perception, what is the difference between a Game Producer and a Project Manager?".

Over the first five interviews, redundant or ambiguously worded questions were removed, and two new questions were incorporated: one on the difference between Game Producer and Project Manager, and another on the Producer's activity across different phases of the project life cycle. The final script, with 23 questions, is available in the study's supplementary material (Section 7).

3.3 Participants and Sampling

We interviewed 22 Game Producers active in studios of varying sizes and production contexts, including AAA games, mobile, indie, international outsourcing, live services, and virtual reality. Inclusion criteria were:

- being older than 20 years of age;
- having three or more years of formal experience in the role;
- having participated in the production of at least one game published and recognized by the community;
- formally working as or self-identifying as a Game Producer.

Exclusion criteria were:

- activity restricted to the games sector without effective performance of the Producer role;
- lack of training or recognized activity in the games industry.

Sampling was conducted by convenience and snowball, seeking diversity of seniority, training, gender, studio type, and geographic location. Recruitment occurred through direct outreach on LinkedIn, complemented by referrals from previously interviewed participants. The researcher reflection on potential biases and strengths arising from the authors' proximity to the field is presented in Section 6.

3.4 Data Collection

The interviews were conducted remotely, with prior written informed consent, recorded and fully transcribed. Average duration was approximately one hour, with the longest interview reaching about ninety minutes. The data were organized and analyzed in the Atlas.ti platform [3].

Collection was conducted in blocks of five interviews, with revision of the script and conduction strategy between blocks, in conformity with the principle of *theoretical sampling* characteristic of Grounded Theory: the selection of new participants and the adjustment of the script were guided by the categories emerging from the previous analysis. Theoretical saturation was continuously assessed. After the twentieth participant, no new codes of relevant magnitude emerged, supporting the decision to close collection at the 22nd interview.

3.5 Data Analysis

The analysis followed the three stages of Straussian coding: open, axial, and selective coding [7, 22]. In open coding, provisional labels were assigned to units of meaning extracted from the transcripts. In axial coding, these codes were grouped, through constant comparison, into more abstract codes and thematic subcategories. As an example, open codes such as *Dealing with People*, *Tact*, and *Ability to Create Openness* converged into the axial code *Tact with People*, which was then applied whenever later quotes carried that same matrix of meaning; analogously, *Communication* consolidated as an axial code. In selective coding, the subcategories were integrated around three articulating dimensions (people, process, and product), with communication as the transversal axis. Throughout the three stages, the *constant comparison* method was applied, systematically comparing new excerpts to existing codes, refining labels when necessary, and identifying relationships among categories.

The analysis produced 204 open codes. The thematic subcategories emerged from the analytical proximity among codes during axial coding, not from their frequency. For the purposes of the present article, focused on training, it was necessary to select, among the 204 codes, those to bring into the curricular lens. In this selection, recurrence was used only as a secondary signal, posterior to the construction of the subcategories, with the purpose of reducing researcher bias in the choice of which codes to report: we prioritized the 27 codes most recurrent in the narratives, already allocated to their subcategories. Over these codes, a reorganization under a curricular lens was conducted, classifying each one according to the typical source of acquisition as reported by the interviewees themselves (Section 4). This classification is interpretive: it reflects how participants perceive their own formative experience, not an objective audit of curricular content from any specific program.

3.6 Ethical Considerations

The study followed the ethical procedures required for research with human subjects, with written informed consent obtained from all participants and prior approval by a competent research ethics committee. Confidentiality was preserved by identifying participants only by the code P*n* (P1 to P22). Two main risks to participants are acknowledged: identification by triangulation, given that the Brazilian digital games industry is relatively small and certain combinations of attributes (studio, project, role) may be distinctive; and potential professional repercussions associated with critical statements about training or trajectory. To mitigate the first risk, names of studios, projects, and specific geographic references were omitted in the quotes presented and in the published codebook. To mitigate the second, the order of quotes used in the article was chosen to favor descriptive excerpts about the role, avoiding potentially compromising passages. Full transcripts will not be publicly available (Section 7).

4 Results

4.1 Participant Profile

Table 1 summarizes the sociodemographic and professional profile of the 22 interviewees. There is a predominance of men (14/22; 63.6%), with average time in the Game Producer role of 6.9 years (SD = 3.0; min = 4; max = 14). Twelve participants (54.5%) hold higher education degrees in Game Design or related areas. The remaining ten (45.5%) hold higher education degrees in distinct areas, including Marketing, Music, Administration, Architecture, Graphic Design, Information Systems, Translation, Accounting, and Advertising.

While Table 1 classifies *entry routes* into the role, it is worth noting, in terms of *base education*, that three participants hold technically oriented degrees directly tied to software development (Game Engineering, Digital Games Programming, and Information Systems). Moreover, across the interviews, the coordination of technical teams (programming, back-end, and QA), alongside creative areas, appears recurrently. This trait situates the role within the scope of Software Engineering: the Game Producer coordinates, among others, software development teams within a broader multidisciplinary arrangement.

Table 1: Participant Profile

Characteristic	n (%)
Gender	
Male	14 (63.6)
Female	8 (36.4)
Time as Game Producer	
4–5 years	11 (50.0)
6–9 years	5 (22.7)
10–14 years	6 (27.3)
Higher education in Games / Game Design	
Yes	12 (54.5)
No	10 (45.5)
Complementary training in Project Management	
Yes	18 (81.8)
No	4 (18.2)
Entry route into the role	
Direct (Games degree)	9 (40.9)
Management / business areas	4 (18.2)
Design (graphic, product)	3 (13.6)
Arts (music, literature)	2 (9.1)
Technology / SE / CS	1 (4.5)
Other (architecture, accounting, translation)	3 (13.6)

Notes: n = 22. The entry route reflects the area of first education/activity; participants with technical games degrees (e.g., Game Engineering, Digital Games Programming) appear mostly under the direct route.

4.2 Formative Trajectories and Entry Routes into the Role

The analysis of trajectories reveals three dominant patterns of entry into the role, distinguishable by background and by internal homogeneity. The largest group (n = 12) brings together professionals whose higher education is unrelated to games (Marketing, Music, Administration, Graphic Design, Architecture, among others) and who migrated to the role after contact with the industry, generally through opportunities in smaller studios or outsourcing. The most homogeneous route (n = 9) groups professionals with higher education in Game Design who took on the role after internships or transitions from related areas within the games industry itself, such as QA, design, or art. The third, minority pattern (n = 1) groups professionals coming from classical technical areas of Software Engineering, such as Information Systems.

Regardless of base education, 18 of the 22 interviewees (81.8%) sought complementary training in Project Management, predominantly through MBA programs, *lato sensu* graduate programs, or professional certifications such as Scrum Master, CSPO, PMP, and the like. Complementary training thus emerges as a structuring element of professional qualification in the role, cutting across the three entry patterns identified.

> "[…] I would go for an MBA in projects, an MBA in product management, an MBA in management, some part of that focused on management." (P11)

Beyond the entry point, the trajectories follow a recurring temporal arc. Entry into the role, by any of the routes, is followed by the pursuit of complementary training in Project Management, and the effective consolidation of competencies occurs predominantly in practice, over the first projects led as a Producer. This arc (entry, complementary training, and on-the-job consolidation) is common to the three patterns and helps explain why practical learning appears, in Section 4.4, as the most transversal acquisition source across the competencies analyzed.

Table 2: Base Education in Games × Perception of its Necessity

	Considered necessary?	
Trained in Games?	**Yes**	**No**
Yes	5	7
No	3	7

Notes: n = 22. Cells report the number of interviewees.

4.3 Perception of the Sufficiency of Academic Education

When asked about the sufficiency of available academic education for the exercise of the role, 14 of the 22 interviewees (63.6%) responded that no specific training is necessary or sufficient, and only 8 (36.4%) attributed importance to formal training. The crossing between actual education and perception (Table 2) reveals that even among the 12 interviewees with Game Design education, 7 (58.3%) consider this training dispensable. Among the 10 interviewees without education in the area, 7 (70%) also do not consider it necessary.

The code *Lack of Specific Training*, which captures this perception, was cited by 18 of the 22 participants (81.8%), constituting one of the most consensual findings of the study.

> "There is no university today that translates 100% to the experience of a Game Producer." (P9)

> "I am sort of proof of that. And maybe I am a better or worse producer, but I never studied to become a producer. I never did that. […] It is something you end up taking on almost through experience. And it is more or less like that for most people I know in the games industry." (P17)

The recurring justification is that available curricula (Software Engineering, Game Design, Project Management) cover only partially the set of competencies required by the role, leaving gaps in interpersonal mediation, risk anticipation, management of creative teams, and command of the specific game development process.

Table 3 summarizes the training paths recommended by the interviewees, aggregated by area. There is marked convergence around two main areas: Project Management (cited by 18 of 22) and Game Design (cited by 16 of 22). The game-related programs identified by interviewees include Game Design, Digital Games Design, and Digital Games Programming. The combination of Project Management and games education is presented as the path closest to ideal, with neither, in isolation, considered sufficient.

4.4 Mapping Competencies by Typical Source of Acquisition

The analysis of the 27 most recurrent competencies in the narratives was reorganized under a curricular lens. The five categories below

Table 3: Training Paths Recommended by Interviewees

Recommended training area	Citations
Project Management (MBA, certifications)	18
Game Design	16
Agile Methodologies (Scrum, Kanban)	14
Soft skills (communication, leadership, negotiation)	11
Basic technical knowledge (programming, QA, art)	9
Humanities (Psychology, Administration)	5

Notes: n = 22. Interviewees may recommend multiple training paths.

aggregate participants' perception of where each competency is typically acquired, not an objective assessment of curricula from any specific program: course structures vary substantially across institutions, and the labels here describe types of formative experience as recognized by the interviewees themselves. Each competency was classified according to the typical acquisition sources reported by participants:

- **(A)** traditional Computer Science or Software Engineering programs;
- **(B)** specific Game Design programs;
- **(C)** Project Management training (MBAs, graduate programs, PMP);
- **(D)** complementary training (agile certifications, free courses, conferences such as GDC);
- **(E)** on-the-job practical learning.

Table 4 presents the classification of the 27 most recurrent codes, grouped by analytical subcategory.

Table 4 presents the distribution of the 27 competencies across the five acquisition sources. In the interviewees' own descriptions, seven competencies in the Project Management subcategory (Agile Methodologies, Big Picture View, Project Management Tools, Planning, Backlog Management, Risk Management, Organization) were associated predominantly with columns C and D. Four competencies in the Processes and Product subcategory (Game Development Process, Product Vision, Product Knowledge, Processes) were associated predominantly with column B. Six competencies related to the interpersonal and contextual dimension (Adaptation, Tact with People, Team Motivation, Team Alignment, Context Understanding, Teamwork) were associated by interviewees predominantly with column E (on-the-job practical learning), with marginal perceived coverage in the other sources. The code *Lack of Specific Training*, cited by 82% of interviewees, was treated as a transversal code: it captures a perceived gap that does not map onto any specific acquisition source and was therefore not classified into columns A–E. The implications of this mapping for curriculum design are discussed in Section 5.

The quotes below illustrate the central subcategories. For the interpersonal dimension:

> "People management. It is very, very important indeed to know how to communicate, to know how to treat and deal with people. It will help you a lot along your way." (P3)

For the Processes and Product subcategory:

> "Learn the process of making a game and refine that. The more you refine it, the better it gets, because you come to understand more areas." (P1)

For on-the-job acquisition:

> "And so, you learn many things, obviously, with courses, with books, with videos. [...] But what is most valuable for a producer is experience, dealing with people, knowing how to do things. [...] That is the most important." (P5)

The synthesis of these acquisition patterns is condensed in Figure 1. The visual pattern that emerges (a dominant column for practical learning, narrower bands for Project Management, Complementary Training, and Game Design, and a near-empty column for traditional Computer Science / Software Engineering) summarizes the central curricular reading of the article: each formal source covers a specific block of competencies, and on-the-job experience covers what the others do not.

5 Discussion

The results presented in Section 4 are discussed below as evidence of a broader Software Engineering Education question: how to train professionals for hybrid coordination roles that articulate technical, creative, and organizational demands. The Game Producer is approached here not as a niche professional figure, but as a particularly demanding instance through which to examine this question.

5.1 Synthesis of Findings

The central finding of this study is that Game Producer training does not follow a single model: it is built at the intersection of heterogeneous academic education, complementary training in Project Management, and on-the-job practical learning. This configuration reflects the integration between characteristics, skills, and competencies discussed by Colquitt et al. [8] and by Fleury and Fleury [11]. In the perception of the interviewees, the role is articulated around three dimensions (people, process, and product), with communication as the transversal axis and problem solving as the constant focus of action, both technical-operational and human-relational.

A point that differentiates the Game Producer's coordination role from managing a Software Engineering team is the number of disciplines under a single coordinator. Whereas managing a software team typically deals with a restricted set of technical disciplines, game production simultaneously articulates programming, art, music, narrative, and design, adding to the technical component a strong subjective and creative dimension. This breadth of heterogeneous disciplines, which do not share the same vocabulary, is what makes interpersonal mediation and communication especially critical in the role, as reported by interviewees.

5.2 Convergence with the "What Makes a Great..." Line

The configuration described above converges, in part, with the findings of the "What Makes a Great..." research line. Both Li et al. [18], in characterizing experienced software engineers, and Kalliamvakou et al. [15], in characterizing software team managers, identified interpersonal and contextual competencies as central differentiators relative to mere technical proficiency. In terms of the conceptual structure suggested by the data, the Producer acts as a cohesion element among multiple agents and project dimensions, recognizable by the relational, strategic, and organizational nature

Table 4: Mapping the 27 Most Recurrent Competencies by Typical Source of Acquisition

Subcategory	Code (% citation)	(A) Traditional CS/SE	(B) Game Design	(C) Project Management	(D) Complementary Training	(E) Practical Learning
Adaptability and Self-management	Adaptation (100%)				○	●
	Problem Solving (100%)	●				●
	Context Understanding (68%)					●
Communication and Relationships	Communication (100%)		○		○	●
	Tact with People (100%)				○	●
	Negotiation (86%)			○	●	●
	Team Alignment (73%)			○		●
	Team Motivation (68%)				○	●
People Management and Leadership	Team Coordination (100%)			●	●	●
	Leadership (91%)			○	●	●
Project Management	Agile Methodologies (91%)	○		●	●	
	Big Picture View (91%)		○	○		●
	Project Management Tools (86%)			●	●	○
	Planning (86%)			●	○	○
	Backlog Management (82%)			●	●	○
	Risk Management (82%)			●		○
	Organization (82%)			○		●
Processes and Product	Game Development Process (100%)		●		○	●
	Product Vision (82%)		○		○	●
	Product Knowledge (45%)		○		○	●
	Processes (77%)	○	○	●		○
Technical and General	Technical Knowledge (82%)	●	●			○
	Teamwork (73%)	○	○	○	○	●
Personal Traits and Dispositions	Continuous Learning (73%)					●
	Empirical Learning (68%)					●
	Creativity (77%)		●			●
	Lack of Specific Training (82%)			*Transversal code: perceived gap*		

Notes: Marker ● indicates the typical coverage source reported by interviewees; ○ indicates partial coverage.

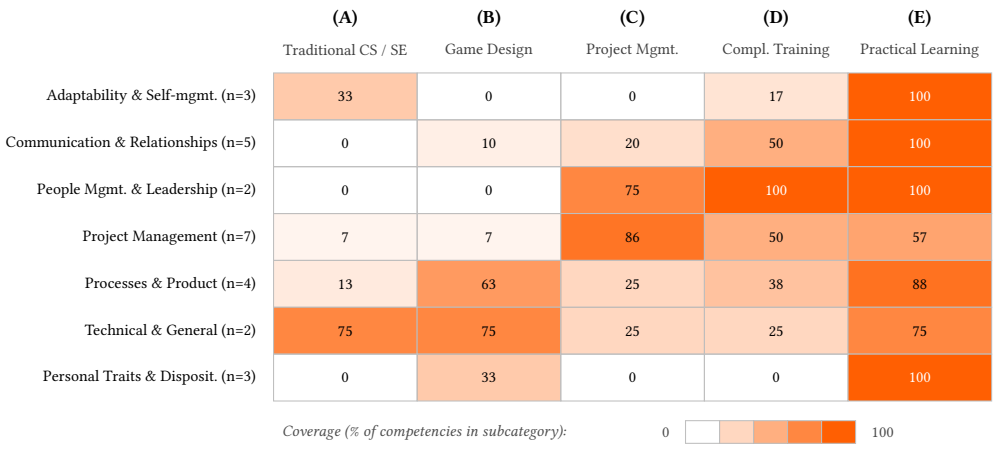

Figure 1: Coverage of competencies by acquisition source (synthesis of Table 4).

Notes: Each cell shows the percentage of competencies in a subcategory whose typical coverage was reported by interviewees as belonging to that source. Percentages are derived from the markers of Table 4, with full coverage counted as 1 and partial coverage as 0.5, normalized by subcategory size n.

of the role, which manifests in actions of cultivating (care for people and building relationships of trust), motivating (encouraging participation and collective alignment), and mediating (anticipation and resolution of conflicts, management of information flow).

5.3 The Formative Trio: Project Management, Game Design, and Practical Learning

The joint reading of Tables 3 and 4 suggests that Game Producer training is sustained neither on a single area nor on a bilateral formative pair, but on a trio that articulates academic education, complementary training, and practical learning. The two academic and complementary training areas most recommended by the interviewees themselves in Table 3 are Project Management (cited by 18 of 22) and Game Design (cited by 16 of 22). At the same time, the mapping of acquisition sources in Table 4 shows that on-the-job practical learning (column E) is the source with most transversal coverage across the 27 competencies analyzed, cutting across virtually all thematic subcategories.

Each component of the trio fulfills a specific function. Project Management training, anchored in references such as the PMBOK [20], classic approaches such as the one presented by Kerzner [17], and agile methodologies such as Scrum [23], provides the operational repertoire for team coordination, planning, backlog management, and risk management. This repertoire, however, was conceived for generic domains. As Bethke [4] argues, game development requires the integration of multidisciplinary teams with unique creative and technical demands, subject to iterative cycles that do not fully accommodate classic sequential models. Keith [16] shows that even Scrum requires significant adaptation in game studios. Game Design training [6] covers these domain specificities, with emphasis on the Game Development Process, cited by 100% of interviewees in Table 4. Practical learning, in turn, appears as the component that permeates the whole: interpersonal and contextual competencies depend predominantly on this source, and even competencies covered by formal education are reported by interviewees as consolidated through practice. It is worth noting that practical learning is not named among the recommended training areas (Table 3), possibly because interviewees, when recommending training, think of formal programs; this apparent absence coexists with evidence that effective acquisition passes broadly through on-the-job experience. The recommended trio is not redundant: each component covers what the others do not.

5.4 Perceived Gap in Interpersonal and Contextual Competencies

The block of interpersonal and contextual competencies (adaptation, tact with people, team motivation, alignment, context understanding) finds, in the perception of interviewees, marginal coverage in formal curricula and depends predominantly on on-the-job practical learning. It is important to note that this perception does not constitute direct evidence about the content of existing curricula but rather about the formative experience reported by participants. Even so, this perception converges with the classical literature on organizational behavior [8, 21] and people management [2], which treat these competencies as constructions that articulate formal education, practice, feedback, and self-reflection. Goleman [14] and Del Prette and Del Prette [10] discuss, respectively, emotional intelligence and social skills as categories historically difficult to cover in formal teaching programs, which tend to favor cognitive and technical content. The convergence with Kalliamvakou et al. [15] is direct: their study on software managers also identified soft skills as a category poorly addressed by standard Software Engineering curricula. The Game Producer case reinforces this pattern and broadens its relevance, by showing that the perceived gap affects not only management roles in SE but also hybrid roles in creative domains. This convergence supports a reading of game production not merely as a niche domain, but as an empirically rich setting in which curricular limitations of Software Engineering Education for hybrid roles become particularly visible.

The finding that practical learning broadly covers these competencies, although in unstructured form, also suggests a concrete opportunity for Complementary Training (column D of Table 4): what is currently absorbed informally in practice could be partially systematized in free courses, certifications, and extension programs offered by corporate training companies, educational institutions, and academia-industry partnerships.

5.5 Implications for Society

The findings of this study dialogue with broader questions of professionalization of roles in creative domains and diversity of trajectories at entry into the role. The finding that approximately half of the interviewees entered the role from training unrelated to the games industry (Marketing, Music, Administration, Architecture, among others) shows that the role has absorbed professionals from heterogeneous origins. This finding has implications for recruitment and continuing education policies: institutional recognition of these trajectories may broaden access to the role and contribute to greater diversity of profiles in the industry [11]. At the same time, the widespread perception of absence of specific academic education configures a concrete institutional demand for training programs that recognize and structure the hybrid character of the role.

5.6 Implications for Industry

The digital games industry can use the findings of this study to inform decisions on recruitment, onboarding, and corporate training. Practical recommendations emerging from the data are: to consider candidates with heterogeneous backgrounds, given that 45% of the professionals consulted did not come from specific Game Design programs; to structure internal training programs in Project Management and agile methodologies, areas identified as crucial and perceived as only partially covered by academic education; to recognize the market potential for corporate training companies, bootcamps, and academic extension initiatives, given that agile methodologies were explicitly recommended as training by 14 of the 22 interviewees (Table 3) and that column D of Table 4 is already a source of partial coverage for 58% of the competencies mapped, supporting the feasibility of systematizing what is currently absorbed informally in on-the-job learning; and to institutionalize mentoring mechanisms and on-the-job learning for the development of the interpersonal and contextual competencies that, in the perception of professionals, rarely find coverage in formal curricula.

5.7 Curricular Implications for Academia

The results of this study, articulated to the mapping of competencies by typical acquisition source (Table 4), enable a comparative reading

of what each type of academic program can contribute to Game Producer training and how these programs differ from each other.

For **Software Engineering programs**, the study indicates that these programs typically cover problem solving and technical knowledge competencies with solidity and partially cover agile methodologies, but rarely address the specific game development process, articulation between technical and creative teams, or product management in creative domains. For Software Engineering courses interested in training professionals for the games industry, the inclusion of content on the game production cycle, on communication with creative areas, and on the particularities of agile processes in studios constitutes a concrete specialization path.

For **Game Design programs**, the curricular coverage perceived by interviewees concentrates on competencies related to the game development process, creativity, basic technical knowledge, and the industry. These programs, however, rarely offer structured courses in Project Management and Agile Methodologies, areas identified as essential by more than 80% of interviewees. The incorporation of content on planning, backlog management, team coordination, and risk management thus represents a direct opportunity for curricular evolution in these courses, without loss of program identity.

For **graduate programs in Project Management** (MBAs and the like), the study evidences the structuring role these programs already play in the training of the professionals consulted but suggests opportunities for specialization in creative domains: digital game studios, but also audiovisual production and the creative economy in general.

For all three types of programs, interpersonal and contextual competencies (adaptation, tact with people, team motivation, alignment, context understanding) constitute, in the perception of interviewees, a category of marginal coverage, depending predominantly on on-the-job practical learning. Building on the mapping of Table 4, we propose a reference design for a dedicated Game Producer training track articulated in four axes: (i) Project Management and Agile Methodologies (planning, backlog management, risk, and team coordination); (ii) People Management and Leadership; (iii) Negotiation and Communication; and (iv) the technical base of the game development process. The element that articulates these axes is project-based learning: the production, in a multidisciplinary team, of a real game, in which the student exercises coordination by applying the first three axes over the fourth. This format is the one that best responds to the on-the-job nature of interpersonal competencies, by creating, within the program, the practical environment in which they are exercised. The definition of workload, sequence of courses, and assessment instruments requires pedagogical grounding that exceeds the scope of this study and constitutes a future agenda, to be conducted in partnership between educational institutions and studios.

5.8 Broader Implications for Software Engineering Education

Although centered on the digital games industry, the findings of this study have broader implications for Software Engineering Education and for the understanding of software development as a fundamentally sociotechnical activity. Participants consistently described competencies such as communication, coordination, negotiation, contextual understanding, and interpersonal mediation not as secondary or complementary abilities, but as central elements of successful software production in collaborative environments. At the same time, many of these competencies were perceived as insufficiently covered by traditional curricula, being acquired predominantly through practical experience. This tension suggests potential limitations in educational models that prioritize technical instruction while offering limited opportunities for students to develop coordination-oriented and interdisciplinary competencies, a pattern also observed in other Software Engineering contexts [15, 18]. In this sense, the digital games industry constitutes a particularly revealing context for examining these challenges, since game development combines technical complexity, creative uncertainty, rapid iteration, and intense collaboration among professionals from distinct domains [4, 16]. Rather than being restricted to game production, these dynamics illuminate broader educational demands increasingly present across contemporary Software Engineering practice, especially in environments characterized by agile processes, multidisciplinary teams, and continuous negotiation between technical, organizational, and product-related constraints. The findings therefore reinforce the importance of curricular approaches that integrate sociotechnical competencies, experiential learning, and collaborative project-based activities as part of Software Engineering education.

6 Threats to Validity and Limitations

This study adopts a Straussian Grounded Theory stance, of a post-positivist nature, which admits systematic coding procedures without presupposing criteria proper to experimental paradigms. The points below are discussed in light of this stance and in dialogue with the quality criteria of the Empirical Standards for Software Engineering research [**?**].

Internal validity. The main risk lies in researcher bias in coding and data categorization, characteristic of qualitative studies with coding performed by a single researcher. To mitigate it, the three stages of Straussian coding [7, 22, 24] were adopted, with constant comparison and periodic reviews between coder and advisor. Intercoder agreement was not calculated; consistent with the interpretive stance adopted, this calculation is not taken here as a quality requirement, but registered as a methodological choice. Future studies may incorporate coding by multiple researchers. A second point refers to the criterion for selecting the 27 codes analyzed in depth, combining analytical relevance for the construction of the subcategories with recurrence as a secondary signal, without a strict numerical threshold. The choice was guided by the Grounded Theory principle of theoretical saturation but involves interpretive judgment, and different researchers might, on the same data, select partially distinct sets. Expert panels in future studies may refine the set. The curricular mapping presented in Section 4.4 also involves interpretive judgment, although anchored in the interviewees' own accounts about acquisition sources.

External validity. Convenience and snowball sampling, with Brazilian predominance, limits the generalization of the findings.

We sought to mitigate this limitation through intentional diversity of seniority, gender, base education, studio type, and location. Results may not apply identically to contexts with more mature games markets or to studios with strongly standardized production processes. In a constructive sense, transferability of the findings is more plausible for contexts comparable in three dimensions simultaneously: a coordination role that articulates technical and creative teams; an iterative production cycle with a strong component of interpersonal mediation; and the absence of a formally consolidated curriculum for the role. These traits characterize not only the games industry but also segments of the creative economy such as audiovisual production, animation, interactive advertising, and digital product development with a strong design component.

Construct validity. The central concepts (characteristics, skills, competencies, training) were operationalized from the classical literature on organizational behavior and people management. The curricular classification into sources A–E was constructed *ex post* from the accounts and, although anchored in the data, involves interpretive simplification. As an analytical tool, this mapping has as its strength the direct articulation between reported competencies and recognizable formative sources, which makes it appropriate to inform curriculum design decisions. As a limitation, it simplifies into five categories a formative space that, in practice, contains relevant variations (for example, MBAs with different profiles in rigor and emphasis, or Game Design courses with distinct loads of management and technical content). The study also operates under the assumption, common in qualitative research based on interviews, that participant self-report constitutes a reasonable approximation of effective practice. This assumption is mitigated by the diversity of the sample and by the convergence of findings across participants but is not directly tested.

Conclusion validity. Theoretical saturation was assessed qualitatively. Quantitative studies with larger samples could confirm the generality of the patterns observed.

Researcher reflection. The researchers have professional familiarity with the digital games industry and training in project management. This proximity may have induced confirmation bias in relation to valuing Project Management training. In contrast, it provided terminological fluency and empathy for collection, and leading questions were avoided during the interviews. The authors make this position explicit as an exercise in transparency and reflexivity, in line with principles of qualitative research [7, 9].

7 Conclusion

This study investigated the formative trajectories of practicing Game Producers and proposed a mapping of the role's competencies by typical acquisition source, with the purpose of identifying how Software Engineering, Game Design, and corporate training programs can incorporate these competencies into their curricula.

Regarding **RQ1**, three patterns of entry into the role emerged: migration from areas unrelated to the games industry (n = 12), direct entry from Game Design education (n = 9), and entry from classical technical areas of Software Engineering (n = 1). Regardless of the route, 82% of interviewees seek complementary training in Project Management, which configures this element as structuring in professional qualification. Regarding **RQ2**, the same proportion perceives the absence of academic training specific and sufficient for the role, and reports that interpersonal and contextual competencies were consolidated predominantly through practical learning rather than through the formal education they experienced. Regarding **RQ3**, the reorganization by acquisition source supports a reference design for a training track articulated in Project Management, People Management, Negotiation and Communication, and the technical base of game development, integrated through project-based learning.

The work thus offers a scientific contribution, the empirical mapping via Grounded Theory of the 27 most recurrent competencies classified by typical acquisition source, which constitutes a replicable content-level lens for other hybrid roles, and a practical contribution, the reference training track derived from that mapping. Although grounded in the digital games industry, the curricular pattern that emerges resonates with broader challenges in Software Engineering Education for hybrid coordination roles [15, 18].

As future agenda, the following directions are recommended:

- replicate the study with expert panels to refine the curricular mapping;
- conduct quantitative studies with representative samples to validate the generality of the patterns;
- investigate pedagogical interventions based on integrative projects that articulate Software Engineering, Game Design, and Project Management programs;
- analyze the effectiveness of continuing education programs offered in partnership between educational institutions and studios.

Artifact Availability

In conformity with the SBES 2026 Open Science Policies, the semi-structured interview script, the complete codebook with the open codes from Grounded Theory, the detailed table of curricular classification of competencies, and the full set of supporting quotes per code are available at Zenodo (10.5281/zenodo.20046068). Full transcripts of the interviews will not be publicly available due to the need to preserve the confidentiality of participants assured in the informed consent. Anonymized excerpts may be provided upon justified request.

Acknowledgements

The authors used generative AI tools (specifically, the Claude assistant from Anthropic) to support the drafting of analytical data tables, the proposal of initial structures for sections of the manuscript, and the revision of textual cohesion. Substantive writing, interpretation of findings, construction of analytical categories, and editorial decisions were performed by the authors, in conformity with the SBES 2026 policies on the use of generative AI.

References

[1] Anonymous. 2025. Reference omitted due to double-blind review.
[2] Michael Armstrong. 2020. *Armstrong's Handbook of Human Resource Management Practice* (15 ed.). Kogan Page, London.
[3] ATLAS.ti Scientific Software Development GmbH. 2024. ATLAS.ti: Qualitative Data Analysis Software. https://atlasti.com.
[4] Erik Bethke. 2003. *Game Development and Production.* Wordware Publishing, Inc.

[5] Eric Bosch. 2025. What makes a good Game Producer? Part 1. https://www.gamedeveloper.com/production/what-makes-a-good-game-producer-part-1 Acesso em: 15 jan. 2025.

[6] Heather Maxwell Chandler. 2013. *The Game Production Handbook* (3 ed.). Jones & Bartlett Learning.

[7] Kathy Charmaz. 2014. *Constructing Grounded Theory* (2 ed.). SAGE Publications, Thousand Oaks.

[8] Jason A. Colquitt, Jeffery A. LePine, and Michael J. Wesson. 2020. *Organizational Behavior: Improving Performance and Commitment in the Workplace* (7 ed.). McGraw Hill, New York.

[9] John W. Creswell and J. David Creswell. 2022. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6 ed.). SAGE Publications, Thousand Oaks.

[10] Almir Del Prette and Zilda A. P. Del Prette. 2017. Competência social e habilidades sociais: Manual teórico-prático. *Psicologia em Estudo* (2017).

[11] Maria Tereza Leme Fleury and Afonso Fleury. 2004. *Estratégias Empresariais e Formação de Competências: Um Quebra-Cabeça Caleidoscópico da Indústria Brasileira.* Atlas, São Paulo.

[12] Tracy Fullerton. 2018. *Game Design Workshop: A Playcentric Approach to Creating Innovative Games* (4 ed.). Boca Raton.

[13] Pauline Gepilano. 2025. Becoming a Game Producer. https://www.paulinegepilano.com/blog/becoming-a-game-producer Acesso em: 8 jan. 2025.

[14] Daniel Goleman. 2020. *Emotional Intelligence* (25th anniversary edition ed.). Bantam Books, New York.

[15] Eirini Kalliamvakou, Christian Bird, Thomas Zimmermann, Andrew Begel, Robert DeLine, and Daniel M. German. 2017. What makes a great manager of software engineers?. In *2017 IEEE/ACM 39th International Conference on Software Engineering (ICSE)*. IEEE, 532–543.

[16] Clinton Keith. 2010. *Agile Game Development with Scrum.* Addison-Wesley Professional.

[17] Harold Kerzner. 2017. *Project Management: A Systems Approach to Planning, Scheduling, and Controlling* (12 ed.). Wiley, New York.

[18] Paul Luo Li, Andrew J. Ko, and Jiamin Zhu. 2015. What makes a great software engineer?. In *Proceedings of the 37th International Conference on Software Engineering (ICSE)*, Vol. 1. IEEE Press, 700–710.

[19] Newzoo. 2022. Global Games Market Report 2022. https://newzoo.com/

[20] Project Management Institute. 2021. *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* (7 ed.). PMI, Newtown Square.

[21] Stephen P. Robbins and Timothy A. Judge. 2020. *Organizational Behavior* (18 ed.). Pearson, Boston.

[22] Johnny Saldaña. 2021. *The Coding Manual for Qualitative Researchers* (4 ed.). SAGE Publications, Thousand Oaks.

[23] Ken Schwaber and Jeff Sutherland. 2020. The Scrum Guide: The Definitive Guide to Scrum: The Rules of the Game. https://scrumguides.org

[24] Anselm Strauss and Juliet Corbin. 2008. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques* (3 ed.). SAGE Publications.

[25] Pauliina Törnqvist. 2025. So you want to be a video Game Producer? https://www.linkedin.com/pulse/so-you-want-video-game-producer-pauliina-tornqvist/ Acesso em: 15 jan. 2025.