

**INFXXX: Final Paper**

**Language on a Platform: Using Applied Linguistics  
and Platform Studies for Research in Information**

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April 2, 2013

Is the computer, in its ideal (or idealized) form, the quintessential technology by which to produce, disseminate, and retrieve information? Or is the computer a platform upon which information is distorted, locked away, and rendered wholly intangible? In either case, what role do digital games play in the realm of digital technologies and information? Until recently, games were seen largely as a shallow, perhaps even cynical, application of "serious" tools to frivolous ends, to the financial benefit of a handful of multinational corporations. The advent of "serious games" – that is, digital applications that purposefully address social, economic, political, and cultural issues within familiar gaming contexts – has resulted in a growing rhetorical counterpoint to such perceptions, but even in this expanded venue familiar characterizations persist. Michael Zyda of USC offered a definition of serious games in a 2005 article that ran as follows:

*Serious game*: a mental contest, played with a computer in accordance with specific rules, that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives (Zyda, 2005, p. 25; emphasis in original).<sup>1</sup>

Note the keywords here: "contest", "played", and, critically, "entertainment". Zyda seems to imply that games, at best, provide a diversionary outlet from which to provide and access information on a variety of seemingly important topics. There is a dichotomy expressed in this definition between information and game, with game largely playing the role of host.

Nonetheless, there is momentum building within academia to treat digital games as intrinsically interesting objects of study, in the sense that the major elements of digital games – rules, content, graphics, platforms (i.e. computer, consoler, or mobile), and player controls –

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<sup>1</sup> Note that Zyda was offering a potential, hypothetical definition in this piece – that is, he was not intending for it to be the final word on the issue. Still, he operates through the rest of the article within the context set by this definition.

enable them to be effective vehicles by which to create, shape, and share meaningful information and experiences (I will discuss the use of these terms in more detail below). Scholars such as Grimes and Feenberg (2009), Gee (2003), and Salen and Zimmerman (2003), among many others, have suggested and applied various theoretical frameworks from which to investigate games, game players, and gaming subcultures. As this is still a relatively new field, there has yet to be a specific research model that has come to dominate the rest, so there is still an element of frontierism to much of this work.

From the perspective of information scholarship, where interdisciplinary research is essential, such cross-pollination is familiar. However, this blending of diverse ontological and methodological ideas can appear haphazard if not practiced with care. For these reasons, I will propose in this essay that the field of *applied linguistics* has much to offer within the context of digital games, largely because such work has already proved to be valuable in information research in other areas. Applied linguistics is a broad term that generally refers to "the academic discipline concerned with the relation of knowledge about language to decision making in the real world," at least according to one scholar (Cook, 2003, p. 5; see also Davies, 2007). While there is still much debate with respect to scope and semantics, I will employ the term applied linguistics here to refer to a spectrum of critical approaches to linguistic artefacts that go beyond a literal comprehension in order to examine and uncover the often hidden motivations behind the creation and use of language in specific contexts. Typically this involves elucidating the relationships that exist between those who have the power and influence to produce and disseminate such artefacts, and those that do not have such power and therefore largely consume linguistic content. Such dichotomization is, of course, simplistic, and in the "real world" most of us act as both producers and consumers of language. This qualification, however, demonstrates

the importance of critical applied linguistic approaches, in that the nuances of linguistic power relationships can only be brought to light with rigorous and thorough research.

To take applied linguistic methods any apply them to digital games, however, is not a straightforward proposition. A fundamental question presents itself: what exactly constitutes language in a digital game? Most games incorporate text, at least to some degree. But apart from the genre of *interactive fiction*, words tend to play a minor, or at best supporting role within all but the most experimental of titles. Modern games are largely associated with rich graphical environments, and in particular three-dimensional "virtual" worlds rich in nuance and detail (though simpler game worlds that evoke the early years of console gaming are making a comeback). And there is, in fact, a small but burgeoning group of scholars who are striving to apply critical linguistic practices to images and other media that are generally considered to be non-linguistic. Gunther Kress and Theo van Leeuwen in particular have promoted the notion of a "grammar of visual design" by which to analyze the meanings expressed by images from within a systematic framework (the authors narrow their scope somewhat by limiting their grammar to "global Western culture"; see Kress and van Leeuwen, 2004, p. 4). The field of *social semiotics*, which these two scholars have helped to define and shape, is largely an exercise in the use of applied linguistics on "multimodal" texts that may incorporate a variety of such grammars, defined or otherwise.<sup>2</sup>

While all of these approaches are interesting, I will argue that understanding of language in a digital game must involve learning about the hardware and software that was used to develop, and that are used to play specific games. Even the best game developers have to work

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<sup>2</sup> The term "social semiotics" deliberately acknowledges the field of semiotics as defined by scholars such as Saussure, while simultaneously rejecting its methods for a more "social" approach. As I will explain later on, the roots of social semiotics lie largely in applied linguistics, making the use of the term "semiotics" somewhat misleading.

within the limitations of the technology at hand, and their end products are in many ways reflections of those limitations. There exists a fledgling field within technology-based research, generally referred to as *platform studies*, in which such issues are front and centre. While platform studies research has produced some interesting results in monographs that consider specific platforms, I believe that this work could be amplified and accentuated with a stronger methodological toolset. To these ends, then, I propose a new interdisciplinary approach to this research that would also have the benefit of fitting in nicely alongside related scholarship that already existing within information studies. The data and information extracted via platform studies research on a given topic could and should, I believe, be subject to a critical linguistic approach that treats such findings, in any form, as expressions of language in and of themselves. Game developers work with languages that reveal and reflect the platforms upon which they are working, and express their interpretations of these languages through published games that go on to use their own related languages to express meaning to players. The supplementary information produced during these processes – manuals, review, program code, etc. – similarly reflect interpretations of these languages. It is these various materials – hardware specifications, specific games and other applications, and the documents that are produced during and after games are produced – that need to be accessed and analyzed to perform a full analysis.

Before getting into the details of his process, however, I feel it is necessary to explain in general the reasons for which digital games should be considered as viable, and even important, information resources. Games are entering into mainstream information studies research, but there is probably still much skepticism out there about this development. I will make a case here for the inclusion of games, then explain in more detail the interdisciplinary approach I have outlined here.

## Digital Games as Information Objects

The arguments and issues I will discuss here on the assumption that the study of digital games is worthwhile from an information studies perspective. A rigorous approach to this topic would fall outside the scope of this essay. Instead, I will discuss in brief the ways in which game scholars have emerged as a vital resource with respect to investigating larger issues related to information production and reception.

James Paul Gee is one of the most well-known scholars who has advocated strongly for a role for digital games in childhood education. Borrowing from principles of *new literacy* – the notion that "reading and writing should be viewed not only as mental achievements going on inside people's heads but also as social and cultural practices with economic, historical, and political implications" – Gee goes on to argue that digital games enable players to acquire new "literacies" that are not purely linguistic, but rather are multimodal and contextual in nature (Gee, 2003, p. 8). Gee envisions a single literacy as the acquisition of and proficiency in a particular *semiotic domain*, which he defines as "any set of practices that recruits one or more modalities (e.g., oral or written language, images, equations, symbols, sounds, gestures, graphs, artefacts, etc.) to communicate distinctive types of meanings" (2003, p. 18). Gee argues that there is substantial value from an educational perspective in encouraging engagement with such semiotic domains, and learning how to consume, produce, and critique within such domains.

Whether or not one agrees with Gee, the connections he makes between digital games and information-related issues are quite clear. Even if he was not deliberately writing from an information studies perspective, issues such as learning, literacy, and informed action certainly fall within the purview of IS researchers. Other scholars, moreover, have considered these same

ideas from a more informational context. Suellen Adams, to take one example, takes Pamela McKenzie's concept of "information practices" and applies it to online role-playing games, taking data gathered while observing subjects in the game's "virtual" space and categorizing it using McKenzie's schema of *active seeking*, *active scanning*, *non-directed monitoring*, and *by proxy* (Adams, 2009; see also McKenzie, 2003).<sup>3</sup> Sara Grimes has also looked into online games from the perspective of intellectual property and copyright disputes with respect to user-generated content. She advocates for the player as an empowered content creator, but notes that corporate interests conflict with such notions, arguing that "although players may eventually contribute in meaningful ways to new formulations of intellectual property, they remain highly disadvantaged in their fight for ownership rights" (Grimes, 2006, p. 987). Again, such activities imply that players engage in complex information practices, and the political and economic issues Grimes invokes are equally important for many IS scholars, including those who defend and promote library systems within civic and academic infrastructures.

As I indicated at the outset, this was not an attempt to catalogue all of the existing scholarship on digital games that touches on information issues. But the examples I have discussed here should make it clear that digital games can serve as sites of both information reception and creation, even if the methods employed are rather different from what we expect from more familiar sources.

## **Platform Studies: Champions and Challenges**

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<sup>3</sup> Note that Adams also cites his own earlier research to make the claim that his findings also apply to single-player RPGs: "the information seeking and meaning-making in single player role-playing games seems to have strong similarities to their online counterparts, based on earlier research" (Adams, 2009, p. 678).

Platform studies is not as overtly related to learning and information-seeking practices as some of the research fields discussed above. It does, however, echo the concerns around technologically mediated creativity that are found in the work of Grimes and others. As platform studies scholars argue, however, we need to focus as much on the hardware and software themselves with respect to such issues as much as we look at social and political issues or the semiotic domains expressed by games and other applications. In this section, then, I will discuss the field in more detail, delineating its origins and goals. I will follow this up with a targeted critique of the specific methodologies employed in existing research, and discuss what I believe is lacking in this work.

Scholars Nick Montfort and Ian Bogost are largely responsible for platform studies as a named and practiced research field, though the MIT Books series they incepted draws in a variety of like-minded researchers.<sup>4</sup> As they explain in an introductory article to the field platform studies is dedicated to "investigating the relationships between the hardware and software design of standardized computing systems – platforms – and the creative works produced on those platforms" (Bogost and Montfort, 2007, p. 1). As they go on to explain, the platform is a theoretical concept, but it maps onto very real hardware and software artefacts. Consider the relative limitations imposed by the earliest personal computers on their users. The Commodore VIC-20, released in 1981, offered 3.5 kilobytes of usable memory, a blocky onscreen resolution of 176 x 184 pixels, and a cassette tape peripheral from which to store and load programs. This architecture was sub-optimal even for the time, as Commodore was aiming to produce a cost-effective consumer product (Bagnall, 2012). As a result, the games and other applications developed for the VIC-20 look particularly dated when compared to modern enterprise-level software running on machines that provide vast amounts of storage and memory

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<sup>4</sup> See <http://mitpress.mit.edu/books/series/platform-studies>



space, as well as displays capable of rendering millions of different colours in high resolution. When we frame our discussion of computing potential in such terms, we are speaking the language of platforms. As a platform, the VIC-20 provided a foundation upon which developers had to make compromises in order to produce viable software that do not have to be made with modern machines.

Of course, more memory and better displays are only part of the story here. Modern computers offer hardware specifications that make the earliest personal computers seem almost primitive by comparison, but interactions with this hardware are mediated by increasingly complex *operating systems*. Most users now would likely have some idea of the fierce battles waged by Microsoft and Apple – not to mention Google and a wide variety of Linux providers – for control of the operating system market. Each one of these systems may be considered a platform of its own, in the sense that developers that make applications for Macbook Pro laptops, or even iPhone and iPads, for example, have to work within specifications to ensure that games and applications leverage the affordances offered by operating system(s) underneath. Platform studies aims to consider such systems as additional layers that shape and inform the work and play activities of users and developers. As Bogost and Montfort state, "in general, platforms are layered – from hardware through operating system and into other software layers" (2007, p. 1). Marc Andreessen, developer of the pioneering Web browser *Mosaic*, developed a three-level platform model for Web-based application development that Bogost and Montfort cite and praise (Bogost and Montfort, 2009, p. 5). In general, then, when we speak of any one computing system from a platform studies perspective, all these layers must be considered, even if only a subset are the focus of systematic research.

Despite this rather complete and systematic framework, published research in the platform studies field is still in the early stages. The most notable work was written by Bogost and Montfort themselves, and covers the Atari VCS/2600, an important early video game console. The work was well-received, but Bogost and Montfort in a later article indicate that its success in part led to the "misconception" that platform studies was a field focus solely on digital gaming (Bogost and Montfort, 2009, p. 4; see also Montfort and Bogost, 2009). Having said this, they indicate that gaming platforms, as cultural and economic artefacts that generally employ leading-edge technologies, tend to generate more interest among platform researchers when compared to more "serious" systems. Subsequent platform studies works have looked at the Nintendo Wii gaming console, as well as the Commodore Amiga computer, which the author argues was "the world's first true multimedia PC" (Maher, 2012, p. 5; see also Jones and Thiruvathukal, 2012).

I would argue, however, that the most pressing issue with respect to current software studies research is not its subject matter, but rather the lack of commitment with respect to methodology. Bogost and Montfort have discussed some of the larger ontological concerns with respect to the field, particularly accusations that platform studies research inherently assumes a technologically deterministic perspective. Their response to such accusations, however, is largely defensive, positioning themselves as complimenting – rather than contradicting – the sorts of socially constructivist approaches one finds in fields such as science and technology studies (STS):

Unfortunately, the popularity of cultural studies and STS approaches to media and technology have lead to naive and unreasoned accusations of technological

determinism anytime critics begin opening and discussing the black boxes of specific technologies (Bogost and Montfort, 2009, p. 3).

I do not want to debate the validity of this particular claim, but rather point out that there is something missing from this argument, even if it is correct. While they go to great lengths here to argue that platform studies does not adhere to a particular ontology, they do not offer any other ontological perspective as an alternative. Perhaps they believe that many such alternatives exist, which is not necessarily a problem. Without a more solid ontological grounding, however, Bogost and Montfort cannot link their larger ideas to any specific methodologies that inform platform studies research. Rather, the bulk of platform studies work up to this point tends to blend declarative information found in relevant primary source documents with technical analyses of the platforms under investigation in any particular project. While this approach has generally yielded positive research outcomes, there is a sense that some rigour is lacking when results are presented in published form.

As I have tried to emphasize, platform studies research has had much to contribute with respect to our understanding of how specific technologies impact existing economic and cultural practices. But with a more systematic approach to such work, I believe that there is so much more meaningful information that could be captured and analyzed effectively. Platform studies, arguably, has to evolve, or at least expand its horizons in order to meet its full potential.

### **Applied Linguistics in an Information Setting**

As discussed in the introduction, applied linguistics is a term that covers many different outlooks and approaches to linguistic research. For the interest of conciseness, I will focus on one strand of the field that entered into IS and LIS research quite recently: the *critical discourse*

approach, which, in various ways, treats language as a political tool used to reinforce and (on occasion) disrupt common assumptions and relationships within given domains. I will expand on this definition by considering the work of LIS scholars Berd Frohmann and Siobhan Stevenson.

Frohmann, an information scholar with a heavy background in philosophy, was one of the first in the field to advocate for the use of discursive theory. Frohmann grounded his arguments in the political beliefs inherent in much IS scholarship, noting the following:

From at least 1876 to the present day, the discourses of LIS are thoroughly intertwined with specific institutional forms through which power over information, its users, and its uses is, has been, and will continue to be exercised (1994, p. 121).

What Frohmann is saying here is that LIS scholarship (and, perhaps, all or most information-related research) is never produced from a detached or objective perspective, but is rather produced and disseminated from within institutions that normalize definite and specific beliefs and practices. Such scholarship, then, is informed by institutional norms, and the language used in this work tends to express a specific set of discourses, of which Frohmann offers the following examples: "specialized talk about information, its organization, who uses it and who does not... the social and cultural roles of the organizations in charge of it... and the programmatic pronouncements of its theorists who speak about how these things should be spoken about" (p. 121).

It is important to understand that Frohmann was not arguing that IS scholarship is overtly political. Rather, it is subtly political in that discourses are constructed – deliberately or otherwise – that present specific ideas as given truths. A particularly compelling example within

LIS scholarship that Frohmann suggests is that of "celebratory, inspirational, evangelical, and self-consciously ideological literature" that promotes "LIS's mission with respect to the moral, intellectual, cultural, and spiritual health of history, civilization, and society" (p. 123). While such work may be ostensibly positive, it might also impose a specific worldview without addressing its more negative implications. Do the supposedly noble goals of LIS work imply, for example, that students within library and information faculties should accept increasing tuition rates and dismiss concerns about finding full-time work upon graduation? If a student raises such issues within an institutional setting, is he or she behaving pettily, given that the fate of civilization itself is apparently at stake? Again, Frohmann's argument here is not that such scholarship or beliefs are definitively bad or harmful, but rather that they are accepted within the LIS community without criticism or concern, and that these implications of such assumptions are not uniformly possible. These points might be disputed, of course, but the larger issue – that discourses within information scholarship should be considered and reflexively critiqued – goes beyond this one specific issue.

Informed by Frohmann's work, LIS scholar Siobhan Stevenson has engaged with crucial political and economic issues by applying methods from the area of *critical discourse analysis* as delineated by Norman Fairclough and related scholars. Specifically, Stevenson draws inspiration from Fairclough's *textually-oriented discourse analysis* (TODA) approach, which was a refinement of his earlier work in critical discourse analysis. Fairclough proposes TODA to be "a framework which will be suitable for use in social scientific research, and specifically in the study of social change" (1992, p. 62). Specifically, he delineates how "any discursive 'event' (i.e. any instance of discourse) [may be] seen as being simultaneously" the following (all citations from Fairclough, 1992, p.4):

- A "piece of text", which may be analyzed linguistically.
- An "instance of discursive practice", which describes "the nature of the processes of text production and interpretation."
- An "instance of social practice," which describes "the institutional and organizational circumstances of the discursive event and how that shapes the nature of the discursive practice."

A discursive event, then, is "a mode of action, one form in which people may act upon the world," and these three "dimensions" provide a model by which such events may be extracted and analyzed from linguistic texts (1992, p. 63).

Stevenson has used TODA as a means to highlight aspects of public library-related policy and philanthropy that are often contradictory with respect to the stated intentions of those involved. The focus of much of her work up to this point has been the Bill and Melinda Gates Foundation, a charitable organization that focused in part on the provision of ICT equipment to public libraries. As she indicates, "between 1998 and 2004, the BMGF installed 47,200 Internet-ready PCs in almost 11,000 libraries across the United States" (Stevenson, 2009, p. 12). While these donations have generally been accepted and praised, they in fact served to legitimize the sharp differences in class, wealth, and power that engendered the very issues that the Foundation was meant to address. To take one specific example of Stevenson's CDA/TODA work, in an article published in 2009 she examines discourses surrounding the "digital divide" – as defined largely by policy documents from various levels of government in the United States – and then presents the ways in which the Gates Foundation plugged into these same discourses to advance its interests, for better or worse.

While this area is still burgeoning, critical applied linguistic approaches clearly have much to offer information scholars. Scholars such as Frohmann may appear to be overtly negative about information-related research, but many would argue that critical work is intended to complement and amplify information work employing other methodologies. Stevenson, moreover, is positioned more as a critic of outside forces shaping and changing libraries and the communities that rely on and support them. In both cases, the critical voice is informing new perspectives on old (and new) issues.

### **The Linguistic Platform**

Fairclough's TODA is clearly a useful tool, but it has its limitations. In truth, its primary weakness is self-imposed: as the name indicates, TODA is focused on "textually-oriented" source documents. While the term "text" does not necessarily map only to linguistic sources in the familiar sense (i.e. sources in which written or printed language is the primary feature), the work of Fairclough and others has largely (if not exclusively) been devoted to language. As discussed in the introduction, there are related applied linguistic approaches that do attempt to address sources in which images or other media elements are predominant, and the work of Kress and van Leeuwen stands out in this regard. However, if we are to bring applied linguistics to platform studies research, I believe that there is something more critical that should become the focus of future scholarship: the platform itself. This does not mean that we should abandon texts entirely and focus solely on the nuts and bolts of digital hardware and software. Rather, I would argue that we should analyze any and all sources that relate to the platform(s) under observation, or at least to the issues with respect to these platforms that we wish to understand.

From this perspective, any media used by such sources should be examined and interpreted, regardless of format.

To take an example, let us return to the Commodore VIC-20 personal computer that I discussed earlier with respect to its role as a platform. Despite its popularity and importance, there does not appear to be any academic scholarship that considers the VIC-20 from a socio-cultural perspective. It would, therefore, serve as a test case for the type of interdisciplinary work I am advocating here, in which platform studies is blended with critical applied linguistic methodologies. The work I cited earlier would be a good place to start. Brian Bagnall has published several volumes on the history of Commodore. These works, moreover, were self-published by Bagnall under the company name *Variant Press*.<sup>5</sup> While self-published works are often looked at with scepticism, Bagnall's works have met praised quite highly by readers – the reviews on *Goodreads* for the work I cited, for example, are generally positive.<sup>6</sup> These reviews praise his thoroughness on the subject, particularly since quite a bit of the information he presents came via direct interviews with former Commodore employees. Criticisms of the work seem to fall into two categories. The first category relates to the book's structure in that there is a perceived lack of thorough editing from a readability perspective. The second line of criticism is that Bagnall seems to be writing with an agenda in mind, in that he advocates for Commodore's role as a pioneering innovator in the personal computing market as opposed to Apple, which earns more credit than he perceives is due.

While Bagnall's text served as an information resource for this essay, specifically with respect to the VIC-20, it can also be looked at as a contemporary product of a chain of discursive events (to use Fairclough's terminology) that were shaped by the expressive power of

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<sup>5</sup> <http://variantpress.com/>

<sup>6</sup> <http://www.goodreads.com/book/show/4160682-commodore>



Commodore's hardware platforms. The VIC-20 (which was the first Commodore computer to make a significant impact as a consumer product) succeeded and failed on the merits and debits of its internal infrastructure. That is to say, it was a cheap, accessible, and ultimately limiting machine precisely because of choices made by its designers and engineers. As its users created and distributed applications, games, and related materials, they expressed specific discourses that were founded upon these design choices. This process, I believe, can be examined and elucidated via a platform studies approach that incorporates applied linguistic methodologies. To elucidate this example a bit further, I will discuss two related areas of interest: the technical specifications of the VIC-20, and a passage from its official operating manual.

As I discussed earlier, the VIC-20 was something of a bare-bones machine, even for the time. One particularly striking aspect of its design was its 22x23 character resolution – that is, the machine could only output 22 columns of text and 23 rows on an attached display screen.<sup>7</sup> To put this perspective, the IBM PC that was built and sold in the same era could manage 80 columns and 25 rows of text ([manual]). Moreover, while the VIC-20 only offered 3.5 kilobytes of RAM out of the box, the IBM PC could handle 16 to 64 kilobytes (International Business Machines, 1983). But this, of course, is not the whole story. While the PC could display more characters onscreen, this display was *monochrome*, so that everything appeared in only one colour, typically a muted green. The VIC-20, on the other hand, could display up to 16 colours, a standard IBM could not match for several years. Moreover, because of the sacrifices made with respect to the VIC-20's memory, it was considerably cheaper than the PC. Because of these and other decisions made with respect to the VIC-20's hardware infrastructure, it was well-received within emerging hobbyist computing communities of the time. Such dedicated users

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<sup>7</sup> Bagnall's work, cited above, is a solid resource for such technical information, but the Wikipedia page on the Commodore VIC-20 is also quite useful: [http://en.wikipedia.org/wiki/Commodore\\_VIC-20](http://en.wikipedia.org/wiki/Commodore_VIC-20)

could more vibrant visual experiences with the machine's colour palette, and could accept the limited memory on offer as a reasonable sacrifice to create an affordable product.

To inform this discussion, I will cite a passage from the preface of the VIC-20's operating manual, *Personal Computing on the VIC-20* (Commodore International, 1981, p. II):

You are about to meet a friendly computer! Friendly in price, friendly in size, friendly to use and learn on and experience. Most important — you don't have to be a computer programmer, or even a typist, to use it!

This discursive message – that the VIC-20 is an accessible, "friendly" machine – is emphasized in many of the printed materials produced by Commodore. This message, however, would be nothing but hollow marketing if the machine itself did not provide a platform that echoed the same ideals, at least to a noticeable degree. Here then, we see that a linguistic text and a computer platform are mutually reinforcing the same discourse. It was relatively simple to spot in the textual source, but the hardware infrastructure of the computer itself must also be looked at in order to gain a more complete understanding of how the VIC-20 expresses meaning.

If we were to continue along this path, a diverse set of other data sources would have to be investigated and analyzed. A particularly effective means by which to learn more about the VIC-20 as a platform would involve examining the games and applications made by actual users and software companies. Such programs represent the platform as it was understood and interpreted via direct experience with it. The code employed by programmers and developers directs the actions of underlying platforms, and the programs that they produce and disseminate express the inner workings of such platforms in ways that are meaningful to the user (or at least that is generally the goal). It is here that I believe an applied linguistic approach would be most effective. These expressions – for example, the output offered the user via a display screen, or

the interactive capabilities offered to the user – employ semiotic resources that, as Gee suggests, require novel forms of "literacy" in order to fully understand. But these resources (or domains, to use Gee's terminology) are not objective, nor are they neutral. Rather, they are informed by discourses that were formed initially through underlying platform infrastructures, and made visible and active by programmers working with these platforms.

The main point I am arguing for here is that the information provided by, and created by, producers and consumers of digital media goes beyond words, sounds, and images. As digital games scholars and others have made clear, computer users make meaning primarily via their interactions with their machines. While Gee has sought to steer these interactions into activities that allow users to understand and reproduce semiotic domains, I believe that such work fails to provide a complete understanding of information-related issues inherent in such interactions, particularly when it comes to digital games. Rather, a more critically linguistic approach would involve analyzing the discourses that give rise to the semiotic domains offered to users. Such work, I claim, should begin at the level of platform studies, and then be built upon to at least partially. In this way interdisciplinarity is achieved by employing applied linguistic methods that are already entering into the IS mainstream, and employing them on artefacts that are not often the focus of such critical linguistic work.

### **Conclusions: Architectures and More Architectures**

This paper was inherently critical with respect to a variety of research ontologies and epistemologies employed within and without information research spaces. Such work was not intended to dismiss the merits of these approaches, as they all, in one way or another, proved their effectiveness. Rather, I would claim that my schooling in information sciences beliefs and

practices, as well as my earlier experiences as a humanities scholar and humanities scholar, have allowed me to see specific issues from a perspective that considers a diverse set of research communities, all working towards related goals. This essay has been an attempt to elucidate these goals, and to offer specific suggestions on how the research carried out in one field could be used to great benefit in another.

There remains much work in order to make such claims more readily apparent. The example I provided here, which considered the VIC-20 as a platform made almost entirely out of hardware, is technically rather simple and straightforward when compared to, say, a modern video game console, which is essentially a full-fledged computer that has been restricted to perform very tasks. Such consoles – let us take the Xbox 360 as a specific example – operate via complex, layered platforms that are designed as much to restrict user actions as they are to enable them. The reasons why such layers exist vary, depending on the source providing such information. Some might argue that game consoles need to be minimalist and ostensibly easy to use, or else one. Others, however, would point out the ways in which these layers further the corporate interests of Microsoft and other game companies developing titles for the Xbox 360, in that they make it extremely difficult to produce and play pirated versions of existing games. Even if one accepts this outcome as fair and reasonable for the industry, the restrictions imposed also make it impossible to upload and play homemade Xbox 360 games without purchasing a licence to upload and sell such games within Microsoft's online market. For users who just want to create their own works and play them on a console they purchased and supposedly own, this does not seem fair, and in fact there are in fact ways to modify the console to remove these sort of restrictions.<sup>8</sup>

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<sup>8</sup> See, for example, <http://www.instructables.com/id/How-to-JTAG-your-Xbox-360-and-run-homebrew/>

The legality of such work is a topic for another time. I raise these issues only to demonstrate the complex issues that critical research from a platform benefit could engage with. Information scholars are not averse to introducing new research frameworks into the field, and something that offers both technical and critical methods that may be applied to many of our most pressing information-related concerns should be taken seriously. The next steps, of course, would be to employ these methods in an actual research project, which I hope to do in my time as a doctoral student.

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