**Video Game Rating’s Effect on Sales**

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**Introduction**

Video gaming content has become more detailed and explicit with the introduction of modern computers and the improvement in technology. Publishers began pushing the boundaries of excessive violence and/or sexual content in games to increase sales for their respective companies. The ESRB (Entertainment Software Rating Board) was formed to help classify and assign age and content ratings on most consumer video games. This was in response to the growing number of complaints surrounding controversial video games.

The main question we put forth is whether games with a higher rating did in fact lead to greater sales numbers. A video game’s popularity also relies upon positive reviews and scores from critics alike. Therefore, we will also do comparative analytics between the two and see which had a greater impact. Techniques used will include data cleaning of missing values, exploratory analysis through association rule mining (genres and developers), clustering (by ratings and different markets), and regression analysis on the findings.

**Literature Review**

To better understand the ESRB rating system, an article explains how this voluntary group determines and enforce the ratings on games. Publishers send in an application to the board along with game footage and examples of potentially offensive content. The raters reach a consensus with a specific rating and then it becomes official. The report later states games rated ‘Mature’ sells slightly better than other games rated lower. [[1](#_References:)]

Although M-rated games sell better, it doesn’t necessarily mean that more titles in this category were being produced and released. In 2010, these games only made up of 5% of the total that were given a rating. However, among the top ten best-selling games in the United States five of them were rated ‘Mature’. [[2](#_References:)]

How about games with strong reviews? A study shows that games sold on Steam (a digital distribution platform for video games) with better Metacritic review scores will have a higher chance of selling more than ones with lower scores. Nevertheless, the data contained many outliers and the variability in sales performance could be the result of other factors. [[3](#_References:)]

The Entertainment Software Association (ESA) conducts business and consumer research on the video game industry in the United States. Their 2015 report on sales and usage data indicates that a product’s ESRB rating only accounted for 2% of factors influencing the decisions on buying video games. In the same breakdown, 3% were affected by the product reviews in magazines and video game websites. [[4](#_References:)]

# References:

[1] Ed Grabianowski "How the ESRB Works" 14 September 2005.

<https://electronics.howstuffworks.com/esrb.htm>

[2] Ben Kuchera “GAMING & CULTURE - 2010: 5% of games given M rating, including 29% of big sellers” 21 March 2011.

<https://arstechnica.com/gaming/2011/03/in-2010-5-percent-of-games-were-rated-m/>

[3] Kyle Orland “GAMING & CULTURE - Steam Gauge: Do strong reviews lead to stronger sales on Steam?” 23 April 2014.

<https://arstechnica.com/gaming/2014/04/steam-gauge-do-strong-reviews-lead-to-stronger-sales-on-steam/>

[4] Entertainment Software Association (ESA) “Essential Facts about the Computer and Video Game Industry” 2015 Sales, Demographic and Usage Data

<http://www.theesa.com/wp-content/uploads/2015/04/ESA-Essential-Facts-2015.pdf>

**Dataset**

A link to the dataset used can be found at <https://www.kaggle.com/rush4ratio/video-game-sales-with-ratings>. This data shows sales information from VGChartz for the past 30 years of video games from all platforms and markets along with their ratings and review scores from critics and users alike.

The following attributes will be used for the analysis: Genre, Publisher, NA\_Sales, EU\_Sales, JP\_Sales, Other\_Sales, Global\_Sales, Critic\_Score, Rating. All sales figures are in millions of units. Other\_Sales are game sales made up of the rest of the world (ie. Africa, Asia excluding Japan, Australia, Europe excluding the E.U and South America).

Attributes not used include: Name for the initial analysis though we may look at certain games with highest or lowest values in each category, Platform since our focus is on all games, Year of Release although we may revisit this separately to discover any possible trends, User\_Score since bias may exist. Critic\_Count and User\_Count as we are only concerned with the critic score itself, Developer.

**Approach**

Here will be the general guidelines and steps to my analysis: