UNDERSTANDING THE GAP BETWEEN ACADEMICS AND GAME DEVELOPERS:
AN ANALYSIS OF GAMASUTRA BLOGS

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ABSTRACT
Communication between industry and academia in the fields of game development to date has been limited to the detriment of both groups. This lack of communication is more commonly known as the academia-industry divide. Blogs have been advanced as a good medium to reduce the divide because they allow academics to practice presenting their knowledge to different audiences and allows them to get suggestions and feedback from game developers. This study analyzed all blogs posted by members of Gamasutra.com in a 13-month span between March 2020 and April 2021. Forty-four of the 767 blogs were found to be referencing academic sources. Using Walton and Krabbe’s dialogue types, we discovered how academia was trying to communicate their knowledge relevant to game development and report on the extent to which academia had tried to influence game design and development. Results showed that the divide is real and that access to research information for the public is still quite difficult. The results also illustrate that academia only have had a small influence on the gaming industry and that only a small amount of gaming researchers were communicating their theories of game development.

KEYWORDS
Games, Communication, Blogging, Academia-Industry Divide

1. INTRODUCTION
Communication between industry and academia in the field of game development to date has been limited (Passarelli et al., 2018). Each group has perceptions that contribute to the phenomena commonly known as the academia-industry divide (Colusso et al., 2017). Academics believe the divide arises because of conflicting interests including the perception that game industry members are focused heavily on the return on their investments (Lameman, 2010). Industry members see academics as difficult to approach and stand-offish (Norman, 2010). The divide is not just limited to academia and the game industry and has been noted between academia and industry in general (Lockett et al., 2008; Remy, 2015; Benoit et al., 2019). By having narrow views of each other, both groups can be seen at least superficially, to lose out on what they can offer each other. There have been many attempts and suggestions to bridge the divide in the Information technology industry, however the questions that arise include: Should the divide be bridged? Can academics and industry game developers interact in new ways to reduce the divide? Factors that need to be considered to answer the questions are:

- The benefits to both groups (Remy, 2015; Benoit et al., 2019; Weststar, 2015);
- The barriers of both groups (Lameman, 2010; Passarelli et al., 2018; Colusso et al., 2017), and.
- Suggestions from previous attempts (Kieser & Leiner, 2012; Barroca et al., 2018; Passarelli et al., 2020).

This study will be investigating how one of the major suggestions is currently performing within the gaming industry to solve the issue of making research information more accessible to the public (Colusso et al., 2017). By making research information more accessible to the public, one of the main barriers which relate to how the public perceives academia may be improved (Norman, 2010).

Mewburn & Thomson (2013) suggested that blogs would be a good medium to make research insights more accessible because they allow academics to practice presenting their information to different audiences and to get suggestions from sources other than their academic peers.
The current study analyses posts to a popular blog in the game sector to initially identify the extent to which the academia-industry divide is present in that sector. An analysis of blogs that reference academic literature is then conducted to understand the benefits and barriers that underpin the divide.

The first section of this paper discusses the divide and then moves on to discuss the factors that need to be considered in analyzing blogs. The paper then explains the approach taken for the analysis of one popular blog, Gamastura.com, to discover the extent to which academics communicate research ideas. The third section lays out the findings of the analysis, and the fourth section discusses the impact these findings have on the progression of more accessible research. Limitations and future considerations are then presented.

2. RELATED WORK

2.1 The Academia-Industry Divide

Communication and collaboration between academia and industry in the majority of Information Technology and Science fields have been quite limited (Passarelli et al., 2018). There have been a few cases of successful attempts such as InfoLab21 (Lockett et al., 2008) and the Gaming Horizons project (Passarelli et al., 2018) but the majority either fail or result in only one-off collaborations.

Consequently, both sides suffer from not knowing what the other is doing (Colusso et al., 2017). Data gathering and knowledge acquisition are made more difficult for academics and industry practitioners. There are many theories or ideas that are overlooked by game developers such as motivational theories, monetization strategies, psychological theories, and ideas about narrative development.

The divide between the two groups has been attributed to the different cultures, beliefs, mindsets, or languages. (Gray et al., 2014; Wallin et al., 2014) Why has this divide occurred? Is it worth bridging? Many analysts have expressed beliefs about the causes of the divide and what can be gained by reducing it. However, many suggestions or ideas are not being implemented or put into practice. This could be because they are not being suggested outside the academic community.

This study examined one of the major suggestions, that academics should post to Blogs, in order to assess the extent to which this occurs and the nature of those posts that clearly reference relevant research.

2.2 Barriers

Previous research into the academic-industry divide has identified quite a few barriers. This paper will be drawing on the fields of Human-Computer Interactions (HCI) and other fields of Information Technology because, in the field of video games, research papers are rare. The barriers identified are as follows:

1. The relatively low accessibility of research output outside of academia. This relates to the language used (academic jargon) and the access to research being behind journal paywalls (Passarelli et al., 2018; Colusso et al., 2017).

2. Industry’s understanding of what is available from research. This regard communication issues of research not being in forms that the public can view and current industry design processes not seeing academia as a source of information (Colusso et al., 2017).

3. Opinions of each side. Academics believe that industry only cares about what will make a profit (Lameman, 2010; Wallin et al., 2014). While industry groups see academics as sitting in their ivory towers (Norman, 2010; Gray et al., 2014). There are a few other opinions that refer to clique mindsets.

4. Pace of research output vs industry output. There is a belief that the different paces in which each field produces outcomes will hinder communication, but this depends on what is being done. For example, many game developers follow an iterative agile methodology producing outcomes and gameplay prototypes quickly, while academics must undergo multiple processes from research and analysis, to drafting results, to camera-ready publications, all of which have no solid viewable output until it is published. (Lockett et al., 2008; Passarelli et al., 2018).

5. Intellectual property (IP) issues and trust issues. This relates to the rights of the collaborative output when forming a partnership between academic(s) and industry. It can cause issues if not discussed and negotiated early on but is dependent on the situation at hand (Lockett et al., 2008).
6. **Motivation, incentives, and administration.** Both sides look at communication as if it is only worth doing if there is an obvious benefit. Depending on the situation, this mindset can benefit or hamper. Imagine a university investigating improvements to their gaming education courses. The industry could contribute and through a partnership, they get access to future employees with desired skills. Alternatively, they may see the cost of time and money too much of a burden on their timelines. On the administration side there are issues with managing resources, relaying communication, intellectual property issues and paperwork that slows down the process but again this depends on the situation (Kashyap & Agrawal, 2019).

### 2.3 Benefits of Bridging the Divide

Previous research into the academic-industry divide has not identified as many benefits as there are barriers to bridging the divide. This could be because, studies are limited, or the barriers caused more issues than are worth for bridging the divide or studies have focused more on why the divide exists and not the outcomes of successful bridge attempts. The benefits are identified below:

#### 2.3.1 Academic

1. **Access to current industry knowledge and practices.** Researchers must be aware of the complex stages of industrial practices in which their research findings could be most beneficial and then tailor their frameworks and guidelines for the appropriate tasks. This may significantly increase the chance of academic knowledge being applied to real-world practices (Remy, 2015). Also, new research questions can be developed by knowing what is needed in practice or what has just occurred in practice, e.g., problematic gaming mechanics.

2. **Access to data.** Researchers tend to spend enormous amounts of time, and effort collecting data by conducting interviews, focus groups, experiments, and surveys. But if they had an industrial partner, they could gain access to huge quantities of unused data which could lead to valuable insights for both parties (Benoit et al., 2019). On that note, it is recommended that the academics brush up on legal frameworks and restrictions.

3. **Potential employment for students.** By working with industry, universities can enable employment options for students such as internships or graduate positions (Dalmarco et al., 2011). At this stage, this is the most common form of collaboration between academia and industry.

4. **Potential funding from governments or industry.** There might be government incentives forming collaborations or providing knowledge to industry (Swain, 2009) such as the Australian Research Council Linkage program (Australian Research Council, 2015). Also, industry could be a testbed to evaluate theories and concepts advanced by academia.

#### 2.3.2 Industry

1. **Access to additional avenues to solve their problems.** At this point, most game developers do not consider academic research as something that could potentially solve their problems. However, academics have conducted extensive research about the motivations of players, psychological theories, theories on narrative development and game design patterns. Academia could also provide expert advice on project management or advice on specialty areas such as biomedicine which could be used to improve immersion (Nacke, 2018).

2. **Use academics to gather or analyze their data.** Academics can take time to dig deep, examine patterns, and identify structures within sales, design patterns or player data which then could lead to insights that could be used for decision making, optimization, predictions, and innovations (Benoit et al., 2019).

3. **Opportunities to work on something that could have commercial value.** Most researchers do not know or care that they have developed something which could have commercial value (Norman, 2010). This is where industry can come into play to provide commercialization services for ideas that researchers have developed (Wallin et al., 2014). On that note, both sides will have to decide on intellectual property rights and what can be written about in papers regarding the project or timeframes for when research results can be released. It has been recommended that for a collaboration of this magnitude, a contract should be put in place (Weststar, 2015).

4. **Expanding network of knowledge.** Adding additional contacts to your network even if they are not immediately useful is always beneficial. Academics could be used for advice or could analyze data (if they can write a paper on the findings). Conversely, academics with industry contacts can disseminate their results, and find people for interviews to gather data (Buie, 2013).
2.4 Suggested Solutions

Suggestions to reduce the divide can be categorized into three main groups: General suggestions, collaboration enhancement and knowledge transfer suggestions. The majority of suggestions to reduce the divide have not been implemented into practice or if they have, they have not been as successful as one would hope (Norman, 2010).

In this paper, previously proposed solutions have been summarized into key areas. Some of the solutions were disregarded because they appeared to be common courtesies or practices such as being polite and professional in dealings or having regular meetings.

2.4.1 General Suggestions

1. **Action research.** Is a form of collaborative research in which the researchers and the practitioners set out to research a problem where their interests align, and where the shared purpose is to create knowledge (Kieser & Leiner, 2012). The downside of this approach is that the scientific community regards forms of collaboration that predominantly aim at solving practical problems as less attractive (Kieser & Leiner, 2012). This reduces the chance of the researcher furthering their career but helps them build their network.

2. **Agile research network approach.** Is a model that can be used for the delivery of timely and relevant research and can be used alongside practitioners that use the agile software methodology approach. It allows the researcher/practitioner collaboration to have wider dissemination through white papers and research publications (Barroca et al., 2018). There are a few things that need to be considered when using this model such as having a full-time researcher present on-site at the games company helped with relations, trust needs to be built beforehand, contracts need to be signed, decisions made on who is funding and what happens with the outcomes. This approach is still in development and needs more tests conducted but it is a good starting point for discussions. There are a few other approaches but the two mentioned here appear to be the best suited for working with the games industry.

3. **Development of different documents for different audiences.** It has been suggested that academics need to start developing “digestible” versions of their findings to accommodate the practitioner’s managerial decision making and so the practitioners can then present to stakeholders (Benoit et al., 2019). This reduces conflicts over performance and outcomes because it provides evidence that something has arisen from the collaboration.

4. **Develop trust.** If no previous relationship exists, it has been recommended that academics and industry collaborators start on smaller projects or have students placed within the game development company or have the company work on student projects (Berman, 2008; Benoit et al., 2019). This allows both sides to start building their relationship because they both start to learn what each other wants and how the other side operates.

5. **Decide early on IP and other contract obligations.** If this is left to a later date many issues will arise and will most likely result in a breakdown of communication and will hamper future communications and collaborations (Kieser & Leiner, 2012).

2.4.2 Collaboration

1. **Academics need to learn about industry practices.** It has been suggested that academics need to improve their understanding of what research means to business, and how their research will improve or support current industry practices (Berman, 2008). By doing this, academics should be able to understand and speak industry lingo, which makes it easier to present findings and have discussions.

2. **Industry need to learn about what academics are doing.** The industry needs to be aware of the requirement for academics to publish and contribute to their field, which means sharing information that companies may see as proprietary (Lameman, 2010). By understanding what both parties get from the collaboration and what can be used (e.g., data), both sides concerns should be alleviated. This step should be done regularly so both parties are content and moving in the same direction.

3. **Project management and in-between personnel.** Passarelli et al., (2020) suggested that someone needs to be explicitly put into the role of facilitating collaboration between different professionals and fragmented communities. This reduces the chances of arguments between the two parties and helps deal with issues such as IP or communication breakdowns.
2.4.3 Transferring Knowledge

1. **Consulting.** It can consist of advice and expertise provided by academics to industry, usually for personal compensation (Perkmann & Walsh, 2009). An example of how this can be used has been in the recent news concerning the game “Fortnite” using psychologists to make their game more addictive (Cuthbertson, 2019).

2. **Academics developing libraries and translational resources.** The creation of a collection of summarized work that industry can use could enhance the impact of academic research labs, by helping them find industry collaborators and new students. The downside is that many academic institutions do not reward researchers who invest in building libraries or translational resources outside of traditional academic publications (Colusso et al., 2017).

3. **Academics should blog their research.** Mewburn & Thomson, (2013) suggested that academics could learn to blog and summarize their research to help them reach a wider audience and develop their network of contacts for future research projects. This will also help academics write less obtusely. Even though this has been suggested, academics must be careful with writing online because universities are becoming more aware of the activities of their staff online. On that note, if the person is not slandering other people, or breaking IP laws, they should be safe to write up summaries of their research to get opinions from the public (Mewburn & Thomson, 2013).

   The final suggested solution above concerning academic blogging will be the focus of this study. The question is how much blogging is occurring by academics in the gaming community and is it in a digestible format for game developers.

3. **METHODOLOGY**

All blogs posted by members of Gamasutra.com between March 2020 and April 2021 were examined. The 767 blogs included post-mortems, developer advice, reviews, and posts about indie life. Initially, each blog was assessed as invoking research if it contained a reference list, an in-line citation or links that connected to academic literature. An example of the criteria is shown in Figure 1. A list of authors or research posts was recorded.

![Figure 1. Extracts of Gamasutra articles using the stage 1 criteria](image)

The second stage of analysis was conducted to discover the roles of the authors in the gaming community and whether they had some form of higher education. Each author’s profile was checked to see if they reported their education level and if they had links to LinkedIn or Twitter which provided further demographic information. Also, during the second stage of analysis, the blogs were analyzed thematically using the qualitative data analysis software tool NVivo (QSR URL) to discover emerging themes within the research blogs. This helped to understand how bloggers were presenting research concepts and their sources of information to back up their arguments.
Walton & Krabbe’s (1995) Dialogue Theory was used to discover the extent to which academia was attempting to communicate their views on gaming theories and to see how much academia had influenced game design and development.

The majority of blogs did not have any outsourced links or reference to where the game was purchasable or where you could access software e.g., Gimp or GitHub. Blogs classified as not having the criteria analyzed in stage 2 were ignored in our study.

4. RESULTS AND DISCUSSION

After examining the Gamasutra blogs, only 44 of 767 blogs met the criteria of having some form of referencing in their work. These blogs were imported into NVivo to discover how the authors were using references to academic papers to justify their arguments.

There were 43 authors (one wrote two blogs), but not all of them were academics. Only five were professional academics, while nine were student academics, 18 were developers and eleven were in marketing or consulting. Also, 67% of the authors indicated in their posts that they had some form of higher education presumably because this was considered important. Half of the 14 academic bloggers wrote in a semi-academic style, (using a first-person format but with clear citations or a reference list) which suggests that these individuals were attempting a more informal style of writing for the general layperson, similar to Mewburn & Thomson’s (2013) suggestions of summarizing research in blogs to reach wider audiences.

However, the other 50% were still presenting their research as if it was an academic piece of literature. The academics’ blogs were analyzed against Walton & Krabbe’s (1995) Dialogue Theory to understand what they were trying to achieve with their blogs. The theory categorizes dialogues into 6 categories:

1. Persuasion - Where one party tries to persuade the other to their point of view;
2. Negotiation - A form of interest-based dialogue, in which the goal is to make a deal;
3. Inquiry - Which is a collaborative investigation aimed at proving a proposition or showing the impossibility of proving it;
4. Inform - The goal of the inform dialogue is to spread knowledge. e.g., to promote other people’s ideas;
5. Deliberative - Similar to inquiry since it starts from an open problem, however, the goal of deliberation is to decide on how to attempt to answer a problem; and,
6. Eristic - Can be considered a family of dialogues characterized by verbal fighting.

After analysis, it was discovered that only three of the six dialogues were being used alongside academic sources, although most of them were using multiple dialogues throughout their blog. The most common dialogue type used by authors of the research posts was the persuasion dialogue: 12 of the 14 academic bloggers were using this type of dialogue within their blog, by attempting to convince readers that their point-of-view or theories were useful to the gaming community. The following example was categorized as a persuasion entry:

“My 100+ hours of gameplay have resulted in several encounters with Game Transfer Phenomena (a broader understanding of what some refer to as the Tetris Effect). Resemblances between virtual and real stimuli have triggered most of my experiences. Game Transfer Phenomena (GTP) comprise sensory perceptions, spontaneous mental processes, and behaviors derived from interactions with digital simulations in a video game environment. The content and the characteristics of a particular video game (e.g., the visual field, auditory effects, and realism), the hardware utilized to control the game (e.g., gamepads), and the degree of immersion, embodiment, and flow are key factors influencing how GTP will manifest [1].” (Blogger 4, Example of Persuasion)

The least common type of dialogue observed amongst the research bloggers was the deliberative dialogue. However only 2 of the 14 academic bloggers were using this type of dialogue and they were using it to answer other bloggers, developers, or researchers’ questions. The following example was categorized as a deliberative entry:

“Squire’s questions have certainly been answered over the last 18 years. The games that have been created since then have shown society what topics can be covered in games (even if some still reject it, shown in Figure 1 by some of the titles of articles). As the internet has grown and more mature communities have developed, high-quality papers and discussions have come from these games and created new ways of exploring how games give us tools to ‘think’ in a variety of different ways.” (Blogger 16, Example of Deliberative)
The second most common type of dialogue was the inform dialogue: 7 of the 14 academic bloggers used this type of dialogue largely to inform the reader about existing theories to support their persuasive dialogue arguments. The following example was categorized as an informal dialogue entry:

“The second theory that will be discussed is the idea of the Magic Circle which was created by Johan Huizinga. Unlike most theories, Huizinga designed the name of the theory-based upon the actual image that he created. He presented the idea of the Magic Circle as one of the main factors of learning as a human being. This is because he believes that we take into the Magic Circle certain beliefs and ideas that we have and come out new ones and more confident on what we initially thought.”

(Blogger 6, example of informing)
The Walton & Krabbe (1995) dialogue type lens illustrates, three key points:

1. academics were trying to persuade readers of the merits of their ideas;
2. they were trying to inform others about theories that could be used to improve game development; and
3. they were attempting to provide answers to other bloggers, developers or researchers regarding an idea or theory.

Among hundreds of blogs within the 13-month period analyzed, only a small amount of academics were blogging using a deliberative type of dialogue. This, and the prevalence of persuasion and informal dialogues leads us to suggest that the authors of research posts were attempting to entice others to accept their views to a greater extent than they were attempting to learn from others, test their ideas, or jointly solve common problems. Not only were few academics attempting to bridge the divide, those that did tried to make research more accessible to game developers were still not doing so in a manner that reflected collaborative attitudes.

5. CONCLUSION

This paper analyzed posts of a popular blog in the game development sector to identify the extent to which the academia-industry divide is present. We found that the divide does exist and that only a small number of academics were posting research related items in the popular Gamasutra blog. Further most of these were promoting research theories in one way, persuasion dialogues. This shows that the impact on the progression of more accessible research is still limited, and with so few of the blogs using the deliberative type of dialogue, the indication is that the divide is not being bridged.

Investigation of the possible solutions to the divide and analysis of their performance can provide a clearer picture of the divide and how it can be bridged. With this information, a framework to deal with collaborations or knowledge sharing between academia and the gaming industry can be developed. This framework could lead to major improvements within the game industry, such as story development, player immersion, new technologies and further gaming-related research.

The limitations of the study are as follows. By only looking at the last year of blogs, it can present a selection bias; particularly as the blogging may have been limited due to the COVID-19 pandemic. The second limitation is focusing on a singular blog platform of Gamasutra, as it is a top-rated game developer blog, with connections to the game industry. This may have also created selection bias by only targeting one output stream. Other game development blogs will need to be analyzed to confirm insights identified by this study.

REFERENCES


