

Data Modelling and Analysis of Sequential Images Used in Comic Books

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Abstract: Sequential images used in comic books are not simple cases of composing single images together. The motivated sequential images contained meaningful information to attract people and suit their reading behaviour. Previous research argued that the way of sequential images used in comics belong to a visual language used in the visual narratives, and panel transitions between sequential images in comics have been considered as a basic structure of visual language. Our study used major types of panel transitions to research the difference of visual language usage between the genres of seinen and shonen comics through accounting their frequency of appearance in 18 books. The results showed that each type of panel transitions recur in both genres of comics. However, some of the particular panel transitions have been found different proportions of usage in each genre, which implies that each genre constitutes their own preference of the structure of visual language.

1 INTRODUCTION

Sequential images are art forms that use images displayed in a specific order for the purpose of visual storytelling. They record the information of continuous motion dating back as far as ancient paintings. In contemporary society, sequential images appear in many different occasions, especially in comics. It contains codes, symbols and logical consecution which are considered as a visual language. The ways of sequential images used in comic books have been investigated by many researchers. The comprehension and cognition of visual narratives have been conducted and summarized the structure of visual language. However, the difference of genre's visual language, like in seinen and shonen comics, are rarely investigated.


The artform of comic books combines narrative and visual art to construct vivid realms. Visual language is one of the most active research areas in narrative and visual art of comics and has many applications. The representation of visual language


used in comics facilitates the transmission of information that helps readers rapidly to get the core plot from comic story clips.


2 RELATED WORKS

The way of sequential images used in comics is a complex phenomenon appearing on visual language grammar showing many different forms.

Cohn (Cohn,1999) argued that conventionalized sketching system in comics, constitute visual languages that are comprehended in analogous ways to language. Later, Cohn (Cohn,2013) further expounded that comics are designed in visual language of sequential images that combined with symbols and text depending on contemporary theories of linguistics and cognitive psychology. As far as we concerned, individual words contain a great deal of meanings in language, but the real power of language comes from its sequence. Visual languages use a lexicon of order with symbolic meaning stored in human's memory, strategies for reshaping these

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orders to meaningful images. The structure of visual language comes from the coherent expressions of sequential meaningful images. Using multiple images and their suitable visual language grammar can create a cohesive meaning of comics.

3 THE VISUAL LANGUAGE GRAMMAR OF COMICS

Based on contemporary theories of linguistics and cognition, visual narrative contains attractive information by using visual language to attract audience which is more efficient than other storytelling methods.

Visual language can be said to have a ‘grammar’ is hotly debated (Kress and Van, 1996; Forceville, 2020) Posits visual language of comics largely have structure. The grammar of visual language used in comics is different in the highly specific sense than human language. It constrains sequences to present meaning in ways that make sense. The logical order of sequential images has been used in comics contains semantic information. It helps reader experience and understand the story.

This research explains how differences of visual language in use to comics. The major approach to explore the secret of visual language grammar was popularized by Scott McCloud (McCloud,1993), who hypothesized that sequential images of comics which contain symbols can be derived from the linear relationships between panels. The structure of visual language grammar could be accomplished through six major types of ‘panel transitions’ which are moment to moment transition, action to action transition, subject to subject transition, scene to scene transition, aspect to aspect transition, non sequitur transition. Those major transitions are considered as basic structure of visual language. The above panel transitions have been used in this study to evaluate the difference of the form of visual narratives in seinen and shonen comics.

4 METHODS

4.1 Materials

To test whether and how visual language grammar used in comics, we set survival rules for data collection. First, we found authoritative website “www.oricon.co.jp” to arise out the frequency of different type of Sequential images from top sales

volume in comic books which collected from the website of comic sales ranking lists. Second, we used a statistical method that took 20 pages of comics from each comic book per year from 2019 to 2021. It is found that different comics have their own rates to use panel transition.



Figure 1: A example of selection of panel transitions

Genres of comics are often delineated by the age of intended audience such as shonen and seinen. Different genres have their own expected methods for comic storytelling. Shonen comics normally take on adventurous themes including sports, fantasy, or scenarios that often revolve around competition. In contrast, seinen comics pay more attention to the emotional and psychological states of their characters (Brenner,2007; Drummond,2010; Prough, 2010).

In terms of visual language grammar, Shonen and seinen comics having different methods for storytelling. The structure of visual language in Shonen and seinen comics are different across many dimensions of visual narrative. One noticeable

difference has found which is the usage of sequential images.

4.2 Data Analysis

This research focusses on how difference of usage of visual language grammar between shonen comics and seinen comics, we used a statistical method by counting the frequency of appearances of different “panel transitions” of comics. Averagely, 20 pages per book, with around 66 panel transitions were recorded from shonen comic books. 20 pages per book, with around 69 panel transitions were recorded from seinen comic books. Overall, we recorded for 360 pages and around 1214 panel transitions from both shonen and seinen comic books. Table 1-6 show the frequency of appearance of panel transitions in different shonen and seinen comics.

Table 1: One Piece serialized in Shonen Jump

One Piece	2019		2020		2021		Three-years average	
Moment-M	0	0%	0	0%	1	2%	1	1%
Action-A	12	24%	3	24%	10	20%	35	23%
Subject-S	29	58%	33	60%	27	54%	89	57%
Scene-S	2	4%	2	4%	2	4%	6	4%
Aspect-A	3	6%	5	8%	6	12%	14	9%
Non-S	4	8%	2	4%	4	8%	10	6%

Table 2: My Hero Academia serialized in Shonen Jump

My Hero Academia	2019		2020		2021		Three-years average	
Moment-M	0	0%	0	0%	0	0%	0	0%
Action-A	12	19%	16	8.75%	10	20%	35	23%
Subject-S	45	73%	33	77.5%	27	54%	89	57%
Scene-S	4	6%	2	4%	2	4%	6	4%
Aspect-A	1	2%	5	8%	6	12%	14	9%
Non-S	0	0%	2	4%	4	8%	10	6%

Table 3: Jujutsu Kaisen serialized in Shonen Jump

Jujutsu Kaisen	2019		2020		2021		Three-years average	
Moment-M	1	1%	0	0%	0	0%	1	0.4%
Action-A	13	15%	7	8.75%	2	10%	22	8.8%
Subject-S	65	71%	62	77.5%	59	77%	186	74%
Scene-S	4	4%	2	2.5%	9	11%	15	6%
Aspect-A	8	9%	7	8.75%	9	11%	124	9.6%
Non-S	0	0%	2	2.5%	0	0%	12	0.8%

Table 4: Kingdom serialized in Seinen Jump

Kingdom	2019		2020		2021		Three-years average	
Moment-M	0	0%	0	0%	0	0%	0	0%
Action-A	15	20%	12	15%	7	8%	34	14%
Subject-S	59	77%	55	69%	63	76%	177	74%
Scene-S	0	0%	4	5%	4	5%	8	4%
Aspect-A	2	3%	9	11%	8	11%	118	8%
Non-S	0	0%	0	0%	0	0%	10	0%

Table 5: Kaguya-sama: Love Is War serialized in Seinen Jump

Kaguya-Sama	2019		2020		2021		Three-years average	
Moment-M	1	1%	0	0%	1	2%	2	1%
Action-A	7	10%	4	6%	4	7%	15	7%
Subject-S	48	67%	55	80%	46	75%	149	75%
Scene-S	5	7%	6	9%	6	10%	17	8%
Aspect-A	3	4%	1	2%	3	4%	17	5%
Non-S	8	11%	2	3%	1	2%	111	5%

Table 6: Golden Kamuy serialized in Seinen Jump

Golden Kamuy	2019		2020		2021		Three-years average	
Moment-M	1	0%	0	0%	1	2%	1	0.5%
Action-A	0	0%	12	19%	6	10%	15	10%
Subject-S	42	74%	36	56%	49	79%	149	69%
Scene-S	7	12%	7	11%	2	3%	17	9%
Aspect-A	8	14%	11	14%	4	6%	17	12.5%
Non-S	8	0%	0	0%	0	0%	111	0%

4.3 Results

Across our research materials, all types of ‘panel transitions’ are appeared both Shonen and Seinen comics. The frequencies of panel transitions usage per comic book remained roughly the same across both Shonen and Seinen comics.

The most used panel transitions in comics in our materials were subject to subject transitions and action to action transitions. While rest of panel transitions were more balanced across genres.

The significant differences were found in the way of using panel transitions between shonen and seinen which are subject to subject transitions and action to action transitions. Shonen comics used more action to action transitions on their visual narratives. In contrast, Seinen comics used more subject to subject transitions on their visual narratives.

Table 7: Panel transition usage in shone and seinen comics.

	Shonen Comics		Seinen Comics	
Moment-M	2	1%	3	0.5%
Action-A	88	15%	67	11%
Subject-S	404	68.7%	453	72.8%
4Scene-S	32	5%	41	6.4%
Aspect-A	50	9%	49	7.8%
Non-S	14	2.3%	11	1.5%

5 CONCLUSIONS

This study focus on the proportions in using different “panel transitions” in the visual language of comics. The result showed that shonen comics and seinen comics have their own expression of structure of visual language. We also found that these “panel transitions” in shonen comics and seinen comics have common properties.

The results can be interpreted that panel transitions represent a different information of the broader abstract visual language which contain the logic reading habits of comic readers by their ages.

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