

Other than Text: Media Used in Game Studies Publications. A Computational Analysis into 20 Years of Publications of the Game Studies Journal, and an Appeal for Research Through Design

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Author's note: The first part of this paper presents and discusses data retrieved, analyzed, and visualized through a custom Python program developed in a [Jupyter Notebook](#), implementing the libraries [Beautiful Soup](#) (for web scraping), [NumPy](#) (for math), [Pandas](#) (for statistics and visualization), and [Matplotlib](#) (for additional plotting functions). The fully annotated source code developed for this inquiry is provided openly and as part of this contribution for evaluation and corroboration of findings as well as for further extension and production of derivative works by the community. It is provisionally hosted by the author at <https://github.com/cmiltiadis/other-than-text>, and archived at <https://doi.org/10.5281/zenodo.7944673>, pending action by the DiGRA board for archiving contribution artifacts that cannot be accommodated within traditional paper formats.

ABSTRACT

What means are used in communicating game studies research? The article presents an analysis of findings produced through computational web scraping all published material in the 20-year lifetime of the Game Studies Journal, looking for a range of media facilitated by its permissive HTML format and published alongside text. The inquiry intends to provide reflexive data into the 20-year history of the field's oldest journal and the implicit research tradition cultivated so far. Extending the discussion, it presents the problematic relationship of game studies and design, making a case for the formal inclusion of design-based research methods to the interdiscipline, which while latent in its current ecology are nevertheless foreseeable to manifest in the third decade of the game studies project. Lastly, it advocates for *research through design*: the production of videogame artifacts as research vehicles for generating new knowledge, advancing discourse, and uniting the research landscape altogether.

Keywords

game studies journal, data mining, computational analysis, videogame research, research communication, research methods, epistemology, use of media, design research, research through design, game design

Proceedings of DiGRA 2023

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INTRODUCTION: DIAGRAMS AND OTHER MEDIA IN GAME STUDIES RESEARCH

The following study started out of genuine curiosity to answer the question: can one use diagrams in game studies research, and, is it common to use diagrams or other visual media in such research?

Here, the question of diagrams is not just encyclopedic. Diagrams, sketches, and illustrations serve as low-threshold means to organize, make sense of, and communicate information impossible to convey otherwise, for example through text, taxonomies, or quantification. They are distinct from pictures as they rely more on abstraction than faithful representation, and as such they serve as native methods in practices and professions that rely less on analytical knowledge and more on implicit or tacit knowledge, for example in design and architecture. Moreover, diagrams and other visual means were essential for the advent of the scientific revolution (Edgerton 1985; Franklin 2000; Latour 1986) and are still employed in the natural sciences today.¹

Diagrammatic reasoning, according to Tylén and colleagues (2014), is used both in everyday and specialized practices to “crystalize and support innovating thinking practices and interpersonal communication.” This, by reducing complexity and rendering perceivable abstract structures; mapping ontologies and interrelations; affording manipulable representations that accommodate testing new insights or hypotheses; enabling collective forms of thinking through their communicability; and finally supporting and augmenting cognitive processes. For videogames especially, where textual descriptions, taxonomical analyses, and representational renderings might not be adequate, diagrams can serve to reason with the medium’s procedural rhetoric and ontologies, while sketches can accommodate concepts that rely on a spatial substrate (see also Almeida et al. 2013).

In fact, the use of visual methods is rather common in game design and development practices and can be observed to permeate literature that intersects such situated knowledges with fields of analysis like game studies. Extended use of such means has been employed to communicate matters pertaining to videogame spatiality² (Backe 2021; Jakobsson 2003; Robinett 2006; Totten 2014; Totten 2017); temporality (Juul 2004; Nitsche 2007); fundamental game mechanics (Swink 2008b); and formal frameworks such as MDA (Hunicke et al. 2004; Walk et al. 2017), *Game Design Patterns* (Björk et al. 2004), and the diagram language *Machinations* (E. Adams et al. 2012; Dormans 2012). Besides, the need for visual languages was stressed on par with the need for a shared vocabulary in the study of game design tools and methods by Almeida and da Silva (2013), highlighting shared agendas between the analysis of games as existing objects and of games in the making.

However, how much do such visual media and methods take part in formal game studies research? While multiple contributions have suggested methodologies to analyze videogames, the matter of how to communicate videogame research has been given less attention. ‘Playing research’ (Aarseth 2003), to take an example, suggests studying a game by playing it well. However, the matter of communicating that understanding is left vague, or rather implicit in existing scholarly traditions.

Thus, the search for diagrams and by extent for other media in the study of videogames can be viewed as a qualitative and reflexive inquiry into the types of thinking and argumentation involved in their discussion. Furthermore, it can help infer the proximity or degree of convergence between scholarly research on the one hand, and the types of knowledge and reasoning involved in *making* videogames, on the other.

After manually browsing existing literature, the inquiry turned into computational tools to assist in the wider search for media in game studies research, while focusing on the case of the Game Studies Journal (GSJ). This, on the one hand, allowed to abstract the subject of this inquiry into any non-text media used alongside text in the communication of game studies research. On the other hand, it allowed focusing the scope of this inquiry into the tradition of a single journal for several reasons (discussed in the following), chiefly because of its prominence in the field, its openness and transparency, and its unique capacity to accommodate multiple media types.

The following is organized in two parts. Firstly, a computational analysis into *what type of means, other than text, are used in game studies publications, in the example of GSJ?* Extrapolating findings, the second part discusses matters of interdisciplinarity in game studies and the GSJ particularly, unpacking the problematic relationship to design epistemologies. I argue that the link to design is crucial for the field entering its third decade, not the least for the inclusion of media-based research methods. Finally, I advocate for *research through design*, contributions based on and involving the prototyping of videogame artifacts.

WEB SCRAPING THE GAME STUDIES JOURNAL

The data presented in this study are generated from ‘data scraping’ all the entries of the GSJ in its 20-year history, up to volume 2021 issue 3, in search of media that accompany text. This is computationally extracting, organizing, and visualizing information from all published material. For this type of inquiry and for focusing the question of media published in videogame research the GSJ stands out as an ideal candidate for two main reasons: one technical and one epistemological.

Firstly, the GSJ is ideal for web scraping from a technical perspective. The journal is decidedly open access (Aarseth 2014), thus all its content is readily available. Like most game studies journals it is self-published rather than published by an external commercial publisher. Stemming from the previous (the devotion to accessibility, the initial lack of experience with publishing infrastructure, and limited resources), besides that the journal stands for aspects of digital culture, is that the GSJ is published solely in HTML format and only digitally.³ While digital publications are common, academic journals published in online formats are rather rare nowadays. Most make use of the PDF format⁴ which can be said to serve as the standard for scientific publishing across the board. Nevertheless, the GSJ is in comparison significantly more accessible: it does not require downloading files, and its lightweight entries can be read online on any browser, printed on paper, or saved as offline files. Last but not least, the fact that the journal is in plain HTML renders it transparent to thorough computational scraping.

The second and foremost reason is that the GSJ stands out because of its seminal importance to the field. It is the journal that formally – at least for the academic context – established the field of game studies in 2001, with its first issue marked by the founding editorial as “Year One” for computer game studies (Aarseth 2001). As one of the field’s flagship publication venues and at the age of 20, it is currently one of the few that are formally and highly accredited in academic research.⁵ Thus, the analysis of a journal of such central and historical importance to a field can reveal trends and conventions in its research tradition.

Systematic studies into massive volumes of literature for epistemological purposes are not uncommon, and this is also true for game studies. Two precedents, by Melcer and colleagues (2015), and by Martin (2018), provide crucial evidence for the structure of the videogame research ecology, mapped in the spatial and the temporal

domains respectively. The first, analyzed the academic publishing landscape through keyword mapping across 48 venues in a span of 15 years, concluding its segmentation into 20 thematic areas, and 7 distinct sub-communities. The second, investigated the field's degree of interdisciplinarity, through a cross-reference and keyword analysis in four academic communities to identify shared thematic clusters and track their evolution in time. Evidently, such studies provide extremely useful insights into the current consistency of the ever-growing research landscape. As Martin writes, they help “describe the historical development of a field,” as well as identify new research areas for development, “possible research gaps and areas for collaboration” (2018).

However, such massive computational inquiries come with limitations. They are curtailed by the availability of open and searchable information provided by the publisher or index catalog, which in most cases consists only of metadata such as citation information (authors, titles, abstracts, and keywords), and rarely include bibliographic references.⁶ Thus, at best, they concern everything but the actual content of the contributions they examine.

What this present study proposes is a closer look into the GSJ itself in its 20-year tradition through a deep dive into the actual content of its complete published oeuvre. It employs a form of “algorithmic criticism” (Ramsay 2011) concerned not with text (e.g. content, thematic, or keyword analyses), but with means of communication, asking: *what means, other than text, are used to discuss videogames*; with videogame abstractly understood as a rapidly evolving digital, procedural, interactive, performative, and sensory-rich audiovisual medium and cultural object, the experience of which often transcends or even escapes textuality. This approach allows for a qualitatively richer and reflexive inquiry into the “habitus” (Bourdieu 1990) of the journal, as the convergence of a research community (its authors, reviewers, and the agenda set out by the editorial board), parallel to the evolving object of study. Furthermore, it can demonstrate the paradigm of scholarship set by one of the field's most distinguished venues, which also established the field, to the wider research community.

WHAT IS POSSIBLE TO PUBLISH IN GAME STUDIES?

Before proceeding to findings, one question to consider abstractly is what is possible and acceptable to submit and publish as game studies research? That is, *what kind of material, besides text, can be published as research?*

Let's first consider technical limitations. For publications that favor a print format, the options are rather limited. In this case, instructions often restrict the number of images, their size, color reproduction, and the overall page count of the submission – aspects pertaining to technical or practical limitations of the publication and its reproduction in print. For the case of journals published in digital print-ready PDF formats, instructions might be more lax. However, as with the previous category, submissions are subject to the pagination layout of the venue, which, for example, might shrink images to fit the page or column width.

For the overwhelming majority of game studies venues, print-ready digital PDF is the format of choice.⁷ In the cases examined, instructions resemble those of print publications provisioning images and tables. However, no limit is set to their use nor the page length of the submission.⁸ Exceptions are DiGRA and its journal ToDIGRA, which explicitly mention that submissions “may be accompanied by various media files, such as videos, sound clips, and even demonstrator games,” although such media are rendered secondary as instructions explain that the paper should “stand on its own” citing accessibility reasons.⁹

For GSJ, published natively in plain HTML, the possibilities are theoretically multiple. However, from the array of content and media that could practically be accommodated besides text, the journal’s submission guidelines, like the previous cases, only explicitly provision for elements found in conventional print publications: figures and tables.¹⁰ No cap is imposed on their use, neither for a conventional page length of the submission (apart from word count). Nevertheless, images are restricted to a 50KB file size and 350-pixel width, an outdated limitation by today’s standards, both for online content and for the subject matter of videogames.¹¹

Apart from the previous, the GSJ submission guidelines are rather vague regarding what else could be allowed to publish. The only mention related to media states that “use of other multimedia elements (like a flash plug-in [obsolete as of 2021]) has to be previously discussed with the editors” (see endnote 10). While media use is neither encouraged nor prohibited, a close inspection would reveal that, albeit in exceptional cases, the journal has already published articles that include content types impossible to reproduce in print form, and at least uncustomary if not difficult to include in PDF files. These are three unique cases that include links to attached audio files, a YouTube video embedded as inline frame (iframe) in the body of the text, and an animated GIF.

Given the absence of explicit restrictions we can assume that the journal is open to accommodate, when possible, media artifacts submitted by authors. Thus, the question could be put as *what media can the journal accommodate?* A concise list of what can be published on an HTML website includes:

1. Text (including notes and bibliography)
2. Images and animated images
3. HTML tables
4. Hyperlinks¹²
5. Links to file attachments hosted on a server (e.g. audio and video)
6. Embedded content (iframes) that can host:
 - sound (for example via Soundcloud)
 - video (via video streaming platforms)
 - third party websites
 - embeddable HTML5/WebGL content – such as videogames.¹³

While only text, images, and tables are explicitly allowed by the journal guidelines, the inquiry looked into all of the above cases.

DATA ANALYSIS

Data Mining Process, Pitfalls, and Overall Metrics

One single Python program was developed to cater to all purposes of this analysis, including data gathering, processing, and visualization – provided openly with this paper. The starting point was the latest GSJ “Archive” page¹⁴ which lists alphabetically all the content published since 2001. From that, unique hyperlinks to journal entries were identified, and each entry was scanned individually to retrieve relevant information. To render comprehensible the analytics into dimensions of the journal’s published work, the retrieved data were visualized with graphs at the level of issues, overall published material, and media types.

While the journal’s HTML website makes web scraping tasks easier, certain omissions and inconsistencies of the GSJ website pose minor or major obstacles to a non-human reader.¹⁵ One relevant example is the lack of signification to distinguish between actual papers and other kinds of published entries like editorials, book reviews, and interviews.¹⁶ Although these can be filtered manually for the relatively small volume of published works in GSJ, the present study opted for automating tasks rather than manually catering to each individual case. Therefore, what follows refers to published *entries* and *not papers* and takes into account all published material except ‘Call for Papers’ entries.

Parameter	Amount/case(s)
Number of issues	41 (until volume 21, issue 3; 2001-2021)
Number of entries	279 (including, book reviews, interviews, and most editorials that cannot be excluded computationally)
Number of images (overall)	659 (in 109 entries; 39%)
Number of HTML tables (overall)	70 (in 36 entries; 13%)
Entries with images or tables	124 (44%)
Image filetypes	JPG (77%), GIF (12%), PNG (11%; although not provisioned)
Images types found	16
Embedded content (iframes)	one case (YouTube video)
Animated GIFs	one case
Sound files	one case
Amount of referenced video links	93 (in 29 entries; 10%)
Most used media type	Videogame screenshot (44% of all images)
Most combined media type	Videogame screenshot (in 56% of unique combinations)
Most common hyperlink	“gamestudies.org” (137 instances in 62 entries; 22%)

Table 1: Overall metrics of material published in GSJ.

Table 1 lists metrics from the overall findings. The study found 279 entries published in 41 issues between 2001 and 2021 (until volume 21, issue 3), with a total sum of 659 images and 70 HTML tables. The images were annotated manually and classified into 16 distinct categories for further analysis into types of media used and their

combinations. Additionally, entries were scanned for hyperlinks which were analyzed to infer common references to websites.

Frequency of Images in GSJ

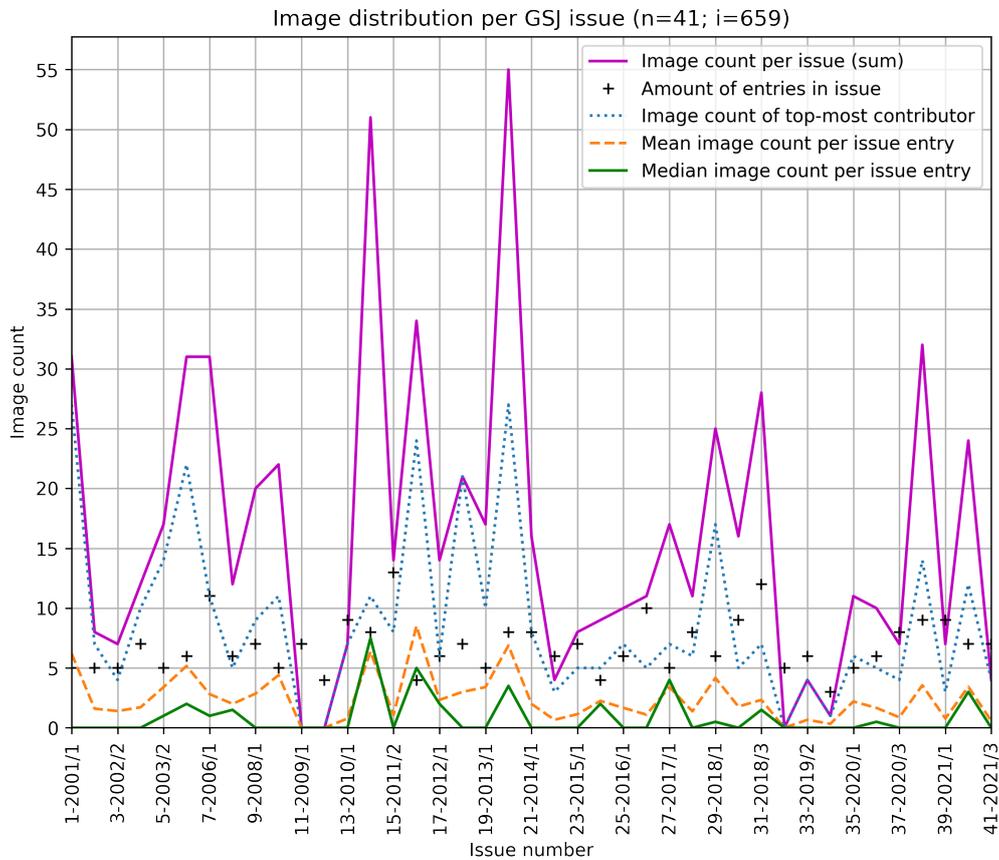


Figure 1: Image distribution per journal issue.

Overall, images are by far the most used medium in journal entries, with a total of 659 instances. Figure 1 shows the total image count per issue of the GSJ, arranged by date of publication. The graph doesn't reveal any pattern. Rather, it shows that such metrics vary greatly from issue to issue, while the use of images in general appears rather limited. The mean image count per issue entry is under 9 and in most cases under 5. In addition, the entry with the highest image count per issue often accounts for a significant part of the overall image count. For 26 issues (63%) such entries account for 50% or more of the overall image count while 3 of those account for 100%. In terms of distribution, the median image count per issue entry is 0 for 27 issues (67%), and 5 or fewer images for the rest, with one exception with 8 images (issue 14: 2011/1).

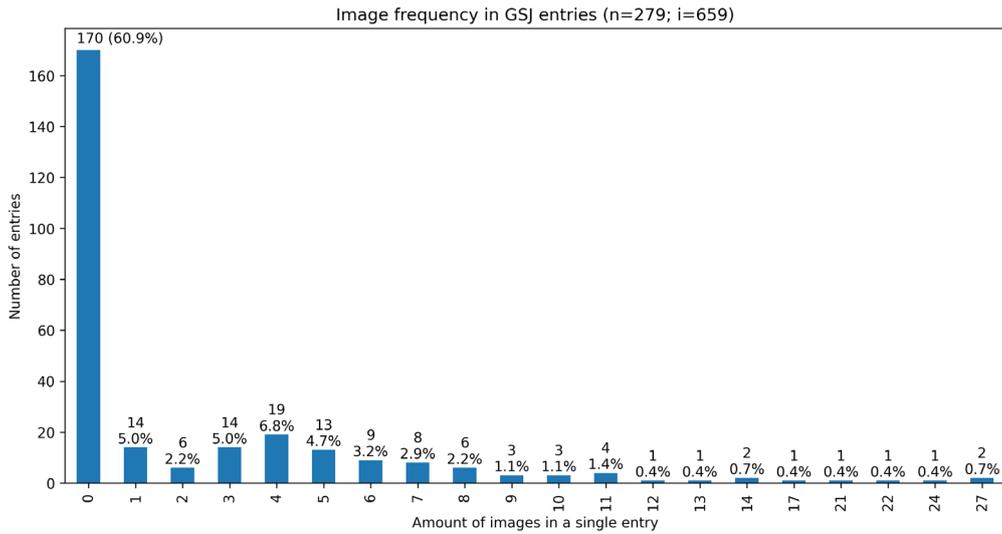


Figure 2: Image frequency per journal entry.

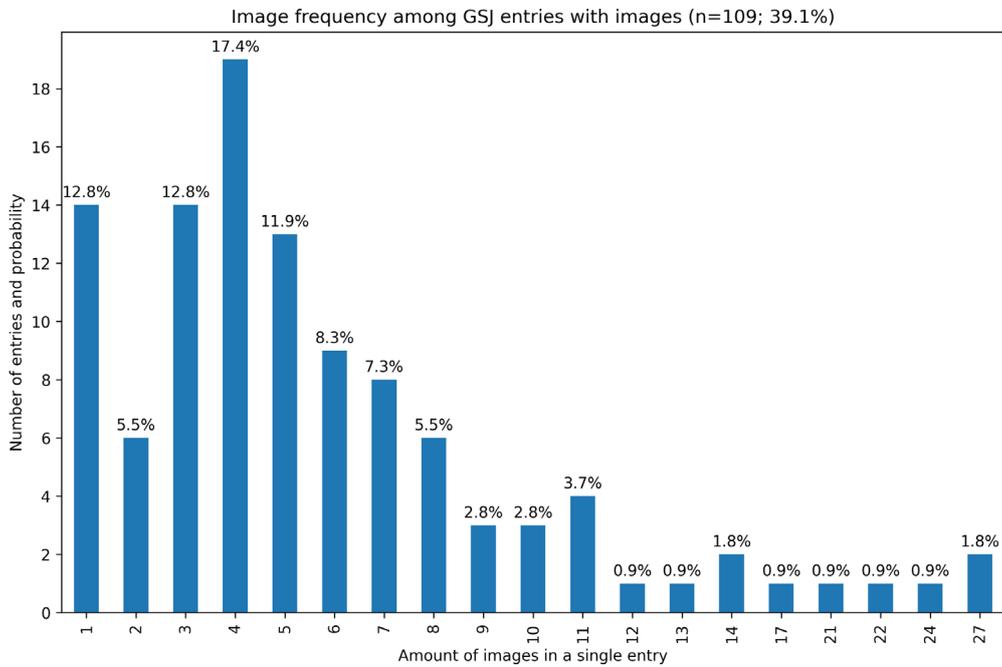


Figure 3: Image frequency in journal entries with images.

Figure 2 presents the number of images per entry, where an overwhelming 61% do not use any images. The image count distribution for the 109 entries with images (39%) is presented in Figure 3. The most frequent case is 4 images found in 19 instances followed by 1,3 and 5 images (in 14, 14, and 13 instances respectively). After that point, the frequency of cases with more images decreases. Nevertheless, 17 cases (15% of this group) make use of 10 or more images, with a maximum of 27 images observed in 2 cases.

HTML Tables

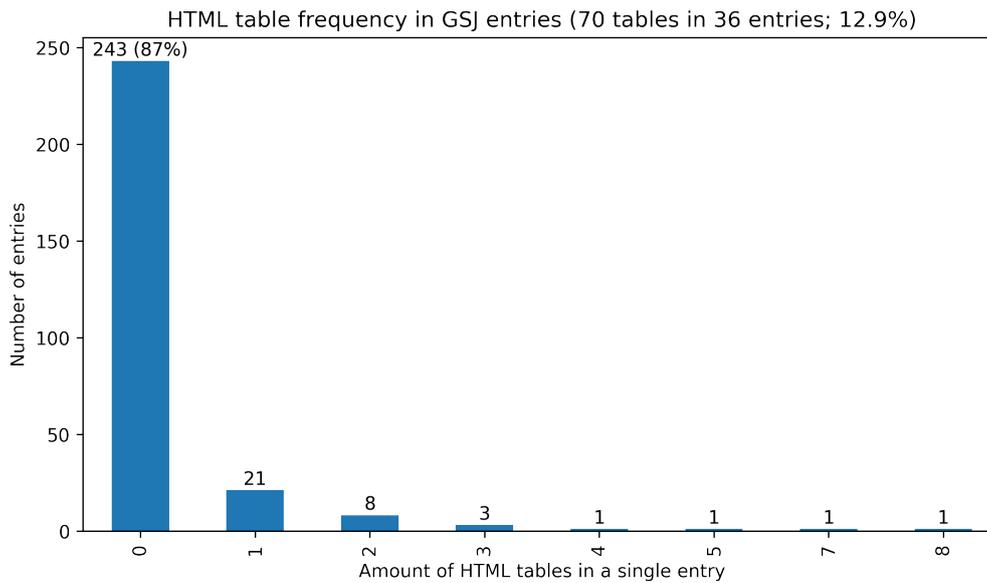


Figure 4: Frequency of HTML tables.

Figure 4 presents the amount of HTML tables in single entries.¹⁷ From the 36 entries that feature tables (13% overall), the most popular case is 1 table, found in 21 entries, followed by 2 tables in 8 entries. Entries with more than three tables are rather rare, nevertheless, the top-most case includes eight.

Image Frequency by Type

The next step was to assess image types qualitatively, to distinguish them in regard to the information they convey. For example, a videogame screenshot, a photograph, a graph, and a diagram are all accounted for as “figures.” Nevertheless, they all carry different kinds of information, can support different types of arguments, and arguably accommodate different types of knowledge. To account for that, all images were downloaded, annotated, and classified into different media types, taking into account how these were referred to by authors, where such information was offered.¹⁸

The classification found 16 distinct image types. Screenshots were distinguished into three categories: “[Video]Game Screenshot,” “Film screenshot,” and other screenshots (as “Screenshot”). The label “Picture” was used for images of documentation material – such as videogame promotional material and posters. “Glyph” was used for images of non-Latin characters or symbols. “Illustration” was used for cases of original illustrations or collages by authors.

Finally, the case of tables is a caveat in the GSJ as they appear both in the form of HTML tables – discussed before – and as images of rasterized tables. Since the two table types don’t overlap, they were kept distinct for this study.

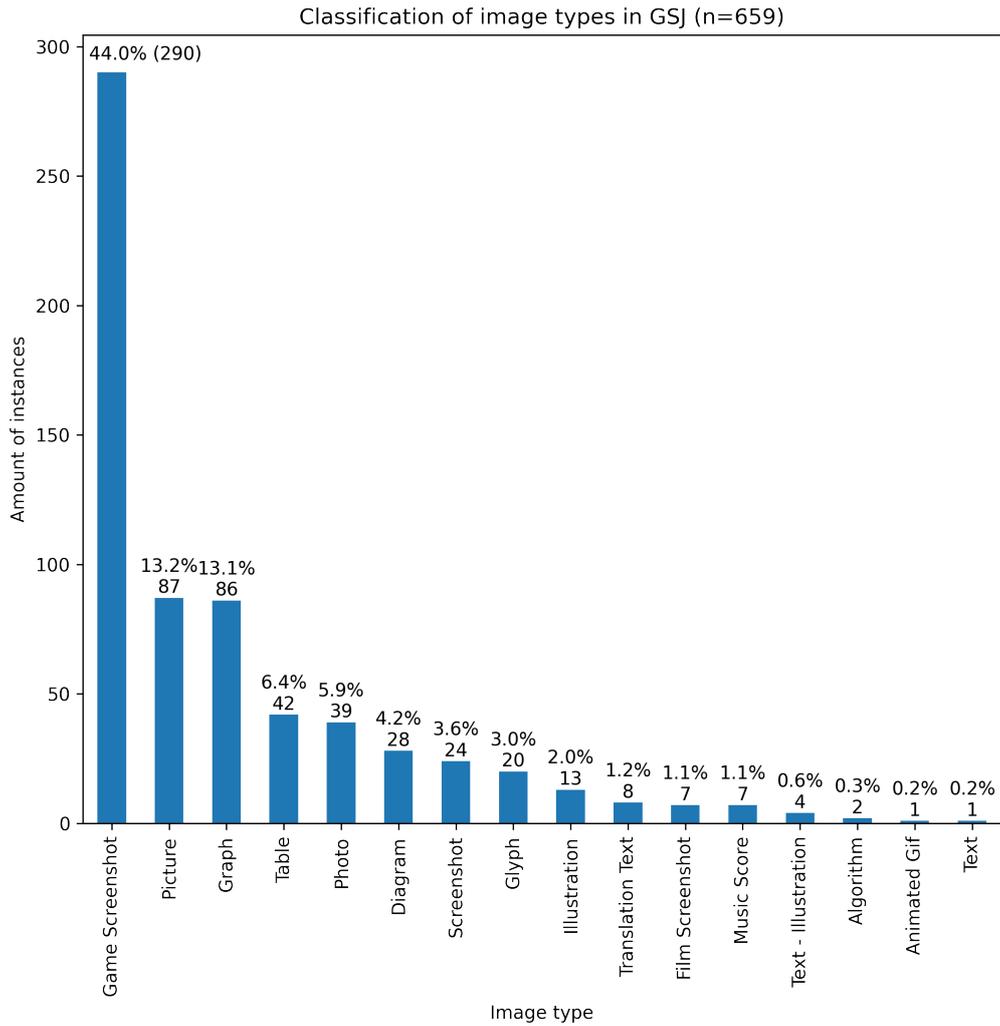


Figure 5: Image type classification.

Figure 5 presents the distribution of the 659 images found in the 16 image types. Videogame screenshots are by far the most used media type at 44% of all images (290 instances). Pictures and graphs occupy the second and third place at 13%, while tables and photos follow at about half of that. In outlier types, unique cases use images to depict: musical scores; algorithms; text; and an animated GIF.

Media Combinations

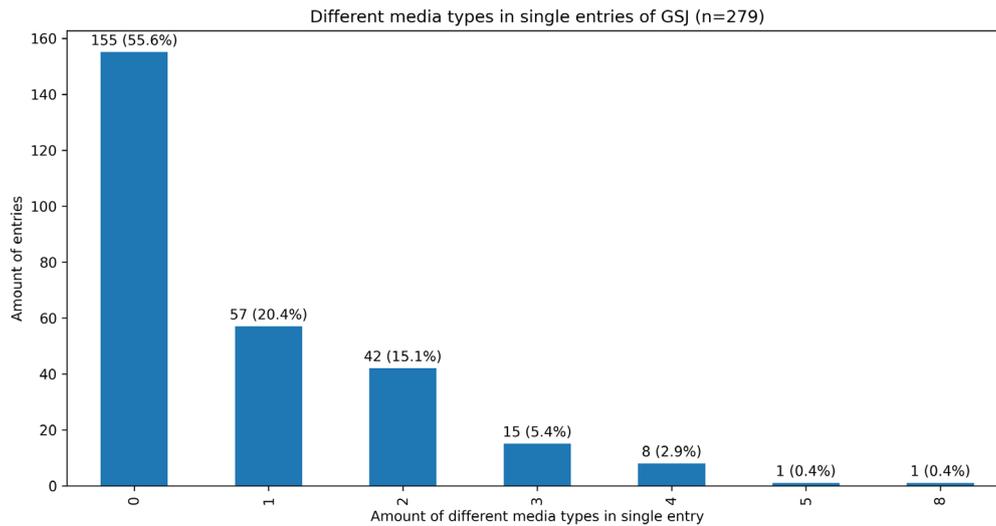


Figure 6: Amount of different media types in single entries.

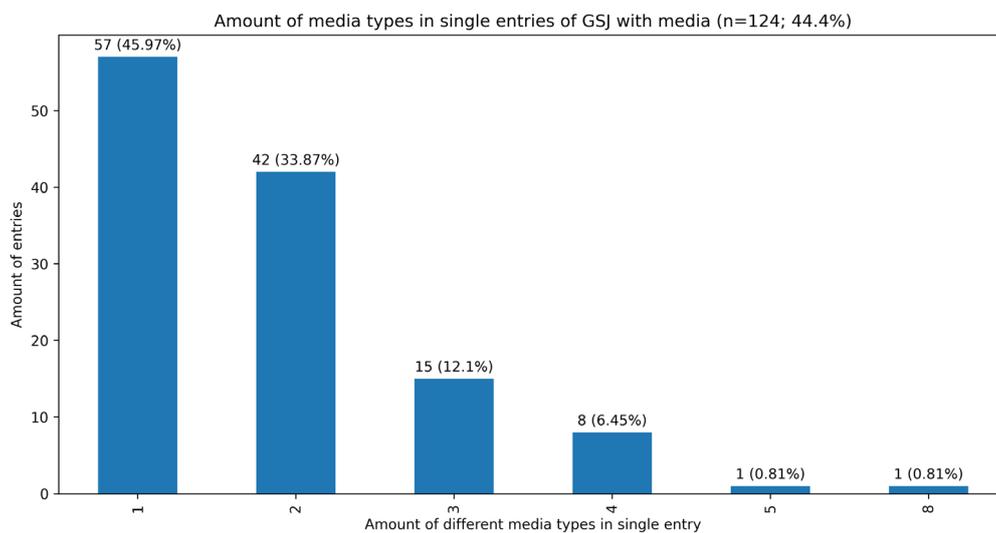


Figure 7: Amount of different media types in single entries with media.

The previous data regarding different media types were analyzed on a per-entry basis, including the category of HTML tables discussed before. Figure 6 presents the amount of media combinations in the body of single entries, and Figure 7 the frequency of different media types among the 124 entries (44.4%) with media. The analysis shows that 155 entries (55.6% overall), do not contain any media, while 35.5% feature up to 2. From then on combinations of media types decrease, with 2 outliers featuring 5 and 8 different types respectively.

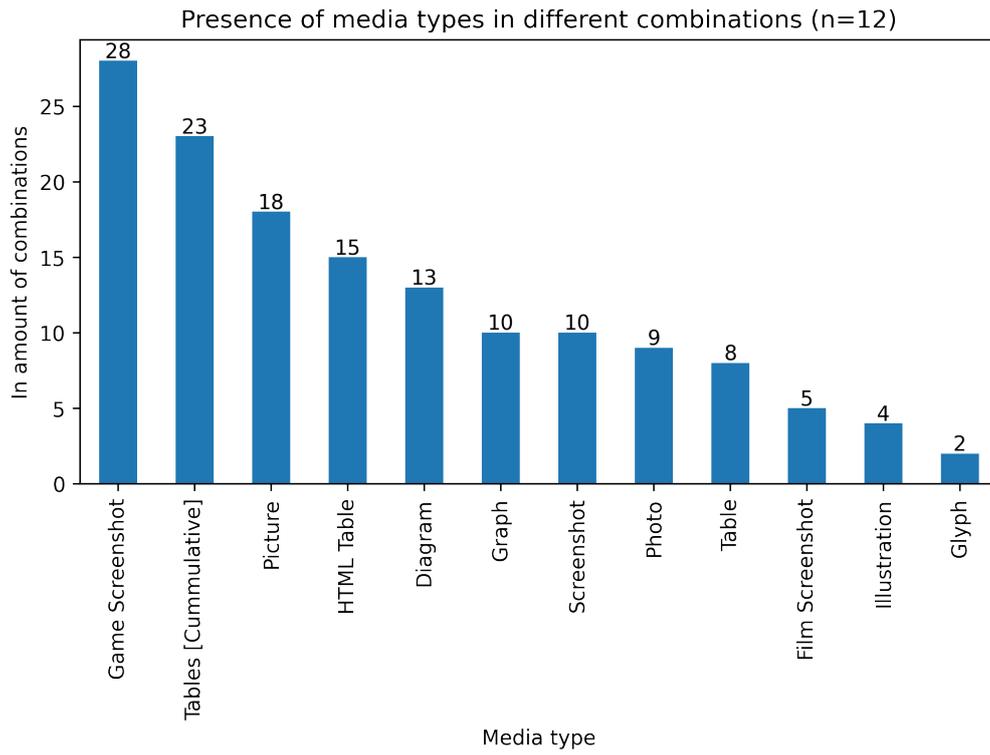


Figure 8: Presence of media types in different combinations.

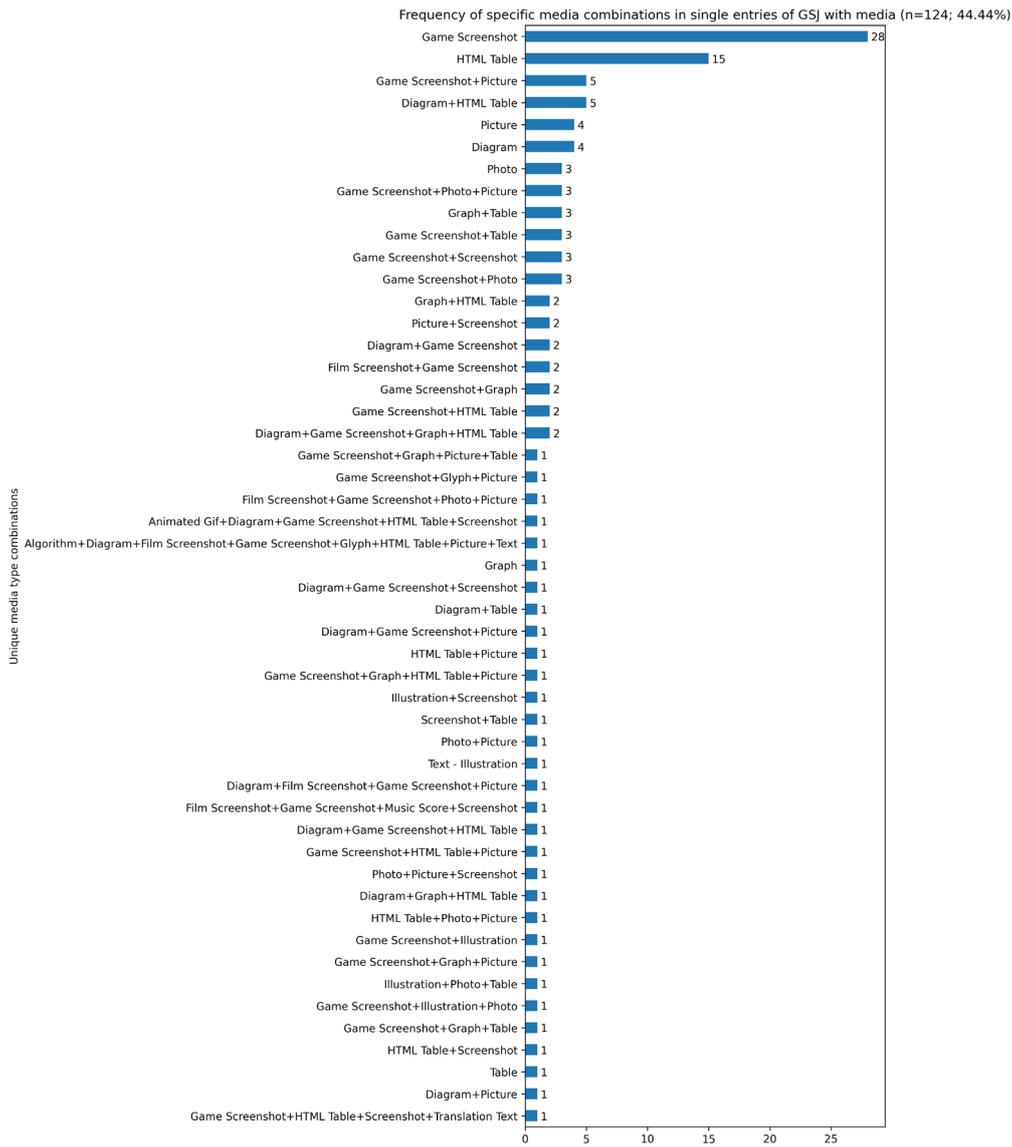


Figure 9: Frequency of specific media combinations in single entries with media.

Lastly for this category, and for completion, Figure 8 shows the presence of each media type in unique media combinations, and Figure 9 lists in detail all media combinations and their frequency. For entries with media, those with just videogame screenshots are the most frequent with 28 cases (22%) followed by those with just tables (of either type) with 16 (13%). Another way to put the same is that videogame screenshots and tables (to a lesser extent) are the most common self-standing media next to text. The 48 other media combinations that follow appear in 5 cases or less, while 31 combinations (62%) are unique. Videogame screenshots are also the most-combined media type present in 28 different combinations (56%), followed by tables in 23, pictures in 18, and diagrams in 13 media combinations.

Hyperlinks

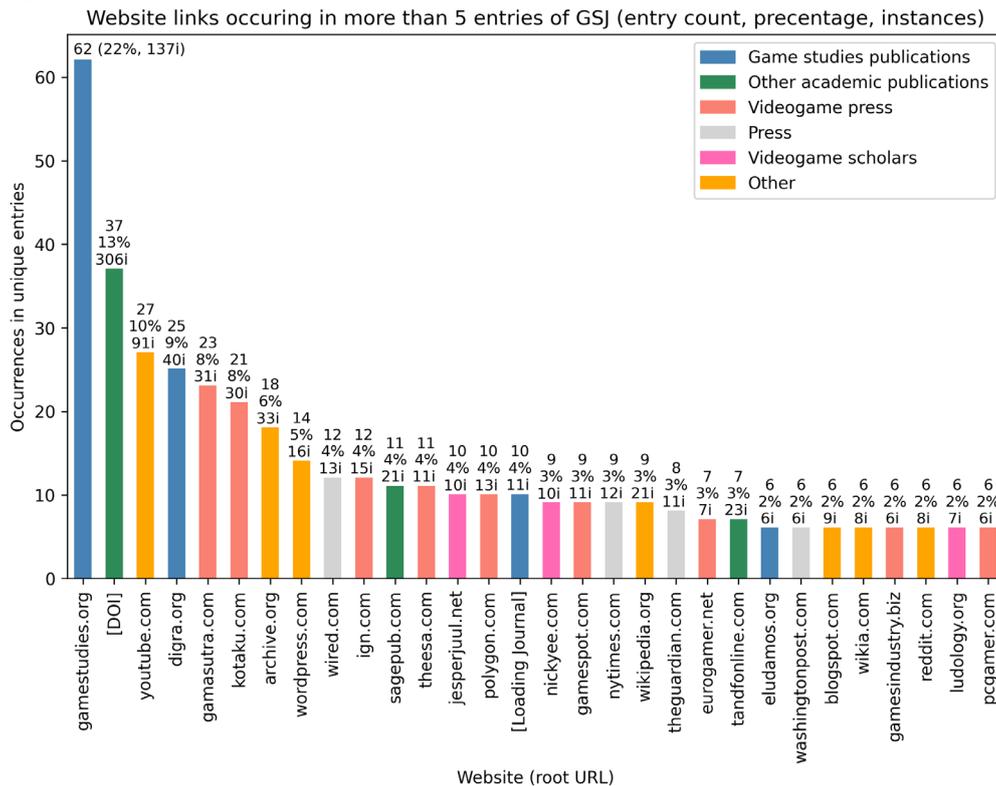


Figure 10: Websites referenced in more than five entries.

For an additional metric, all entries were scanned for hyperlinks to search for frequently referenced websites, provided in the text body or bibliography.¹⁹ Figure 10 lists websites occurring in more than 5 individual entries. As shown, the most common website is by far the GSJ itself, appearing in 62 unique entries (22% overall), 137 times. DOI links²⁰ come second with 306 instances in 36 entries. Third are YouTube links found in 27 entries. Fourth is the DiGRA website in 25 entries. Links to other game studies publication venues include the journals Loading, and Eludamos, in 10 and 6 entries respectively, while links to general academic publishers are also common. The game design website Gamasutra (now Game Developer) comes 5th, followed by the videogame press website Kotaku (in 24 and 21 entries respectively). Other videogame press websites are also common (IGN, Polygon, Gamespot, Eurogamer, GamesIndustry.biz, and PC Gamer) as well as the website of the Entertainment Software Association. In general news websites, we find US-based publications (Wired, New York Times, and The Washington Post). Other common websites are Internet Archive, the blogsites WordPress and BlogSpot, the wiki pages Wikipedia and Wikia (now Fandom), and Reddit. Also present in this list are links to personal websites of videogame scholars ([Nick Yee](#), [Jesper Juul](#), and Gonzalo Frasca ([ludology.org](#))).

These show that besides scholarly research authors also rely on and employ in their argumentation a wide array of community commentaries, news reports, and media relating to the videogame phenomenon. However, given the journal's loose regulations regarding hyperlinks, many URLs are not formatted properly but only provided as plain text. Thus, further research is required to draw sound conclusions.

Video References & Iframes

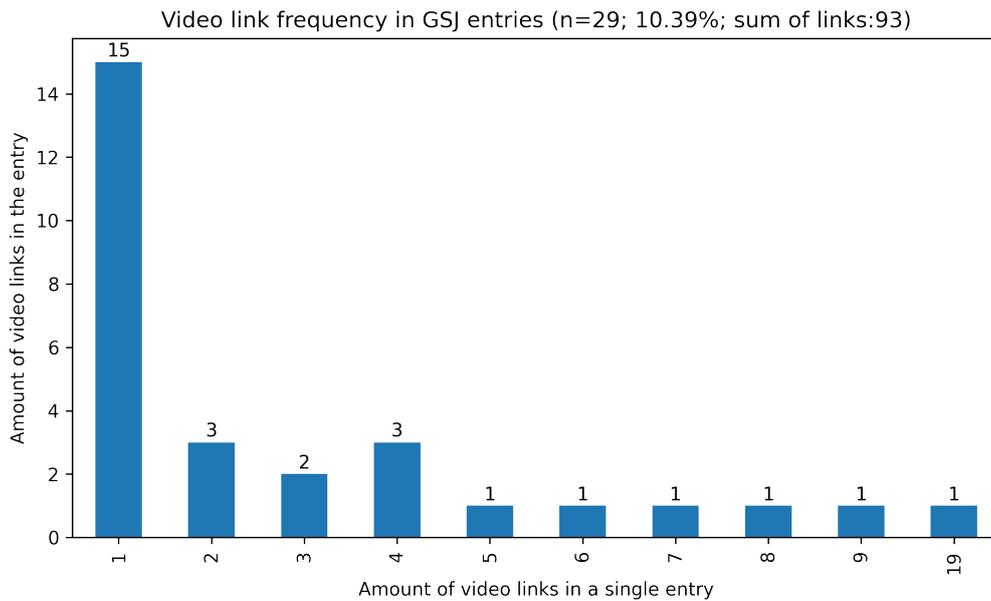


Figure 11: Amount of video links in single entries.

A subset of the previous is a metric concerning the use of hyperlinks referring to video material. Such links can be of any type (gameplay content, lectures, etc.) and can be included in the text, the bibliography, or embedded as iframes in the body of the text. A total of 93 video links were found, distributed in 29 entries (10.4%) as shown in Figure 11. Except for a Vimeo and a Twitch link, these are all YouTube videos. Extensive use of video references appears particularly in entries that discuss such material specifically, such as Carter and colleagues (2015), which is the top-most contributor to the category with 19 video links.

Throughout the journal, there is only one case that embeds a video frame in the body of the article (M. B. Adams et al. 2018). This is also the only case of an iframe in the entire journal.

DISCUSSION & EXTRAPOLATION

What can be inferred from the abovementioned findings is that ‘the average’ entry published in GSJ will most likely not have much besides text. Like the majority, it will have no pictures (61%) or tables (55%). In case it does contain elements besides text, that will likely be videogame screenshots. From a media perspective, this picture of the journal might not outright suggest one that is concerned with phenomena of media culture, or media-rich art.

This is not to say that media are not present in the journal. On the contrary, while that might not be the norm, a closer look reveals that multiple contributions make extensive use of media for their purposes. One in 5 entries (20%) features 5 images or more, and 6% feature 10 or more – something rather unlikely to come across in print publications. Furthermore, the use of media in argumentation is rather rich and varied with about 1 in 4 entries (24%) combining 2 media types or more.

Nevertheless, no regular or systematic use of the journal’s rather rare online digital format can be observed when it comes to media. The exceptions mentioned before that feature in-text media (a YouTube iframe, an animated GIF, and sound file attachments) appear to be the only cases that make use of the journal’s digital infrastructure – which did not warrant more extensive inquiry as a category. As

exceptions though, these cases demonstrate that contributions with digital-exclusive media are both allowed and present. Regardless, the classic categories of ‘figures and tables,’ found in all conventional academic paper templates, appear to accommodate the overwhelming majority of contributions.²¹

For the subject matter of videogames, the lack of media in the argumentation and communication of research appears rather puzzling for several reasons. Chiefly, because videogames have been discussed as an unprecedented and media-rich genre²² where one might expect to see media, or more experimental means also taking part in discourse as well as the communication and argumentation of related research. Additionally, game studies – a rather young interdisciplinary field – does not have any significant prior epistemological tradition to adhere to, besides the conventions it sets for itself. Thus, what constitutes a contribution and what that looks like, for a young field and research community, is something to be gradually regulated and adjusted between its publishing venues on the one hand, and its community of contributors and reviewers on the other.

For the case of the GSJ, which carried the burden of establishing the field’s first academic journal, the rather conservative outlook is likely owed to its initial attempt to legitimize game studies research by appearing ‘scientifically appropriate.’ In a 2014 keynote presentation Espen Aarseth, the journal’s co-founder and editor-in-chief, remarked the following in a seemingly humorous fashion while discussing the foundation of the field and the GSJ:

By having a journal we signal to the world, to the academic world, that here we have a new field; a field that is serious; a field where you should be able to get credit when you publish articles. *So we made it as boring as possible to achieve that.* It is on the web, but yes you can’t post comments, there is no blog [or] anything. *Just plain boring academic articles, to make it seem that this is a very serious field* (transcript from Aarseth 2014, 13:10, emphasis mine).

For 2001, disguising a journal for a marginal or frowned-upon subject inside an aesthetically “boring” container so that it appears legitimate enough to the eyes of the wider academic community was clearly strategic in reasoning. Nevertheless, in the 20 years since, it is also an aesthetic that remained with the journal, and an attribute that can be said to gradually formalize into an implicitly ingrained tradition: that its contributions are rather similar in form and presentation to contributions found in generic traditional humanities scholarship.

Interdisciplinary Discipline and the Matter of Design in Game Studies

Extrapolating from previous findings, we can discuss how ‘interdisciplinarity’ in the model of GSJ, and for videogame research at large, can play a role in shaping research methods and means of research communication.

Parallel to the journal’s agenda is its community and the contributed knowledge with can steer research, challenge traditions, and influence the ‘shape’ of contributions. That is particularly interesting for interdisciplinary fields such as the present one, where peers from different backgrounds and research traditions contribute with their own methods, means, and methodologies, which are not – and need not be – universally shared among the same community.

For the GSJ, interdisciplinarity was a quality paramount to the establishment of the game studies project. In “creating a new discipline,” its first editorial emphatically remarked that “[we] all enter this field from *somewhere else*,” and signed off with “you are all invited!” (Aarseth 2001, emphasis in original). However, the examples provided as points of plausible disciplinary origin (“anthropology, sociology, narratology, semiotics, film studies, etc.”) betrayed a rather narrow conception of that interdisciplinarity, rather rooted in the humanities and media studies (Kultima 2015). Nonetheless, in the decades since, the range of ‘home disciplines’ for contributing authors in game studies research has widened considerably, far beyond those originally prescribed (Butt et al. 2018; Martin 2018; Mäyrä et al. 2014).

Given the above, in the two decades of the field’s and journal’s history, one particular epistemic domain can be observed to be historically excluded. That is the domain of design, which also appears as the crux for the interdisciplinary ‘discipline’ of game studies.

References to game designers and monographs by game designers are common if not canonical in game studies literature,²³ though not the same can be said for the degree of inclusiveness of design approaches (or methods) in academic contributions. According to Kultima (2015), there is a significant gap between the videogame as a (design) practice and as a field of academic study. That can be historically explained, Kultima argues, owed partly to a problematic understanding of design and a narrow interpretation of interdisciplinarity, matters which eventually cost to the field the inclusion of design research methodologies. All the while, the same study reports, “game design” is found to be the most common keyword in videogame research.

For the GSJ specifically, the relationship to design appears similarly problematic, and ‘design’ itself ill-understood. In 2005, discussing the interdisciplinary nature of videogame research and its problems, Aarseth made extensive mentions to his understanding of the role of design in that constellation:

Inevitably, the only powerful nexus among these diverse approaches then becomes design. Humanists, technologists, and social scientists come together through a common interest in outstanding design. Game design will have to unite the insights from social science, technology, and art, and so becomes the overruling discipline whereby all the other approaches are measured. The value of technology, social theory, and aesthetics can be measured through the lens of design, because it is closest to the practice itself (Aarseth 2005).

In this passage, Aarseth seems to acknowledge design not only as a distinct “approach,” but also for its inherent capacity as a “powerful nexus.”²⁴ As such, he sees design as capable to unite, organize and measure all contributing methodologies in game studies.

Despite that, he continues by immediately deprecating his previous statement:

However, this is problematical for a number of reasons. For one thing, design theory is quite underdeveloped compared to the other traditions. There is a clear danger that commercial success and sales numbers will dominate the discourse, to the detriment of scholarly values and strength of argument (Aarseth 2005).

Aarseth’s objection here is twofold. Firstly, that ‘design’ comes with comparably underdeveloped theory, and secondly that its admittance to game studies, due to its

proximity to practice, could entail the risk of polluting academic values with commercial ones.

This self-rebuttal, as with similar statements made elsewhere,²⁵ betrays confusion as to what the keyword ‘design’ refers to. Is it the field of design, or design research methods? Or is it game design, as a younger applied practice? For one, the design field is not quite underdeveloped, but a rather mature interdiscipline with decades of rigorous research traditions.²⁶ Moreover, the scholarly and applied wings of design, as well as their cultures and values, are clearly distinct, but also in an organic interrelation in which they can critique and inform one another.

More crucially, the usefulness of design – as an out-group tradition in this interdisciplinary constellation – need not be measured by how its “theory” compares to that of other – in-group – fields. Rather, such an assessment needs to be grounded on its own methods and what these can contribute to the existing constellation. The distinction here is crucial for conceiving an interdisciplinary field, where multiple entry points and methods are required and need to collaboratively co-exist.

The practice of interdisciplinary, however, is far from a trivial task. As distilled by Aarseth, the matter comes down to “how do we trust each other, when we don’t share the same methods?” (2014). His proposal for the field’s future suggested the model of architecture schools (Aarseth 2001, 2014); environments that house multiple disciplines working together for the study of complex phenomena and the production of architects:

Maybe something like an architecture school, where people from many different disciplines work together to produce architects but also understand cities, structures, and all the stuff that goes on. That could be one model to strive for. Groups of specialists in different disciplines but working closely together and educating people (transcript from Aarseth 2014, 1:02:00).

The analogy to the architecture school model appears to resonate with the current state of videogame research in which game studies formally contribute. Furthermore, the statement could not underline more strongly the centrality of design, for videogame research too.

In architecture schools, practice-based design courses form the spine of educational curricula, while design-based tacit knowledge is also the discipline’s unifying basis from which specializations stem. Design here is indeed the “nexus” that connects and evaluates other constituents of the discipline besides practice, including history, theory, and technical subjects.

At the same time, the architectural school model, as described by Aarseth, is not far in reality from programs to which game studies formally contribute. In fact, that is the case for the few established game studies research units – for example the Institute of Digital Games in Malta and the Center for Computer Games Research in Copenhagen.²⁷ Such units are populated by staff from various specializations relating to games – besides game studies proper – who collectively contribute to curricula centered around game design, and the production of competent professionals.

That game studies units primarily contribute to design-based study programs undeniably forecasts the form of research for game studies entering its third decade. It hints at the native knowledges currently cultivated in videogame-related education, and the direction of scholarly literacy. Consequently, we can ask: what kinds of

research can we envision for the future of game studies? This, given that the field is already becoming populated by graduates with videogame-native degrees, i.e. people not coming from “*somewhere else*” (Aarseth 2001). By and large, the presence of and enrichment with design knowledge and methods appears as an inevitability.

Design Research and Games Studies

For the game studies ecology, the inclusion of design methods is not a novel suggestion, nor is design research a new practice. The purpose of game design research methods and imperatives for their inclusion have been discussed extensively in recent years (Khaled et al. 2023; Kultima 2015; Lankoski et al. 2017; Malazita et al. 2023; Stenros et al. 2018). Nevertheless, while design-based research takes part in undergraduate and postgraduate education, its use as a research method is less present when it comes to game studies publications.

To briefly examine and categorize design research trajectories into game studies we can use Frayling’s tripartite model (1993; see also Stenros et al. 2018) outlining indicative forms of research in the context of arts and design. These are:

- *research into arts and design*: concerned with historical, theoretical, and aesthetic-related research;
- *research through arts and design*: implementing hands-on design prototyping for the investigation and advancement of the medium as well as of novel applications, where contributions concern discussion of such studies and can include prototypes; and lastly
- *research for arts and design*: concerning the design and development of artifacts as contributions to arts and design in themselves.

By this perspective, the first category is rather aligned with ‘canonical’ game studies contributions – whether or not implicitly informed by design practice. The second and third categories appear rather problematic and can be identified in a set of scattered contributions. This, to the best of our knowledge, can be attributed to the lack of venues that can accommodate contributions in videogame form, the lack of accreditation thereof, and the relatively limited precedents in scientific literature.

As “research *for* design” we can identify multiple precedents of videogames developed to also contribute to discourse and are often elaborated in publications. Such cases include *September 12th* by Frasca (2003), which initiated the genre of “Newsgames” later discussed in literature (Bogost et al. 2010; Sicart 2008); the “playable philosophy” games and parallel publications by Gualeni that investigate videogames as philosophical tools;²⁸ the game design practice of Barr and its subsequent design analysis;²⁹ and the work of multiple academic practitioners such as Peirce and Flanagan,³⁰ and more recently LeMieux with Boluk.³¹ An exceptional case of design practice intersecting game studies can be found in a 2016 issue of the *GAME* journal³² containing discussions based on provided videogame artifacts (see Barr 2016; Gualeni 2016).

The category of “research *through* design,” which appears rather promising for game studies research is more scattered. As such we can categorize design-informed texts, such as the design-based accounts by Crawford (1984),³³ and Salen and Zimmerman (2003). Design investigations can also be found outside of videogame research proper. Informed by practice and enriched with diagrams, the investigation and theorization of digital spatiality by Jakobsson (2003), for example, provides a counter-precedent to the scholarship of its contemporary “spatial turn” in game studies (Günzel 2008). A significant recent precedent is the “playable essay” by Juul

(2021), consisting of a Unity-developed browser-embedded videogame accompanied by an essay that follows an analysis from the standpoint of game design, meant to first be played and then read.³⁴ Lastly, investigations *through* design prototyping are common within game design and development communities. Prime examples include the discussion of “game feel” and its demonstration through videogame artifacts by Swink (2008b, 2008a), as well as the recent “interactive video essay” *Platformer Toolkit* by Brown (2022a, 2022b), discussing and exposing fundamental experiential aspects of player controller ‘feel’ through a videogame prototype and accompanying video discussion.

What such examples show is that while lacking appropriate accreditation or formal outlets, designerly research is already present, spearheaded by notable scholars of the field, and contributing to the multimodality of videogame research. Besides, it is also the native means of practice for the global “lively art” (Jenkins 2005) of game design. Such investigations shine light from perspectives that also draw from a practical know-how of the medium and contribute *through making*, as opposed to the study of games with analytical or even playful methods outside their status as objects of design. As in the example of “Newsgames,” such methods are not only capable to explore the edges of games and gaming aesthetics but furthermore advance discourse and the medium altogether. This, often towards directions unlikely for the gaming market to attempt, which is in stark contrast to the study of games through their manifestations as readymade commercial objects.

Moreover, over the past few decades a notable trend has been observed towards artifact construction research methods. In the realm of HCI particularly, *research through design* programs (here RtD) concentrate on experimental generation of non-commercial artifacts (Gaver 2012; Zimmerman et al. 2007, 2008), which are subject to formal evaluation criteria (Prochner et al. 2022). The strength of this approach lies in its distinctive capacity to draw from a diverse range of disciplines to explore innovative concepts, applications, and hypotheses, as well as address ‘wicked problems.’ Its synthetic perspectives proffer forms of understanding that diverge from traditional analytic approaches. Furthermore, RtD yields artifacts that serve as ‘theory nexus,’ instigating the development of new theoretical frameworks and promoting the proliferation of theory, rather than pushing towards its convergence.

Additionally, within her paradigm of “generic epistemology” Schmid foregrounds the construction of artifacts (Schmid et al. 2014). This paradigm, which is concerned with contemporary post-disciplinary objects (Schmid 2015), underlines the synthesis and making processes inherent to design, which entail “a mode of reasoning that produces the new” (Schmid 2018). This distinct mode of reasoning intrinsic to artifact construction not only generates new knowledge but also enables knowledge contributions not otherwise possible. Drawing from a diverse spectrum of disciplines and knowledge bases, design transcends the boundaries typically imposed by single disciplines or philosophies (Schmid 2018; Schmid et al. 2014). This underscores the unique potential of design to the broader epistemological landscape.

For game studies, given the presence of design-informed or design-based investigations, as well as the position of design parallel to and jointly with ‘studies’ literacies in videogame-related education, we can presume that the formalization of game design research is only a matter of time. The question at hand is in what relation or proximity to game studies?

To return to the question of media and means of research in game studies contributions, that of the videogame prototype itself is a logical candidate, not only by extrinsic methodologies but also by existing practices in the field. The recent

“playable essay” by Juul (2021), is a foreseeable publication format to look forward to, as well as a prime example of how game design (synthesis) and studies (analysis) methods can work hand in hand (Coulton et al. 2017; Waern et al. 2015; see also Brown 2022a). Furthermore, as previously discussed, the odds of such an ‘epistemological update’ to enrich and unite the expanding research landscape are promising.

CONCLUSION

The inquiry into media published in the past 20 years of the GSJ provides some qualitative insights into the means of argumentation and communication within the habitus of the journal as a relatively open interdisciplinary community. From this vantage point, the considerable work produced in this timespan parallel to the establishment of the field appears to mostly adhere to conventions of traditional scholarship. This is to an extent consequential to the difficulties of establishing a new interdisciplinary. Nevertheless, it is arguably also disproportionate compared to the boldness of the game studies project and the specificity of the novel media-rich phenomenon of study.

Notwithstanding, for the now-adult game studies entering its third decade, conformism to extraneous conventions need not be the case. Rather, a renewal of its vows and re-examination of the tradition cultivated so far are more pressing imperatives for enabling its future. For one, the case of design as a binder and “powerful nexus” to unite the multiple aspects of the videogame phenomenon into a “single discipline” (Aarseth 2001) or “fuzzy set” (Aarseth 2015), is pending at the gates for the new generations of game studies – those not coming from “*somewhere else*” (Aarseth 2001) – to pioneer.

Eventually, the question remains: “how do we trust each other, when we don’t share the same methods?” While the architecture school model might provide a useful precedent to conceive the future, for an interdisciplinary field birthed after post-modernism devoted to the study of a “contemporary object” (Schmid 2015), there likely is no answer or existing schema to prescribe to, besides the road it paves for itself. In that, perhaps the guiding principle is what Derrida (2001) discussed for the unconditional humanities of tomorrow: *faith*.

ACKNOWLEDGEMENTS

I want to thank Petros Koutsolampros and Andreas Kelemen for their assistance with coding and data visualization; Miro Roman for his help with a proof-of-concept image scraper developed in Mathematica; and Yoon Han, Dooley Murphy, Ed Morrell, Luis Vega, and Bassam El Baroni for their generous comments. I am thankful to the anonymous reviewers of the Game Studies Journal for their constructive feedback on an earlier version of this paper. I am particularly grateful to Stefano Gualeni for his insightful feedback and encouragement.

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ENDNOTES

1 See for example the recent trend of ‘graphical’ or ‘visual abstracts’ which are increasingly required together with paper submissions in fields of natural science, <https://www.elsevier.com/authors/tools-and-resources/visual-abstract>. Accessed January 20, 2023.

2 Notably, such media are missing from contributions related to the “spatial turn” (see Günzel 2008 and referenced contributions).

3 See the 20th anniversary editorial of GSJ discussing the founding editors’ lack of publishing experience, the desire to create an online journal in the model of the earlier

Postmodern Culture journal, and the journal's dependence on volunteer labor (Aarseth 2021).

4 “Portable Document Format” (PDF); royalty-free standard controlled by Adobe.

5 To give an example from the Nordics – where game studies is more likely to be an accredited field of research – the Publication Forum of the Finnish scientific community (JUFO) lists the GSJ as a “leading” publication with a score of two out of three. For comparison, the only other venues accredited in this channel from those mentioned here, are the *Eludamos* journal, the DiGRA conference and ToDiGRA journal with a score of one, while the journals *GAME*, *Loading*, and *Press Start* are listed with a zero score. Only *Games and Culture* (of Sage) is ranked higher with a score of three. See www.tsv.fi/julkaisufoorumi/haku.php. Accessed January 27, 2023.

6 This is regardless of whether the actual papers themselves are accessible to the researcher via institutional subscription, in case they are not open access.

7 To the author's best of knowledge, with the exception of GSJ, the few established games studies venues publish in A4-type PDF format. Such cases include the journals [TODiGRA](#), [Eludamos](#), [Loading](#) and [Press Start](#) – as well as non open access ones, published for example by Sage. The same is the case for the published proceedings or manuscripts of DiGRA and the Philosophy of Computer Games conference. An exception is [GAME](#) journal published both in PDF and in website form.

8 For the journals *Eludamos*, *Loading*, and *Press Start*, which only mention figures and tables for non-text elements, see [Eludamos Journal - Online submission information](#), [Loading Journal - Author guidelines](#), and [Press Start - Information for authors](#). Accessed January 10, 2023.

9 The paragraph in question from the latest submission templates for both DiGRA and ToDiGRA adds: “However, the paper should stand on its own without such media, as they may not be available to everyone who reads the paper” ([CALL FOR PAPERS DIGRA 2023](#) and [ToDiGRA author guidelines](#)). Nevertheless, to our best of knowledge, no such artifacts are archived in the DiGRA library.

10 For GSJ submission guidelines see gamestudies.org/2102/submission_guidelines. Accessed January 10, 2023.

11 95% of all images found in GSJ are under 200KB. Image size limitations are likely a legacy term originating in the journal's foundation in 2001, intended for accessibility or facilitation of on-demand printing. Nevertheless, in rare cases GSJ contributions host click-to-enlarge images (see Galloway 2004).

12 As discussed in the next section, the journal's policy regarding hyperlinks (clickable URLs) is unclear. Its guidelines only ask to verify URLs, and do not discuss hyperlinks, while a note on “Internet Addresses” does not hyperlink its examples (see endnote 10).

13 Both Unity and Unreal Engine (game engines that currently account for the majority of the game development market share including indie development; royalty-free for non-commercial applications), can compile into HTML5 format that can be embedded in websites. For an example from academic scholarship see the

videogame artifact developed as part of a contribution by Juul (2021). See also Brown (2022a)

14 The version of the GSJ archive scanned is <http://gamestudies.org/2103/archive>.

15 For specific issues with the structure of the GSJ website and how they were tackled in this inquiry see source code annotations. Examples of these include lack of HTML structures to identify paper metadata (i.e. title, authors, abstract, date, and keywords; although not necessary for the present inquiry), which also impair citation retrieval tools that work for some but not all entries of the journal; inconsistent formatting of entry pages; changing norms in journal URL conventions (from 2006); various HTML formatting errors; mistyped or erroneous external links; and occasional omissions of keywords.

16 Distinctions between entry types (e.g. editorials, book reviews, and peer-reviewed papers) are only stated at the level of a journal issue, and can be deduced through reading only – not by metadata classification, keywords, or entry title. Only ‘Call for Papers’ entries were consistently marked and were filtered out.

17 The table category is rather problematic for the GSJ. Tables are found both as HTML-formatted ones and also as rasterized images. The latter case is presented in the following section on image classification.

18 The spreadsheet used for the classification is provided with this contribution as well as the source code to generate, load, and visualize alternative classifications.

19 Hyperlinks are text segments associated with an external link via HTML. The URLs collected were stripped to obtain the base website, with common such patterns matched across entries. This does not include cases where a URL appears as plain text.

20 “Digital Object Identifier” (DOI) handles to published material.

21 Excluding the three mentioned exceptions with non-printable media, all other entries (98%) could practically be reproduced in a conventional academic publishing template.

22 To give an example, computer games are mentioned as “not one medium, but many different media” in the first editorial of the GSJ (Aarseth 2001).

23 For examples of classic oft-quoted publications by game designers see the works of Chris Crawford, Katie Salen and Eric Zimmerman. Transactions with design are not uncommon for the GSJ either. In addition to published interviews with game designers, there is at least one case that provides visual documentation and discussion of a game development process (see Stone 2018).

24 The domain-bridging capacity of design is corroborated by Martin (2018).

25 Aarseth’s bias against design and mentions of its ‘underdeveloped theory’ can also be observed in casual remarks from a keynote presentation where he commented the following: “game design is really dangerous, [it] has the nice position of being in the middle. Everybody can relate to game design [...] So even if game design doesn’t have a lot of strong theory, they have a very strong practical position in this field.

Therefore, you have a lot of power [...] That's why I am afraid of you" (transcript from Aarseth 2014, 22:00). Additionally, the only related mention in the journal's first editorial frames design within "technical design aspects" (Aarseth 2001).

26 It is outside of the scope of this article to argue for the heritage of design discourses. For extensive discussions of design research for the context of game studies see Stenros and Kultima (2018), and Lankoski and Holopainen (2017).

27 See [MSc in Games, at ITU Copenhagen](#) and [MSc in Digital Games at University of Malta](#). Accessed January 10, 2023.

28 For "playable philosophy" videogames see [gua-le-ni.com/games](#), and for related literature see Gualeni (2015, 2016, 2018). Accessed January 29, 2023.

29 For videogames by Barr see <https://pippinbarr.com/games/>, and for discussions of his practice see Khaled and colleagues (2018; 2023). Accessed January 29, 2023.

30 See [cpandfriends.com](#) and [maryflanagan.com/games](#). Accessed January 10, 2023.

31 See <https://alt254.itch.io/> and discussion in Boluk and LeMieux (2017, 26–75). Accessed January 29, 2023.

32 For issue 2016 (1) of GAME "Games on Games. Game design as critical reflexive practice" see <https://www.gamejournal.it/issues/game-n-52016/vol-1-journal/>. Accessed 30 January 2023.

33 See also Crawford's other pioneering initiatives into game design discourse such as the *Journal of Computer Game Design*, a subscription magazine founded in 1987, renamed to *Journal of Interactive Entertainment Design* in 1993 and disbanded in 1996 (partly archived in <http://www.erasmatazz.com/library/the-journal-of-computer/index.html>. Accessed January 30, 2023), through which he initiated the *Game Design Symposium* in 1988, that evolved into the *Game Developers Conference*.

34 For the videogame counterpart of the "playable essay see www.jesperjuul.net/text/gameofobjects." Accessed January 9, 2023. Note that the artifact is not archived by the publication venue but by the author.