THE LIBRARIAN AS VIDEO GAME PLAYER

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Despite media coverage that is usually negative or non-existent, digital (video) game playing is a major form of entertainment for significant numbers of people in developed countries. This paper begins with a brief outline of what these games are, who plays them and why there is interest within the library community. We then move through several examples of the current direct impact of digital games on libraries. This is followed by more abstract examples of how video games could, and do, influence library practise and technology. Attributes of online games are discussed, focusing on one particular game, Second Life. *This game is used widely within the library community, with many librarians spending significant time developing avatars, open services and infrastructure. The paper concludes with a summary of the ten attributes of video game players, found across the research literature body, that are of relevance to digital information and library services.*

The Basics: What, Who and Why?

What is a Video Game?

A minority of the population still have little concept of what a video game is. Often, these non-users of digital entertainment will glean most of their knowledge of games from the mass media. This is unfortunate, as popular newspapers and television programmes tend to focus on controversial games, or negative aspects of game play – while omitting to show that the vast majority of people, across all demographics, enjoy safe, social, and mentally stimulating game play.

Another fact that often surprises non-gamers is that video games have been a form of home-based mass entertainment for over 30 years. The first mass produced consoles appeared in homes in the mid-1970s, produced by companies such as Atari and Binatone. The software (games) and hardware (consoles) has rapidly advanced, from indistinct blocks or blobs and simple beeps, to full motion video and orchestral music scores comparable in detail – and budget – to Hollywood movies. The simplistic game play of earlier games has now largely (though not totally) gone, replaced with complex, difficult, involving, thought-provoking, interactive (as opposed to reactive), graphically intense, instantaneously responsive, multi plot-threaded, multi-interface, socially involving multi-player games.

But what are video games? These are essentially a subset of digital games. A digital game can be defined as some kind of game that uses electronic components and a power source. The definition of 'game' itself is more contentious. Games have been defined as rule-based play with goals and

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objectives by Suits (1978) and Salen and Zimmerman (2002), but as a voluntary and free activity outside of 'ordinary' life by Huizinga (1980) and Callois (1961). To complicate matters, it should be noted that a large part of many games involves the player discovering what the rules (both explicit and implicit are), through trial-and-error, strategy, instinct and the use of various cognitive skills. The notion of what exactly is a game is still an active topic at game research conferences.

Digital games can take many forms, and can be found in toys, calculators, watches, on the backs of seats on planes, and basically anywhere where there is a human and a power supply. A video game is simply a digital game where the player uses a video (screen) interface to follow game progression. Some people use the term interchangeably with 'computer game', whilst others differentiate computer games as being played on PCs and Apple Macs, with video games being played on television-based consoles (e.g. the Microsoft Xbox 360, Sony PS2 or Nintendo Wii) or handheld consoles (e.g. the Sony PSP or Nintendo DS).

Who Plays Games

There is still a widelyheld belief in some parts of the mass media, and in much of the non-playing population, that game players are predominantly teenage boys, playing violent video games for long periods of time in socially isolated conditions. Demographic studies in recent years, and major shifts in game design and marketing, make this an inaccurate summary.

The shifting demographics of game players are notoriously difficult to accurately measure. One attribute that is definite is that computer gaming is a mass-market leisure activity, with millions of players across the developed world. The BBC (2005) report that some sources estimate that 59% of 6 to 65 year old Britons play games, while Dromgoole (2004) has calculated that 51.2% of British men and 25.1% of British women aged between 10 and 35 play games regularly. On average, according to Parker (2006), UK gamers between the ages of 6 and 35 spend 12 hours per week playing computer games and have been playing for over 10 years – a period of time that roughly coincides with the release of the first Sony Playstation in 1995.

Parker (2006) also indicates that the UK gamer spends more on games, buys more games at an average of £150 per month and plays for longer than others in Europe. One-third of all Western European software sales are made in the UK; not surprisingly, the UK has the highest number of console and handheld video game units in the EU. These spending patterns translate into a £1.2 billion UK games software economy in 2005, with 57.5 million games sold, making it the second most lucrative entertainment activity in the country.

The average age of a video game player is put by various surveys at between 29 and 34, with a steady increase in this age range. This fact is enduringly controversial due to its implications:

- People of this age range typically have jobs, mortgages, and are bringing up families; therefore, why are they still playing games and where do they find the time.
- As there are many game players who are children, and the average age of a player is their early 30's, so there must be many people of advanced age who are gameplayers.
- There must be video games available which people in their 30's, 40's and beyond find appealing to play.

Why are people playing games into their mid-30's and beyond? In many cases, it is because game players have been playing for years and never giving up this particular form of entertainment, choosing to upgrade hardware as each new generation of games comes along. How are these people finding the time to play games? Surveys of how people allocate all of their leisure time indicate that video game play is gradually displacing television watching as an entertainment media; this is evident in the fall in average viewing hours across most demographics in recent years.

Why the Library Interest?

Within the wider academic and research communities, there has been an increasing interest in video games, and especially online games, since the turn of the century. For example, Steinkhuehler (2004) observes that:

> A quick perusal of the proceedings of the International Conference of the Learning Sciences . . . and the Computer Supported Collaborative Learning organisation indicates the widespread interest in online communities and virtual worlds within the field of educational research.

Within the library community itself, there is much open interest in video games. For example, a consortium of librarians maintains the Game On (2005): Games in Libraries blog, where they discuss gaming issues of interest to librarians. A newsgroup, LibGaming (2006), is dedicated to supporting the use of games in libraries. Key organisations in the library sector, such as OCLC (2004), hold seminars on video game to library relevance. Others, for example the American Library Association, are providing detailed analysis of the relevance of games in libraries, such as the guide by Levine (2006).

Searches of the 'blogosphere' using Technorati and other tools reveal a large movement of librarians, usually writing as individuals about their use of games, both at work and socially. There is clearly a large amount of interest in this particular media, possibly for several reasons:

- many of the people now employed in public and academic libraries 'grew up' playing video games, and continue to this day.
- as the demographics of gameplay have changed, with the average age of a player moving upwards, so more adults have taken up this activity.

- the learning potential for games becomes apparent when playing popular simulation games such as Sim City, or Zoo Tycoon, where the player 'learns' through a series of trial-and-error socio-economic decisions. This decade has seen the emergence of a large research movement studying 'serious' games and the potential for teaching and learning using this media.
- games are increasingly a social activity, and libraries are perceived by many as social places.
- video games have become more socially acceptable in recent years for a variety of reasons, and are increasingly viewed as an media with the same social standing as films, books, music and the arts.

Games Within Libraries

Searches across social networks, websites and mailing lists indicate six types of 'impact' of computer and video games on the provision of library services.

Preservation of Video Games

Libraries are increasingly preserving a wider range of cultural and information-based artifacts, beyond the traditional deposits of books and journals. However, the situation regarding video games is less progressive, with most national libraries not having a formal policy on game acquisition and preservation. An exception is the National Library of France; according to Gregory Miura, the Head of electronic documents section of Multimedia Services:

> Here at the Bibliothèque Nationale de France we deal with legal deposits of video games. Since 1992, video games are part of patrimonial collections. Every video game distributed in France must send in two copies to the French national library.
>
> Our missions are based on exhaustively collecting these kinds of documents as we do with others, cataloguing, and preserving in order to ensure long term access for researchers. We work closely to the game community to defend the game as a document and an object for scientific research.

Why is the National Library of France taking an exceptional lead? It is most likely that other libraries are not doing so due to the considerable resources required to store every game. In addition, unlike the storage of books and journals, there is also the issue of accessibility; many games produced even in the last decade require equipment that is increasingly difficult, and expensive, to obtain in order to be played.

Video Games as 'Child Minder'

The use of digital games to keep children 'quiet', or occupied, in a public library was mentioned by a number of respondents. This is a possibly controversial use, not just of library budgets but also of building space and staff time. Within schools, a similar use (games as part of an after-school club) has often led to lively debate amongst various stakeholders e.g. parents, teacher and governors as to whether this is an efficient use of resources or an appropriate method of 'child minding'.

Allison Angell, Head Youth Services Librarian at Benicia (California) Public Library observes:

> I don't know if this counts, but at my library we're just starting to have video games in our After-School Zone. Kids and teens can go in from 3:15 until 5:00 every day and get a small snack, study or play games. We get a lot of latchkey kids, and we figured that if we entertain them, they're less likely to get into trouble, and they'll be less likely to clump up on the public computers. Originally we'd wanted to buy a set of laptops for the After-School Zone, but we couldn't work out the computer issues. The video games were a second-best solution.

Getting People into the Public Library

An increasing number of public libraries either hold video game events, or allow games to be played on public access PCs. The justifications for this are:

- Games are just one of a spectrum of entertainment media, which includes books and CDs, and therefore have an equally valid place within the library environment.
- Such games show libraries to be offering a contemporary range of media, overturning a 'traditional' or negative image of libraries as being quiet places for elderly book readers, and thus having some appeal to younger people.

Dwight McInvaill, the Director of Georgetown County Library, justified their use of video games to increase patronage:

> Check out our newest public library branch in South Carolina – called the Carvers Bay Branch Library. We opened the library two weeks ago with 10 Xbox 360s and 8 gaming PCs, and we plan to use them to persuade young people to register for library cards and to read: the games will serve as the hook for more library usage.
>
> The library is located right in front of a high school and middle school campus in the poorest, rural area of our county where illiteracy is currently 30% and library card registration is only 2%.

Internet searches indicate a surprisingly large number of such public library initiatives, where gaming events at weekends and evenings prove popular. As yet, there has been little formal research on the 'stickiness' effect i.e. how many game players, new to the library environment, go on to use other library services.

Libraries Lending Video Games

A small number of public libraries issue games, in much the same manner as books and other media are issued. John Scalzo (2006) ran a game loan scheme for a year in his public library:

> . . . at the end of the first year, having games in a library has been a complete success. They are popular with adults, children and teens and I've only heard the faintest of grumblings (mostly from older patrons) questioning why a library would carry, scoff, games. They are an accepted part of the collection now and it's hard to ask for anything more than that.

The stocking and lending of such media do present a range of issues to library staff:

- Budget: as ever, the games must 'compete' with other media within a finite institution budget.
- Age ratings: many games have some kind of minimum age recommendation. Sometimes, there can be several such recommendations on the same game, as there are a number of advisory schemes in operation. This can be confusing to issuing staff not familiar with games.
- Formats: there are a variety of different formats and specification for games. For example, a specific game may be produced for the Xbox 360, PS2, Wii and PC, with variants on handheld consoles such as the DS and PSP. This would make stocking just one game particularly expensive (up to $200 US) in order to provide availability across all platforms.
- Identifying the 'best' games: stocking the games desired by the demographic that uses your library (or the demographic that you want) will involve the knowledge of either a games player, or frequent research of the games media.
- Training: if staff unfamiliar with games will be issuing stock, they will require training in order to answer questions on this media.

Acquiring Information Literacy and Library Skills Through Game-Based Training

This particular topic has been the subject of much theory and debate for several years; basically, can games be used to teach or reinforce skills for library staff, or for users of digital information services such as library catalogues? Academics and librarians such as Doshi (2006) make a strong case for the

development and use of these games, especially software used to develop information literacy skills.

However, there have been few commercial games that could be used or adapted for either of these purposes. Consequently, a number of libraries and academic institutions have developed relatively small-scale games for use 'in-house'. The Fletcher Library Game Project (2006) is one such initiative, the main objective being to:

> Design a computer game that will simulate the complex processes of selecting, using and evaluating multiple sources of information within a library setting.

Again, there is a lack of research-strength evaluation of most of these individual institution game-based initiatives. Such research would help to determine whether there is much scope in developing information literacy or library skill games that can be used in many library and academic institutions.

Providing Game-Support Materials

Game players use a wide range of media and social contacts in order to support their progress through games. These include:

- magazines and newspapers (print, online)
- 'walk-throughs' (print, online)
- cheats e.g. codes you type in (print, online)
- maps (print, online)
- interactive guides (online)
- game forums (online)
- blogs and websites (online)
- tips from friends (online, social)
- team-based playing/support (online, social)

Most of these materials could be provided by libraries, either in their printed materials sections or through access on online PCs. However, only an insignificant number of public libraries provide some of the aforementioned printed materials. Conversing with librarians, this appears to be partially due to the relatively short active lifespan of these materials, which may be of use for only a few months until more contemporary games take their place. In addition, it can be difficult to source the correct or 'best' game-support materials without the advice of a experienced gameplayer.

Relevance of Games on Library Technologies

There are at least five areas where digital games and gaming technologies may have an impact on library and information service technologies.

Effect the Library or Academic Network

Most public libraries in the UK now provide free online PC access, as do academic libraries (though in the case of the latter, you usually need to be a member of the institution). In these cases, where the computer and network access point is in a staffed area, it is relatively easy to restrict the use of online games that may affect the local network.

However, an increasing problem in academic institutions is the overall use of the network for playing games. This is especially problematic in universities with halls of residence, incorporating local area network in student rooms. Games consoles such as the Xbox are increasingly marketed towards online game play, and a large number of such consoles using the university network at the same time can have an effect on local network traffic.

Handheld gaming devices are also possibly a problem, as both the Sony PSP and Nintendo DS offer online gaming access. As of the end of 2006, there doesn't appear to be problems reported amongst UK academic universities, possibly due to the relatively small amount of data transmission that such devices use when compared to PCs and television-based games consoles.

Input Devices

In libraries and academic, the traditional, and still most prevailing method, of data entry involves the keyboard, mouse and screen. However, the last five years of gaming technology has seen a gradual move away from these devices. Many games now use alternative peripherals or methods of data entry, including:

- touch screen input using a stylus (Nintendo DS)
- touch sensitive 'Dance' floor mats (most consoles and PC)
- voice entry (Nintendo DS)
- motion-sensitive controllers such as fishing rod simulators (most consoles)
- motion sensors, such as the Eye Toy (Sony PS2)
- simple speech command recognition (Nintendo DS and PC).

Non of these systems can yet handle complex textual input at anywhere near the input rate, or accuracy, of keyboard input. However, as these technologies mature and become more accurate and easier to use, so there may be roles for their use within digital information services that go beyond 'niche' or 'gimmick' applications.

Library Catalogue Access by Handheld Console

We have previously mentioned one negative impact of the use of handheld games consoles in academic institutions. However, positive uses of such devices are frequently speculated, using the mobile functionality. For example, Richard Wallis (2005) muses that the Sony PSP has possibilities such as:

> . . . The PSP enabled museum, would be a great place for kids, and adults, to wander around taking in the exhibits with the assistance commentary, explanatory video clips, relevant games. Or how about the PSP enabled Wi-Fi exam revision guide download point in the school library?

The library environment presents possibilities for the use of game technology to cut down physical searching time by both staff and patrons. The mobile and added GPS functionality of handheld consoles mean that software, incorporating the library catalogue and the positional attributes of collection items, could assist people in more efficiently locating items.

Digital Library Support for Learning Games

Though digital games are currently present in only a small number of academic research and collaboration projects, this number is growing quickly as organisations obtain funding to explore the learning potential of this media. In particular, a number of current and previous European collaborative projects have enjoyed carrying out research in this area; a few have used a combination of digital library and digital gaming technologies for their software-based deliverables.

The most recent example of this is the eMapps (2006) project. This project, funded by the European Information Society Technologies programme, is developing a game-based system that will teach children in schools across Europe, using a game that incorporates geographical data about their local environment. The system uses a digital library service provided by the digital research centre CERLIM (2006) to provide a quick and efficient mechanism for initial geographic data entry and in-game access. Due to the increased interest in games as a serious media, it is likely that there will be many more game-based projects in the forthcoming European Framework Programme.

Interface Design

It is remarkable, when comparing digital information search interfaces of today and from a decade or more ago, to see how similar they are. Predominantly, such systems offer a 'search' option, possibly with some 'advanced search' facilities to provide greater refinement. Many also offer an item browsing system, hierarchical in nature. It may be testament to the saying 'if it isn't broke, then don't fix it' as to why these common forms of data location method have remained predominant. Indeed, it can be argued that the Google service is at least partially successful due to its extreme simplicity: one central search box.

While digital information service interfaces have largely remained static, game interface design has changed tremendously in the last decade. People new to video games are often shocked by how complex such interfaces are, and how

many things are often happening at the same time. Interface design has reached a pinnacle of complexity in online games such as World of Warcraft, where the interface simultaneously displays:

- a 3D representation of your environment
- other characters in the immediate vicinity
- a 2D map showing a wider area of land
- symbolic representations of the items you are carrying
- textual speech dialogue between characters (including your own) in the immediate vicinity
- textual updates on local events e.g. 'Troll is hit by Elvin arrow'
- the health status of yourself and local characters
- various other status attribute values

In addition, much of this information is *constantly changing*, such as characters moving in and out of your immediate vicinity, sometimes talking to you and sometimes attacking you. The player needs to *monitor* all of these displays, and *actively participate* in several.

Studying these interfaces, and how players use them, clearly shows that these people, at least, are comfortable with complex, rapidly changing, multi-task, multi-communication interfaces. There is debate in various areas of the digital library community, but so far little public practical experimentation, to see if digital information services can successfully incorporate some of these techniques and systems.

Online Games and the Emergence of Second Life

Attributes of Online Games

Kirriemuir (2005) describes how online games are now ubiquitous. Most PCs and other ICT devices, such as mobile phones and digital personal organisers, ship with pre-installed client software for online games. Windows XP, for example, comes with a range of online board and card games such as Backgammon, Checkers and Hearts. Selecting one of these games connects you to a server where players of similar strengths are automatically selected and matched against you. A pull-down menu of 20 to 30 phrases such as 'hello' allows for rudimentary communication with opposing players. Though these types of games are visually and technically simplistic, the fact that they come 'as standard' and are free to use mean they are likely to be some of the most widely played online games.

However, online gaming is not a new phenomenon, having a history stretching back to when home-based computers could first go online. Earlier online games tended to be simple, mainly text-based affairs, constrained mainly by dial-up data transmission speeds. In the last few years, the rapid take-up of broadband has enabled far more graphically complex online games to be

developed. Games such as Everquest, Lineage, and World of Warcraft use similar mythical-era plotlines and scenarios to the earlier games, but have much more complex methods of character interaction.

These Massive Multiplayer Online Roleplaying Games (MMORGs) can handle many thousands of simultaneous distributed players, each exploring, fighting, manipulating in-game items, trading and communicating with other players. By June 2006, World of Warcraft had 6.6 million subscribers (i.e. people paying a fee on top of the cost of the software) worldwide, of which 2 million lived in the USA, 1 million in Europe and most of the rest in China. At any given time over 500,000 subscribers are online in the game, potentially meeting, communicating, negotiating and fighting with each other.

There is a growing body of research into these games, and the people who play them. Several researchers have examined their application to education in considerable detail. For example, Francis (2006) has discovered that role play and identification with virtual avatars are central to learning in these immersive worlds, while Steinkuehler (2005) argues that several factors of online games that can potentially be harnessed for learning, including:

- online social interaction
- real-time perpetual accessibility
- collaborative problem solving
- differentiated community roles
- social knowledge construction/collective intelligence

However, one Massive Multiplayer game in particular has recently caught the attention of the wider academic community. This game, Second Life, is 'played' by large numbers of educators and librarians, who spend significant amounts of time building infrastructure, for others to use, within the game.

Second Life

Second Life (2006) is a three dimensional virtual world entirely built and owned by its residents. The stated goal of the creators, Linden Lab, is to create a world similar to the 'Metaverse' described in the Stephenson (1996) novel Snow Crash, a 'user-defined world of general use in which people can interact, play, do business, and otherwise communicate'.

People who use Second Life own an avatar, a character representation which can be easily configured e.g. a specific eye colour, and dressed. The Second Life world is visually similar to our own, consisting of islands, roads, natural landscapes and buildings. People can explore buildings and settlements, examine and manipulate objects, and talk to other people using a variety of chat and messaging systems. Movement around the virtual world is by walking, flying, or teleportation.

Second Life users can build a wide array of objects, from simple structures to building complexes. Using relatively simple tools, these objects can

incorporate various functionality, from simple meeting points to complex dissemination facilities. Consequently, a large and growing number of companies and cultural/social organisations have established a presence in Second Life to support and promote their work. For example, the BBC (2006) reported that Reuters have set up their own online news bureau within this virtual world, whilst Au (2006) reviewed a gig by Suzanne Vega, one of an increasing number of mainstream artists who have performed within Second Life. By the summer of 2006, 400,000 people had avatars in Second Life, and 3,100 businesses had set up within 'real' estate.

Unlike conventional games, there is no 'aim' or 'goal' in Second Life. The creators have provided a relatively unrestricted platform within which people can be creative, develop and communicate. Second Life possesses an economic structure and an increasingly complex business environment, with an in-simulation currency (the Linden Dollar) having an exchange rate with real-world currencies.

Also unlike nearly all other Massive Multiplayer Online games, the aims of most people in Second Life are benign. There is no fighting, raiding or missions, nor tribal warfare or the acquisition of powers. Instead, the main focus of Single Life is on communication between players. This is perhaps one of the main reasons why so many librarians are active within the game, either as individuals or as representatives of their host library organisation.

The Second Life of Librarians

The mainstream and 'quality' media have become increasingly interested in serious applications within Second Life over the last few years. For example, the Economist (2006) observes that:

> . . . increasing numbers use Second Life for things that are quite serious. They form support groups for cancer survivors. They rehearse responses to earthquakes and terrorist attacks. They build Buddhist retreats and meditate.

Librarians, in particular, are present in large numbers, be it just exploring, or more actively building various artefacts (many of them interactive), and holding events. One indication of this trend can be seen by searching LisZen (2006), an agglomerative search across 530 librarian blogs, for the phrase 'Second Life', and then wading through the hundreds of results.

As previously mentioned, the library sector has significantly invested resource (person time and, increasingly, funding) into Second Life. For example, the National Library of Medicine/Greater Midwest Region recently awarded the Alliance Library System (2006) a $40,000 grant to provide consumer health information services within the simulation, while the state library of Kansas has set up a branch within the 'Cybrary City' area. This branch provides local SL tours and information services, either through objects that can be 'touched' to access

further information sources, or through avatars that people can converse with and follow on journeys.

Meanwhile, several library events within the 2006 National Games Week were held within the SL environment, while the Alzheimer Society of Ontario is setting up an exhibition space and podcast listening station. These are just a few examples of many that are library, literacy or learning-based. Exploration of Second Life beyond the main library and education areas reveals a myriad of communities, many containing some kind of library, literacy or education component or facility.

However, it need to be asked how many of these – and other – learning and library developments within Second Life are genuinely (a) useful, and (b) being used? While many are interesting to explore and 'pretty', there is virtually no analysis to date on their usefulness and effectiveness. Virtual meetings within Second Life have a very variable attendance, from several hundred down to a deserted auditorium, making it questionable as to the time and resource spent in developing the meeting facility. Some rigorous research, or cost-benefit analysis, on the use of Second Life by library and educational organisations would provide a clearer idea of the usefulness of this simulation before they allocate resource to this endeavor.

Conclusion: The Ten Attributes of a Game Player

Research into the cognitive skills and attributes of video game player repeatedly highlights a number of criteria that game players often possess. Ten of these attributes are of relevance or application to library or digital information systems.

- The game player expects instant and relevant feedback from their actions. Simulations in particular provide quick results in a virtual 'sandbox' or 'trial and error' environment.
- The game player is able to multi-task (e-juggling). Online games in particular require the player to simultaneously carry out a number of tasks, such as monitoring the immediate playing area, communicating with other players, and manipulating items.
- The game player is comfortable interrogating a wide array of information sources and media, in order to overcome obstacles and progress towards a game-oriented goal.
- . . . consequently, the gameplayer is 'beyond Google' in terms of the information retrieval tools he or she uses, needing a constantly changing array of such systems.
- . . . and consequently, the game player can find information/knowledge that is not in obvious places. The game player does not tend to give up quickly when faced by a difficult information or skill-based problem or obstacle.

- The game player is usually an internet user; many game players often blog and use various social networking tools to communicate with like-minded players.
- The game player is comfortable with complex online systems, and does not artificially differentiate between 'online' and 'offline' sources of information when proceeding towards their game-oriented goal.
- The game player is often comfortable with peripherals and unconventional data entry hardware, using technology beyond the traditional 'keyboard and mouse' configuration where appropriate.
- The game player is comfortable with, and often a frequent user of, online talk and chat systems.
- The game player has no problem with spending colossal amounts of time online . . . so long as the time spent is ultimately rewarding.

Game players are spread across all demographics and age groups; like you and me, they are both people and library patrons. The technology, skills and practices of this increasing proportion of the population are worthy of further use-based study; incorporation of these attributes into emerging library and information retrieval systems can only be beneficial.

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