The

Report

by the

written by Amanda Wong

funded by the

July 4, 2017

Acknowledgement

Funding for this project was provided by the Ontario Media Development Corporation (OMDC). The Hand Eye Society would like to thank and acknowledge the financial support received by the OMDC. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the Ontario Media Development Corporation of the Government of Ontario. The Government of Ontario and its agencies are in no way bound by the recommendations contained in this document.

Over the past year, we have recruited many hard-working volunteers who have given up their time, work, and knowledge to help us meet our goal of 1000 entries. A majority of our volunteers are either Hand Eye members or have heard of our organization. We have had students, academics, game-makers, game-enthusiasts, and game-organizers contribute to our database. Many volunteers are quite experienced and familiar with the local gaming community, while others have joined to learn more about what Toronto has to offer. We would like to thank these volunteers for their exhaustive support and we hope that they can see their hard work come to fruition.

Table of Contents

Abstract

The objective of the Toronto Videogame Database (TOVGDB) is to include the diverse videogame projects created by game makers across the Greater Toronto Area (GTA). We have gathered information from 1000+ games that have been made over the past 20 years. Our definition of a videogame is an electronic interactive work produced to encourage a player's active participation through a physical interface. They can include interactive walkthroughs, interactive fiction, console videogames, mobile applications, alternative controls, and other alternative interactive media. In addition to this definition, we also look to the creator's expression and definition, as well as completeness and playability of their videogame as inclusive factors for our data collection. After gathering and analyzing the data from the database, a few interesting trends can be made with the my popular forms of gaming platforms to the most used pay models offered. However, it is important to highlight that the conclusions we've made are only representative of the collected data. Further, our data only reflects the criterion that we have chosen to highlight as important videogame attributes. We understand that these results are not representative of all the games that exist in the Greater Toronto Area, as the database is a work-in-progress, however we believe that 1000+ games is a good starting point in mapping its growing games community.

The Hand Eye Society is a Toronto not-for-profit dedicated to supporting and showcasing videogames made primarily as a form of creative expression. We aim to provide exhibition opportunities, education, creative support, mentorship, knowledge sharing, and inspiration to artists, enthusiasts, and the game-curious in Toronto. Founded in 2009, it is one of the first videogame arts organizations of its kind in the world. Its mandate is: to help people make games, to connect independent game makers with each other and with an audience, to foster diversity in game creation, and improve public perception of games as a creative medium.

Introduction

This project was managed by 6 individuals. Sagan Yee is the project manager and recruited Sean Lerner (database developer), Chris White (design) and Chris J. Young (editor) to develop the database. Amanda Wong and Kai Winter are volunteer coordinators and additional editors who assisted with data entry. Amanda also performed the research and produced the final report. Michael del Grosso worked as an intern to help with supplementary work. This group, along with our volunteers, entered a total of 1021 games into the TOVGDB. A guide was created to outline how to fill in each game entry as a resource to refer to. We also created a Slack channel where we post gatherings, discuss suggestions, and report any bugs. Our main resources are derived from the Toronto Game Devs blog by Stephen Crane, a list of Toronto game companies from gamejobhunter.com, the lists of successful OMDC (Ontario Media Development Corporation) Interactive Digital Media Fund recipients, and the archive of the Toronto Game Jam website.

This report will largely be expressed with quantitative data. As a preliminary report, we think that it is important to outline initial numbers produced from our first round of data entries. Additionally, we think that it is best to assess the current data with quantitative figures to see if there are any growth trends in criteria that may have been missed during this round. It is also easy to visualize the validity of the data when we identify what is missing in each category so that we are able to assess why this has happened. Under these considerations, we will identify how many criterion are unaccounted for to demonstrate the need for further investigation in identifying both existing games in the database and games that have yet to be added. Lastly, this report will briefly touch on final conclusions and future considerations to further the progress of this project.

Each game is linked to multiple criteria under several different categories. Our main entry points include: developers, publishers, series, engines, initial release date, minimum and maximum number of players, types of play, pay models, platforms, types of distribution, distribution channels, and tags (see Tagging System, p.12). Additionally, we have short descriptions, long descriptions, images, videos, links, and sources as main points of entry. This report cannot comment on this secondary list of items as the database does not readily provide any quantitative information for them. This report also does not comment on game series as an entry point due to a very low number of games that actually have a series in the database. Not all fields are required to be filled out as not all information is immediately available to us. However, each entry needs the name of the game and whether or not it is local player or online play where applicable as the bare minimum.

Creators			
Total: 236 creators	Average: 3.43 games	Max: 28 games	Min: 0 games
Developers of a Game: 812	Publishers of a Game: 427	Both: 123 creators	Missing: 9 creators

The database holds a total of 236 creators which includes companies, publishers, developers, artists, and people of all backgrounds who are included in the game making process. On average, a creator has produced 3.43 games, with the highest number of games being 28 and the lowest being 0. There are 9 creators that do not have games attached to their names and are therefore not represented in the following data. We have narrowed down our definition of a creator to whether or not they are a developer, a publisher, or both. A developer is one who makes the games whereas a publisher is the one who advertises the games; sometimes people can be both. There are two times as many creators who are more likely to be developers rather than publishers, however a little more than half the creators are both developers and publishers of their own games. Figure 1 are bar graphs of the top 8 developers and publishers. With this data, we can identify an overlap between the two. There are 4 studios (Magitech, Zynga, Stegersaurus Software Inc., netgrind games) that appear as the top developers and publishers of (most of) their own games. Out of both lists, there are 4 solo creators who have made the top 8, and joining them are 8 studios.

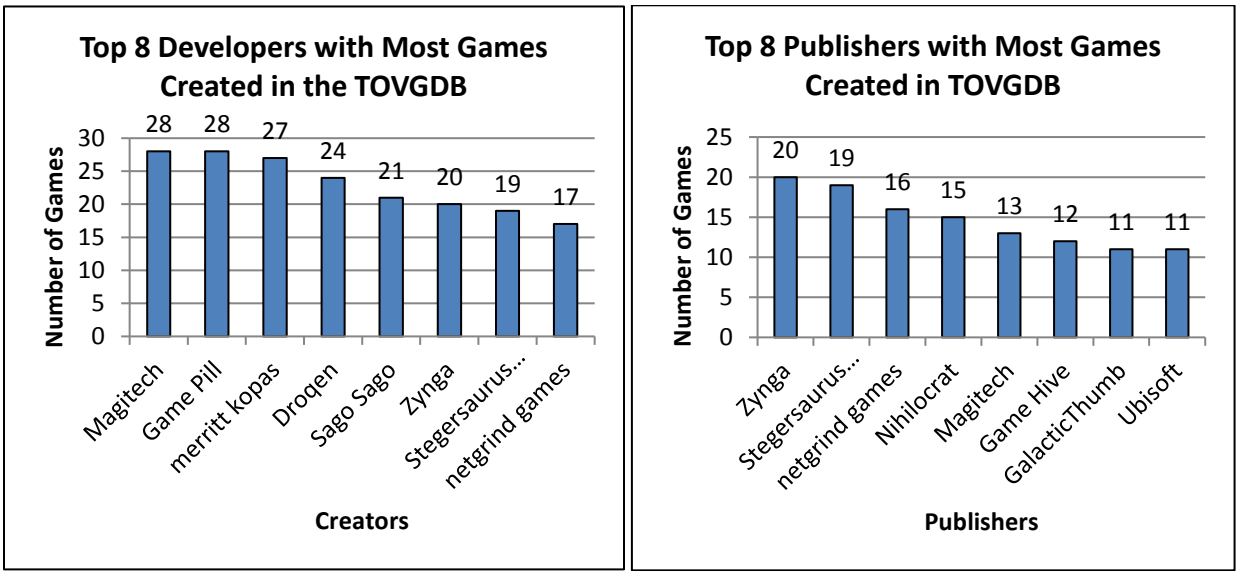

Fig. 1. Bar graphs of the top 8 developers and publishers with the most number of games created in the TOVGDB.

When looking at the number of creators who created less than 5 games, it is possible to predict the rate of game development growth in the GTA by looking at potential growth between the number of games creators have made since their first. Figure 2 represents the growth of how many creators continued to make games with a stacked bar graph and line graph. From looking at how many developers have made only one through five games, we can see a 19% increase of creators who have decided to create more games. Approximately 30% of first time game makers continued to make their second game. The growth decreases to 20% after their second game, 10% after their third game, and 5% after their fourth game. After five games, the rate of growth plateaus.

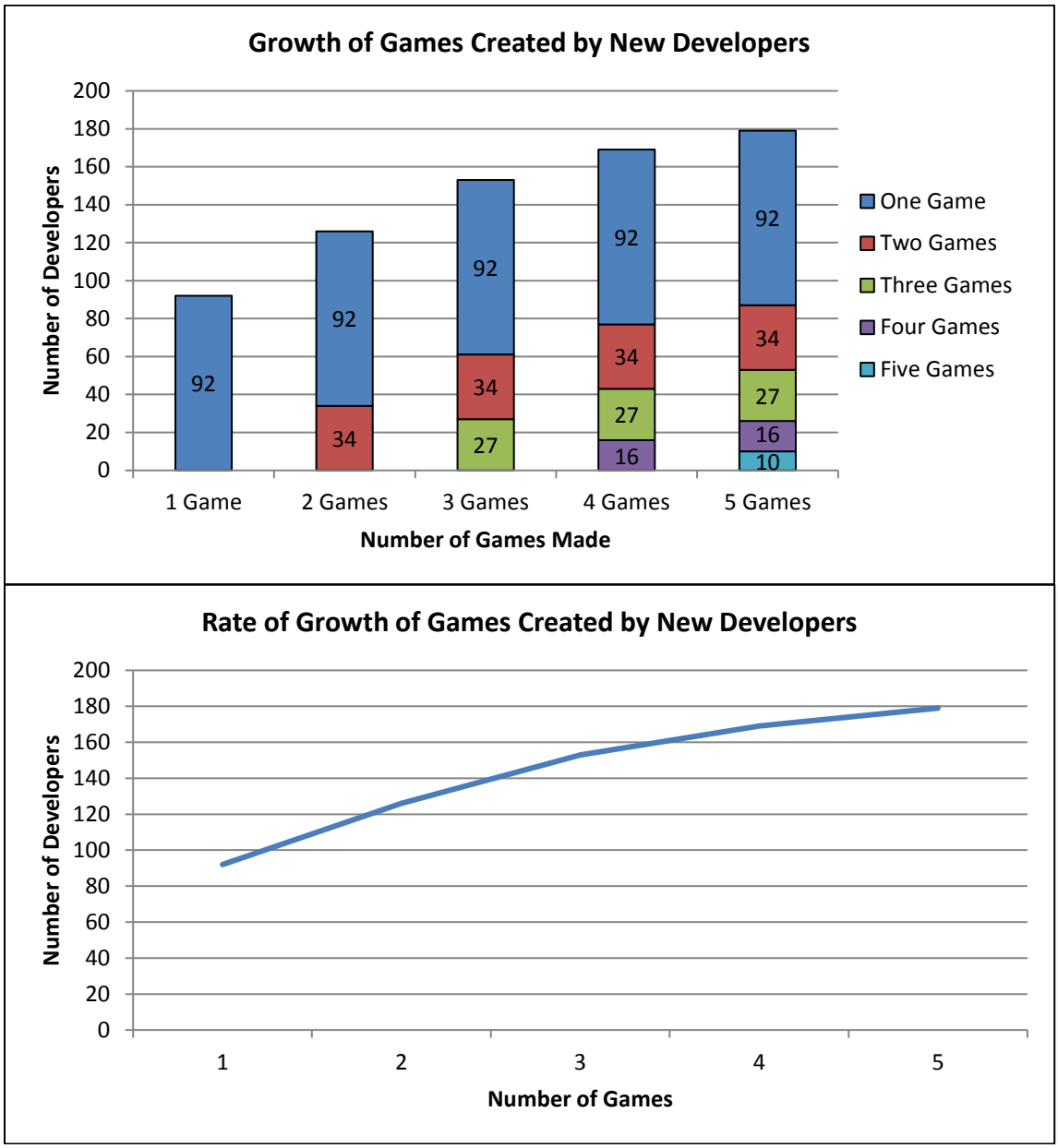

Fig. 2. Graphs displaying growth of new developers after they make their first game.

Yearly Game Releases

Total:	Newest:	Oldest:
374 dates	2017	1998
Most Releases:	Least Releases:	Missing:
2015 (85)	2004 and 2000 (1)	647 dates

This analysis of yearly game releases comes from grouping together all the dates of when a game had its first release. A total of 374 dates were recorded in the database however 647 dates are missing. In Figure 3, we see a positive trend of more games being released in recent years. Prior to 2007, there were only a total of 25 entries, with the oldest game dating back to 1998. Although more than half the games in the database are missing dates, a positive trend with a more even distribution would probably exist due to the fact that games are much easier to publish with digital distribution platforms such as Steam or itch.io (see Distribution Channels and Methods, p.9). Another reason that there are more game releases in recent years could be that, due to the increased online presence of games, a post date is more likely to be automatically recorded. It would be up to a creator's discretion to post an exact date or it would be the duty of a publisher to release this information.

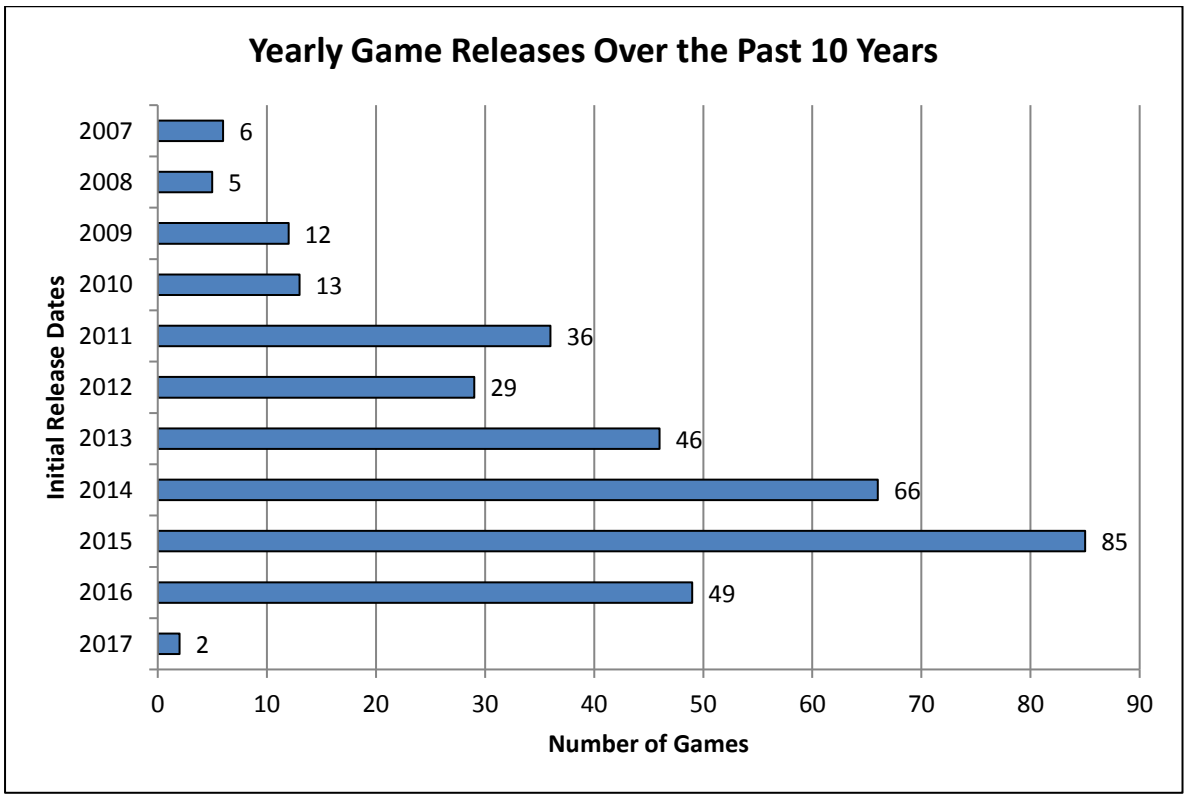

Fig. 3. Bar graph depicting the number of game releases over the past 10 years.

Number of Players

Total: 804 player modes	Single Player: 597 games	Two-Players: 64 games	Four-Players: 62 games
Multiplayer (>1 player): 146 games	More than Four-Players: 17 games	Missing: 214 games	

The database allows us to record the minimum and maximum number of players in a video game and this information has been broken down to Single Player, Two-Players, Four-Players, More Than Four-Players, and Multiplayer. A game can feature more than one of these playing modes. There are a total of 804 different player modes available in our list of games. Unfortunately, 214 games do not have a number of players to include in the data set. Figure 4 shows that 81% of games offer single player modes, 9% of games offer two-player modes, 8% of games offer four-player modes, and only 2% of games offer a game mode larger than four-players. Figure 5 demonstrates that there are 4 times more single player game modes than multiplayer game modes. This criteria has a much lower number of missing games and should be a better representation of information than the other sections of the database.

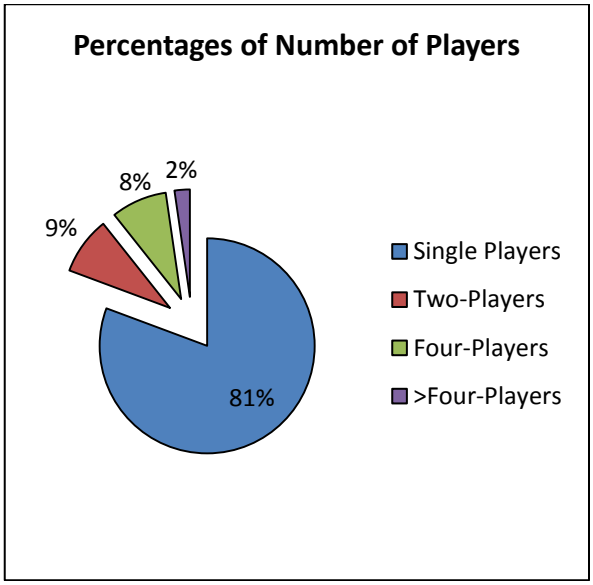

Fig. 4. Pie chart depicting percentages of number of players.

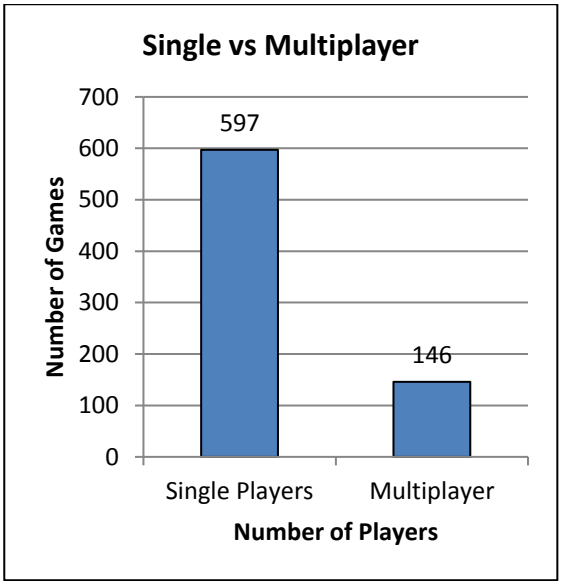

Fig. 5. Bar graph depicting the number of single player games versus multiplayer games.

Types of Play	
Total: 1021 games	Most: Local Play (956)
# of types of play: 4 types	Least: Co-op Play (16)

Type of play refers to how players physically play these games. The four types of play are Local, Online, Competitive, and Co-op. The database requires to select at least one option from this category to confirm its entry. Local Play is the default entry for this field as almost all videogames will require a player to play locally on a given platform. Online Play refers to the ability to play a game with Internet capabilities. Competitive Play is where players are playing against one another and its opposing type is Co-op Play which means players are playing with one another to move further in the game. A game can offer more than one type of play. As our most completed section, there is a total of 1021 games that have a type of play link. Figure 6 is a pie chart depicting the distribution of types of plays from all the games in the database. The most type of play is Local Play (956) and the least type of play is Co-op Play (16). There are 8 times more locally played game type options than online play and there are a little more than 2 times more competitive playing games than co-op playing games.

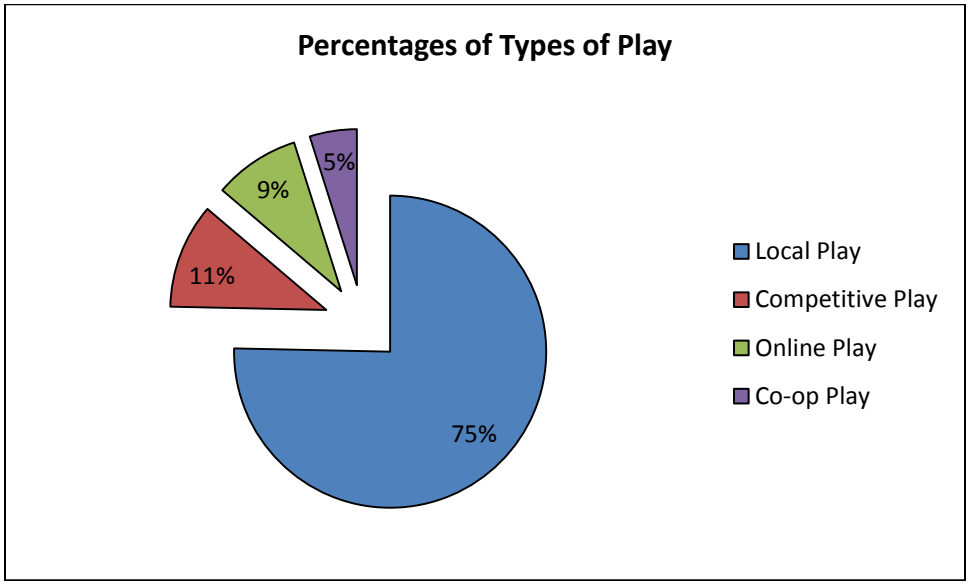

Fig. 6. Pie chart depicting percentages of types of play.

Game Engines

Total: 91 games	Most: Unity (31)	Least: Irrlich, Multimedia Fusion, Python, RPG Maker, txtr, UGAGS (1)
# of engines: 20	Missing: 929 games	

A game engine is the primary development tool used for the creation of the work. While numerous tools are used in the creation of a videogame, this field is used for the primary tool of creation. There are a total of 20 different engines (see Appendix A for a full list, p.18) and only 91 games in the database have an engine linked to it; 929 games are missing a game engine link. The game engine that has appeared the most is Unity (31), followed by Twine, and a 3-way tie between Construct, Flash and GameMaker Studio (1). Figure 7 shows the top 10 game engines recorded in our database. Some games are much more easily identifiable as certain game engines appear to be reflective on the type of games that are made, like interactive fictions with Twine or visual novels with Ren'Py. Information on the type of game engine used is not as readily available as other categories because the game making process is not a common advertisement feature that is often found on developers' websites.

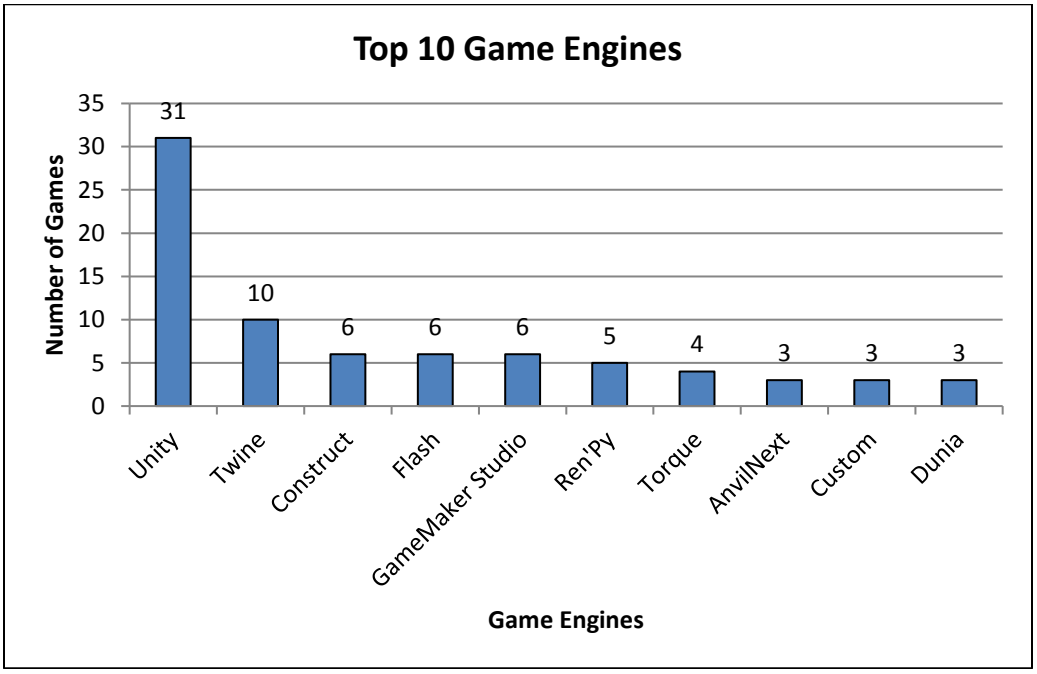

Fig. 7. Bar graph depicting the top 10 game engines.

Distribution Channels and Methods

Total:	Most:	Least:	# of channels:
425 games	itch.io (86)	Dropbox, Free World Group, Indiebox, Max Games, MediaFire, Nintendo eShop (1)	29

Digital Distribution:	Retail Distribution:	Digital and Retail:	Missing:
813	31	48	711 games

Distribution Channels and Methods are ways that games are made available to purchase and play from. There are 425 games that are labelled with 29 of our different channel options (see Appendix A for the full list, p.18). Developers can offer more than one type of distribution channel. The most popular distribution channel is itch.io (86) with our least popular distribution channels are Dropbox, Free World Group, Indiebox, Max Games, MediaFire, and the Nintendo eShop (1). The bar graph in Figure 8 shows that games are 26 times more likely to be accessed through digital distribution rather than retail distribution. We are missing 711 games with distribution labels, and however, it should be noted that our list of distribution channels do not include retail stores. Figure 9 tells us that 60% of games are distributed for personal computers, 29% are available on mobile devices, and only 11% of games are distributed through consoles.

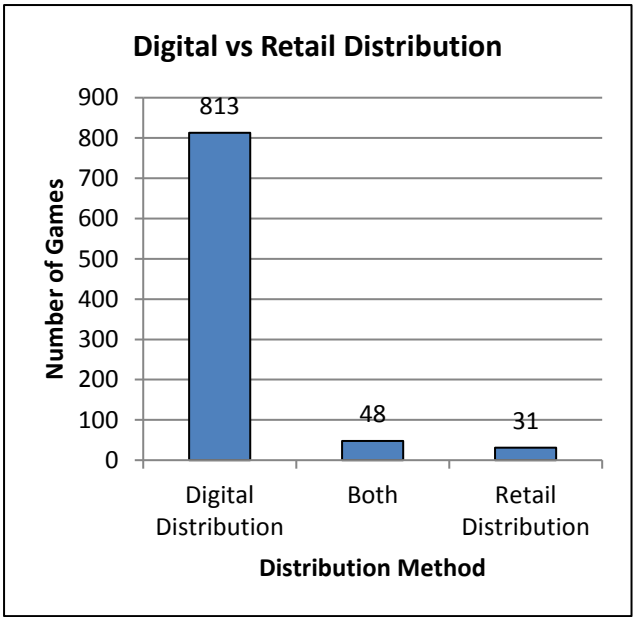

Fig. 8. Bar graph comparing digital and retail distribution practices.

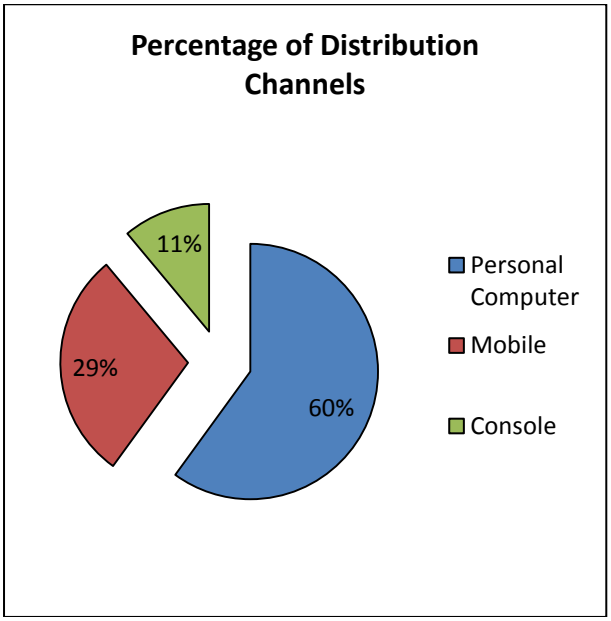

Fig. 9. Pie chart depicting the percentage of games accessed through computers, mobile devices and consoles.

Platforms		
Total: 804 platforms	Most: Windows (153)	Least: Custom & Nintendo GameCube (0)
# of platforms: 24	Missing tag: 606 games	

A platform is defined as a computing system of any sort upon which further computing development can be done. This can include both hardware and software platforms. There are a total of 804 different platforms that games are being offered to play on. Developers can offer more than one type of platform to play their games with. The database offers 24 different platforms to choose from (see Appendix A for the full list, p.18). There are 606 games with unconfirmed platform options. The most popular platform that games are played on is Windows (153) and the least popular is a tie between Custom and the Nintendo GameCube (0). Figure 10 shows that nearly 50% of games are played on the computer, which is attributed to a mix of Windows, Mac, and Browser-based games. Mobile devices fall slightly behind, amassing 36% of all games on the iPhone, iPad, iPod, and Android devices. Consoles take last place with only 15% of games made available on the three major consoles: Sony PlayStation 4, Microsoft Xbox One, and the Nintendo Wii U and all their predecessors.

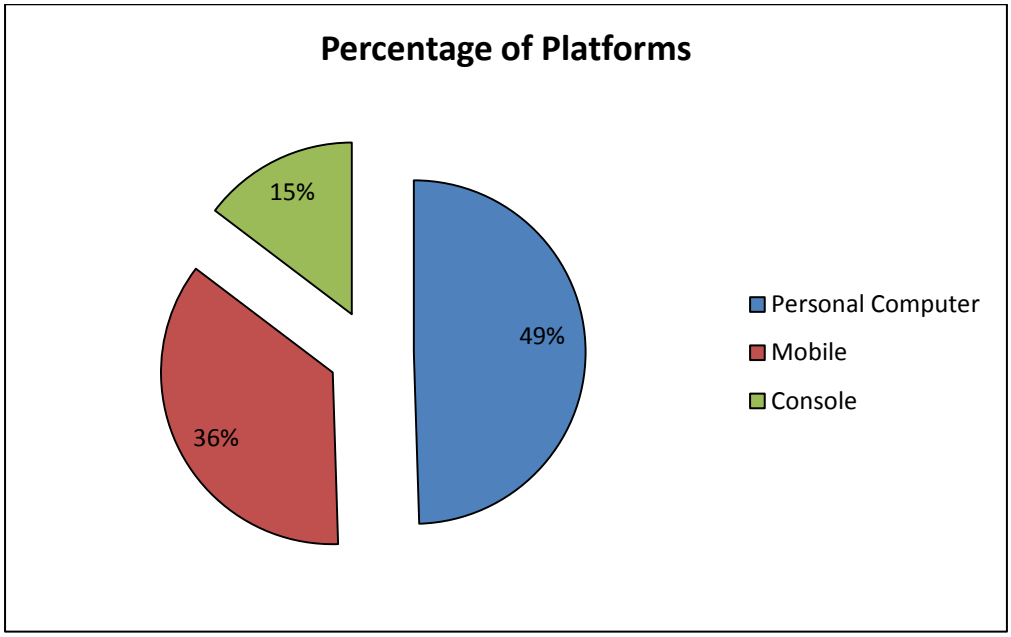

Fig. 10. Pie chart depicting the percentage of games played on computers, mobile devices and consoles.

Pay Model		
Total: 416 pay models	Most: Free (256)	Least: Free Trial (5)
# of pay models: 7	Missing: 642 games	

Pay models are varied between games and are more than just "for free" vs "to pay for". Our database offers 7 different kinds of pay models. Many creators offer differing levels of free-play, such as with free trials, ad-enabling or free-to-play services with chargeable bonus features, functions and/or virtual goods. Also, another pay service that creators offer is through donations. There are a total of 416 pay models that have been made available with the games in the database. However, 642 games are missing their available pay models. Figure 11 depicts the distribution of differing pay models. The most popular pay model is none at all, with 62% of games made Free-to-Play. The least popular pay model offered is Free Trial, only representing 1% of games. These results can be compared with the different kinds of distribution channels offered. Once information is more accurately filled out, we can start seeing the pay model distribution per distribution channel per platform.

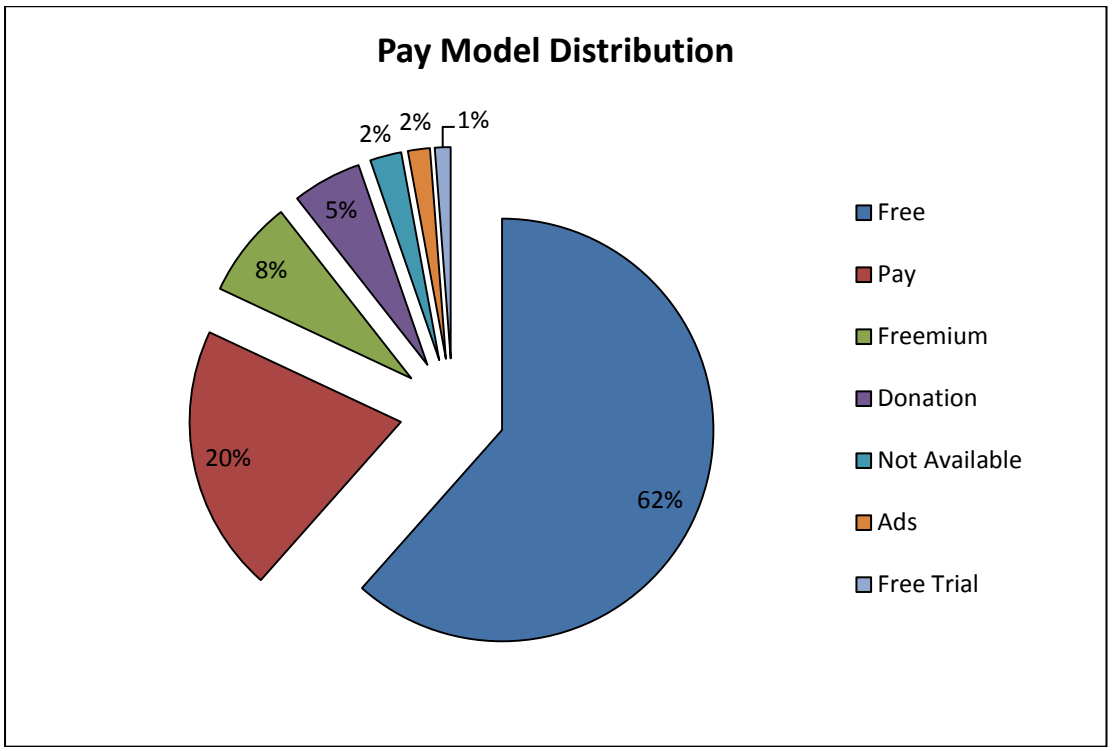

Fig. 11. Pie chart depicting the distribution percentage of differing pay models.

Tagging System

The main feature of our database is the tagging system. Ideally, users will be able to filter down to games that have a specific combination of tags in which they are most interested in. Users can also use the tagging system to explore games of unusual combinations, in hopes to find quirky, odds-and-ends-type games. Each game is tagged under the following categories: genres, styles, communities, awards, and themes. The full list of tags can be found in Appendix A on page 18. All games can have more than one tag. It should be noted that this is not an absolute list of possible tags as we hope to add more when more games are entered into the database. Most games will generally have more than one tag under each category, as many of them go hand-in-hand with certain terms. However, we hope that, more interestingly, tags can be contradictive through the endeavour of creator expression, creativity, and breakthrough. The following section will go through all the tags except for awards. Awards have proven to be more difficult to effectively record with our current entry format and further, a very small number of games have awards tagged to them. As a result, the data is incomplete and will be omitted in this initial report.

Genres		
Total: 790 tags	Most: Action (118)	Least: MMO (0)
# of genres: 36	Missing tag: 590 games	

A videogame genre is reflective on its general type of game play and can be a combination of different genres. Our database currently has 36 different genre tags in which users can choose from (see Appendix A for the full list, p.18). There are a total of 790 tags used on our games list, with our most popular genre tag being Action (118) and our least popular being MMO (Mass Multiplayer Online) (0). However, there are 590 games that are missing a genre tag and are therefore unaccounted for. Figure 12 shows the 8 most popular and least popular game genres pulled from the database.

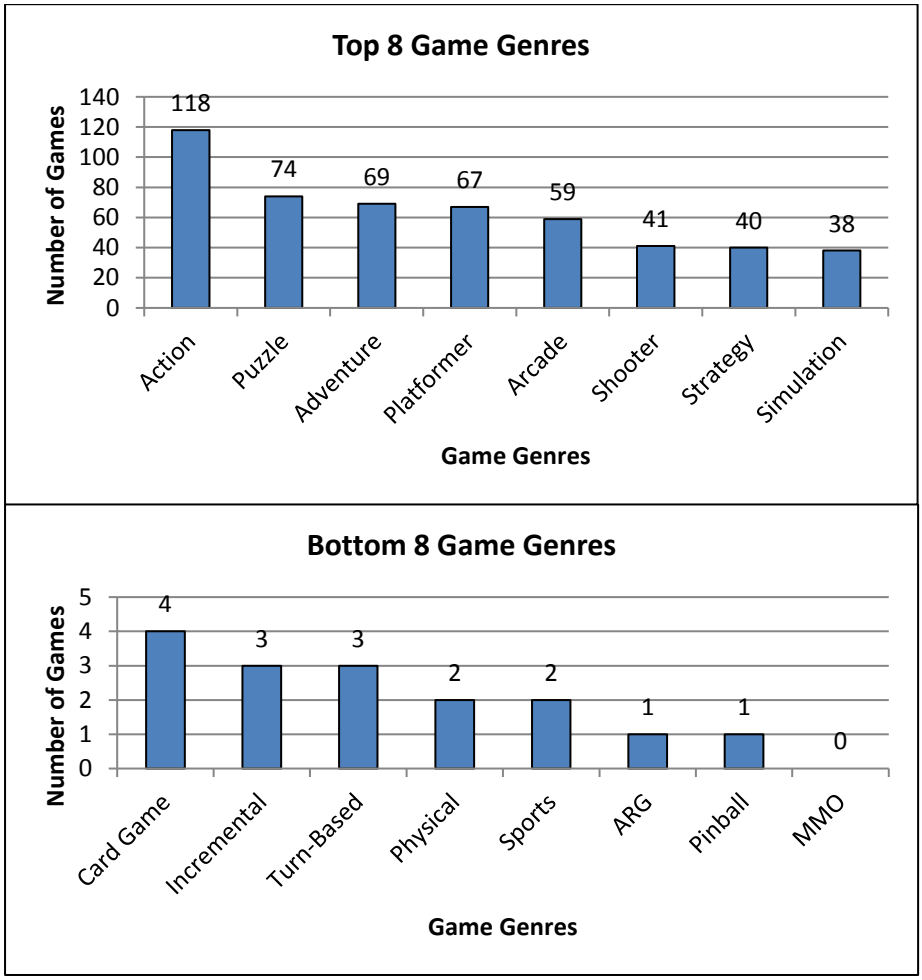

Fig. 12. Bar graphs depicting the top 5 and bottom 5 game genres.

Styles		
Total: 394 tags	Most: 2D (128)	Least: Audio & Papercraft (0)
# of styles: 15	Missing tag: 778 games	

A videogame style is reflective on its visual appearance and artistic design. Our database has a total of 15 different styles (see Appendix A for a full list, p.18). There are 394 different style tags that have been selected and more than one style can be tagged onto a game. The most popular style is 2D (128) and the least popular style is a tie between Audio and Papercraft (0). In this tag, 778 games are missing a style. Figure 13 shows the 5 most popular and least popular game styles pulled from the database.

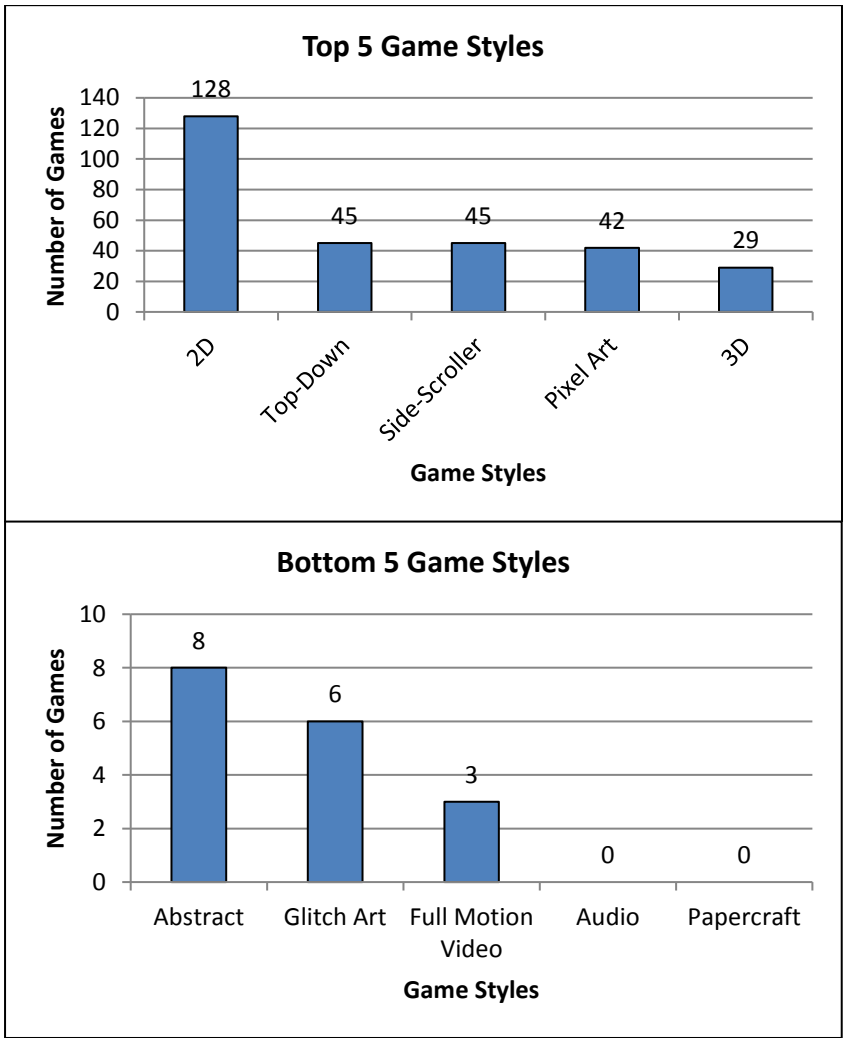

Fig. 13. Bar graphs depicting the top 5 and bottom 5 game styles.

Communities

Total:	Most:	Least:
376 tags	TOJam (166)	Fan Game, Torontron, Regions: Hamilton, Markham, Mississauga (0)
# of communities:	Missing tag:	
21	751 games	

The communities tag is unique to groups that creators identify with, whether it is geographically driven, identity based, or as part of a larger collective. A total of 376 community tags have selected. The database has a total of 21 different communities to choose from (see Appendix A for the full list, p.18) and games can be made from more than one community. The most popular tag so far are games made from TOJam (166) and the least popular tag are Fan-made and Torontron games as well as games made from Hamilton, Markham, and Mississauga (0) which are all regions of the GTA. A total of 751 games are missing a communities tag. Figure 14 is a bar graph depicting all the communities that are tagged to a game.

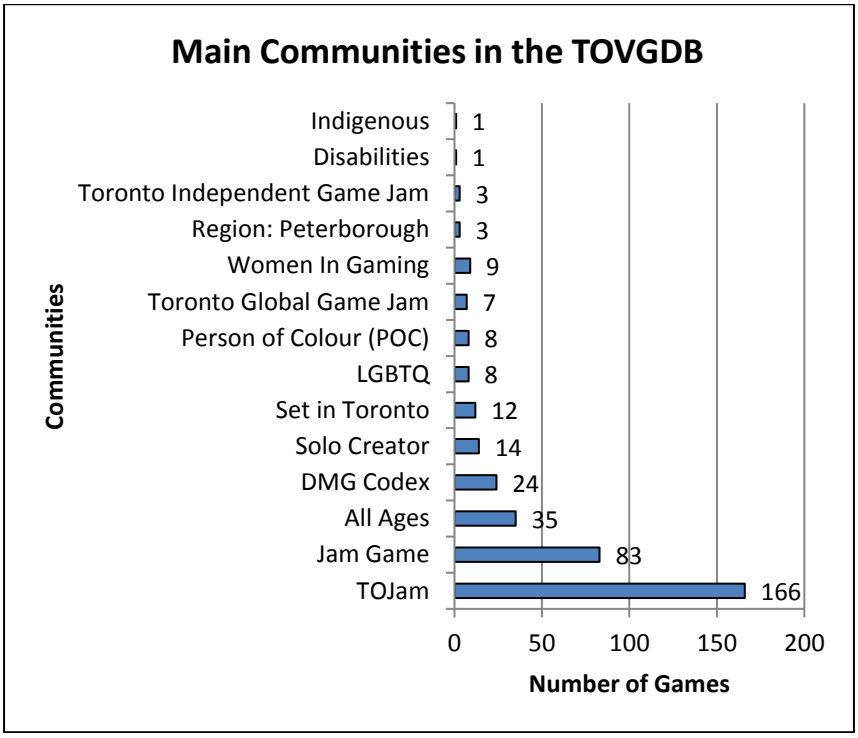

Fig. 14. Bar graph depicting the main communities in Toronto.

Themes		
Total: 338 tags	Most: Science Fiction (42)	Least: Sports & Newsgame (1)
# of themes: 21	Missing tag: 809 games	

A videogame theme is reflective on its particular scene and ambience. Our database has a total of 21 different themes (see Appendix A for a full list, p.18). There are 338 different theme tags and more than one theme can be tagged onto a game. The most popular theme is Science Fiction (42) and the least popular theme is a tie between Sports and Newsgame (1).There are 809 games that are missing a theme tag. Figure 15 shows the 5 most popular and least popular game themes pulled from the database.

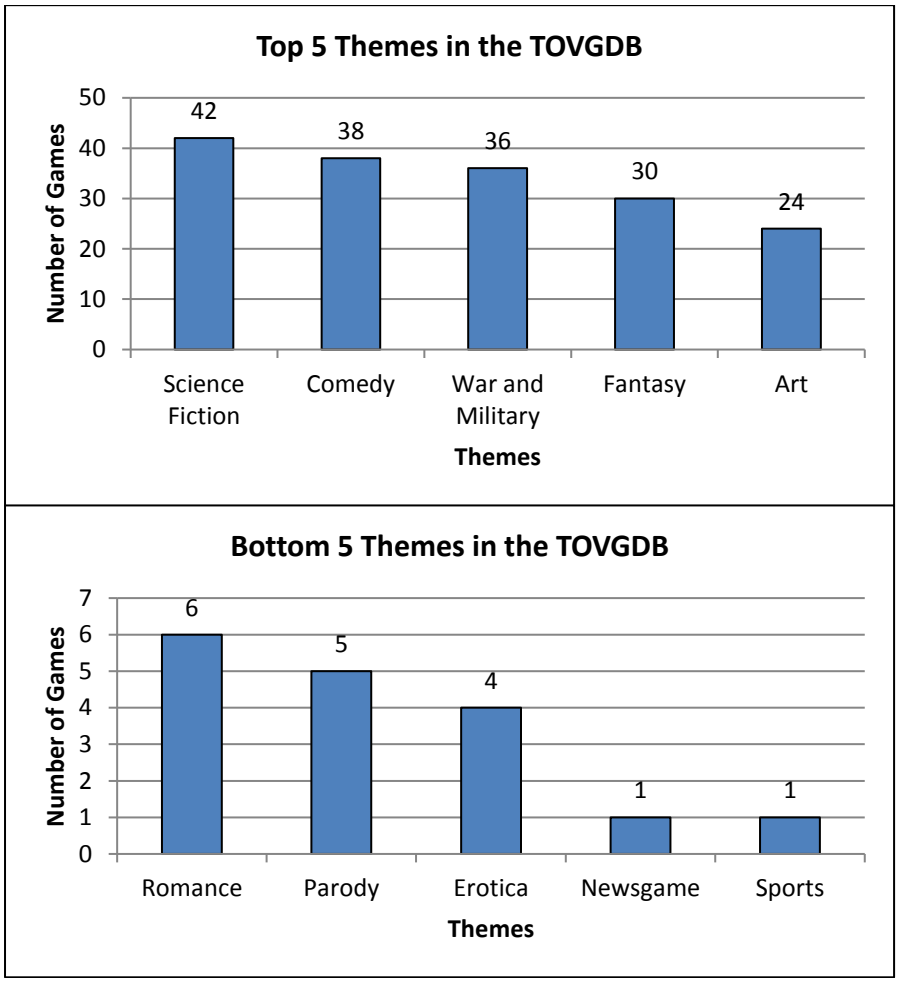

Fig. 15. Bar graphs depicting the top 5 and bottom 5 game themes.

Conclusions, Reflections, and the Future

The Toronto Videogame Database has been a great tool to keep record, and keep alive, all of the growing talent that has come out of the Greater Toronto Area. It is both surprising and unsurprising to know that although we have reached our 1000 game goal, that there are many more games that are missing. We are not just looking to be another "Wiki" project, but we are looking to become one of the premier resources for exploration and experimentation with games. We hope to set a playful rivalry with like-minded organizations in Austin and New York by challenging them amass a similar type of resource. Our intent is to draw attention to the database and give a tangible product to show off Toronto's vibrant game culture.

We hope to move even further with this project and start creating sustainable means of maintaining the database. There are a few improvements and changes that could aid to the future development of this project. For instance, it would be helpful to have some infrastructure aimed towards developing a comprehensive backend that would help with extracting and analyzing of the data entered. This would be helpful on two fronts. The first would help to identify areas which we are having difficulty filling out. We would then be able to correct any errors or improve upon the section so that we can add as much information as we can in the most efficient way. The second reason would help if wanted to continue to produce meaning for the information we have gathered. We need to have better infrastructure to translate this information into useable data and a better visual on the kind of information being collected.

Another area that could use some improvement is our tagging system. Right now, it is a unique exploration tool for users who are narrowing down a specific game or users who want to find games with weird combinations. However, in addition to filtering tags that users are specifically looking for, we think it would help to implement a de-selection of categories so people can filter what they are not interested in. For example, if a user was not particularly interested in games that are adventure-based or science fiction themed, they could have the option to filter out all games with these tags. Not only would this greatly help users narrow down their searches, but it takes into consideration users' dislikes as additional options in order to explore games that might better suit their preferences.

Lastly, we think that the database should be an open-source resource that the community can contribute to by themselves. Although we might not be able to support bi-weekly volunteer data-entry sessions as we have in the past, we could mimic a game jam-type event to collaborate intensively on entering games into the database over a weekend, for example. As a long-term, sustainable method, we could create accessible forms that developers and publishers can access to input their own information with. This way we would be able to have not only accurate information but information that might not be readily available to research such as the type of game engine used.

Appendix A - Lists of Criterion

Engines:	Distribution Channels	Platforms:
Adventure Game Studio	itch.io	Android
AnvilNext	iOS App Store	Browser
Construct	Steam	Custom Platform
Custom	Google Play	Facebook
Dunia	Mac App Store	HTC Vive
Flash	Xbox Live	iPad
Flixel	PlayStation Store	iPhone
GameMaker Studio	Download Links	iPod
Independently Developed	Game Link	Linux
Game Engine	Amazon.com	Mac
Inform	Kongregate	Makey Makey
Irrlich Game Engine	Game Purchase Link	Nintendo DS
Multimedia Fusion	Newgrounds	Nintendo GameCube
PICO-8	Capybara	OUYA
Processing	Desura	PlayStation 3
Python	GamersGate	PlayStation 4
Ren'Py	Humble Bundle	PlayStation Portable
RPG Maker	Amazon.ca	PlayStation Vita
Stencyl	GOG.com	PlayStation 2
Torque	Xbox One	Wii U
Twine	Gumroad	Windows
Txtr	OUYA	Xbox
UGAGS (Untold Graphic Adventure Game System)	Windows Store	Xbox 360
Unity	Xbox 360	Xbox One
Unreal Engine	Armor Games	
XNA	Dropbox	
	Free World Group	
	Indiebox	
	Max Games	
	MediaFire	
	Nintendo eShop	

Genres:	Themes:	Communities:
Action Adventure Alternative Controller Arcade ARG Board Game Card Game Experimental Exploration Fighting Incremental Installation and Site-Specific Interactive Fiction MMO (Mass Multiplayer Online) Music and Rhythm Narrative Open World Party Physical Physics Pinball Platformer Point and Click Puzzle Racing Real-Time Roguelike RPG Shooter Simulation Sports Strategy Survival Tower Defence Turn-Based Visual Novel	Art Autobiographical Comedy Drama Educational Erotica Fantasy Historical Horror Medieval Newsgame Parody Political Romance Satire Science Fiction Slice-of-life Space Sports War and Military Weird Styles: 1st Person POV 2D 3D 3rd Person POV Abstract Audio FMV (Full Motion Video) Glitch Art Low Poly Papercraft Pixel Art Realistic Side-Scroller Text Top-Down	All Ages Disabilities DMG Codex Fan Game Indigenous Jam Game LGBTQ Person of Colour (POC) Region: Hamilton Region: Markham Region: Mississauga Region: Peterborough ROM Game Jam Set in Toronto Solo Creator TOJam TOJam 2013 Toronto Global Game Jam Toronto Independent Game Jam Torontoron Women In Gaming