Best Practices in Cross-Sector Partnerships for Educational Game Design

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Abstract: Studies on learning have affirmed the importance of digital games for learning across a range of disciplines, yet the actual task of creating educational games faces the challenge of structuring productive partnerships between academic content experts, student partners, and professional game designers. Based on our team's creation of the language-learning game "Brendan's Voyage," this paper proposes scalable practices for maximizing successful collaboration in game design. As a game designed to teach medieval French language and culture, "Brendan's Voyage" has had three distinct phases: solo development, student collaborations, and professional partnerships. In 2022, the project received a two-year NEH (National Endowment for the Humanities) grant to create a deliverable educational game in conjunction with an independent game development company, Causeway Studios. Whereas academic partners are likely to emphasize the importance of accurate content and pedagogically sound game activities, game designers may reasonably prioritize the aesthetic coherence, the logistics of game mechanics, and the enjoyability of the game. These two kinds of goals are both essential to a successful educational game, yet these goals can be at cross purposes in the practical workflow of game creation. Rather than framing these as competing agendas, this paper describes clear pathways to ensure both concerns are incorporated into successful game design. These insights stand to empower other academics and game designers who hope to collaborate with maximum success toward the end of creating effective educational games.

Keywords: Game design, Educational games, Second language acquisition, Collaborative development, Cross-sector partnerships

1. Introduction

1.1 General Outline

Supported by a Level-II Digital Humanities Advancement Grant from the NEH, *Brendan's Voyage* is a five-module video game designed to teach basic pronunciation, vocabulary, and grammar of the medieval Anglo-Norman language, a variety of Old French. As a result of over a decade of development, the game evolved through many forms of solo and collaborative development. We first reflect on the project history with a focus on the various collaborative models that have produced *Brendan's Voyage* in its current form. We then elaborate a key set of best practices to help other academics refine their vision for serious games, locate professional game design partners, collaborate with multiple stakeholders including students, and produce games within budgetary constraints.

1.2 Literature Review: Digital Games for Learning

Studies affirm the educational value of digital games across disciplines (Ibrahim et al., 2012; Rooney and Whitton, 2016; de Carvalho and Coelho, 2022; Tranter et al., 2024). Ibrahim et al. (2012) emphasize that aligning gameplay with learning goals boosts motivation and engagement. Rooney and Whitton (2016) highlight the potential of games to create immersive, interactive spaces for experimentation. De Carvalho and Coelho (2022) note the effectiveness of games in stimulating intrinsic motivation and deepening engagement through immersion and structured play. Similarly, Tranter et al. (2024) demonstrate how gamification strategies, such as interactive quizzes and collaborative game-based activities, can result in increased student confidence, socialization, and improved retention of learning content. Despite this growing recognition, academic experts in diverse content areas still face challenges related to resources, connections, and funding to design educationally robust and enjoyable games (Dimitriadou et al., 2021).

This article addresses those challenges, sharing scalable practices from our work on Brendan's Voyage, a language-learning game developed with Causeway Studios. We outline key strategies for successful collaboration between game designers and academic specialists, reflect on outcomes and obstacles, and offer guidance for others looking to create serious games. While adaptable, the model will require adjustments based on context.

1.3 Brendan's Voyage: A Brief History

Brendan's Voyage takes the player to the twelfth-century court of Lady Adeliza of Louvain, the historical figure who likely commissioned the translation of St. Brendan's mythic ocean voyages from Latin into Anglo-Norman French. Players learn to speak, understand, and write basic Old French while exploring key aspects of French-speaking medieval England. The first three modules cover female artistic patronage, manuscript production, and medieval markets. In modules four and five, the player enters St. Brendan's story through a magical codex (Figure 1), joining the Irish abbot's journey to the Earthly Paradise with his fellow monks. The game teaches core elements of Anglo-Norman French through a narrative grounded in the political, material, and religious cultures in which the language was used (Abell & Ramey, 2023a, 2023b), offering an alternative to outdated methods of teaching medieval languages (Ramey & Wenz, 2016).

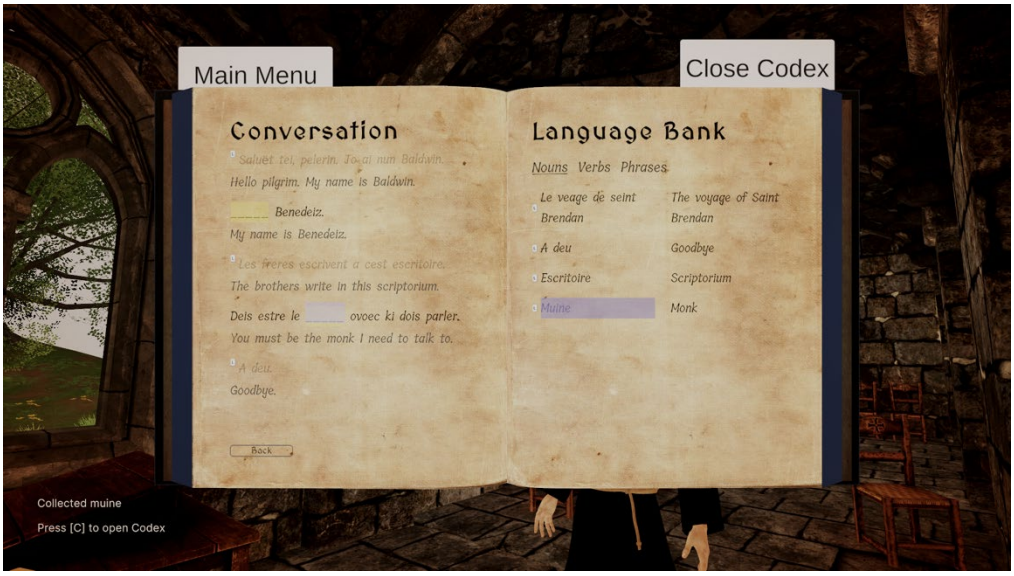

Figure 1: The interface of Brendan's Voyage allows the player to collect key vocabulary in a magical codex

Brendan's Voyage was the result of more than a decade of collaboration between Lynn Ramey (Vanderbilt), Jacob Abell (Baylor University), professional game designers, students at several institutions, and grant personnel. Throughout this process, *Brendan's Voyage* was supported through a wide variety of project development models ranging from individual design (the "solo approach") to financially supported collaboration with professional game designers.

2. Models for Game Development

2.1 The Solo Approach

The project grew out of two NEH-ODH institutes focused on training humanists in 3D cultural heritage modeling. At the 2013 institute "Humanities Heritage 3D Visualization: Theory and Practice", Ramey learned to build immersive environments using Blender, SketchUp, and Unity. She then established a video game lab at Vanderbilt University and began training students in 3D modeling and Unity. In summer 2015, she continued work at the institute "Advanced Challenges in Theory and Practice in 3D Modeling of Cultural Heritage Sites." Serving as subject matter expert and game developer provides creative control but is impractical given the complexity of the immersive language and culture platform. Many assets (especially medieval-themed) can be purchased from online sources, but the lack of artistic coherence and the mistreatment of historical contexts create discontinuity in the game. For instance, medieval women models available for purchase do not represent the variety of roles that women occupied in medieval society: women warriors and bar wenches are overrepresented, while few models can serve convincingly as a nun, scribe, or domestic worker. These limits illustrate Houghton's contention that medievalist video games often reduce women to modern stereotypes (2024). Working with a team gives fullness to a game's cultural context, bringing together specialists in the creation of art, music, sound, voice acting, programming, UI, narrative, historical context, and version control.

2.2 The Constructivist Approach: Students Creating Projects

After a period of solo work, the project shifted to a collaborative, constructivist model involving graduate and undergraduate students. This emphasized "Collaboration," one of the core values of digital humanities identified

by Lisa Spiro (Spiro, 2012). With a seed grant from Vanderbilt's Institute for Digital Learning, Ramey led a paid summer training session for students in 2015.

Following constructivist theory, which holds that learners build knowledge through active engagement (Piaget, 1973; Bada, 2015; Taber, 2024; Vygotsky, 1986), the project became a learner-driven lab. Students, faculty, and staff explored tools, roles, and narratives together. Unlike traditional solitary, text-based humanities learning, this model encouraged active problem-solving in real contexts. Game development using tools like Unity3D, Photoshop, Blender, and Perforce provided that context. Students learned by doing: designing levels, writing dialogue, customizing models, recording audio, and managing assets. Learning emerged organically from the project's needs.

After the summer session, work continued through internal institutional grants (Ramey and Panter, 2015). While students developed significant skills, the lack of effective version control and the continual turnover of key student workers prevented the game from reaching a release-worthy state. Research was clearly needed in several areas: 1) effective game types for teaching language, 2) essential elements of medieval grammar, 3) strategies for pronunciation and orality in dead languages, and 4) best practices for teaching culture and identity in an immersive environment.

2.3 The Course Integrative Approach

In fall 2017, a collaboration between STEM and humanities faculty at Vanderbilt University brought together computer science and humanities students to build 3D immersive environments using a video game engine. As a course-affiliated professor, Ramey led an interdisciplinary team of four students in creating a digital story about the transmission of medieval texts across languages and cultures. Students, assigned by the course instructors, included one with Unity experience and two computer science majors. They determined their own project scope and divided tasks based on interest and ability.

Students decided to create a game mechanic where users collect stories line by line by trading with other characters, successfully telling a story, or eavesdropping on other characters. Using the Oculus Rift, they created a fully embodied VR experience. Working with mixed groups of STEM and humanities students, faculty, and staff provided a low-cost way forward with the additional advantage of facilitating faculty-student interaction and student learning through the production of knowledge. However, the limited time (one semester) and the constraints of coursework requirements meant progress was limited. Students struggled with conveying their process in a way that a group could pick up where the last team left off. While a new team attempted to work with a project state left by a previous group, mistakes and poor choices made by the previous group frustrated the new group. For instance, the first group used a VR interface that integrated visual menuing in the gameworld. Unfortunately, the team did not troubleshoot the system, and the menus generated nonsensical choices. The second team was understandably uninterested in spending time fixing the mistakes of the first group. When working with a project across student groups where the entire team changes, the best approach would be to divide the entire project into parts or modules that can be developed independently. The basic framework, user interface, and art assets/style should be established before starting work on any of the modules, but the freedom to develop a freestanding module gives each student group the fresh start needed to build for their own goals; usually, those goals center on learning teamwork, game development, and aspects of computer science rather than the content area that the game aims to address.

At a certain point, we found that game development in a modular fashion leads to some enriching student experiences, but the game lacks the fundamental polish to be useful or even beta-test worthy. Someone needs to knit the modules together and address the inevitable bugs that will emerge. This guiding hand can come from the project head or from the eventual establishment of a lab group with paid student workers who take on increasingly managerial roles over time. This model has been implemented in several academic settings, notably by David Fredrick and his game development group Tesseract at the University of Arkansas, by David Neville at Grinnell College, and by Austin Mason at Carleton College. Each setting is slightly different, but they all work on the model of a consistent vision provided by the lab director and the establishment of a system where students who stay with the project for several years can take on managerial roles (head of art, head of sound, head developer, etc.). This lab group model provides students with credible experience in increasingly responsible roles as they head into the workforce after graduation.

2.4 The Professional Partnership Model: A Scalable Summary of (Some) Best and Worst Practices

After positive experiences working with students and faculty at the University of Arkansas and Vanderbilt, it became clear that the most robust and functional vision of *Brendan's Voyage* would require the collaboration

of a professional video game design company. To secure the needed funding, we applied for a Level II Digital Humanities Advancement Grant from the National Endowment for the Humanities. We were fortunate to receive the grant in 2022, which provided financial support for a project period of two years. After soliciting bids from multiple game companies, we chose to work with Causeway Studios owing in large part to their strong track record of producing serious games for language education.

Over the first several months of the project, the game design team and the scholarly team wrote the game script together. Based on the twelfth-century Old French tale *The Voyage of St. Brendan the Abbot*, the game would present five modules that implement environments based on the historical setting in which the Brendan poem was translated into Old French, as well as fantastical stories from the Brendan poem itself. For each game module, the scholarly team identified key language and cultural learning outcomes for players to accomplish. The team identified essential vocabulary, grammatical principles, and passages of text from the original Brendan narrative that needed to be incorporated into the modular activities. Equipped with these learning goals, the design team wrote the initial draft of the script for each module, which was then revised based on feedback from the scholarly team. Abell and occasional student partners would record the Old French dialogue in studios located on the Baylor University campus. We then repeated this process for all five modules, periodically consulting advisory personnel to ensure the linguistic production was of high quality and to affirm that the game design was conducive to successful learning. Principal production was completed in a little over a year.

Based on the process of collaborating with Causeway, our team has identified best practices for structuring successful collaboration between game designers and academic content specialists. There were also challenges. We reflect on the major results of both categories below. We hope these strategies can equip other academics with the skills they need to produce their own serious games with professional game companies. This model is scalable but will require adjustments for varying circumstances.

3. Structuring Successful Collaborations

3.1 Best Practice: Determine What Financial Resources are Available for Your Project: Solicit Multiple Bids From Game Designer Companies

Working with professional game design companies is expensive, but it can be done for less money than one might expect. The length, scope, and complexity of your game all contribute to overall costs. As an academic, you may have research funds associated with your position, internal institutional grants, or pathways to securing national grants. We built different iterations of *Brendan's Voyage* with all these varieties of funding. In short, do not assume that you cannot build a functioning video game simply because funding is in short supply. What is more, it can take multiple rounds of application to secure a national grant, as it did for us.

That said, it can be wise to develop multi-institutional partnerships to maximize internal grants or other financial resources. As of this writing (spring 2025), major digital humanities grant competitions have been terminated within the NEH; it is unclear how long this development will last, but what is clear is that scholars must innovate alternative pathways to fund serious game development for the foreseeable future. Consult other scholars who have built games, talk to grant officers, and open conversations with game companies that have a track record of producing serious games. In our experience, such companies are eager to speak with prospective academic partners, even willing in some cases to draft a provisional budget for free.

Finally, soliciting multiple bids can be extremely helpful as a way to learn about unexpected strengths and limitations of prospective video game design partners. All three companies that submitted bids for our project showed strong skills and experience, albeit at different levels. We asked for budget proposals from each company and spoke with their leaders at length about how they were uniquely suited to execute our project goals. By asking thorough questions and comparing proposals, we were able to choose our partner with confidence that they could deliver the product in a timely fashion, collaborate openly with academic partners, and infuse our vision with creative design ideas.

3.2 Best Practice: Continue to Partner With Students at a Range of Skill Levels: These Partnerships Benefit Young Scholars, Future Game Designers, and you

While working with a professional design company, we continued to collaborate with students at high school, undergraduate, and graduate levels. A local high school student approached us and described her hopes to study medieval cultures at the university level; our team invited her to research the aesthetics of key garments and architecture of twelfth-century England. The student then reported her findings in a series of Zoom calls with the design and scholarly teams present. That research yielded discernible impacts on both teams' creative

processes. Similarly, the scholarly team acquired an internal grant from Baylor University to hire a group of three undergraduate students (one of whom was a recent alumnus) to implement refinements to the game after the initial completion period. With a diverse set of skills in computer science, French language, and project management, this student group helped the scholarly team to test the game, perform key changes, and generate a website to house the game with accompanying pedagogical resources for instructors and play testers.

Partnering with students empowers future academics (Burns, 2020; Campbell, 2022; Cook-Sather et al., 2014) and game designers. Jobs are increasingly scarce in the academic humanities; while careers in professional game design still seem on track to expand in coming years, the industry is very competitive. By mentoring students within professional game partnerships, academics can help nurture future humanists and game designers while also imparting transferable skills to students who go on to work in other professions. It is equally important that student partnerships be supported fairly; exploitation of student labor is an unfortunately common practice, and we strove at every level of our project to ensure that students were receiving proper credit, support, or compensation depending on the nature of their involvement. What students receive from such a partnership can vary based on context: a graduate student may be paid as part of a grant, whereas an undergraduate might elect to volunteer their skills to help meet a requirement for a university course. Regardless, it is incumbent upon academics producing games to reflect regularly on how their students are being properly supported for their contributions.

3.2.1 Challenge: Balancing entertainment value and linguistic difficulty can present obstacles for serious games that aim to teach languages. Develop a plan for script development with game design partners

As part of our workflow, Causeway Studios asked to produce the first draft of each game module script. This approach was designed to allow the game production experts to sculpt the flow of each module with a priority for user playability and enjoyment. As the academic team, we supported the need for this approach; as academics, we acknowledged that our experience with writing game script was much less developed than design professionals. Approaching the script this way was hardly a "worst practice," but it did present key challenges that we believe can inform future collaborations.

Again, before the game design team wrote the initial draft of each modular script, the scholarly team provided an extensive list of key linguistic and cultural learning goals that needed to be achieved in a particular module. As the game designers wrote their script for a given module, they would embed the chosen Old French words, phrases, and grammar principles into dialogue that occurred naturally through the module's varied tasks. From a creative standpoint, this approach was invigorating; it allowed our intended language goals to be realized through a dynamic and rewarding modular plot involving tasks, multiple characters, and richly designed visual terrains. Unfortunately, this approach to script development also meant that much of the dialogue had to be translated from English into Old French. Because the game designers were (understandably) not Old French language experts, much of the dialogue in the script drafts had to be simplified or changed to accommodate the specific vocabulary, style, and syntax of medieval French. Contemporary English is very difficult to render into a dead language, and we had to therefore strike a balance between the rich language of the script drafts and the need to compose Old French text that was culturally authentic. We therefore suggest that academics work with professional design partners to establish clear procedures for script development: who will produce script drafts and how will the academic content experts contribute? What kinds of feedback will be solicited and integrated into subsequent drafts? Clear communication around these questions is essential for successful collaborative approaches to serious game design (Dimitriadou 2021).

Fortunately, in our case, all parties had goodwill for each other's content expertise and complementary needs for the game design. In fact, the need to balance a game's playability with the pedagogical objectives can lead to productive script revisions between content experts and game designers. We frequently had to suggest strong simplifications of English text in order to translate the script accurately into Old French.

Based on our experience, we advise other academics to reflect early in their project on a plan for script development. As the content experts driving the game's pedagogical objectives, what content and learning goals must be accomplished by the game as a whole? How can those goals be distributed across different modules, and how many should there be? Do these modules have to be situated within a particular kind of narrative or game mechanic? Ask these questions early with your game design partners to determine who should write the script draft and how you will collaborate on revisions. As an academic content expert, you may be reluctant to give up control, but remember that game designers create games for a living. They are the experts when it comes to translating educational goals into playable games. The more you can learn to respect that expertise, the more you can let your design partners help you achieve your pedagogical goals. That said, it is equally important to

protect your vision for the overall game objectives. Just as your design partners are experts in game design, you are the expert when it comes to the particular pedagogical and learning content of the game. The more you can create an environment of mutual trust, the more both teams can learn to rely upon each other's skills.

3.2.2 Challenge: Develop a clear plan for data storage and game access.

Data storage and game hosting platforms represent significant obstacles that need to be thoughtfully confronted at the outset of the project. The game was designed using the Unity game engine, a professional tool that can yield high quality games. We knew that our scholarly team would need access to the game architecture after the project period; beta-testing would point out opportunities for revision and errors to correct. However, despite having ample abilities with Unity software, our scholarly team encountered strong limits in our ability to implement even minor changes on our own to the game following initial production.

Version control was a difficult problem to solve from the beginning, and working with an independent game company did not fully solve the issues. The team from Causeway had a pre-established workflow using Unity's built-in version control. Since we had experienced problems trying to use GitHub for game applications with our student groups, we were open to new methods of development with the proviso that the code be conveyed to us in full at the end of the project period. The Causeway team provided the code, but it proved nearly impossible to extract from Unity's version control system, largely due to the subscription or proprietary assets that were used by Causeway. We continued to encounter errors using certain parts of the code, even when all elements had been scrubbed of the previous version control system.

Furthermore, our partners had optimized their work so that it would run in WebGL, loading elements in and out as needed and reducing asset file sizes as much as possible. Without the skills and software to replicate their optimization of memory use, we found that even tiny corrections to menus or sound files could result in a game that would no longer load correctly in WebGL. This memory optimization issue had a further consequence. Our method of delivery of the final game was via itch.io, a convenient and free platform to share browser games. However, itch.io has file size and number limits that we bumped against as we made changes. These structural limitations prevented the scholarly team from having full access to the assets and architecture of *Brendan's Voyage* after the initial completion of the game. Despite impressive efforts by our design partners to help us achieve this access, some limits persisted. We were unable, therefore, to implement all the changes to dialogue that we hoped to make after playing through the game in different settings with groups and individuals.

3.3 Best Practice: Leverage the Contrasting Expertise of Designers and Academics to Amplify the Game's Cultural Richness

Our partnership with Causeway Studios revealed the unexpected benefits that emerge when academic content experts and game designers work in an environment that explicitly encourages innovation. As our design counterparts began to learn more about the medieval language and literature featured in *Brendan's Voyage*, their staff increasingly challenged their own creative development of the game design. For example, module four required the designers to create a remote oceanic island on which Paul the Hermit, a monk featured in the original Old French story, welcomes St. Brendan during a stop on his voyage. The scene is set in a fictitious vision of sixth-century Ireland. Knowing this, our design partners asked the academic team to provide photos of authentic monastic dwellings dating to this period (or as close as possible). Originally, neither team had anticipated designing such a structure. The request came as a spontaneous development that grew out of mutual enthusiasm for the project as it developed. Inspired by this enthusiasm, we provided evidence for a medieval *clochán* which housed Irish monks in the Middle Ages. While these structures are typically dated to centuries that postdate Brendan's life, we nevertheless thought the inclusion of these structures might encourage players to learn more about medieval Irish monastic cultures.

Working with the photograph in figure 2, the game design team rendered a digital version of Paul's dwelling place (Figure 3). The resulting *clochán* enriched the cultural authenticity of the module. Such authenticity, even if inexact, fuels the immersivity that Kucher identifies as a key component of successful digital learning (2021).

Figure 2: A clochán located in Ireland (Dingle Peninsula). Public domain

Figure 3: A screen capture from Brendan's Voyage: Paul the Hermit stands before a clochán on his remote island

We hope these informed suggestions can empower and inspire academics to take the next steps to envision and execute digital games in productive partnerships with game designers. In an educational landscape in which digital technologies increasingly prevail, it is imperative that academics and game designers continue to refine their collaborative practices to better serve a digitally engaged global student population. Creating serious games such as Brendan's Voyage can be costly and challenging, but the process and results can revitalize academic disciplines through mutually productive partnerships between faculty, students, and professional game designers. We have argued that the essential basis for successful partnerships between academics and game designers is a sustained practice of communication to ensure all partners are maximizing their creative, technical, and content-based contributions to the game. In conclusion, we advise academics to explore the range

of collaborative models proposed here to match project needs, budgetary constraints, and educational outcomes.

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