Do Strong Female Arcs Make a Movie a Hit?

Mako Mori Test Data Analysis Project

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What Sparked This Project?

It all started after watching a movie that left me wondering:
Why are women so often portrayed only as supporting characters — love interests, sidekicks, or someone helping the hero — instead of having their own independent storylines?

This question led me down a path of exploring how often women are given meaningful, self-driven arcs in films. That's when I came across the **Mako Mori Test**, which became the foundation of this project.
But my curiosity didn't stop there. I also wondered:

Do most critically acclaimed or high-rated movies actually pass this test?
We often assume that award-winning or popular films must be progressive — but is that really true when it comes to female representation?

And with that, this project was born — blending data, storytelling, and social inquiry into one compelling analysis.

Project Motto

"Do movies with women having their own storylines perform better at the box office?"

That's the question we set out to answer using the **Mako Mori Test** — not just as a feminist lens, but as a business metric. We weren't here to just check if a movie passed the test, but to see if that *actually meant anything* in terms of commercial success.

What is the Mako Mori Test?

Named after the character Mako Mori from *Pacific Rim*, this test checks if a movie:

1. Has **at least one female character**,
2. Who has her **own narrative arc**,
3. That is **not about supporting a man's story**.

Unlike other gender tests (like the Bechdel Test), this focuses on **independent character development** — a subtle but powerful distinction.

Objective

This project had two main goals:

- Analyze a wide range of films to see how many pass the Mako Mori Test.
- Examine whether passing the test correlates with **box office success**.

Step 1: Data Cleaning

We started with a movie dataset containing:

- Title, Year, Genre, Plot
- Cast
- Box Office revenue (domestic + global)

Using **Pandas**, we:

- Removed duplicates & null entries
- Cleaned up text formats (genre, cast names)
- Focused only on English-language feature films

Step 2: Gender Detection & Arc Analysis

This was the backbone of our Mako Mori evaluation:

- Used gender-guesser to guess actor genders from first names.
- Filtered for at least **one female in the cast**.
- Used **NLP (keyword-based search)** to scan the plot for phrases suggesting the woman had her own arc.

We marked a movie as **"Passed"** if:

- A female character was detected,
- AND she had an arc described in the plot that was not tied to a male character's goals.

Step 3: Analyzing Box Office Revenue

Now to the money:

- We used the revenue column to assess performance.
- Separated movies into **Passed** and **Failed** groups.
- Compared **average**, **median**, and **distribution** of box office revenue between the two.

Results:

Category	Avg Revenue ($M)	Median Revenue ($M)
Passed Mako Mori Test	182.4	105.7
Failed Test	142.3	88.2

Observation:
Movies that passed the test **generally performed better**, especially in the **mid-to-high range**. There were a few blockbuster outliers on both sides, but the pattern was clear: **strong female narratives didn't hurt revenue — they often helped.**

Visuals

We used seaborn and matplotlib to plot:

- Revenue distribution for passed vs. failed
- Year-wise trend of Mako Mori passing films
- Genre-wise distribution of passing rates

What We Found

- Around **36–40% of movies** in our dataset passed the Mako Mori Test.
- These movies had **higher average revenue** than those that failed.
- **Drama**, **Action**, and **Sci-Fi** were more likely to feature women with their own arcs.
- The **post-2010 era** shows a noticeable uptick in female-led narratives — and box office figures supported the trend.

Why This Matters

This project wasn't just about numbers — it was about debunking myths.

"Stories about women don't sell."
False. The data proves otherwise.

As more studios prioritize inclusive storytelling, understanding these patterns helps bridge **social impact with business strategy**.

Tools Used

- Python (Pandas, Seaborn, Matplotlib)
- NLP for keyword analysis
- Box office figures from open-source movie datasets – Kaggle

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Final Thoughts

Not every movie with a female arc will be a hit, and not every hit needs one. But what we've seen is clear: **when women lead with purpose, audiences show up**.

So next time someone says, *"Female-centric films don't work,"* **— show them the data**!