

From Cultural Game Jams to Applied Jam Models: A Longitudinal Evaluation

Wilson Almeida, Filipe Luz and Maria Fonseca

¹HEI-Lab, Lusófona University, Lisbon, Portugal

wilson.almeida@ulusofona.pt

filipe.luz@ulusofona.pt

micaela.fonseca@ulusofona.pt

Abstract: This study examines four editions of the EPIC-WE Cultural Game Jams (ECGJ) organised in Óbidos, Portugal (January 2024 - May 2025), within the context of the Horizon Europe EPIC-WE project. Building upon previous studies presented at ECGBL24 and ECGBL25 (Almeida & Luz, 2024; 2025) that introduced the ECGJs and their operationalisation through the Applied Jam Model (AJM), previously designated the Applied Cultural Jam Model (ACJM), the present work analyses four consecutive implementations to evaluate and consolidate the model through longitudinal analysis. Across the four ECGJ, 146 participants, including 95 students from Lusófona University and 51 secondary school students from the Josefa d'Óbidos School, developed 40 digital game prototypes inspired by different cultural heritage themes. The design of these events was grounded in the state of the art on cultural game jams (Costa et al., 2024), informed by the Applied Jam Framework (Reid et al., 2020) together with the structured preparation practices proposed for serious game jams (Aibara et al., 2020). Through successive iterations, these principles were refined to shape preparation phases, facilitator roles and post-jam opportunities, establishing applied game jams as collaborative environments for experiential learning through game creation and extending projects beyond the game jam itself. Using a mixed-methods approach combining surveys, observational documentation, and analysis of the prototypes, the study assesses the cumulative outcomes of the four events. The results highlight how the structured practices consolidated in the AJM support collaborative design and interdisciplinary project development by integrating learning activities before, during, and after the game jam, linking preparatory activities, collaborative game creation supported by facilitators and post-jam mentoring for selected teams within a professional production context. Overall, the findings consolidate the AJM as a structured framework for applied game jams and provide the first longitudinal evaluation of the model across four consecutive implementations, while identifying key structural design principles for applied game jams in educational and collaborative contexts.

Keywords: Game jams, Applied game jam, Game jam model, Applied game jam model, Cultural games

1. Introduction

This paper continues a research trajectory that began with the first EPIC-WE Cultural Game Jam in Óbidos, Portugal, presented at ECGBL24 and later refined at ECGBL25, organised within the Horizon Europe EPIC-WE project, between Lusófona University, the Óbidos Municipality, and Battlesheep, a Portuguese independent game studio. These events aimed to empower young people by fostering social and cultural values through game creation, with a project-level objective of professionally developing two selected prototypes beyond the jam itself. The first study established the event's cultural and institutional rationale and noted that stronger thematic support was needed to move beyond superficial cultural references. The second study analysed three editions in detail, showing that the model's effectiveness depended on the interplay between pre-game jam preparation, contextual immersion, and continuous facilitation, especially by cultural stakeholders; in that work, the framework was presented as the Applied Cultural Jam Model (ACJM). However, the post-jam development phase, in which Battlesheep mentored selected teams toward publication-ready versions, remained ongoing at the time and could not yet be reported. The current study addresses this gap by adding a fourth implementation and drawing on the full accumulated evidence from participant surveys, facilitator observations, prototype production, external playtesting, participant retention, and post-jam continuation to assess whether the Applied Jam Model (AJM, previously designated ACJM) has become a stable and transferable model for applied game jams.

1.1 From Applied Jam Framework to the Applied Jam Model

Game jams are collaborative events in which participants rapidly prototype games around a theme within a limited timeframe (Kaitila, 2012; Kultima, 2015). Their contemporary format has been shaped by events such as the Nordic Game Jam, first held in 2006, and the Global Game Jam, launched in 2009, which helped establish a widely adopted model typically structured around a 48-hour timeframe, ice-breaker activities, a theme reveal, pitch sessions, team formation, and final presentations (Arya et al., 2013; Lai et al., 2021). While this model provides a recognisable structure for organising game jams, its general format does not fully address what happens when jams are adapted to applied contexts, where the event is expected not only to support rapid game creation but also to respond to specific domains, stakeholders, and intended outcomes. It is within this

shift from game jam as rapid prototyping format to game jam as applied design intervention that the Applied Jam Framework (AJF) becomes particularly relevant. Although the Applied Jam Framework (AJF) provides an important conceptual basis for examining game jams in applied contexts, it does not prescribe how such events should be implemented in practice. This is a significant limitation for organisers seeking to design game jams around specific domains, since identifying relevant dimensions is not equivalent to defining a concrete methodology capable of structuring preparation, facilitation, participant support, and post-jam continuity. In the previous study, this gap was addressed through a dialogue between the AJF and the serious game jam perspective proposed by Aibara et al. (2020), that offered a more procedural orientation for event design within the compressed timeframe of a jam. That discussion was also informed by Costa et al. (2024), whose review of cultural game jam and co-creation practices helped situate the AJM within a broader landscape of approaches to cultural game jam design. The consolidated AJM structure comprises distinct elements that were progressively refined across the four ECGJ implementations. The following figure and section present an overview of each of these elements:

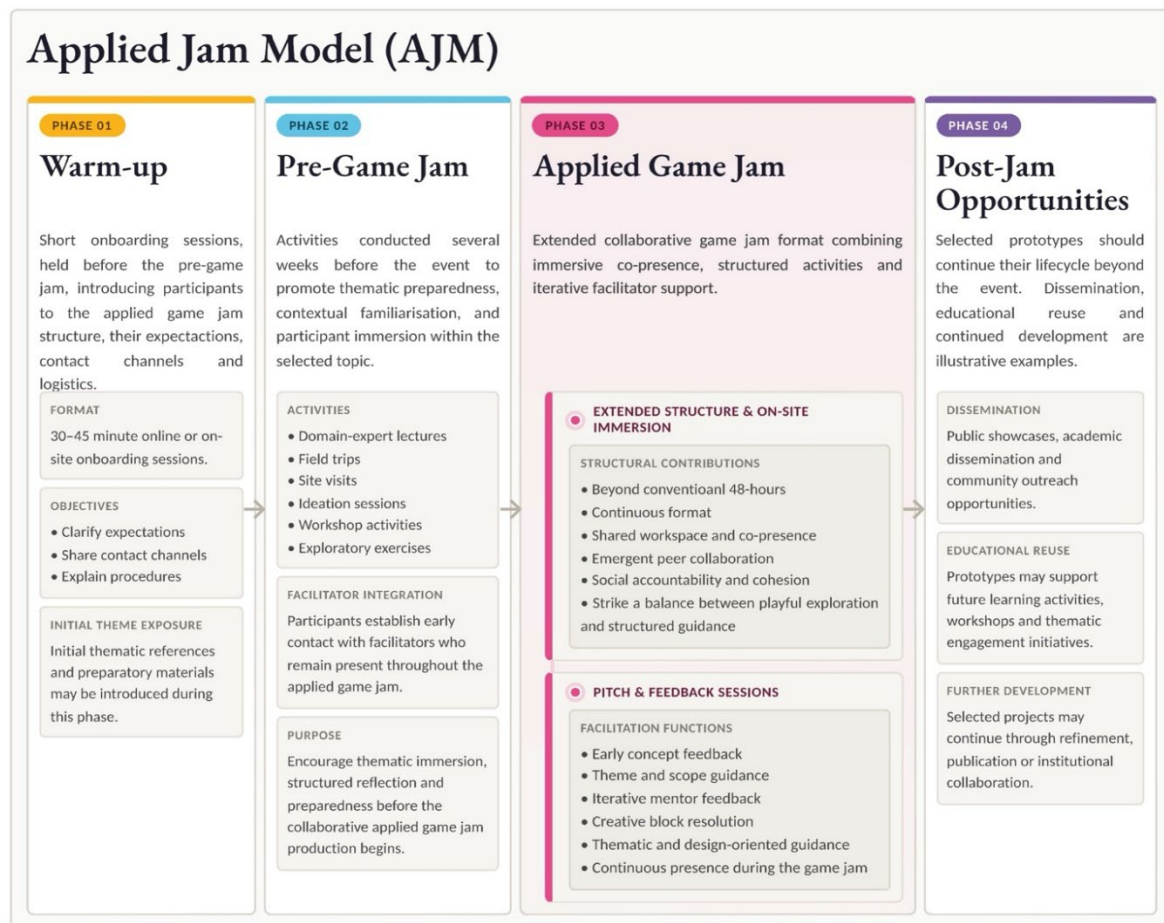


Figure 1: The Applied Jam Model and its phases warm-up, pre-game jam, applied game jam and post-jam opportunities

- **Warm-up** - Short 30-45 minute onboarding meetings held before the pre-game jam, online/on-site, to clarify the game jam context, participant roles, communication channels (e.g., Discord) and logistics. Theme exposure can be initiated here by sharing relevant materials with participants.
- **Pre-Game Jam** - Held weeks in advance of the game jam to build theme preparedness, through lectures, field trips to thematic sites by domain-expert facilitators and complemented with workshop activities such as ideation sessions. All these formats are illustrative rather than exhaustive, allowing flexible adaptation to specific themes. They are important for immersing participants in the theme early on, while establishing the first contact with facilitators who will be present throughout the game jam, ensuring thematic guidance and adequate reflection time to enhance participant preparedness.
- **Applied Game Jam:**
- **Extended Structure & On-site Immersion** - A continuous extended format past the conventional 48 hours is adopted to accommodate structured activities interspersed throughout the jam and balance

exploratory play and guided task completion (Goddard et al., 2014). Physical co-presence is further regarded as a structural asset: shared space fosters unplanned collaboration, iterative peer feedback, and the kind of interpersonal accountability that distributed formats tend to erode through awareness breakdowns and weakened social cohesion (Freeman & McNeese, 2021; Li et al., 2021; Ramzan & Reid, 2016). On-site engagement is thus treated as a structural requirement for the collaborative intensity that applied game jams demand.

- **Pitch and Feedback Sessions** - Pitch sessions happen early in the jam schedule, all teams pause to collectively present game ideas to facilitators, enabling theme/scope alignment across groups. Feedback sessions have these same facilitators circulating between teams, offering support through targeted feedback and thematic/game design guidance.
- **Post-Jam Opportunities** - Beyond the event, the model also incorporates post-jam opportunities through which selected prototypes may continue their life via dissemination, educational reuse, or further development, extending the impact of the projects beyond the temporal limits of the jam.

2. Longitudinal Implementation of the Applied Jam Model

Between January 2024 and May 2025, four consecutive editions of the ECGJ were held in Óbidos, Portugal. Across the four implementations, 146 participants developed 40 game prototypes around themes connected to cultural heritage, ecosystem sustainability, civic memory, and local narratives. Across this period, the event structure was progressively refined into what is formalised here as the AJM.

This section documents the implementation characteristics and iteration of the four ECGJ editions, focusing on their organisational structure, participant composition, facilitation arrangements, and post-jam outcomes.

2.1 Overview of the Four Implementations

The four ECGJ editions shared a progressively evolving organisational structure where each edition functioned as an iterative stage in the development and refinement of the model, progressively adjusting components such as pre-game jam preparation, facilitator integration, thematic immersion, and post-jam reflection. Across the series, the events combined warm-up sessions, thematic pre-game jam activities, structured pitch and feedback moments, on-site development, and post-jam showcase sessions.

	ECGJ#01 6-9 Feb 2024 · 4 days	ECGJ#02 29 Apr - 2 May 2024 · 4 days	ECGJ#03 5-7 Feb 2025 · 3 days	ECGJ#04 13-16 May 2025 · 4 days	TOTAL
THEMES	Óbidos UNESCO City of Literature	Sustainability & Biodiversity: Óbidos Lagoon	That's Not Fair Dec 1st 1973 Óbidos Reunion	Heritage Remixed Óbidos Legends	4 Themes
PARTICIPANTS	26 26 LU	40 25 LU · 15 JO	38 19 LU · 19 JO	42 25 LU · 17 JO	146 95 LU · 51 JO
PROTOTYPES	8 8 LU	14 8 LU · 6 JO	9 4 LU · 5 JO	9 5 LU · 4 JO	40 25 LU · 15 JO
FACILITATORS	5 1 Cultural · 4 Game Dev	7 3 Cultural · 4 Game Dev	6 3 Cultural · 3 Game Dev	7 4 Cultural · 3 Game Dev	14 Unique facilitators

■ Lusófona University (LU)
 ■ Josefa d'Óbidos High School (JO)
 ■ Cultural facilitators
 ■ Game development facilitators

Figure 2: Overview of the four ECGJ implementations: themes, participant distribution, prototype output and facilitators

The first edition (ECGJ#01) only involved Lusófona University (LU) participants but starting with ECGJ#02 onward, participants from the Josefa d'Óbidos secondary school (JO) were integrated into the events, increasing both participant diversity and organisational complexity. Across all four editions, however, LU and JO participants consistently formed separate teams organically, despite sharing the same spaces and activities.

Participation capacity for each edition was intentionally capped at approximately 25–26 for residential participants due to project logistics and budgetary constraints, and 19 for additional local high school participants that were integrated in later editions through non-residential participation formats. LU participants were residential because they were accommodated in municipal housing throughout the events, while JO participants, non-residential, just attended the game jam during daytime activities only (ECGJ#02-04). From the first edition onward, all game development activities were conducted on-site in Óbidos, allowing participants to

remain immersed in the thematic, cultural, and social context surrounding the event. This on-site development structure remained consistent across the four editions

The game jams adopted a predominantly four-day structure, producing approximately 52 hours of development time and exceeding the conventional 48-hour game jam structure, except for ECGJ#03 which used the first day for the pre-game jam due to scheduling constraints. This extended duration was a deliberate design decision from the outset, intended both to compensate for the EPIC-WE research activities integrated throughout the schedule and to provide participants with sufficient time to engage directly with the local cultural environment as a source for thematic exploration and game ideation.

Facilitation also evolved substantially throughout the series. ECGJ#01 relied primarily on game development facilitators with limited cultural heritage support during development. Subsequent editions progressively increased the number and continuity of cultural heritage facilitators, integrating domain specialists more directly into the creative process.

Event structure across four ECGJ editions — warm-up, pre-game jam, applied game jam, and post-jam phases				
	ECGJ#01	ECGJ#02	ECGJ#03	ECGJ#04
WARM-UP	Not held In-class briefing Registration form	Short presentation ~1 month before jam 27 Mar 2024 — online	Short presentation ~2 weeks before jam 22 Jan 2025 — online	Short presentation ~3 weeks before jam 22 Apr 2025 — online
PRE-GAME JAM	Presentation + workshop ~3 weeks before jam 9 Jan — Theme presentation and ideation session at LU	Presentation + field trip ~2 weeks before jam 12 Apr — Theme presentation at LU 15 Apr — Lagoon field trip on-site	Field trip + workshop Held immediately before jam 4 Feb — Guided tour and creative exercises	Presentation + field trip ~2 weeks before jam 28 Apr — Theme presentation and guided tour
APPLIED GAME JAM	4 days 6–9 Feb 2024 LU residential LU only	4 days 29 Apr – 2 May 2024 LU residential · JO day visits LU + JO	3 days 5–7 Feb 2025 LU residential · JO day visits LU + JO	4 days 13–16 May 2025 LU residential · JO day visits LU + JO
L PITCH & FEEDBACK	Pitches on Day 1 Continuous feedback support Game development facilitators always present Cultural facilitators intermittently present	Pitches on Day 1 Continuous feedback support Game development facilitators always present Cultural facilitators present throughout	Pitches on Day 1 Continuous feedback support Game development facilitators always present Cultural facilitators intermittently present	Pitches on Day 1 Continuous feedback support Game development facilitators always present Cultural facilitators present throughout
POST-JAM OPPORTUNITIES	Showcase + post-mortem Puss in Books Selected for further development with Battleship	Showcase + post-mortem Criminal Fauna Identification Selected for further development with Battleship	Showcase + post-mortem Blue Brigade & Bufo Catcher Both selected for further development with Battleship	Showcase + post-mortem No games selected

Figure 3: Presents the event structure across the four editions, including warm-up sessions, pre-game jam preparation, game jam duration, pitch and feedback sessions, and post-jam activities

2.2 Reporting on the Four ECGJ Editions

2.2.1 ECGJ#01 — Óbidos UNESCO City Of Literature

In the first edition there was no formal warm-up session, sharing of information relied solely on in-class briefings and emails. The pre-game jam phase consisted of a thematic presentation by the Óbidos Municipality, and an ideation session held at Lusófona University approximately three weeks before the event. Post-event surveys indicated that 84.6% (N=26) of participants considered these preparatory activities useful for game creation.

Facilitation consisted of one cultural heritage specialist and four game development facilitators. Cultural support remained concentrated around the opening thematic visit to local cultural sites and pitch moments rather than continuous development support. At the end of this ECGJ, a total of eight prototypes were produced.

2.2.2 ECGJ#02 — Sustainability & Biodiversity: Óbidos Lagoon

ECGJ#02 substantially expanded the preparation phase. A first warm-up session was held one month before the jam, introducing logistics, communication platforms (Discord), and early thematic materials. Approximately two weeks before the event, participants attended two pre-game jam activities on separate days: a sustainability lecture at LU and a full-day guided visit to the Óbidos Lagoon led by marine biologists and heritage specialists.

This ECGJ also expanded its participant pool with JO participants: all first-time game jammers and mostly first-time game creators. To better support them, a game developer facilitator developed an easy-to-use game design kit inside the Unity game engine, called Okapi Kit, and a workshop on this engine was administered on the first day of the jam.

Seven facilitators participated in this edition, including three cultural heritage specialists who remained present throughout all development days. Fourteen prototypes were produced across LU and JO teams, representing the highest prototype output of the series.

2.2.3 ECGJ#03 — *That's Not Fair* - December 1st, 1973, Óbidos Reunion

The third edition game jam had to make some compromises due to scheduling limitations. Game jam time was reduced to a three-day format, and the pre-game jam preparatory activities were exactly one day before the game jam. Activities included a guided cultural visit and creative exercises led by design facilitators. JO participants additionally attended a dedicated workshop on the use of Twine, an open-source tool for interactive narrative development.

Recruitment efforts intentionally sought greater field and gender diversity compared to earlier editions. Female participation increased to 28.94% ($n=11$, $N=38$; LU + JO), when compared to the 19.23% ($n=5$, $N=26$) at the ECGJ#01, and 15% ($n=6$, $N=40$; LU + JO) at the ECGJ#02. The same occurred with participants from Visual Arts and other fields becoming represented ($n=8$). In previous editions, participant representation consisted primarily of Videogame students (ECGJ#01–02), while high school participants from an IT Professional Course were introduced only in ECGJ#02.

Facilitation was also affected, although we were able to have a cultural history specialist, design facilitators, and game development mentors, the first two remained concentrated around the pre-game jam phase rather than continuous support during development, contrary to what was established in ECGJ#02.

Several teams conflated the clandestine Reunion of the Captains on 1 December 1973 with the broader and more widely recognised April 25th Revolution that marked the end of the Portuguese dictatorship. Nine prototypes were produced across LU and JO teams.

2.2.4 ECGJ#04 — *Heritage Remixed* Óbidos Legends

Due to the experience and results of ECGJ#03, the fourth edition returned to the four-day structure adopted previously. A warm-up session distributed written materials about local folklore and historical narratives associated with the medieval village walls and mythical creatures such as “*Musaranho*”, while a subsequent pre-game jam day combined thematic presentations and guided cultural visits.

The edition also included the largest number of cultural heritage facilitators in the series, with four specialists participating throughout the event. An Okapi Kit workshop was again implemented for JO students.

During ECGJ#04, the EPIC-WE Game Jam Kit was formally integrated according to project guidelines. Nine prototypes were produced across LU and JO teams.

2.3 Insights from the LU Cohort

Because game jams are commonly characterised as voluntary and intrinsically motivated creative environments the longitudinal comparative analyses presented in the following sections focus primarily on LU participants, whose participation was self-selected and voluntary. JO students participated within curricular contexts and therefore operated under substantially different motivational and institutional conditions.

Across the four editions, the 95 LU attendances corresponded to 58 unique individuals. Among these participants, four attended all four editions, four attended three editions, nineteen attended two editions, and thirty-one attended a single edition only. Consequently, 46.6% ($n=27$) of LU participants voluntarily returned for at least one additional edition.

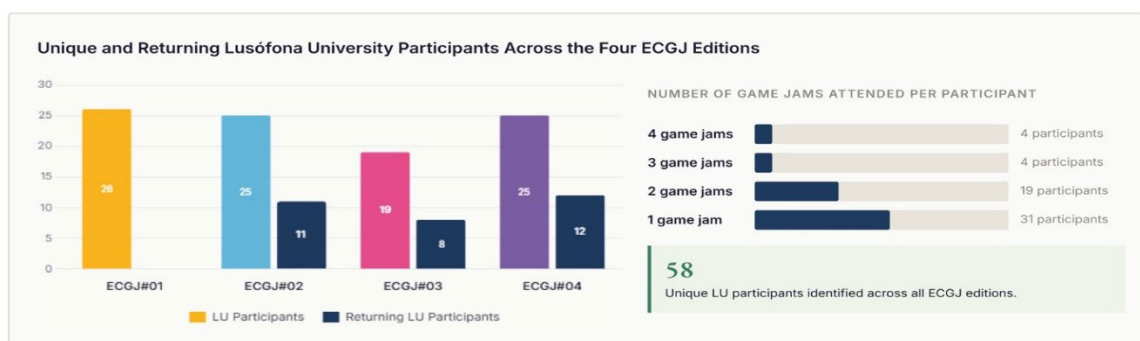


Figure 4: The left chart compares total and returning LU participants across the four ECGJ editions, while the right panel summarises the number of applied game jam editions attended per participant

The participant profile also evolved longitudinally. ECGJ#01 and ECGJ#02 were primarily composed of videogame students with prior game jam and game creation experience, while ECGJ#03 intentionally diversified recruitment beyond game design programmes, contributing to lower results across the previously discussed dimensions. ECGJ#04 subsequently returned to a more field-aligned cohort with higher prior experience levels and stronger proximity to game development.

Most LU unique participants (N=58) across the series were recruited from videogame programmes and therefore already possessed prior exposure to game development practices. On top of that the progressive increase in average prior experience across the series also relates to the 46.6% (n=27) LU participant retention rate, as recurring participants accumulated additional game jam experience through repeated participation in the ECGJ editions themselves. These shifts in participant composition provide important context for interpreting the longitudinal differences examined in section 3.

2.4 Prototype Outcome and Post-jam Continuity

As part of the EPIC-WE project requirements, at least two prototypes were to be selected across the four ECGJ editions for further development with Battlesheep. Instead, the studio was able to select four projects — *Puss in Books*¹ (ECGJ#01), *Criminal Fauna Identification*² (later renamed *Criminal Feather Investigation*) (ECGJ#02), and *Blue Brigade*³ and *Bufo Catcher*⁴ (later renamed *Mole Catcher*) (ECGJ#03) — enabling 12 participants to continue refining their games within a professional mentoring context alongside a facilitator involved throughout the series. Selection criteria included prototype quality, thematic integration, development feasibility, and team willingness to continue production.

Post-jam playtesting sessions combined quantitative and qualitative evaluation methods and the selected projects consistently emerged among the strongest-performing prototypes in their respective editions. *Criminal Fauna Identification* and *Puss in Books* received some of the highest overall playtesting evaluations, while *Blue Brigade* and *Bufo Catcher* stood out for their interpretation of censorship, surveillance, and democratic resistance through gameplay systems. In contrast, no ECGJ#04 prototypes were selected for continuation, as playtesting showed that cultural themes were often conveyed more through aesthetic and narrative ambience than through mechanics or systemic interaction, making them less immediately identifiable to players.

3. Longitudinal Analysis of the Applied Jam Model

The four ECGJ editions generated a longitudinal dataset combining participant surveys, facilitator observations and external playtesting evaluations. Across the series, the evidence consistently indicates that the effectiveness of the AJM depended less on the isolated presence of individual activities and more on the continuity established between preparation, facilitation, thematic immersion, and gameplay implementation. The comparative analysis reveals three recurrent dimensions shaping outcomes across the four editions: (1) the depth and timing of pre-game jam preparation, (2) the continuity of cultural facilitation throughout development, lastly (3) the relationship between participant profile and thematic execution.

3.1 Pre-Game Jam Preparation Activities

The longitudinal evidence consistently identifies the pre-game jam phase as a central structural variable influencing thematic integration, a pattern now substantiated by participant-reported usefulness (Figure 5).

¹Puss in Books (Game Jam version) - [https://hienadev.itch.io/puss-in-books](https://hienadev itch.io/puss-in-books)

Puss in Books (Post-Jam version) - <https://gameslusofona.itch.io/puss-in-books>

²Criminal Fauna Investigation (Game Jam version) - <https://juhxx-x.itch.io/criminal-fauna-identification>

Criminal Feather Investigation (Post-Jam version) - <https://gameslusofona.itch.io/criminal-feather-identification>

³Blue Brigade (Game Jam version) - <https://danender.itch.io/blue-brigade>

Blue Brigade (Post-Jam version) - <https://gameslusofona.itch.io/blue-brigade>

⁴Bufo Catcher (Game Jam version) - <https://juhxx-x.itch.io/bufo-catcher>

Mole Catcher (Post-Jam version) - <https://gameslusofona.itch.io/mole-catcher>

LU participant-reported usefulness of pre-game jam activities across ECGJ editions				
Edition	Survey Question	Response Breakdown	Positive (%)	Key Observations
ECGJ#01	"In your perspective, were the activities carried out before coming to Óbidos useful for creating games?"	YES: 22 NO: 1 IDK: 3	84.6%	Retrospective POST-survey measure. The orientation session was most frequently cited as the most valuable pre-jam activity.
ECGJ#02	"In your perspective, were the activities carried out before coming to Óbidos useful for creating games?"	YES: 25 NO: 0 IDK: 0	100%	Retrospective POST-survey measure. Highest response in the series. Óbidos Lagoon field visit was consistently rated as the most valuable by 69% of respondents.
ECGJ#03	"The materials shared with you before the game jam were useful to understand the theme?"	YES: 10 NO: 1 IDK: 8	52.6%	Prospective PRE-survey measure. Lowest result in the series. High uncertainty rate (42.1%) and compressed preparation timeline likely reduced engagement and thematic reflection.
ECGJ#04	"The materials shared with you before the game jam were useful to understand the theme?"	YES: 19 NO: 1 IDK: 5	76.0%	Prospective PRE-survey measure. Strong majority positive response.

Figure 5: Participant-rated usefulness of Pre-Game Jam activities across the four ECGJ editions

ECGJ#01 established a strong baseline, with 84.6% (n=22, N=26) of participants retrospectively rating pre-jam activities as useful, citing the orientation session as most valuable. ECGJ#02 raised this to 100% (N=25) by expanding preparation to include a themed lecture and a full-day guided field visit to the Óbidos Lagoon; the latter consistently described as fundamental for connecting abstract sustainability concepts to game ideas. This edition produced the highest prototype output (14) and the series' highest-rated prototype in playtesting.

In contrast, ECGJ#03 compressed preparation into the day before the jam, yielding the lowest usefulness rating in the series at 52.6% (n=10, N=19) and the highest uncertainty rate across all editions, with 42.1% (n=8) responding "I don't know." It should be noted that, unlike ECGJ#01 and #02, this measure was collected prospectively before the jam, which may partially account for the greater uncertainty. Nevertheless, several teams subsequently failed to distinguish the specific historical event of 1 December 1973 from the broader April 25th Revolution narrative, suggesting thematic preparation was materially insufficient regardless of measurement timing.

ECGJ#04 recovered to a usefulness rating of 76.0% (n=19, N=25), also measured prospectively before arriving in Óbidos. While this represents a substantial improvement over ECGJ#03, it remained below the retrospective benchmarks of earlier editions, a gap that likely reflects the inherent asymmetry between pre- and post-jam assessments rather than a difference in preparation quality alone.

The longitudinal comparison establishes that preparation depth and timing constitute structural requirements rather than optional enhancements: earlier exposure, dedicated reflection time, and direct environmental immersion consistently strengthened participants' ability to move beyond aesthetic or narrative cultural representation.

3.2 Facilitation Continuity and Thematic Mediation

The facilitation structure evolved from predominantly technical support (ECGJ#01: 1 cultural heritage / 4 game development facilitators) toward increasingly integrated thematic mediation. However, the longitudinal findings suggest that the total number of cultural facilitators present was less determinative than the continuity established between pre-game jam preparation and in-development facilitation.

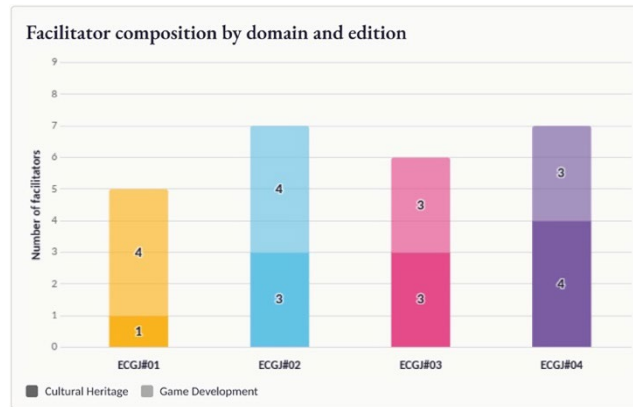


Figure 6: Facilitator ratio between Culture Heritage and Game Development areas across the four game jams

ECGJ#01 illustrated the consequences of limited cultural facilitation continuity: cultural support was concentrated around the opening visit and pitch sessions, producing prototypes that tended to apply cultural content as a thematic layer on conventional game structures. ECGJ#02 substantially corrected this by maintaining three cultural heritage specialists throughout all development days. Marine biologists and sustainability specialists circulated between teams, clarifying thematic questions and connecting biodiversity concepts with gameplay possibilities. One participant noted:

"The guide was really important because otherwise we would have been much more disconnected from the theme."

ECGJ#03 demonstrated that even a motivated cohort can produce culturally significant outcomes under constrained facilitation, with Blue Brigade and Bufo Catcher achieving notable procedural thematic integration. However, these outcomes emerged despite — not because of — the facilitation structure, driven primarily by individual team agency. ECGJ#04 reached the highest cultural facilitator count (4) but also revealed a new risk: excessive procedural intervention associated with the newly mandated use of the EPIC-WE Game Jam Kit disrupted development flow. Participants reported:

"The ideation kit interrupted the workflow a bit because we were already developing ideas and then had to stop."

Another added that:

"I think that kind of thing should be integrated into the pre-jam... when we're still forming ideas."

3.3 Participant Profiles, Expertise, and Collaborative Dynamics

Participant expertise emerged as a significant operational variable across the series. ECGJ#01 and ECGJ#02 were dominated by videogame students with strong prior experience, producing larger numbers of mechanically stable prototypes and stronger production consistency. ECGJ#03's intentional diversification produced lower prototype counts and scope management challenges within the compressed three-day structure but simultaneously enabled unusual thematic depth in specific projects. ECGJ#04's return to a more experience-aligned cohort restored production stability without recovering the thematic integration quality of ECGJ#02.

The relationship between technical expertise and thematic depth was not linear. Some technically accomplished projects (notably in ECGJ#01) still produced culturally superficial outcomes, while some of the most thematically significant prototypes (Blue Brigade, Bufo Catcher in ECGJ#03) emerged from production conditions that were more constrained. The strongest prototypes across the series consistently balanced manageable scope, thematic clarity, and gameplay coherence regardless of production complexity.

Observational records consistently documented LU and JO participants sharing development spaces while organically forming institutionally homogeneous teams across all four editions. No mixed LU–JO teams emerged without deliberate facilitation, reflecting differences in age, technical expertise, institutional context, and pre-existing social familiarity. The 46.6% (n=27) voluntary LU return rate contributed to organisational stability and the progressive increase in average prior game jam experience reported across the series.

4. Consolidation of the Applied Jam Model

The most robust finding across the series is the interdependence of the AJM's structural components: pre-game jam preparation, facilitation continuity, and participant profile interact as a system rather than as independent variables. No single component was sufficient, the strongest outcomes consistently emerged when immersive preparation, continuously available domain-expert facilitation, and a capable cohort aligned.

Preparation activities require direct environmental or thematic engagement with sufficient lead time for participant reflection. Facilitation must operate as continuous thematic mediation throughout development rather than concentrated in opening or pitch sessions. Participant expertise and cohort composition should be balanced against thematic requirements, as prior game development experience supports production stability while disciplinary diversity can enhance thematic depth if adequately scaffolded. Notably, with more experienced and autonomous participants, excessive procedural structure can be counterproductive, as evidenced by ECGJ#04 participants' response to the EPIC-WE Game Jam Kit requirements.

5. Limitations and Future Work

Several limitations must be acknowledged. The study is situated within a single institutional and geographic context, focusing exclusively on the Óbidos Hub of the EPIC-WE project, which limits the broader generalisability of the findings. The changing participant composition across editions, combined with a 46.6% (n=27) LU participant retention rate, also complicates the isolation of model-level effects from cohort-specific dynamics within the longitudinal comparison. Finally, the long-term cultural impact of the four selected prototypes as publicly distributed games remains outside the scope of this study, as these projects are still undergoing mentored post-jam development.

Future work will assess the transferability of the AJM beyond cultural heritage contexts. The model has already been adapted to an applied game jam focused on accessible game design for people with intellectual disabilities, representing an important opportunity to evaluate whether its core structural components remain effective in a socially oriented context. Further work will also examine the post-jam development experience from both participant and studio perspectives, strengthening the evidence base for the model's Post-Jam Opportunities component.

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Ethics Declaration: The present research was previously approved by the ethics committee of ILIND – Lusophone Institute for Research and Development (Lusófona University), with assurance that all participants involved signed informed consent forms, participated voluntarily, and that their collected data were properly anonymised and protected in accordance with the current data protection legislation.

AI Statements: This article was reviewed and refined for language clarity using Grammarly and generative AI tools. These tools were used exclusively to improve grammar and wording, without altering the content, arguments, or conclusions. As non-native English speakers, the authors maintain full responsibility for the intellectual substance and integrity of the work."

References

- Aibara, M., Kawakami, S., & Furuichi, M. (2020, January). Lessons learned from serious game jams Organized by DiGRA Japan. In Abstract Proceedings of DiGRA 2020 Conference: Play Everywhere.
<https://doi.org/10.26503/dl.v2020i1.1229>
- Almeida, W., Luz, F., Fernandes, P., Fonseca, M. (2024). Cultural Game Jam model: a Quadruple Helix intervention. Proceedings of the 18th European Conference on Games Based Learning (ECGBL 2024).
<https://doi.org/10.34190/ecgbl.18.1.2642>
- Almeida, W., Luz, F., Gonçalves, M., Nunes, I. & Fonseca, M. (2025). Cultural Games Creation: An Applied Game Jam model in Proceedings of the 19th European Conference on Games Based Learning (ECGBL 2025).
<https://doi.org/10.34190/ecgbl.19.1.4032>
- Arya, A., Chastine, J., Preston, J. A., Fowler, A. (2013). An international study on learning and process choices in the global game jam. International Journal of Game-Based Learning (IJGBL), 3(4), 27–46.
<https://doi.org/10.4018/ijgbl.2013100103>

- Costa, C., Fernandes, P., Nunes, I., Gonçalves, M., & Fonseca, M. (2024). State of the Art in game jams and game-making co-creation practices amongst Cultural Heritage Institutions, Creative Industries, Higher Education Institutions and Youth Citizens. Zenodo. <https://doi.org/10.5281/zenodo.14654424>
- Freeman, G., & McNeese, N. J. (2021). A Tale of Creativity and Struggles: Team Practices for Bottom-Up Innovation in Virtual Game Jams. *Proceedings of the ACM on Human-Computer Interaction*, 5(CSCW1), Article 76, 27 pages. <https://doi.org/10.1145/3449150>
- Goddard, W., Byrne, R. & Mueller, F. (2014). Playful Game Jams: Guidelines for Designed Outcomes. In Proceedings of the 2014 Conference on Interactive Entertainment (IE2014). Association for Computing Machinery, New York, NY, USA, 1–10. <https://doi.org/10.1145/2677758.2677778>
- Kaitila, C. (2012). *The Game Jam Survival Guide*, Packt Publishing, 2012.
- Kultima, A. (2015). Defining Game Jam in Conference: 10th International Conference on the Foundations of Digital Games (FDG 2015).
- Lai, G., Kultima, A., Khosmood, F., Pirker, J., Fowler, A., Vecchi, I. Latham, W. and Leymarie, F. (2021). Two Decades of Game Jams. In Proceedings of the 6th Annual International Conference on Game Jams, Hackathons, and Game Creation Events (ICGJ '21). Association for Computing Machinery, New York, NY, USA, 1–11. <https://doi.org/10.1145/3472688.3472689>
- Li, L., Maloney, D., & Freeman, G. (2021). Collaboration, Dedication, and Social Pressure: A Comparative Analysis of Virtual and Face-to-Face Game Jams. *Hawaii International Conference on System Sciences (HICSS 2021)*, pp. 2824–2833.
- Ramzan, R., & Reid, A. (2016). The importance of game jams in serious games. In T. Connolly, & L. Boyle (Eds.), *Proceedings from the 10th European Conference on Game Based Learning* (pp. 538-546). Academic Conferences and Publishing International Ltd. (ACPI).
- Reid, A. J., Smy, P., & Donald, I. (2020). A theoretical framework for game jams in applied contexts. In D. Leorke (Ed.), *DiGRA '20*