

What are we watching?

Food and food systems in anime

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우리는 과연 무엇을 보고 소비하고 있을까? 일본 애니메이션 속 식품과 식품 시스템

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Abstract

Food consumption is influenced not only by physiological needs, but also by cultural, environmental, and social factors. Technological advancements and global interconnectivity have shaped consumers' perceptions of food, especially among the youth. Social media and popular entertainment such as TV series and anime influence food consumption habits, blurring geographical and cultural boundaries. This study explains how food and the food system are portrayed in selected anime series, One Piece, Kimetsu no Yaiba, Gin no Saji, and Dr. Stone, to lay the foundation for how anime can possibly influence food habits, choices and consumption of its viewers in the future. Through Greimas's model, a conceptual framework that incorporates visual communication and semiotic analysis, the research investigates the multifaceted roles of food such as a core plot element and a narrative tool in the two most-watched anime, One Piece and Kimetsu no Yaiba. The study discusses how food is presented in the stories, reflecting character identities, mirroring characters' emotions, and representing themes of connection, care, gratitude, respect, strength, survival, and deception. Additionally, the analysis highlights the implications of food scarcity, locality, and sustainability portrayed within the context of the anime Gin no Saji and Dr. Stone, offering insights into broader environmental and social concerns. The findings reveal that food in anime serves not only as a source of sustenance but also as a powerful medium for storytelling and revealing the truth of modern food systems, ultimately allowing the audience to better understand the world they inhabit.

식품 소비는 생리적 욕구뿐만 아니라 문화적, 환경적, 사회적 요인의 영향을 받는다. 최근 기술 발전과 세계화는 특히 젊은 세대를 중심으로 식품에 대한 소비자 인식에 큰 변화를 가져오고 있다. 소셜 미디어(SNS)와 TV 프로그램과 일본 애니메이션 등 엔터테인먼트 콘텐츠는 식품 소비 습관에 영향을 미치고 있으며, 동시에 지리적 문화적 경계를 허물고 있다. 따라서 본 연구는 일본 애니메이션 시리즈인 원피스와 귀멸의 칼날, 은수저, 닥터 스톤에 나타난 음식과 식품 시스템의 묘사를 분석함으로써, 향후 애니메이션이 시청자의 식습관, 식품 선택 및 소비에 어떤 영향을 미칠 수 있는지를 탐색하고자 한다. 시각적 커뮤니케이션과 기호학적 분석을 결합한 그레마스 방법론을 통해, 크런치롤(Crunchyroll)에서 시청률이 가장 높은 두 작품, 원피스와 귀멸의 칼날에서 음식이 핵심요소이자 네거티브 장치로서 수행하는 다면적 역할을 조사다. 해당 분석은 음식이 어떻게 캐릭터의 정체성과 감정을 반영하고, 관계·배려·감사·존중·힘·생존·속임수 등의 주제를 표현하는지를 고찰한다. 또한 은수저와 닥터 스톤에서 드러난 식량 부족, 지역성, 지속 가능성을 분석하여, 보다 광범위한 환경 및 사회적 이슈에 대한 통찰을 제공한다. 연구 결과에 따르면, 애니메이션에서 음식은 생계의 수단을 넘어서 스토리텔링과 현대 식품 시스템의 현실을 드러내는 강력한 매개체로 작용하며, 궁극적으로 관객이 자신이 살아가는 세계를 더 깊이 이해할 수 있도록 돕는다.

Keywords: Content analysis, food systems in media, food representation, roles of food, sustainability in media, visual communication

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Abbreviations

CGI	Computer-generated Imagery	16
Ep.	Episode	22
GHG	Greenhouse gas	11
ONA	Original Net Animation	20
OTT	Over-the-top	11
OVA	Original Video Animation	20
S	Season	22

Definition of Terms

Anime	Anime, an abbreviation of the English word 'animation', serves as an overarching term that includes Japanese animated
	TV series and movies which are in the form of hand-drawn
	and/or computer-generated animation. Outside of Japan and in
	English-speaking contexts, anime specifically refers to animation produced in Japan.
Light Novel	A light novel, as one can deduct from the name, is a novel that
-	one can read lightly. It is usually a type of game novel that
	targets teenagers as their reader and is highly likely to be
	animated like games and manga (Choi & Kim 2010).
Manga	Manga, meaning 'whimsical pictures (漫画)' in Japanese, are
	comics or graphic novels that are originated from Japan.
	Outside of Japan, it specifically refers to comics that have been
	originally published in Japan (Gravett 2004).
Moe	Meaning 'to bud, sprout; be aroused', Moe (萌え) is a Japanese
	neologism that refers to infatuation with a particular object or
	the symbolic attraction of an object that one is infatuated with.
	It mainly refers to the attraction of characters in 2D media such
	as anime and games, but it can also be defined as a deep
Otaku	emotion felt towards a specific object (Galbraith 2014). A word that is derived from a Japanese word for one's house
	or family (お宅), its narrow definition is a person who is
	obsessed with Japanese anime and manga. Until recently, the term had negative connotations (Ito <i>et al.</i> 2012). In a broad sense, the term otaku can also refer to people who love a
	particular hobby or culture.

1. Introduction

This first chapter presents the background of the research problems along with the study's aim, research questions, and delimitations.

1.1 Problem Background

Food consumption is intrinsically linked to human life, determined not only by physiological needs but also intertwined with complex cultural, environmental and social factors. The recent decades have brought about technological development and global interconnectivity, thus adding other dimensions to how we think about and relate to food. Of those factors, communication channels like social media and popular entertainment, such as TV programs and anime, are becoming strong shapers of perceptions of the habits of food consumption in ways that blur geographical and cultural boundaries, especially among youth (Crockett and Sims 1995; Ozer 2003; Wiecha *et al.* 2006; Villegas-Navas *et al.* 2020; Basaran and Sunnetcioglu 2021). Considering that food systems contribute to a third of the global greenhouse gas (GHG) emissions (Crippa *et al.* 2021), examining how food and food systems are portrayed in those media becomes critically relevant.

Once only enjoyed by Japan and some Asian countries, anime (Japanese animation) is now an entertainment medium enjoyed internationally. With the development of over-the-top (**OTT**) media services such as Crunchyroll, Netflix and Amazon Prime and the increasing availability of various types of anime on those services, more and more people have access to watching anime. Alongside this, the number of users of the biggest anime streaming website, Crunchyroll, has been increasing rapidly, recently surpassing 15 million paying subscribers (Statista 2024). This increased interest in anime has led people to explore everything from Japanese history and mythology to Japanese cuisine and even awakened the desire to travel to Japan (Basaran and Sunnetcioglu 2021; Sachan *et al.* 2023; Shadaan 2024).

Despite much research on how TV programs and social media portray food and influence audiences in their food habits, choices and consumption (Crockett and Sims 1995; Dickinson 2000; Ozer 2003; Wiecha *et al.* 2006; Roseman *et al.* 2014; Holmberg *et al.* 2016; Quettina *et al.* 2019; Villegas-Navas *et al.* 2020), very little is known about how anime is portraying and depicting food and the food system in the aspects of scarcity, locality and sustainability. These three themes were specifically chosen because, for sustainable and resilient food systems, considering local contexts and understanding limitations of resources are significant (Willett *et*

al. 2019; Huntington *et al.* 2021; Loring and Sanyal 2021). The integration of food and the food system in anime reflects its deep cultural significance and serves as a means to explore emotions, social challenges, and sustainability concerns. A lack of critical examination of these representations could lead audiences to develop distorted views of real-world food issues. Furthermore, without a comprehensive understanding of how anime addresses food-related issues, researchers and policymakers might neglect to acknowledge its potential influence on audience perceptions concerning food systems and awareness of sustainability. However, anime is an economic 'product', and thus there might be economic reasons for certain topics to be frequently drawn. This provides another reason why this paper has meaning: showing what the audience is watching or missing.

This study examines how food and food systems are visualised and shown to the audience. It begins with a content analysis of the two most watched anime and then proceeds to a content analysis of the two purposely chosen anime. This structure provides a context-bound analysis for understanding how anime can influence an audience's food habits and consumption.

1.2 Aim and Research Questions

The aim is to explain how food and food systems are depicted in anime and lay the foundation for how anime can possibly influence the audience's food habits, choices and consumption in the future. The research questions relate to reactions to the anime and the content of the anime:

- 1. What roles does food have in anime? How is food used to convey plot, emotions and character development?
- 2. How does anime use food to explore themes of scarcity, the local sourcing of food and sustainability in the food system?

1.3 Delimitations

This study confines itself to four anime, which were selected based on their popularity and thematic relevance, with a focus on analysing how food and food systems are depicted. The anime chosen provides valuable insight into the representation of food and food systems but is not representative of all possible visualisation and illustrations of the medium. Other anime may depict food and food systems in different ways, presenting other possible perspectives that were not explored in this study.

This study was limited by several factors, mostly the limitations of time, resources, and the fact that it was conducted by a single researcher. While a larger research team would have provided various perspectives and a more comprehensive analysis, this research relies solely on the interpretation of one researcher. The analysis was conducted through content analysis, with the approaches of visual communication and semiotics of media. Due to limited resources, no additional audience studies were carried out, meaning the research does not connect to direct

audience feedback or their interpretation. While this method is useful for analysing the visuals with texts, other forms of methodological approaches, such as surveys, could have led to alternative results. Acknowledging these limitations, the findings of this study should be understood within the context of content analysis and semiotic interpretation rather than as a representation of audience perception.

The conceptual framework is based on Greimas's model of the generative trajectory of meaning. This well-established framework has been widely used by researchers to analyse visual images and understand the meanings behind them. Its structured approach provides a systematic way to analyse visuals, narratives, relationships, and underlying semiotic structures, and is therefore extremely useful in exploring meanings in visual media. Greimas's model helps in analysing how meaning is constructed and can be interpreted, making it especially valuable for studies focusing on visual communication and media representation. However, the framework also has its limitations. Its systematic foundation assumes a relatively fixed meaning in visuals, which may not best represent the dynamic and fluid nature of audience interpretation in different cultural or social contexts. Moreover, although the model is effective in breaking down visual narratives, it does not necessarily include audience reception or real-world contextual influences, which may result in a more restricted view of meaning. Despite these limitations, Greimas's model remains a powerful analytical tool for this project, offering a systematic approach to examining visual meaning.

2. Empirical Background

This chapter provides a brief introduction to the empirical background this study is based on. This includes a background of terms and a history of anime.

2.1 Background of Terms

The genres of anime typically focus on specific demographics, including categories like kodomo (子供, aimed at children), shoujo (少女, at young girls), shounen (少 年, at young boys), josei (女性, at young adult women) and seinen (青年, at young adult men), though these categories are very flexible, as people of all ages enjoy watching anime and reading manga (Japanese comics) (Napier 2006). These demographic genres expand to include additional aspects such as action, adventure, avant-garde, boys love, comedy, drama, fantasy, girls love, gourmet, horror, mystery, romance, sci-fi, slice of life, sports, supernatural and suspense (MyAnimeList n.d.a). Anime is often an adaptation of manga, light novels, or video games or is an original creation, respectively around 60-70%, 10-20%, 10-20% and 5-10% per year (Ministry of Economy, Trade and Industry 2020).

Typically, manga is presented in black-and-white format and read from top to bottom and from right to left. They are often published chapter by chapter in manga magazines. Once these chapters are compiled enough to make a volume, they are usually republished in tankoubon (単行本) volumes, meaning independent or standalone books, which are usually in paperback format, though not exclusively. Light novel usually refers to a novel that is published in bunkobon (文庫本) format (A6) with moe illustrations (Shinjou 2006). The majority of light novels are solely published as books, however, some others have their chapters serialised monthly in magazines before being recollected and compiled into books like manga. Moe illustration is a derivative of the word 'moe' and first appeared in the 1990s as a reference to the way characters' faces were drawn, with rounded faces and large eyes, in some 'anime style' (Azuma 2009). Semantically, it is not so much 'moe art' as it is 'art favoured by people who like moe,' or in other words, art favoured by the general otaku of the 21st century. As Japanese games, anime, and manga have spread across the world, it has come to be recognised as a representative style of Japanese anime and manga, therefore, it is often referred to as 'Japanese anime style' (Bowman 2011).

2.2 A Brief History of Anime

There are different perspectives on when anime first began. Some say the sprout of the anime is as early as somewhere between 1905 and 1912, a three-second animated film called Katsudou Shashin (活動写真, Moving Photo) (Litten 2014), or one might see Hakujaden (白蛇伝, The White Snake Enchantress, 1958) by Toei Animation as the beginning of anime, as it was the first colour animated feature film to emerge after the era of individual animation creation (Lamarre 2018).

However, the answer to the question of "When did the 'anime' that we know now start?" would be Testuwan Atom (鉄腕アトム, Astro Boy, 1963) by Mushi Production as it without a doubt occurred the very first boom in anime and gained immense popularity (Steinberg 2012; Clements 2023). Furthermore, Testuwan Atom was a ground-breaking anime series that introduced Japanese animation to a broad audience in Western countries, especially in the United States, attracting much interest among Americans in Japanese animation and culture (Gibson 2012; Napier 2008; Clements 2023). While Toei Animation paved the way for manga movies (漫画映画), an idea succeeded by Studio Ghibli; Mushi Production paved the way for television manga (テレビ漫画), making the audience enjoy the animation without any cost (Steinberg 2012). In response to Atom's success, anime production companies such as Studio Eiken (I177), Tatsunoko Production Inc. (株式会社タツノコプロ), TMS Entertainment Inc. (株式会社トムス・エンタテインメント) and Shin-ei Animation Co. (シンエイ動画株式会社) popped up in the TV animation market. They began broadcasting animation after signing an exclusive contract with Japanese broadcasting stations that were looking for an anime production company to provide television manga that was in high demand (Steinberg 2012).

The period from 1977 to 1984 is considered the second anime boom followed by the success of Uchuu Senkan Yamato (宇宙戦艦ヤマト, Space Battleship Yamato,

1974-1979) and Kaze no Tani no Nausicaä (風の谷のナウシカ, Nausicaä of the Valley of the Wind, 1984) (Clements 2023). At this time, the first generation of otaku emerged and the word 'anime' began to spread through the masses instead of what had previously been called television manga (Lamarre 2009). During the 1980s, anime began experiencing a revival in visual quality, largely due to innovative directors such as Hayao Miyazaki (宮崎駿) and Isao Takahata (高畑勲

) who established Studio Ghibli in 1985, along with Katsuhiro Otomo (大友克洋). Around the late 1980s, the quality of anime artwork rose dramatically, which was led by Satoru Utsunomiya (うつのみや理), Mitsuo Iso (磯光雄) and Hiroyuki Okiura (沖浦啓之). The third anime boom came with Shinseiki Evangelion (新世紀エヴァンゲリオン,

Neon Genesis Evangelion, 1995-1996) and Mononoke-hime (もののけ姫, Princess Mononoke, 1997) (Clements 2023). However, some point out that it wasn't because of the quality of the work itself, but a boom due to so many characters that one could be a fan of, in other words, it was a 'moe boom'.

What makes anime unique is these hand-drawn artworks with the cel animation technique (Lamarre 2009). Cel animation is among the oldest techniques of animation, where characters are typically hand-drawn on transparent celluloid sheets and layered over painted scenes (Adobe n.d.). Norman McLaren, a pioneer in animation, offers this definition of animation:

Animation is not the art of drawings that move but the art of movements that are drawn; what happens between each frame is much more important than what exists on each frame; animation is therefore the art of manipulating the invisible interstices that lie between frames (Furniss 1988:5 see Lamarre 2009:xxiv).

Lamarre agrees with McLaren: "Animation is as much an art of compositing (invisible interstices between layers of the image) as it is of animating bodies (invisible interstices between frames) (Lamarre 2009:xxiv)." With the advent of technology, various animators started to integrate computer-generated imagery (CGI) (*Ibid.*), and after the 2000s, many animators are digitalising cel animation, saving time and labour (Movie Dictionary 2004).

Although anime has long been regarded as a means of entertainment, contemporary scholars reveal that it also plays a significant role in shaping youth development. Recent scientific studies demonstrate that anime influences the education, values, and behaviour of youths in various ways. For instance, research shows that anime can promote positive attitudes and moral values among students of arts and design (Yusof *et al.* 2022). Further studies suggest that scientific educational anime like *Dr. Stone* has been praised for making scientific concepts more comprehensible and engaging to adolescents, thus serving as informal educational tools (Arellano 2020). All these arguments underscore the medium's evolving impact both as a cultural product and as a platform of alternative education.

3. A Conceptual Framework

The following chapter discusses the conceptual framework of the study. It starts with presenting visual communications, followed by semiotics in media. This conceptual framework provides a way to understand and analyse the data in this study.

3.1 Visual Communication

Visual communication has always been a key component of human interactions, expressing intricate concepts through images (Josephson *et al.* 2020). Traditionally, communication incorporated both oral and visual techniques and often visual techniques themselves conveyed meanings. However, advancements in technology have broadened the communication to encompass mass media and digital channels (Finnegan 2014). In today's world, especially among younger generations, the function of visual communication has transformed considerably (Josephson *et al.* 2020). Brau (2004) used visual communication as a key methodological framework to examine how manga Oishinbo conveys cultural narratives, with an emphasis on the dynamics between text and image. By analysing the visual depiction of food, eating rituals, and character interactions, Brau explored how manga communicates complex ideas regarding tradition, identity and social values without always using verbal explanations.

The media is a crucial medium for visual communication and thus plays a significant role in shaping the perceptions and behaviours of the public. According to Blez and Peattie (2012), the media can act as a representative and an ambassador, especially in issues related to sustainability, using its wide reach to instil and promote sustainable values. This representative role comes from the media's ability to create and share stories that deeply connect with audiences.

3.2 Semiotics in Media

As per art historian Panofsky, images such as photography give meaning to the objects and scenes that are portrayed (Panofsky 1955 see Philipps 2012). Panofsky assumed that these images are produced due to the artists' certain 'mental habits'. Thus, meaning, the way images are created is shaped by the theological, philosophical, or political beliefs, as well as the intentions and attitudes of either the artists or their patrons (*Ibid.*). Bourdieu (1990) agrees with the statement and

expands that a photograph captures the world as perceived by the photographer, shaped by their unique perspective.

Moreover, Greimas (1987) states that a narrative can also be found in forms of expression other than natural languages, as in cinematographic and oneiric languages, as well as in visual art. Hence, the shared semiotic framework is separate from the linguistic dimension and logically prior to it, no matter what particular language may be used for actual expression. Thus, it becomes clear that in addition to acknowledging that signification differs from the ways it is expressed, we must also recognise the presence of a common structural layer where extensive areas of signification are organised. With this background, Greimas proposes a model of the generative trajectory of meaning consisting of three levels (Figure 1). The expression level refers to the tangible, observable forms, such as words, images, or symbols, through which the narrative enters communication. It is at the surface level that abstract concepts are turned into narrative structures or identifiable sequences, such as plots or storylines, which is where meaning first crystallises in communicable form. Finally, the deep level provides the abstract, conceptual base where fundamental oppositions (e.g. life vs. death) and universal meanings exist, structuring the essential relationships which underpin meaning.

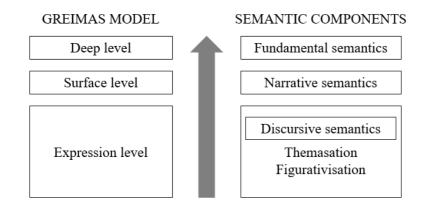


Figure 1. Greimas's model of the generative trajectory of meaning (Modified from Greimas 1987:xxix).

Following the steps of the semantic model bottom-up, the researcher will first analyse the visual images and sounds in the anime. Secondly, at the surface level, the narratives such as plots or storylines will be analysed. Lastly, at the deep level, the researcher will use the results from the two layers and bring out the conceptual foundation and universal meanings that reside in the anime.

4. Method

In this chapter, the researcher presents the research approach, the choice of unit of analysis, data collection and data analysis.

4.1 Research Approach

This study uses content analysis and case study to examine how anime portrays and depicts food and food systems in terms of scarcity, locality, and sustainability.

4.1.1 Content Analysis

According to Krippendorff (2004), content analysis is "a research technique for making replicable and valid interferences from texts (or other meaningful matter) to the contexts of their use (2004:18)". This research uses qualitative content analysis; the focus is not on physical events nor counts of those events but on "texts, images, and expressions that are created to be seen, read, interpreted and acted on for their meanings" (Krippendorff 2004:xiii). To understand what food and the food system mean to people and whether the topic exists or not, the researcher must examine texts, images or even sounds of a medium. Krippendorff (2004) writes that contemporary content analysis has evolved in terms of the concept of messages, that it encompasses not only that verbal communication is transferable when written, but also that the messages can produce consistent and predictable outcomes.

4.1.2 Case Study

Robson and McCartan (2016) explain that a case study is suitable if the researcher wants to develop "detailed and intensive knowledge about a single 'case', or of a small number of related 'cases'" (Robson & McCartan 2016: 80). Furthermore, Yin (1994) addresses that a case study is necessary when "a how or why question is being asked about a contemporary set of events over which the investigator has little or no control" (Yin, 1994:9). In this study, the researcher wants to know 'how' anime illustrates and depicts food and food systems. Conducting a case study will allow the researcher to have an in-depth analysis and comprehensive understanding of how anime is viewed by the audiences.

4.2 Choice of Unit of Analysis

The focus of this study is individual scenes in anime episodes that clearly depict food preparation, distribution, consumption, or conversations about food and food systems. The research involves two of the most popular anime on Crunchyroll: One Piece (ワンピーズ, 1999-) and Kimetsu no Yaiba (鬼滅の刃, Demon Slayer, 2019, 2020, 2022, 2023, 2024), with two purposely selective samples: Gin no Saji (銀の 匙, Silver Spoon, 2013, 2014) and Dr. Stone (ドクターストーン, 2019, 2021, 2023) that highlight food and food systems significantly. To ensure relevance, the researcher chose anime that satisfies the following criteria:

- The anime features at least one main plot/storyline or recurring theme that revolves around food and/or food systems.
- The anime is well-known or significant in depicting societal dimensions of food.
- The anime is available on legal and well-recognised streaming platforms.

Purposive sampling is necessary because of the small number of anime that focus on scarcity, local sourcing, or sustainability. According to Palys (2008), purposive sampling is useful if a researcher is interested in studying an extreme or deviant case. Original Video Animation (**OVA**s) and Original Net Animation (**ONA**s) were not considered in this content analysis because they are in the form of videotapes or Blu-rays and since they aren't publicly aired, the content is not related to the main plot, usually being 'fan-service' content or short promotional content.

4.2.1 One Piece and Kimetsu no Yaiba

One Piece is one of the longest-running anime programs that started on October 20th, 1999. One Piece currently has 1122 episodes with 18 movies, 10 TV specials, and 24 summary episodes in the form of OVAs, TV specials, and movies (MyAnimeList n.d.d). Due to the abundant amount of data, analysing the entire series would be impractical within the scope of this study. Therefore, the first 100 episodes were selected as they included the establishment of key characters, recurring themes, and core plot elements. While this approach may not capture every nuance of the later arcs, it provides a focused and manageable scope for thematic exploration. The synopsis of the anime is provided in Appendix 1. *Kimetsu no Yaiba* has four seasons with one movie. The number of episodes for each season is 26, 11, 11, and 8. The movie has also been released as a TV series with 7 episodes, including one of a complete original work (MyAnimeList n.d.c). Therefore, in this study, the TV series version was chosen instead of the movie. The synopsis of the synopsis of the synopsis of the movie. The synopsis of the movie and the movie. The synopsis of the movie for synopsis of the movie of the movie. The synopsis of the movie has also been released as a TV series with 7 episodes, including one of a complete original work (MyAnimeList n.d.c). Therefore, in this study, the TV series version was chosen instead of the movie. The synopsis of the first season of this anime is presented in Appendix 2. Both anime are the top two most-watched anime on Crunchyroll.

4.2.2 Gin no Saji and Dr. Stone

Gin no Saji has two seasons, each season with 11 episodes. The synopsis of the first season of *Gin no Saji* is provided in Appendix 3. *Dr. Stone* currently has three seasons and one movie, with each season consisting of 24, 11 and 22 episodes,

respectively. In the case of Dr. Stone, the movie does not have an alternative version, therefore, the movie was included in the analysis. The synopsis of the first season is provided in Appendix 4.

Both anime are deeply connected with themes of scarcity, locality, and sustainability in food systems, but within different settings. Gin no Saji portrays a realistic everyday life of local agriculture in Japan, showing how the food system, especially production, is tied to sustainable practices and emphasises the importance of learning about where food comes from and respecting the labour behind it. Dr. Stone, on the other hand, explores these themes in a post-apocalyptic context where food scarcity is an immediate matter and survival depends on rebuilding sustainable food systems from scratch.

4.3 Data Collection

Data was collected from the well-known anime streaming website, Crunchyroll, which has a vast amount of officially licensed anime and is accessible to a large number of global audiences. Data collection lasted from February to April 2025. Using a legal platform means the analysed content is consistent with how it was originally seen by other audiences, ensuring replicability.

Every scene depicting food and food systems was screen-captured, and all visuals, sounds, and texts (including narrations and dialogues) were carefully documented in a word file for analysis. In addition to these, contextual factors such as the cultural setting and relationships and interactions of characters were noted down separately to provide a more comprehensive understanding of how food and food systems are illustrated within each anime.

4.4 Data Analysis

The analysis was conducted by using thematic content analysis, focusing on identifying recurring patterns, themes, and meanings associated with food and food systems in anime, in other words, qualitative content analysis.

All of the scenes collected through data collection were analysed through Greimas's model of the generative trajectory of meaning, which is the conceptual framework for this study (Chapter 3). Through this model, each scene's structural and semiotic elements were analysed. After the analysis, the findings were organised and categorised based on recurring patterns and themes. Thematic categorisation allows for a clear view of how food and food systems are depicted and what roles food has in anime.

Throughout the analysis process, informal feedback was sought from individuals within the researcher's social boundaries who were familiar with anime to ensure that the analysis and interpretations were coherent and clear. These interactions were not part of the formal methodology but served as a way to avoid potential over-interpretation.

5. Results

In this chapter, the empirical findings from each anime are presented. The empirical findings are analysed through Greimas's model (Chapter 3) and categorised based on recurring patterns and themes. In the first theme, various roles of food in anime are shown. The following themes, food is presented with anime representations that focus on how the scarcity, locality and sustainability of the food system.

5.1 Roles of Food in Anime: One Piece and Kimetsu no Yaiba

In this part, the analysis of the semiotics of One Piece and Kimetsu no Yaiba through Greimas's model is presented. The results are organised and categorised into themes to provide a clear view of what roles food has in anime.

5.1.1 Food as a Main Plot Element

At the expression level in One Piece, Luffy gulping down the 'Gomu Gomu no Mi (Gum-Gum Fruit)' is shown (*Figure 2*). In Kimetsu no Yaiba, at the expression level, a simple and warm meal of rice, soup, side dishes of vegetables and green tea is shown (*Figure 3*). The background music is low-pitched solemn music, similar to the one played in temples.



Figure 2. A scene of Luffy eating Gomu Gomu no Mi in Episode (**Ep.**) 04, timestamp 09:30, from One Piece.



Figure 3. A warm and humble meal in Season (*S*) *1, Ep. 01, timestamp 05:40, from Kimetsu no Yaiba.*

Gomu Gomu no Mi is a type of devil fruit that grants the eater the ability to use their body as rubber. The audience witnesses the change in Luffy's body, stretching it like a rubber. At the surface level, the viewers understand that while magic fruit gives the user a special and unique ability, the user loses the ability to swim. Here, Gomu Gomu no Mi is used as a main plot element; a pirate searching for One Piece with a special ability to overcome dangers and defeat enemies, but unable to swim. Devil fruit represents power and limitation; in other words, that power always comes with a cost.

In the case of Kimetsu no Yaiba, at the surface level, the conversation about humaneating demons is taking place. At the deep level, the contrast between the calm and serene scene of warm and humble food and the characters' conversation forces the audience to re-evaluate the food chain. This very first food scene from Kimetsu no Yaiba was used to depict the setting of the anime and its core plot.

5.1.2 Food as a Narrative Device

Food can act as a narrative device and a tool of storytelling. In One Piece, pork buns were used as a narrative anchor. Apis, a young girl who takes care of an ancient dragon, steals pork buns to give to the dragon but leaves a trail (*Figure 4*). This exact trail leads Luffy and Nami to find the ancient dragon. In another scene, Luffy wanders around the desert, smells the food, finds a way back to his crew and reunites with his brother, Portgas D. Ace and his enemy, Smoker (*Figure 5*).



Figure 4. A trail of pork buns left by Apis in Ep. 55, timestamp 16:47, from One Piece.



Figure 5. Luffy at the restaurant where Portgas D. Ace and Smoker are in Ep. 94, timestamp 14:16, from One Piece.

The pork buns act as a literal and metaphorical guide to Luffy and his crew on a new adventure and introduce a new character to the audience. Similarly, in the case of Luffy entering the restaurant with the guidance of the food's smell, food introduces a new character but at the same time brings the characters back together.

In Kimetsu no Yaiba, a simple meal of udon and green tea that is no longer warm is acting as a narrative device (*Figure 6*).



Figure 6. An untouched simple meal in S2, Ep. 03, timestamp 05:04, from Kimetsu no Yaiba.

The untouched meal belongs to Makio, one of Uzui's wives, who is an informant investigating demons. This udon pinpoints the location of Makio's room, giving Inosuke, who was tasked to find her and work with her, a literal clue.

5.1.3 Food as a Reflection of Character and Identity

Food can be used to define characters' traits, personalities and values. In One Piece, the very first food scene depicts Luffy's characteristics. At the expression level, Luffy is constantly smiling as he gobbles up the apples (*Figure 7*).



Figure 7. Luffy happily eating apples in Ep. 01, timestamp 10:28, from One Piece.

At the surface level, the audience meets Luffy for the very first time, who is sleeping in the barrel as the barrel floats on the sea. Luffy ends up in a passenger ship that happens to be raided by Alvida's pirate ship. However, Luffy doesn't seem to be afraid of being attacked by the pirates; he just looks for the food, yelling "I'm hungry, I sure am hungry!". At the deep level, Luffy's hunger is not just a physiological need but a symbol of his never-ending pursuit of life's joy and simple happiness. Moreover, Gomu no Mi (*Figure 2*) mirrors Luffy's identity: a young pirate who stretches beyond conventional limits, both literally and metaphorically.

The characteristics of Sanji, a chef in Luffy's pirate ship, are described through the food in numerous ways. At the expression level, the audience witnesses an unfinished soup on the floor as the plate is broken (*Figure 8*).



Figure 8. A broken plate and spilt soup in Ep. 20, timestamp 21:01, from One Piece.

The narratives around this scene are the following: Lieutenant Fullbody wants to brag about his status and knowledge to impress a woman by lying that he knows all about wine. He requested a certain wine when he reserved the restaurant, however, Sanji served them a different one so that it matched the food. Failed to guess what the wine is, Lieutenant Fullbody picks up the bug that was crawling around the floor, puts it in his soup and complains to Sanji. Sanji nonchalantly answers his complaints by saying he doesn't really know about bugs, which makes Lieutenant so angry that he breaks the table in half, resulting in shattered plates and spilt soup on the floor.

Sanji (S): You could've eaten it if you took that bug out, couldn't you? It took three full days to cook it, skimming the scum...

Lieutenant Fullbody: Aren't you acting a bit too big for your britches? I'm a customer! I'm paying you!

S: Can money... satisfy your hunger? Don't... waste food. At sea, provoking a cook is the same as committing suicide. Remember that.

Through the expression level and surface level, Sanji's respect for food as a lifegiving source is inferred.

At the expression level, fried rice and a cup of water are depicted with a sad and sombre melody (*Figure 9*). In another scene, we see Sanji giving Nami a Fruit Macedonia (*Figure 10*).



Figure 9. Fried rice and a cup of water served to an underling of Don Krieg in Ep. 21, timestamp 09:25, from One Piece.



Figure 10. Fruit Macedonia for Nami in Ep. 22, timestamp 04:18, from One Piece.

At the surface level for *Figure 9*, Sanji serves food to Don Krieg and his underling even though they're known for their foul plays, saying "To me, anyone who's hungry is a customer.". Sanji's philosophy and his value of caring for others are

well described at the deep level. In another scene (*Figure 10*), we witness Sanji's gender favouritism. Sanji serves a Fruit Macedonia to Nami, a girl, and just plain tea to Zoro and Usopp, who are boys. Sanji's selective generosity, often played for humour, reveals his character.

At the expression level, the audience sees the black and terrible-looking food (*Figure 11*). All of Luffy's crew, except Luffy, are making disgusted faces because of the horrible taste of the food cooked by Apis.



Figure 11. Luffy and his crew eating a meal cooked by Apis in Ep. 54, timestamp 13:22, from One Piece.

At the surface level, the audience can understand that Apis, who is not good at cooking, cooked breakfast for Luffy's crew as a thank you. While the crew members are hesitant to eat, Sanji insists the crew finish it by saying "Hey, she took the trouble to prepare it for us. Eat every crumb! Shut up! Don't waste this girl's kindness. This girl's... Apis-chan put her heart into this food! Plus, I won't allow anyone to waste food." At the deep level, the audience can deduce Sanji's deep respect for the effort and emotion behind the cooking. This philosophy is connected to food as something beyond sustenance, as an embodiment of care and intention.

In Kimetsu no Yaiba, we see Rengoku repeatedly shouting "Delicious!" every time he eats the food (*Figure 12*). In addition, in another scene, the audience sees Inosuke gobbling up plain onigiri (rice ball), holding two at the same time (*Figure 13*) and eating even the bones of a grilled fish.



Figure 12. Rengoku shouting "Delicious!" in S1.5, Ep. 01, timestamp 03:34, from Kimetsu no Yaiba.



Figure 13. Inosuke eating two onigiri at one time in S4, Ep. 06, timestamp 12:44, from Kimetsu no Yaiba.

In each scene, through the character's consumption of food, the audience gains insight into their personality. *Figure 12* shows Rengoku's unshakable optimism and

energetic personality. *Figure 13* significantly highlights the wild and instinctual characteristics of Inosuke.

5.1.4 Food as an Emotional Mirror

Through the food itself or the state of food, the audience feels and understands the emotions of a character. In Kimetsu no Yaiba, at the expression level, we see a crushed peach (*Figure 14*) with sad background music.



Figure 14. A crushed peach in S1, Ep. 17, timestamp 14:46, from Kimetsu no Yaiba.

At the surface level, the flashback of Zenitsu getting scolded by Kaigaku, Zenitsu's senior, is shown. The audience also hears the self-narration of Zenitsu.

I have no parents, so no one has any hopes for me. There's no one who dreams that I'll grasp or accomplish something one day. That I'll prove myself useful to somebody, that I'll manage to protect somebody and make that person happy, just once in my life, not even a simple future like that. There's no one who hopes that I'll have one. If I fail, cry and run away even once, they say, "Oh, this guy's no good." and they walk away.

The fragile and crushed peach is paralleled with the crushing weight of his insecurities and the emotional scars left by his senior.

There are several more cases where food in anime becomes a vessel for expressing characters' emotions. A warm bowl of udon is shattered on the road (*Figure 15*) after Tanjirou smells the scent of a person who attacked his family, Kibutsuji Muzan. A piece of radish rolling on the floor (*Figure 16*) acts in the same way. The scene of cutting radish is shown repetitively with impactful sound effects and sombre background music.



Figure 15. A shattered bowl of udon in S1, Ep. 07, timestamp 18:26, from Kimetsu no Yaiba.



Figure 16. A piece of radish rolling on the floor in S3, Ep. 08, timestamp 08:34, from Kimetsu no Yaiba.

This udon (*Figure 15*) represents simple comfort at the deep level based on the storyline: After being in a bustling city, which Tanjirou is not used to, he finds a small and cosy udon shop in the back alley. The shattered state of the food emphasises the shock of Tanjirou and his pain of the past. On the other hand, at the surface level for the radish scene (*Figure 16*), Yuichirou and Muichirou are fighting due to differing ideals.

Muichirou: Listen! Let's become swordsmen! (...) but if we can do something to help... Listen! Let's save the people who are suffering because of those demons! I bet you and I can— Yuichirou: What the hell do you think you can do? Someone who can't even cook rice on his own, become a swordsman? Save others? Give me a break, will you? Seriously, you're exactly like father and mother, aren't you? You're too optimistic! How does your mind even work? (...) You know who can help others? Only the chosen ones! Our ancestors may have been swordsmen, but what can kids like us do? Want me to tell you? What it is we can do? This is what you and I can do... die like dogs and die in vain! Because we're father and mother's children!

At the deep level, this piece of radish on the floor, a common ingredient in Japanese cooking, which makes it deeply connected with survival, mirrors the fragility of the characters' lives.

5.1.5 Food as a Medium of Connection and Care

Food is often used to portray the connection and care between characters. In One Piece, plain and simple rice balls (*Figure 17*) were given to Zoro, who was tied to the cross in front of the marine base.



Figure 17. Plain and simple rice balls to Zoro in Ep. 02, timestamp 5:40, from One Piece.

Despite Zoro's intimidating atmosphere and scary rumours about him, a young girl who didn't want a stranger to starve made rice balls for him. At the deep level, food transcends its physical role as nourishment, becomes a symbol of connection and explores the theme of care.

This theme frequently appears in anime: Sanji's generosity towards hungry strangers (*Figure 9*) and in the scene when Luffy and his crew find Apis lying on a wooden plank in the sea. They picked her up and Sanji treated her to soup, steak and a mushroom dish (*Figure 18*).



Figure 18. Sanji's kindness and care towards Apis in Ep. 54, timestamp 10:12, from One Piece.

In all of these scenes, food acts as a medium of connection and care. Especially Sanji, who provides this hospitality without any judgment of the person, breaks the stereotypical pirate image and uses food as a tangible symbol of kindness and care.

Food can even be a bridge between cultures. At the expression level, we have well-grilled dinosaur meat with cosy and bright background music (*Figure 19*).



Figure 19. Sharing dinosaur meat in Ep. 71, timestamp 14:49, from One Piece.

At the surface level, on the way to Alabasta, Luffy and his crew land on an island called Little Garden. In Little Garden, there are two giants, Brogy and Dorry. Despite the significant differences in size, strength and culture, Dorry, Luffy, and Vivi share dinosaur meat and become friends. This underscores the universality of food as a medium for building connections.

In Kimetsu no Yaiba, plain and simple onigiri (*Figure 20, Figure 21* and *Figure 22*) were used to depict the character's care for the other.



Figure 20. Tanjirou eating onigiri brought by three attendants in S1, Ep. 24, timestamp 14:55, in Kimetsu no Yaiba.



Figure 21. Tanjirou bringing onigiri to Genya in S3, Ep. 01, timestamp 39:04, in Kimetsu no Yaiba.



Figure 22. Onigiri and miso soup made by Uzui's wives in S4, Ep. 01, timestamp 35:55, from Kimetsu no Yaiba.

At the surface level in scene *Figure 20*, Tanjirou is having a break from his training while eating onigiri that were brought by three girls working as attendants. At the deep level, while the plain onigiri represents nourishment in its simplest and purest form, it signifies the support Tanjirou is receiving. Considering that Kimestu no Yaiba is set in the Taishou Period (1912-1926), it isn't unnatural to witness various scenes with onigiri, especially as the symbol of connection and care. At the surface level in *Figure 21*, the audience understands that Tanjirou is worried about Genya because he hears that Genya never takes meals. After talking with Kanroji, he decides to bring him some onigiri. At the deep level, simple food, something humble but meaningful, acts as a visualisation of Tanjirou's concern and care for others. With an upbeat Shamisen melody in scene *Figure 22*, Demon Slayers are in training at Uzui's place, and Uzui's wives are making lunches for the Demon Slayers. Their preparation of lunch highlights their nurturing role within the Demon Slayer Corps.

Due to the frequent appearance of onigiri, 'new' food can represent and amplify the depth of the character's care for the other. In one scene of Kimetsu no Yaiba, at the expression level, a premium castella is shown with sparkles around it (*Figure 23*). The background music is calm and quite playful.



Figure 23. A luxurious castella for unconscious Tanjirou in S3, Ep. 01, timestamp 21:36, from Kimetsu no Yaiba.

At the surface level, Goto, a member of the Demon Slayer Corps Clean-up Crew, is talking, "This is a gift for Tanjirou, since he's still unconscious. They say he's got a great sense of smell, so maybe...". A high-quality, expensive and indulgent dessert reflects a deep care and consideration for Tanjirou, who has gone through a hard battle at the deep level. The luxurious castella is very much in contrast with the simple meal Tanjirou usually has, emphasising the special regard Goto has for

him.

Eating can foster the connection and strengthen the relationship between characters. At the expression level, Giyu is eating soba with Tanjirou (*Figure 24*), and in *Figure 25*, Demon Slayers who are in training together are gathered around the fireplace and sharing meals.



Figure 24. Giyu and Tanjirou having an eating contest in S4, Ep. 02, timestamp 19:34, from Kimetsu no Yaiba.



Figure 25. Demon Slayers eating together in S4, Ep. 06, timestamp 17:44, from Kimestu no Yaiba.

Tanjirou, wanting to cheer up Giyu and understand him, suggests an eating contest to Giyu in the thought of "Maybe we could have an eating contest. Maybe if I win, he has to cheer himself up and train me. (...) Since Giyu is a quiet type, we don't need to talk during an eating contest. What a great idea!". In this scene, food becomes a medium for Tanjirou to reach out to Giyu, who is quiet and has a hard time with communication. Shared activities like eating foster a sense of togetherness and mutual understanding even in silence, making this scene a subtle yet profound moment of bonding and connecting. While eating in scene *Figure 25*, they share their training knowledge and give others pieces of advice. Again, the communal aspect of eating together serves as a time for the Demon Slayers to bond, share their knowledge and give tips to each other. Food here acts as a facilitator of camaraderie and strengthens their bonds.

5.1.6 Food as a Gesture of Gratitude and Respect

Food can represent gratitude and respect. In One Piece, we see two scenes where Luffy and his crew are treated by the villagers they are staying with (*Figure 26* and *Figure 27*).



Figure 26. Luffy eating a meal given by the villager in Shells Town in Ep. 03, timestamp 13:34, from One Piece.



Figure 27. Luffy at the feast of Cocoyashi Village in Ep. 44, timestamp 04:07, from One Piece.

At the expression level in scene Figure 26, an unlimited delicious food with playful background music is shown to the audience. The audience understands that the food that was given to Luffy, Zoro and Coby is from the restaurant owner's gratitude for defeating Morgan, who is a corrupted marine in the Shells Town through their conversation: "It's no problem (of treating you an unlimited food)! The town has been saved, after all.". This is very similar to scene Figure 27, where at the expression level, meat with various fruits and vegetables is depicted. At the surface level, Nami's island, Cocoyashi Village, is finally free from Arlong's dictatorship thanks to Luffy and his crew. Every villager is happy, and they are holding a big party to celebrate that Arlong Park has fallen. There, Luffy is treated to the tastiest meat with various delicious foods. In both scenes, giving Luffy and his crew food is a gesture of the villagers' deep gratitude for their role in restoring their freedom. The offering of food serves as a tangible way of honouring and appreciating them, emphasising the cultural significance of food as a medium of gratitude and respect. Apis, even though she is not good at cooking, cooking a meal for Luffy and his crew (Figure 11) as a thank-you can be understood and viewed in the same way.

Likewise, in Kimetsu no Yaiba, various food is illustrated in the scene where one expresses gratitude and respect for the other, ranging from bento (lunch box) (*Figure 28*), candies (*Figure 29*), onigiri (*Figure 30*) to Sakura mochi (cherry blossom rice cake) (*Figure 31*).



Figure 28. Fuku and her grandmother offering bento to Rengoku in S1.5, Ep. 01, timestamp 21:34, from Kimetsu no Yaiba.



Figure 29. Candies given to Tanjirou by Oiran in S2, Ep. 02, timestamp 17:10, from Kimestu no Yaiba.



Figure 30. Onigiri offered to Zenitsu from the girls he saved in S2, Ep. 03, timestamp 21:36, from Kimestu no Yaiba.



Figure 31. Kanroji offering her favourite snacks to Kakushi in S3, Ep. 10, timestamp 13:26, from Kimestu no Yaiba.

Figure 28 shows the relief face of Fuku and her grandmother, offering Rengoku bento, their only financial source. At the surface level, Fuku and her grandmother want to thank Rengoku for saving them from the demon: "I don't know what to say to thank you for this morning. Please take these. This is all that we have to give you.". Their act of offering their bento reflects their gratitude and respect for Rengoku's bravery. Moreover, their gesture highlights their willingness to give despite their modest means. Figure 29 draws pretty and delicious-looking candies with calm and oriental Japanese background music. At the surface level, Oiran wants to thank Tanjirou for moving heavy things for her. The Oiran's offer of candies symbolises gratitude. On the left side of Figure 30, we can see the onigiri that was given to Zenitsu by the girls, who were saved from getting attacked by a demon. Same as the other scene, the food represents their gratitude and appreciation and acts as a tangible way to thank Zenitsu for his bravery and sacrifice. At the expression level in the scene Figure 31, we see bright sparkles around Kanroji, who is offering Kakushi Sakura mochi. Warm background music with sparkling sound effects was used in the scene. At the surface level, Kanroji is promoted to Hashira, the highest rank that Demon Slayers can obtain. In the past, she was rejected by people around her except her family because she eats a lot more than normal people and is much stronger than any other man. However, when she became a Demon Slayer, people thanked her for saving them and didn't judge her for the amount she eats and her power. Kanroji, who has been accepted by the Demon Slayer Corps, appreciates them and wants to give them her favourite snacks, Sakura mochi.

5.1.7 Food as a Symbol of Strength and Survival

Intrinsically tied to human life, nourishment and existence, food is something anime never misses the chance to use in portraying characters' growth and survival, either literally or metaphorically. In One Piece, limes (*Figure 32*) and a very small portion of a variety of food (*Figure 33*) were used to represent strength and survival.



Figure 32. Luffy and Usopp trying to save Yosaku with limes in Ep. 20, timestamp 06:30, from One Piece.



Figure 33. Sanji and his portion of food in Ep. 26, timestamp 13:29, from One Piece.

At the expression level, the audience sees unconscious Yosaku with sombre and mysterious background music. At the surface level, the audience hears Nami yelling, "Luffy! Usopp! Remember we have limes in the storage? (...) Bring them here. Now! It's scurvy. If we weren't too late, he'll be fine in just a few days.". The audience understands that the limes in this scene symbolise hope and survival. What appears to be an ordinary citrus fruit becomes a lifesaver, suggesting the idea that even the simplest form of food can hold an extraordinary value in certain circumstances. In the scene Figure 33, we see a very small portion of a variety of food. This scene is a flashback of Sanji and Zeff, where Zeff is the captain of the pirates who attacked the ship where Sanji was working as a chef apprentice. During the fighting, due to the storm, they both drift to a desert island, where Zeff gives Sanji his portion of food, which later turns out that be all the food they had. Before this incident, Sanji always threw out the food that customers left without thinking much about the importance of food at sea. This incident greatly shapes Sanji's character and his approach to life. This experience instilled in him a deep respect for food and a commitment to feeding anyone in need, regardless of their circumstances, becoming the foundation of Sanji's ethos as a chef and as a person, which can be found throughout the whole series.

In Kimetsu no Yaiba, we have scenes with a warm boiling pot filled with vegetables, meat and mushrooms (*Figure 34*) and miso soup (*Figure 35*).



Figure 34. A warm boiling pot with various ingredients in S1, Ep. 04, timestamp 04:29, from Kimestu no Yaiba.



Figure 35. A miso soup after the harsh training in S4, Ep. 03, timestamp 04:22, from Kimestu no Yaiba.

At the surface level of scene *Figure 34*, a conversation about food making one stronger and bigger is going on: "A growing boy like you with a hearty appetite should get stronger the more he eats, as well as grow bigger in size. But that goes for demons, too.". Growth is directly tied to the consumption of food, whether it be food for humans or demons. The conversation highlights how strength is built through repeated acts of consumption. In another scene, plain onigiri and miso soup (*Figure 35*) are given after the harsh training at Uzui's place. The food here emphasises nourishment, reinforcing the idea that food is crucial to strength and survival, especially for the physically demanding life of a Demon Slayer.

5.1.8 Food as a Tool for Control and Deception

In One Piece, the food is also drawn and used as a tool for control and deception, as in the scene of Kaya enjoying her luxurious spaghetti (*Figure 36*) and of a big welcome party with food and wine (*Figure 37*).



Figure 36. Kaya enjoying her meal in Ep. 10, timestamp 14:40, from One Piece.



Figure 37. A big welcome party at Whiskey Peak in Ep. 64, timestamp 15:23, from One Piece.

At the expression level of scene *Figure 36*, Kaya is simply eating her delicious meal made by her most trusted servant. However, at the surface level, the audience knows that her servant is plotting to assassinate her and take all the money she has. Here, food is used to mask the betrayal and greed that run beneath the surface. The luxurious spaghetti in a bright frame is a visual and symbolic contrast to the dark intentions of Kaya's servant, heightening the dramatic tension and irony. Likewise, in the scene *Figure 37*, Luffy and his crew, who have just arrived at Whiskey Peak, receive a big welcome and a massive amount of food. It turns out that the people there are pirate hunters, who want to take pirates' food, valuables and money. They purposely got them drunk so it's easier to defeat Luffy and his crew. In many cultures, a feast is a symbol of hospitality, trust, and togetherness. Here, however, the gathering and abundance of food serve as a trap, luring Luffy and his crew into a false sense of security and creating a façade of friendship. In this scene, that food, just like human relationships, is complex and has a dual meaning, is inferred.

5.2 Scarcity, Locality and Sustainability in Anime: Gin no Saji and Dr. Stone

So far, the paper has addressed what kinds of roles food has in anime, focusing on the two most-watched anime, One Piece and Kimetsu no Yaiba. From this part on, the author will discuss how anime used food to illustrate scarcity, locality and sustainability in the food systems, focusing on Gin no Saji and Dr. Stone.

5.2.1 Scarcity in Food Systems

In Gin no Saji, the theme of scarcity places more emphasis on the 'preciousness' of the product of farming, meaning scarcity is not described as an urgent issue in society, but the product, which is an outcome of farming, should be handled with care. This can be seen in scenes where Hachiken almost drops an egg (*Figure 38*).



Figure 38. Hachiken almost dropping the egg in S1, Ep. 01, timestamp 16:37, from Gin no Saji.

At the surface level, the teacher scolds Hachiken, saying: "Hey, be careful! They're a valuable product!". The teacher's dialogue emphasises the concept of scarcity: every product is valuable, and any loss can mean a decrease in yield, an increase in waste, and a strain on the farmers' time and labour.

However, in Dr. Stone, scarcity is depicted as an urgent matter, especially at the beginning of the anime, where Senkuu gets unpetrified in a world where everyone is still a stone and modernism does not exist anymore. This is explicit in the scene where Tsukasa catches various food in the wild (*Figure 39*) and where villagers learn how to preserve the food and prepare for the winter (*Figure 40*).



Figure 39. Tsukasa catching various foods with ease in S1, Ep. 02, timestamp 13:38, from Dr. Stone.



Figure 40. A villager learning how to bottle food for the winter in S1, Ep. 21, timestamp 06:49, from Dr. Stone.

In the midst of getting attacked by lions, Senkuu and Taiju decide to unpetrify Tsukasa, who is famous for being strong. After Tsukasa knocked down all the lions, Tsukasa asks, "What do you usually have to eat?". Senkuu answers, "Mainly wild greens and mushrooms, and the occasional rabbit for meat, when we can catch one.". Then Tsukasa confidently proclaims, "Well, you won't be living like that... any longer. I'll be in charge of fighting and hunting. Now that I'm on your side, you'll never have any shortage of prey again.". Through Tsukasa, Senkuu and his team are finally able to take the first step toward civilisation. Here, food is used as a motif that shifts from surviving day by day to long-term sustainability. Ensuring stability and overcoming scarcity is a literal leap toward civilisation; Senkuu and his friends can redirect their time and energy to something more sophisticated. At the surface level in scene Figure 40, villagers learn how to bottle the food, which can be called the ancestor of canning. One of the villagers exclaims with joy, "I can't believe we can preserve meat for the winter. I must be in heaven.". At the deep level, it can be inferred that food security provides psychological comfort and stability in this unpredictable world. Especially in the context of a winter battle, this abundance is not just about nourishment but a tactical move. In a harsh winter, where resources are scarce and morale can plummet, having food instantly available is the ultimate weapon that can power oneself in both body and spirit.

5.2.2 Locality in Food Systems

Scarcity and locality can't be easily clean-cut in either anime; as local sourcing often arises directly from the limited availability of certain ingredients. This is evident in the scene where teachers provide food for students who worked hard (*Figure 41*) and Hachiken and his friends make pizza (*Figure 42*).



Figure 41. A meal with locally sourced ingredients in S1, Ep. 01, timestamp 18:45, from Gin no Saji.



Figure 42. Hachiken and his friends making pizza in S1, Ep. 04, timestamp 18:55, from Gin no Saji.

In the scene *Figure 41*, the wind is howling, and the students' clothes are tattered and dirty from the hard work, with their faces visibly exhausted. However, after the teachers bring them rice, pickles, and eggs, their faces brighten with joy. At the surface level, one of the teachers says, "You guys must be starving! Eat up! Although, it's whatever we managed to find. The pickles are from the gardening instructor. The eggs are from me!". The teacher's comment describes the theme of scarcity but also reinforces the theme of locality. The meal, while yet so simple, shows the importance of using what's available and making the most out of situations where the resources are limited. Not only does this reflect the selfsufficiency in the agricultural world, but this lesson, in the very first episode of the first season of the anime, lets the characters navigate and work with what they have throughout the anime, as shown in scene *Figure 42*. At the expression level, the audience sees a delicious-looking warm pizza, and everyone smiles and enjoys the food. At the surface level, during the school ground cleaning day, Hachiken finds a brick oven in the middle of nowhere. He and his friends decide to bake a pizza together in the oven, however, there are some struggles and challenges he faces: the knowledge about the oven and baking and the ingredients for the pizza. These were overcome by various people from his school.

Hachiken: The agricultural engineering department helped fix the oven, and the forestry department helped acquire firewood. The flour for the dough was grown by the agricultural sciences department, and milled by the food processing department. The dough's spread with tomato paste. The bacon was made by the food processing department, using pigs raised by the dairy science department. The vegetables used for toppings were grown by the agricultural science department... Lastly, we add a layer of cheese. Uh, the cheese was obtained with help from Yoshino-san in dairy science.

This pizza-making process not only emphasises the power of collaboration but also the importance and benefits of local sourcing to the extent of not only ingredients but also people and their knowledge. For students, whose school is far away from the city, pizza was thought of as something that they could not easily eat. However, through collaboration and using what they have, they could actually make and enjoy the delicious pizza.

Furthermore, through the scenes, local sourcing connects to joy and emphasises the quality of a product, whether it be rice (*Figure 43*) or a fruit (*Figure 44*).



Figure 43. A meal with locally sourced ingredients in S1, Ep. 06, timestamp 04:44, from Gin no Saji.



Figure 44. Eating locally produced watermelon in the summer in S1, Ep. 07, timestamp 01:14, from Gin no Saji.

Figure 43 shows the audience delicious-looking homemade food with the characters smiling and laughing. Hachiken, who decided to work at his classmate's farm, gets a big welcome from her family with good food. When he compliments the taste of the rice, his classmate, Aki, explains, "One of our relatives is a rice farmer, so we get it direct. And rice balls made by human hands taste great.". The mention of rice coming 'direct' highlights the importance of local sourcing in creating delicious and high-quality food. Similarly, eating delicious watermelon in the summer symbolises the consumption harmonised with the cyclical nature of

agriculture and suggests the joy and happiness of eating what nature provides at the moment.

Regarding the setting of Dr. Stone, every food that the characters consume in the anime is locally sourced and produced. The following scenes are where locality is at its core at the deep level: various ways of preserving and preparing food (*Figure 45*), ramen but with foxtail millet (*Figure 46*), reviving cola (*Figure 47*) and making cotton candy (*Figure 48*).



Figure 45. Villagers cutting a boar in S1, Ep. 07, timestamp 06:22, from Dr. Stone.



Figure 47. A bottle of cola in S1, Ep. 15, timestamp 15:18, from Dr. Stone.



Figure 46. A ramen with foxtail millet noodles in S1, Ep. 08, timestamp 20:35, from Dr. Stone.



Figure 48. Making cotton candies in S3, Ep. 21, timestamp 10:43, from Dr. Stone.

At the expression level of scene Figure 45, we see various ways of preserving and preparing food by the villagers: drying fish on the roof of the house, drying mushrooms in front of the house and cutting a boar. All of these methods show the villagers' ability to adapt to this petrified world, using what they can and making the most out of it. Senkuu, the main character who once lived in the modern days, even reproduce something so modern as 'ramen' by using what exists in nature. At the surface level, Senkuu decides to make ramen to satisfy the villagers who have never experienced modernism. By highlighting the adaptability, this scene emphasises the power and benefits of local sourcing. This is a recurring motif in this anime, where you can see Senkuu and his friends making the most modern food, such as cola (Figure 47) and cotton candy (Figure 48), with his knowledge and the ingredients he can find and access in the post-apocalyptic world. Senkuu makes cola by simply "Mix(ing) together carbonated water, cilantro, lime and honey caramel, and you get cola. Try tossing some lime zest onto crushed cilantro. You'll be shocked at how much it smells like cola!". Therefore, one could say that in Dr. Stone, the theme of locality is illustrated to express Senkuu's ability to recreate 'modern' food without relying on modern technology.

5.2.3 Sustainability in Food Systems

While the relationship between scarcity and locality is cause and solution, locality is a fundamental element in sustainability in both anime. Therefore, this section will be focused on other long-term environmental, ethical, and economic/systemic sustainability in food systems, specifically meaning, utilising but at the same time preserving natural resources and ecosystems, minimising pollution and maintaining biodiversity; promoting the well-being of individuals and communities and securing equality; and ensuring systems that support long-term growth without creating instability or depletion of resources (United Nations 2002).

In the first episode of Gin no Saji, the characters' dialogues are used to explore the theme of sustainability. We have a scene where Hachiken and his classmates are in the cattle (*Figure 49*) and in the chicken coop (*Figure 50*).



Figure 49. Hachiken in the cattle in S1, Ep. 01, timestamp 00:48, from Gin no Saji.



Figure 50. Hachiken in the chicken coop in S1, Ep. 01, timestamp 08:55, from Gin no Saji.

At the expression level, students in matching uniforms are standing side by side, while Hachiken is noticeably distanced from both the teacher and his classmates. His face displays visible disgust and dissatisfaction, contrasting with the neutral faces of others. At the surface level, the teacher is giving them an introduction to Ooezo's cattle, "In Japan, dairy cows are generally kept in enclosures, but here at Ooezo Agricultural High School, we have implemented a pasture-based dairy system that allows us to keep cows...". The teacher's explanation of this pasturebased system subtly introduces the audience to a more sustainable farming practice. At the expression level of scene Figure 50, the scene begins with Hachiken opening the chicken coop door, releasing a yellowish haze that represents the overwhelming smell inside. His face is twisted in disgust, vividly showing that he is new to this agricultural life. Similar to scene Figure 49, at the surface level, Tokiwa, one of his classmates is explaining the purpose of the coop while touching on ethical issues, "(But) these kinds of efficiency-first coops that aren't kind to the chickens are criticised in the West.". This criticism of food systems introduces not only Hachiken but also the audience to debates surrounding sustainability and animal welfare. At the deep level, this scene subtly nudges the audience to consider the balance between efficiency and ethics in the food system and broadens their eyesight.

In addition to that, Hachiken's hesitation and inner conflicts also explore the theme of sustainability and challenges current food systems have. We have two scenes: hesitating Hachiken in front of a bacon (*Figure 51*) and a dead deer (*Figure 52*).



Figure 51. Hesitating Hachiken in front of bacon in S1, Ep. 04, timestamp 15:01, from Gin no Saji.



Figure 52. A dead deer in the back of the truck in S1, Ep. 06, timestamp 14:45, from Gin no Saji.

At the surface level of scene Figure 51, Hachiken named a piglet, who is small compared to others, 'Pork Bowl' and got attached to him. Inada, one of his seniors, asks, "Can you eat him? When Pork Bowl becomes pork, can you eat it? Three months ago, this one (bacon) was a piglet, just like him. He will eventually become ham and bacon, too. When the time comes, could you eat it?". Hachiken says, "To be honest, I won't know until the time comes. I'm so conflicted and don't have an answer. I feel I'm lost deep inside, just wandering around...". This dilemma of his touches on the current challenges modern agriculture and food systems have. In modern farming, especially factory-based farming practices, animals are often seen purely as resources or their economic value, with little regard for their individuality or well-being. Furthermore, in this type of food system, the product and the consumers are very often far from each other, not creating any connection and leaving the chance to think about animal welfare. Therefore, Hachiken's struggle represents the ethical dissonance faced by many individuals who are part of such systems. In the scene Figure 52, the audience sees the dead deer lying in the back of the truck. When Aki's grandfather makes Hachiken butcher it, Hachiken is hesitant and unwilling. At the surface level, Aki's grandfather hit the deer on the way to Hachiken and his friend, Ichirou. While trying to butcher the deer, Hachiken asks Ichirou if he doesn't mind it at all. Ichirou answers, "Well, that's not the point... If this was the only food available, at least you could let people eat something tasty, you know?". While Hachiken's hesitation to butcher the deer reflects the reality of eating meat and the responsibility it entails, Ichirou's comment highlights using every available resource and not wasting what can sustain them. This scene at the deep level provokes the thought of food ethics and sustainable living.

Hachiken's emotional conflicts are further deepened when he and Aki visits their classmates, Tamako's farm. At the expression level, we see a cow getting pulled and pushed into the truck (*Figure 53*).



Figure 53. A cow getting on the truck in S1, Ep. 07, timestamp 05:44, from Gin no Saji.

At the surface level, Hachiken wonders where this cow is going and Tamako answers, "We're getting rid of it. It hurt its leg.". When Hachiken murmurs that they could just treat the cow, Tamako says, "That'd cost money. Until it gets better, it won't eat as much and it'll produce less milk, too.". Hachiken criticises her for being cold, but Tamako addresses that "We aren't running a charity here. By being efficient with mass production, we stabilise our revenue. And because it's a partnership, the workers can rotate and take breaks. Farms using the antiquated, unprofitable and back-breaking business model can't compete in this day and age.". At the deep level, the scene reveals the trade-offs of mass production: stability for the business and affordable products for consumers, but often the loss of individuality and emotional attachments to animals. It invites the audience to an open debate of what ethical boundaries should exist and the extent of these efficiencies in long-term sustainability.

Gin no Saji even criticises modern consumerism and food waste. At the expression level, we see weird and irregular shaped potatoes (*Figure 54*).



Figure 54. Misshaped potatoes in S2, Ep. 05, timestamp 14:14, from Gin no Saji.

At the surface level, agricultural science department in Hachiken's school had a potato picking day where customers come and choose their own potatoes that are grown by them. After the day, the students are left with all misshapen potatoes.

Hachiken: I had no idea most of these aren't good enough to go to market.

Nishikawa (one of Hachiken's classmates): Is it so strange? They're living things. It'd be strange if they all looked the same.

Student 1: When you let customers pick and choose, they leave behind misshapen ones like these.

Student 2: Yeah, even though they all taste the same.

These conversations criticise one of many problems our food systems have: disregarding perfectly edible products.

As explained above, the setting of Dr. Stone's world is where modern infrastructure is gone and the lifestyle they have now is living day by day starting everything from scratch. Therefore, food security and local sourcing are the core elements of their sustainability. As those were addressed in the previous section, for the theme of sustainability in Dr. Stone, the scene of using shells (*Figure 55*) as the fertiliser can be discussed.



Figure 55. Piles of calcium carbonate in S1, Ep. 02, timestamp 16:39, from Dr. Stone.

At the expression level, there are piles and piles of calcium carbonate that are collected through shells. The background music is playful and bright. At the surface level, Senkuu explains why calcium carbonate is useful: "First, agriculture. We use it to blow away all the hydrogen ions. In other words, it upgrades the soil." With what is available in nature, Senkuu changes nature, taking the first step toward stability and sustainability.

6. Discussion

In this chapter, the findings of the research are interpreted and discussed in the broader context. The researcher first discusses the roles of food and how it conveys plot, emotions and character development compared to other entertainment mediums such as manga, television and social media. Then, how anime uses food to explore themes of scarcity, the local sourcing of food and sustainability is discussed. This is compared to current food systems and evaluated of its educational aspect. Lastly, the findings are connected to influence on consumers' habits and choices.

6.1 Food Representations in Entertainment Mediums

The exploration of food in anime reveals a multifaceted representation that intertwines cultural context, emotional depth, and social dimensions of the world. The findings indicate that food is not merely a sustenance but rather a significant vehicle delivering the main plot, narrative, character and their identity, emotions, connections, care for others, gratitude, respect, strength, survival and even deception.

Through the lens of the two most-watched anime, One Piece and Kimetsu no Yaiba, it was observed that food is part of the main plot, mirrors the emotions of characters and acts as a means of character development. In One Piece, the concept of devil fruit intertwining with the journey of Luffy and his crew foreshadows the tough and challenging adventure of a pirate searching for One Piece with a special ability to stretch like rubber to overcome dangers and defeat enemies, but unable to swim. During their journey, they meet new people and share meals with them which reinforces the theme of connection and care. This is exemplified when other characters prepare meals for one another, reflecting their affection and gratitude. Additionally, not only consuming food grants them power and strength, but also not having enough food shapes and builds the ethos and personalities of a character. In contrast, Kimetsu no Yaiba emphasises the role of food in representing a character's emotional complexity and compassion for others. The state of food, such as crushed, shattered and fallen to the ground, exemplifies the state of the characters and their feelings. Furthermore, for Tanjirou, sharing food or a meal is a representation of his compassion and care, which are the core values of his character. Consumption of food following harsh training ties the food to the growth of the characters but also ties the food to the main plot that demons also grow from eating humans which forces the audience to question the food chain. This result

shows distinct and broader aspects of food in Japanese medium. In the manga Oishinbo, food was used as a medium to explore cultural identity and evoke nostalgia among the Japanese (Brau 2004). However, in One Piece and Kimetsu no Yaiba, food functions as a universal language: the food is used to express love and care, to show gratitude, and to foster meaningful bonds between characters.

A content analysis of UK television has shown that food appears very frequently in programmes and that meals portrayed within shows tend to be a more balanced diet compared to advertisements (Dickinson 2000). While this study did not include a direct comparison with advertisements, the findings support the broader notion that television programs, including anime, often depict more nutritionally balanced meals. For example, in Kimetsu no Yaiba, characters are frequently shown consuming traditional Japanese meals that include a bowl of rice or onigiri, with soup such as miso soup and a vegetable-based side dish. These depictions not only reflect cultural eating habits but may also serve as subtle reinforcements of balanced dietary practices to young viewers. In contrast, a content analysis of food-related scenes of the afternoon and early evening television programs on the Disney Channel revealed that while a significant portion (40.7%) of the food scenes were related to physiological needs, nearly half (42.0%) of the food items did not fit into the USDA's MyPlate food groups (Roseman et al. 2014). This difference may reflect cultural differences in dietary habits between Western countries, especially the USA and Japan, where traditional Japanese food emphasises variety and balance. Therefore, one can say that these representations contribute to the learning of the youth through anime by offering meal representations that are closer to dietary guidance.

In the case of social media, a study on Sweden, a significant amount (67.7%) of shared images depicted foods high in calories but low in nutrients with the hashtag #14år, meaning 14 years old (Holmberg et al. 2016). Similar findings are seen in a quantitative and qualitative study conducted in Belgium, which found that 67% of the images adolescents encounter do not fall into any of the five major food groups included in dietary food guidelines (Qutteina et al. 2019). However, according to their results, almost half (49%) of the images are related to a social context, such as hanging out with friends and celebrating with food. This social role of food is also prominently featured in One Piece and Kimetsu no Yaiba, where sharing meals signifies connection and care. Although anime are fictional, they mirror real-life practices and cultural values surrounding food. Connecting to the previous paragraph, one can say that certain anime can even teach the young to enjoy balanced meals while still enjoying the food culture, such as hanging out and sharing meals and celebrating a special event. In an age where young people are heavily influenced by digital content, using anime as a medium to educate on healthy and social eating is an area that merits closer attention.

6.2 Scarcity, Locality and Sustainability in Anime

The analysis of scarcity, locality and sustainability in food systems in Gin no Saji and Dr. Stone adds another dimension to the discussion. These anime highlight the significance of food in contextualising social issues and environmental themes. Gin no Saji explores local food systems and the struggle of agricultural communities, highlighting the relationship between food production and personal growth. On the other hand, Dr. Stone depicts a post-apocalyptic world where the revival of civilisation relies on the rediscovery of agricultural practices, showing the importance of sustainable food systems. These themes mirror significant issues faced in today's world. Through the manner in which, in Gin no Saji, the series guides the protagonist throughout a journey from urban outsider to dedicated farm student, the series offers real-world issues such as sustainability of food, the ethics of what we eat and how many have become disconnected from where our food originates. Conversely, Dr. Stone portrays the challenges of food scarcity following a post-apocalyptic scenario. The series transforms everyday processes such as preserving or producing fertilisers into dramatic milestones, encouraging the audience to value and learn about the complexity of even simple foods. Together, these anime do not only reflect different facets of our current world food systems but also engage critical thinking in our relationship with food, science and the environment.

These series align with findings from Arellano (2020), who conducted a qualitative analysis and coding of Dr. Stone's episodes to examine how scientific concepts are portrayed, particularly in engineering, chemistry and geology. The author strongly advocates the significant role of scientific educational anime in a classroom setting, emphasising their potential to enhance students' engagement and understanding. Building on this perspective, both Gin no Saji and Dr. Stone can be regarded as valuable educational tools in the context of sustainability in food systems, as they discuss sustainability and environmental and social issues of today's world while promoting critical thinking.

6.3 Influence on Consumers' Habits and Choices

According to the study on Turkish anime viewers by Basaran and Sunnetcioglu (2021), food scenes in anime spark curiosity among viewers about Japanese cuisine and half of the interviewers reported that anime motivated them to try Japanese foods, purchase Japanese culinary products and use them in their cooking at home. Moreover, according to Sachan *et al.* (2023), watching anime and the psychological impact of the anime significantly influence Generation Y in Chonburi to try or choose Japanese food.

This study of visuals and illustrations of food and food systems in anime reveals that anime depicts Japanese food along with other food ingredients that are not only confined to 'Japanese' such as commonly-found fruits, vegetables and meat. Even in *One Piece: Pirate Recipes* cookbook, attributed to the character Sanji in One Piece, which has achieved notable rankings such as being the "#1 Most Gifted in Restaurant Cookbooks" on Amazon.se, most of the ingredients are available outside of Japan and has its substitute if not. Likewise, Dr. Stone explicitly shows the audience the main character cooking ramen, a very typical Japanese food, with foxtail millet which was the only ingredient he could find in his surroundings.

It is proven from the two research above that anime influence consumers to try and purchase Japanese food. However, with the findings from this study, the research shows the potential of anime to nudge the consumers to make their own version of Japanese food with what they have. There has been no research done on what influence the food systems in anime have on consumers focusing on food consumption, but if the viewers watch scientific educational anime such as Gin no Saji and Dr. Stone and understand the issues of the world today, then anime has the potential to positively influence the choices and change the habits of consumers' consumption.

7. Conclusions

In this final chapter, the key findings are summarised and connected to the real world. Moreover, suggestions for future research are provided.

Food consumption is closely linked to human life and is influenced by cultural, environmental and social factors. Technological advancements and global interconnectivity have shaped our perceptions of food consumption habits, particularly among youth through communication channels such as social media and popular entertainment like TV programs and anime. Anime, once a Japanese medium, is now becoming an impactful international entertainment medium. However, little was known about how anime portrays food and the food system in terms of scarcity, locality, and sustainability. A lack of critical examination could lead to distorted views of real-world food issues and neglect of its potential influence on food system awareness and consumption.

This study aimed to explain how food and food systems are depicted in anime and lay the foundation for how anime can possibly influence the audience's food habits, choices and consumption in the future. Content analysis was used to examine the roles of food in anime: food as a main plot element, a narrative device, a reflection of character and identity, an emotional mirror, a medium of connection and care, a gesture of gratitude and respect, a symbol of strength and survival and a tool for control and deception. In addition, the analysis explored and highlighted the roles of food in contextualising environmental and social issues regarding scarcity, locality and sustainability.

These findings broadened the possibility of anime to a classroom setting, where certain anime can teach young people to enjoy balanced meals while still enjoying food culture, such as hanging out, sharing meals, and celebrating special events. Furthermore, scientific educational anime such as Gin no Saji and Dr. Stone can enhance students' engagement, understanding and critical thinking of food systems in the real world. For educators and policymakers, this study underscores the value of media as an educational tool and a mirror of what society holds as important. Anime can be a resource in a school setting, a medium for public engagement, and even a soft-power tool in food diplomacy.

Moreover, the study illustrates how a widely consumed and influential medium, anime, can possibly shape cultural attitudes toward food. By depicting meals as more than mere food to be consumed, as moments of storylines, emotional mirrors and personal growth, anime can play a subtle but powerful role in normalising positive and healthy food behaviours. This suggests that media creators have an opportunity and maybe even a responsibility to contribute to a more food-conscious society and depict the truth of the world.

Public health campaigns can draw on the narratives and visuals of anime to encourage healthy eating habits, especially among young people. When anime characters cook, eat and enjoy balanced meals, it models healthy behaviour in a relatable way. Additionally, when anime addresses issues such as scarcity, locality, or sustainability, it creates an inner, perhaps even an outer, debate where consumers become aware of the current issues of food systems and encourage themselves to have sustainable food habits and consumption. Furthermore, anime such as Gin no Saji demystify agriculture and highlight the ethical, economic and ecological dimensions of food systems. By breaking down complex food issues into comprehensible and emotionally compelling stories, anime promotes critical thinking and informed decision-making in viewers.

Overall, the study suggests that anime is more than entertainment: it is a cultural artefact that reflects and shapes food norms. By understanding and tapping into this potential, stakeholders across the food landscape can promote healthier, more sustainable and more meaningful relationships with food, especially with the youth.

As anime continues to grow as a form of entertainment enjoyed by all individuals in the world, understanding how anime portrays food and food systems is critical. Looking into the future, more research is essential to broaden the understanding of how food and food systems are portrayed across diverse anime genres and their impact on global audiences. While the selection of this study allowed for a focused and in-depth analysis, it also meant that the findings are not necessarily generalizable to all anime. Future research could expand the scope by including a broader range of titles or supplementing content analysis with audience research such as surveys and interviews to better understand how these depictions are received and interpreted. Moreover, future research can approach from a more interdisciplinary framework, incorporating the audience directly as Greimas's model is not explicitly tied to audience reception.

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Popular science summary

Food consumption is influenced not only by physiological needs, but also by cultural, environmental, and social factors. Technological advancements and global interconnectivity have shaped consumers' perceptions, particularly among the youth. Of those factors, social media and popular entertainment, such as TV programs and anime, influence food consumption habits, blurring geographical and cultural boundaries. Despite much research on how TV programs and social media portray food, very little is known about how anime is portraying food and the food system in the aspects of scarcity, locality and sustainability. Therefore, this study investigates how food and food systems are depicted in anime.

The study particularly focuses on One Piece, Kimetsu no Yaiba, Gin no Saji and Dr. Stone. Each food scenes were analysed based on the thought that visuals have meaning and can convey intricate and complex ideas. Greimas suggests a model called a model of the generative trajectory of meaning which consists of three levels: expression level which related to tangible forms, such as words, images, or symbols; surface level which is related with narratives, conversations, plots and storylines; and lastly, deep level where these two level help the viewers lead up to these abstract ideas.

Using this model, the analysis shows that the food in these shows is more than just a source of nutrition. It serves as a crucial element of the narrative, influencing plot, character relationships and development. The research highlights different roles that food plays, such as reflecting characteristics and personal identity, mirroring emotions of the characters, depicting connection, care, gratitude, respect, strength, survival, and even acting as a tool for control or deception. It also explores themes of food scarcity, locality and sustainability, shedding light on how these issues are in the real world today.

By analysing scenes and their significance, the study reveals how culinary elements can enhance storytelling and foster connections between characters and audiences. This exploration contributes to our understanding of the cultural significance of food in media, demonstrating its power to evoke emotions and convey complex themes within entertaining narratives. Furthermore, the study supports the idea that the food scenes in anime can also subtly encourage the young viewers to have a balanced diet while still enjoying the culture related to food, such as sharing meals and celebrating an event with food. In addition, scientific educational anime such as Gin no Saji and Dr. Stone can play a significant role in a classroom setting, as those anime reflect different aspects of our current world food systems and engage critical thinking in our relationship with food, science and environment.

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Appendix 1: The Synopsis of One Piece

Barely surviving in a barrel after passing through a terrible whirlpool at sea, carefree Monkey D. Luffy ends up aboard a ship under attack by fearsome pirates. Despite being a naive-looking teenager, he is not to be underestimated. Unmatched in battle, Luffy is a pirate himself who resolutely pursues the coveted One Piece treasure and the King of the Pirates title that comes with it.

The late King of the Pirates, Gol D. Roger, stirred up the world before his death by disclosing the whereabouts of his hoard of riches and daring everyone to obtain it. Ever since then, countless powerful pirates have sailed dangerous seas for the prized One Piece only to never return. Although Luffy lacks a crew and a proper ship, he is endowed with a superhuman ability and an unbreakable spirit that make him not only a formidable adversary but also an inspiration to many.

As he faces numerous challenges with a big smile on his face, Luffy gathers oneof-a-kind companions to join him in his ambitious endeavor, together embracing perils and wonders on their once-in-a-lifetime adventure (MyAnimeList n.d.e).

Appendix 2: The Synopsis of Kimetsu no Yaiba

Ever since the death of his father, the burden of supporting the family has fallen upon Tanjirou Kamado's shoulders. Though living impoverished on a remote mountain, the Kamado family are able to enjoy a relatively peaceful and happy life. One day, Tanjirou decides to go down to the local village to make a little money selling charcoal. On his way back, night falls, forcing Tanjirou to take shelter in the house of a strange man, who warns him of the existence of flesh-eating demons that lurk in the woods at night.

When he finally arrives back home the next day, he is met with a horrifying sight his whole family has been slaughtered. Worse still, the sole survivor is his sister Nezuko, who has been turned into a bloodthirsty demon. Consumed by rage and hatred, Tanjirou swears to avenge his family and stay by his only remaining sibling. Alongside the mysterious group calling themselves the Demon Slayer Corps, Tanjirou will do whatever it takes to slay the demons and protect the remnants of his beloved sister's humanity (MyAnimeList n.d.d).

Appendix 3: The Synopsis of Gin no Saji

Yuugo Hachiken is studious, hard-working, and tired of trying to live up to expectations he just cannot meet. With the ushering in of a brand new school year, he decides to enroll in Ooezo Agricultural High School, a boarding school located in the Hokkaido countryside, as a means to escape from the stress brought upon by his parents.

Initially convinced that he would do well at this institution, Hachiken is quickly proven wrong by his talented classmates, individuals who have been living on farms their entire lives and know just about everything when it comes to food, vegetables, and even the physiology of livestock! Whether it be waking up at five in the morning for strenuous labor or to take care of farm animals, Hachiken is a complete amateur when it comes to the harsh agricultural life.

Gin no Saji follows the comedic story of a young student as he tries to fit into a completely new environment, meeting many unique people along the way. As he struggles to appreciate his surroundings, Hachiken hopes to discover his dreams, so that he may lead a fulfilling life on his own terms (MyAnimeList n.d.c).

Appendix 4: The Synopsis of Dr. Stone

After five years of harboring unspoken feelings, high-schooler Taiju Ooki is finally ready to confess his love to Yuzuriha Ogawa. Just when Taiju begins his confession however, a blinding green light strikes the Earth and petrifies mankind around the world—turning every single human into stone.

Several millennia later, Taiju awakens to find the modern world completely nonexistent, as nature has flourished in the years humanity stood still. Among a stone world of statues, Taiju encounters one other living human: his science-loving friend Senkuu, who has been active for a few months. Taiju learns that Senkuu has developed a grand scheme—to launch the complete revival of civilization with science. Taiju's brawn and Senkuu's brains combine to forge a formidable partnership, and they soon uncover a method to revive those petrified.

However, Senkuu's master plan is threatened when his ideologies are challenged by those who awaken. All the while, the reason for mankind's petrification remains unknown (MyAnimeList n.d.b).

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