Black Panther vs The Help, the battle of inclusion versus tokenism:

A comprehensive examination of underrepresentation of ethnic minorities in Hollywood films

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Management summary

In recent years, the issue of minority representation in Hollywood films has become increasingly prominent. Countless studies have been published on this topic, and there is a growing demand for clarity about the relationship between representation and its effects.

This paper addresses the pressing issue of diversity and representation within the film industry, specifically focusing on Hollywood films. Films are powerful cultural influencers that shape societal beliefs. The lack of representation in films can perpetuate negative stereotypes and marginalization, which can have a harmful impact on individuals and communities. The study highlights that films with diverse casts tend to perform better at the box office due to their wider appeal. This suggests that diversity is not only a moral imperative, but also a financial necessity. The study highlights the economic significance of the film industry, which generates billions of dollars in annual revenue and produces some of the most profitable products in the world.

Despite recent improvements in representation, the study underscores that existing measures often overlook the nuances of representation and the need for authentic inclusive representation (AIR). AIR is a comprehensive approach to representation that accounts for effective representation rather than mere tokenism. The study argues that AIR is essential for creating films that resonate with diverse audiences and positively impact society.

Preface

Table of contents

Chapter 1 . Introduction

* 1. Problem Indication

The film industry is a major part of our global economy. Films generate nearly $100 billion annually through theaters and home channels. Moreover, the economic impact is evident in successful products. For instance, Disney's "The Force Awakens" earned a net profit of $780 million (MPA, 2022), displaying that films are a serious, high-return industry despite their light-hearted nature. Furthermore films do not only hold economic significance, they are related to cultural aspects of society.

Films are not only a form of entertainment, they also reflect and shape the cultural context in which they are created. They mirror societal values, attitudes, and perspectives and can effectively convey ideas, emotions, and perspectives through their visual and narrative nature. As a result, they have the potential to shape how people perceive the world and the cultures around them. (Belton, 1995)

In today's increasingly diverse and socially conscious world, this responsibility currently translates that the Hollywood film industry is under increasing pressure to be socially conscious and to address issues of representation, particularly in relation to gender and people of color (Sperling, 2021). The common consensus is that representation in films is important because it counteracts narrow viewpoints regarding groups depicted in the media, which can reinforce negative stereotypes and biases that result in discrimination and marginalization (The Annenberg Foundation, 2018; Castañeda, 2015; Ross, 2019; Kubrak, 2020; Buchanan, 2005).

Moreover, representation in films is not only important for social factors, studies show that films with diverse casts appeal to broader audiences and perform better at the box office. (Annenberg Foundation, 2018) For example, a 2018 study by the University of Southern California found that films with diverse casts were 1.4 times more likely to be seen by broader audiences. Additionally, a 2021 McKinsey and Company study found that films with casts that had at least 30% minority actors were 1.3 times more likely to be profitable. By prioritizing diversity and representation, filmmakers can create more inclusive and authentic stories, attract larger audiences, and boost their bottom line. (Whitten, 2019; Bunche, 2018; Reporter, 2021).This suggests that racial diversity is both a moral and financial imperative for the film industry.

Efforts to increase diversity and representation in film have led to a significant increase in the proportion of films featuring minority actors. For example, a study by UCLA found that in the years from 2011 to 2021, films went from 51.2% having less than 11% of colored actors to 28.8% of films featuring a cast that has a majority of colored actors.

Nevertheless, the public, media, and most studies adopt a narrow approach measuring diversity. (Malik, 2022) Most studies do not make a distinction between different minority groups and measure diversity based on the share of minorities in the cast. This approach has caused two major issues.

Firstly, the approach of treating minority groups as a homogenous unit has resulted in uneven representation across the different minority groups. For instance, while African-Americans have been overrepresented in films for the past three consecutive years and the Asian community is ‘rightfully’ represented, the Latin community remains severely underrepresented, with a gap of 13.2% (compared to an actual population of 20%) respectively. (UCLA, 2021; MPAA, 2021). As a result, this group still experiences the social consequences of being underrepresented.

Secondly, measuring diversity based solely on minority share overlooks crucial information about the nature of the representation. (Malik, 2022; Lazar, 2020) To effectively address the social dimension associated with diversity, authentic inclusive representation (AIR) is necessary. (Lazar, 2020; Roughton , 2014). AIR is in this study referred to the practice of accurately and respectfully depicting a character from a diverse background, this means going past tokenism and trying to create meaningful storylines for the character. (Lazar, 2020).

With AIR being arguably crucial for effective representation this study argues that by neglecting to consider AIR alongside diversity, previous studies such as (Kuppuswamy, 2016; Weaver, 2011) have fallen short to conduct a comprehensive analysis of the effects of racial diversity. This causes that the true effects on both the social dimensions and financial implications have not being properly studied previously.

Lastly, as discussed racial representation in film is a social construct. Nevertheless, most studies use box office revenue as the dependent variable to analyze a film’s success. (Malik, 2022; Kuppuswamy, 2016;Madongo, 2023) While box office revenue is a useful measure of commercial success, it does not necessarily reflect the quality of a film or its impact on audiences, as it is highly influenced by marketing , advertising and hype. (Eliashberg, 2014; Clement, 2014) Therefore, this study will choose long-term audience engagement (LTAE) as dependent variable. As discussed later this concept entails both social and economical constructs which makes it a better measurement for a film’s success in the context of a social concept such as racial representation.

1.2. Problem Statement

Following the problem background this studies problem statement is formulated as follows: “*What is the relationship between racial diversity in Hollywood films and LTAE, and to what extent does the presence of AIR mediate this relationship?”*

1.3 Academic Contribution

Previous studies on racial diversity in films have taken a narrow approach, either by focusing on only one or two ethnic groups (Patel, 2015; Hall, 2020; Dixon, 2000 ; Kuppuswamy , 2016) or by grouping all minority groups together (Aumer, 2017). This study addresses these limitations by including multiple minority groups and distinguishing between them. This is important because different minority groups have different experiences and perspectives, and their representation in films should be considered separately. Moreover, analyzing all minority groups separately but at the same time displays real world scenario’s, improving the generalization of the results.

Second, as noted by Malik (2021, p. 1), 'there are no clearly defined, standardized, and scalable metrics for taking stock of racial minorities’ cinematographic representation'. Previous studies such as Weitzman et al. (1972) and Smith et al. (2013) have used manual annotation, which produces high-quality insights, but is time-consuming and expensive. This study uses an automated process to measure the concept of AIR and racial diversity. By doing so, this study not only aims to be as inclusive as possible, going beyond mere inclusion of actors but also makes the process applicable for automation. Therefore, it can be easily applied to a large number of films.

Building on prior research on gender biases in film (Agarwal et al., 2015; Kagan et al., 2020), this study seeks to standardize the concept of authentic inclusive representation (AIR) using the Bechdel-Wallace test (1985). This is not the first time the Bechdel test has been applied to racial representation. In 2020, the UCLA Center for Scholars & Storytellers developed the REM test, but they have not yet automated it. Moreover, the REM test does not distinguish between different minority groups. By combining the work of previous researchers, this study makes a significant contribution to the academic literature on racial representation in films.

Third, as mentioned before by using Long-term audience engagement (LTAE), this study uses a more comprehensive measure of success, as it takes into account factors such as word-of-mouth, social media engagement, and re-watching. This contributes to existing literature because it provides a more nuanced understanding of how audiences are engaging with films with diverse casts. Moreover, this causes that this study in contrast to other studies identifies films that are having a lasting impact on audiences, even if they may not have been box office blockbusters.

Using this approach, this study builds upon previous research and provides a more comprehensive and in-depth analysis of the relationship between representation and long term audience engagement in films.

1.4 Managerial Contribution

This study offers valuable insights for filmmakers, studios, and stakeholders, helping them make informed decisions that can significantly impact a film's success in both financial and cultural terms. By intentionally casting diverse roles and developing characters that authentically represent a variety of backgrounds, ethnicities, and cultures, filmmakers can attract a wider audience, which can boost a film's financial performance.

Furthermore, measuring the long-term success of films with diverse casts and themes allows studios to assess whether embracing diversity can expand their audience reach over time. This would require a shift in focus from short-term box office results to long-term audience engagement. Ancillary revenues, such as streaming and DVD sales, may be just as important as box office success. Measuring the long-term financial performance of films with diverse casts and themes can help studios make better investment decisions. Moreover, if the research findings confirm that minority groups respond more favorably to films where they are authentically represented, marketers and distribution teams can leverage these insights to develop targeted marketing strategies. This could lead to more effective marketing activities.

Lastly, the study underscores the significance of Authentic Inclusive Representation (AIR) in films. By emphasizing this concept, filmmakers can understand that simply including minority characters is not enough. Focusing on crafting narratives that genuinely reflect the diversity of human experiences enables filmmakers to create stories that resonate emotionally with audiences. Ultimately, this understanding can lead to better practices of racial representation enhancing its effect on social and financial implications.

1.5 Structure of the Thesis

To address the research questions stated earlier, a quantitative research approach was employed in this study. This paper will first present a theoretical framework to contextualize the research, followed by a detailed description of the research methodology. Afterwards it will be discussed how the data collection and processing went. Finally, the results will be discussed.

Chapter 2. Literature Review and Hypotheses

This literature review delves into the current existing literature on the relationship between racial diversity in Hollywood films and LTAE. To provide clarity before delving into the relationships we first define LTAE and racial representation, and discuss the importance of AIR in the latter.

2.1 Long-Term Audience Engagement (LTAE)

Audience engagement is a complex and multifaceted concept that encompasses the active involvement of an audience. In this study, the focus is on long-term audience engagement (LTAE), which goes beyond passive consumption and encompasses factors such as word-of-mouth, cultural impact, and sustained interest over time. (Broersma, 2019; Kumar, 2022)

Before delving into the social attribute of LTAE it is important to clarify that LTAE has financial purposes as well. LTAE encompasses dimensions of ancillary revenues such as engrossed viewing, longevity in distribution channels, and the purchase of film-related merchandise (Kumar, 2022). These factors signify a lasting connection with the film beyond its initial screening and address the mechanism that LTAE is able to provide financial components over a longer period of time. These financial constructs exist through the social components of LTAE.

LTAE is a key factor in the media's capacity to shape attitudes, beliefs, and behaviors. It allows for a deeper and more sustained connection between the audience and the film, which can have a lasting impact on their lives. (Tan, 2018) The effect of LTAE and changing behavior is demonstrated by Bard research in 2006, which discovered that individuals highly interested in violent video games for a longer period of time were more prone to displaying heightened levels of aggressive behavior, aggressive cognitions, feelings of anger, and physiological arousal.

Furthermore, the effects of long term engagement with media and changing our beliefs was displayed by Mastro et al. in 2007 which found that white people who were constantly exposed to negative racial stereotypes in the media were more likely to hold those stereotypes themselves. This was especially true for white people who don't have much real-life contact with people of color. When we're constantly exposed with negative portrayals of certain groups of people, it is hard not to start believing them. Therefore, the importance of racial representation in media will be discussed in the following paragraph.

2.2 Racial Representation in Films

Representation of minorities in films pertains to the presence and portrayal of characters from minority groups, including people of color, people with disabilities, LGBTQ+ individuals, and other marginalized groups. (Buckingham, 2008). Representation is essential because it allows people from different groups to see themselves on screen, which can lead to a greater sense of inclusion, empowerment, and validation. (Annenberg Foundation., 2018; Dixon, 2000)

In contrast, the absence of representation has negative impacts on self-worth, as individuals from underrepresented groups do not see themselves or their experiences reflected in mainstream media (Castañeda, 2015; Ross, 2019; Kubrak, 2020; Buchanan, 2005) The spread of positive and accurate portrayals in the media is therefore essential for people to explore their identities with regards to race.

Racial identity is a complex concept that is constantly evolving. This study uses the defintion of Umaña-Taylor AJ, (2014 p. 3) which defines racial identity as “a multidimensional psychological construct that reflects the beliefs and attitudes that individuals have about their ethnic group memberships”. The four ethnicities discussed in this study are Black, Hispanic, White and Asian.

Our racial identity is not solely a product of our own perspective but is also shaped by how others perceive us. In multicultural societies, building positive relationships among diverse groups presents a significant challenge. In densely populated areas characterized by ethnic segregation, individuals often encounter other cultures and ethnicities solely through media portrayals (Kidd, 2015).Therefore, the powerful impact of media representations on shaping perceptions cannot be underestimated.

Positive depictions of communities of color can diminish feelings of threat and social distance among white audiences (Dalisay and Tan, 2009; Ortiz and Harwood, 2007), whereas negative portrayals, such as associations with criminality, can exacerbate negative stereotypes and widen divisions among ethnic groups (Abraham and Appiah, 2006; Hurley et al., 2015).

Further in this study the ongoing debate regarding the extent to which films should mirror the diversity of the real world will be discussed. Ultimately, filmmakers must understand the potential impact their creative choices can exert on viewers. Moreover, as highlighted in the next few paragraphs for filmmakers to understand how to represent ethnic minorities in a successful manner is as equally important.

2.2.1 Authentic Inclusive Representation (AIR) in Racial Representation:

The representation of minority groups in films takes on various forms. Some films and studies focus on the experiences of minority characters, while others simply include them as part of a larger cast (Malik, 2021). Nevertheless, overlooking authenticity in representation can result in films being mistakenly categorized as racially diverse while still perpetuating stereotypes and contributing to marginalization. As discussed previously these stereotypes in the film can perpetuate biases and misconceptions about minority groups. (Umaña-Taylor AJ, 2014; Abraham and Appiah, 2006; Hurley et al., 2015) Therefore, the concept of Authentic Inclusive Representation (AIR) emerges as a crucial element in racial representation.

The pursuit of authenticity in the representation of minorities in films is not a recent development. In 2014, Ralph Roughton stressed that genuine understanding and empathy, free from stereotypes, are key to changing attitudes. Effective representation requires viewers to truly understand and empathize with characters. (Roughton, 2014) AIR, as a concept, describes how accurately and respectfully a film portrays underrepresented groups in a nuanced manner. To make this concept more tangible, researchers often use the Bechdel-Wallace test (1985), which was originally designed to measure the authentic representation of women in a film.

The Bechdel-Wallace test can be adapted to measure the representation of ethnic underrepresented groups. The test can be summarized as follows: Does the film contain a conversation between two named characters of ethnicity X that is not about a white character? An example for such a conversation would be a conversation between the main character and his wife in the film ‘12 years a slave’ :

**ANNE**

Solomon...

**SOLOMON**

Come, Anne. Jump.

**ANNE**

I will not ruin my dress. Catch me!

**SOLOMON**

I will catch you, Anne. I will.

**ANNE**

You will.

Even though the conversation is not very thorough or meaningful, it is between two named African American characters, and no white people are present or mentioned in the conversation. Therefore, this film would have AIR for black people. With an understanding of the concepts, the following paragraphs will explain the relationships between one another.

2.3 The Relationship of Racial Diversity and Long-Term Audience Engagement (LTAE),:

The power of storytelling lies in its ability to create connections between viewers and characters who possess relatable qualities and admirable traits (Murray, 1999; Appiah, 2001; Hall, 2020). This connection is strengthened when there are similarities in demographic factors such as ethnicity, age, and gender, creating a sense of affinity between viewers and the on-screen portrayals. (Hall, 2020)

As a result, when individuals see themselves or their own experiences represented in a story, they are more likely to form a strong emotional bond and become engaged with the film and its characters. (Murray, 1999; Appiah, 2001; Hall, 2020) This suggests that when a film embraces racial diversity, it has the potential to attract a broader audience and foster greater overall LTAE. (USC Annenberg, 2018)

Nevertheless, the demand for greater racial diversity in film is not universally embraced. A study by King (2020) identifies a group while not opposing racial representation in film, prioritizes the quality of the storyline. Arguing that when minorities are introduced without developed characters it influences the quality of the storyline. An effect discussed more in detail in the next section of this paper.

Patel (2015) argues that efforts to increase racial diversity have faced criticism, particularly from those who fear change and the increased visibility of people of color due to a persistent culture of colonialism or systematic racism. This idea of preference has led to the industry's practice of whitewashing, which is based on the assumption that white majority audiences prefer racially homogeneous casts and that diversity would not positively impact LTAE (Weaver, 2011).

The assumption that white majority audiences prefer racially homogeneous casts is believed to have led to studios allocating smaller budgets to projects with higher racial diversity. This assumption is supported by research by Smith et al. (2020), which found that films featuring racial minorities in lead roles often receive significantly less production budget. It is important to note that lower production budgets are a significant predictor of lower box-office sales (Eliashberg, 2014; Michel Clement, 2014), which can make it difficult to assess the true potential appeal of diverse films.

Nevertheless, it is essential to emphasize that the preference for whitewashing doesn't hold true for all scenarios (Aumer, 2017). Recent studies have also raised doubts about the idea that white actors are necessary for financially success of films (Chow, 2016). The prevalence of whitewashing may be more a product of industry habit than an accurate reflection of audience preferences. Nonetheless, due to the underfunding of diverse films, accurately assessing their potential appeal to audiences becomes a challenging task.

Furthermore, Teresa Correa's study in 2011 delved into the connection between racial diversity and social media engagement, revealing that minority groups tend to be more prolific creators of online content. This heightened interaction between minority communities and media is further evidenced by the active involvement of African-American and Latin communities in both traditional and digital entertainment, surpassing their proportional representation in the U.S. population (Gonzalez, 2014; MPAA, 2014).

This trend is likely to become even more impactful in the future as minority groups continue to grow as a percentage of the total U.S. population (Desilver, 2015). When a film successfully resonates with these audiences through representation, it is more likely to stimulate online discussions, which can lead to a deeper sense of LTAE (Kumar, 2022).

Finally, it is argued that diverse casts can better reflect the diversity of the real world, which can help viewers to connect with the characters and the story. (USC Annenberg, 2018) Despite the challenges posed by current industry forces and tokenism (which will be discussed in the next paragraph), the general consensus is that increased racial diversity in films has a positive impact on LTAE. Based on these considerations, the following hypothesis is proposed  
**H1:** Increased racial diversity has a positive influence on LTAE.

2.4 The Relationship Between Diversity, LTAE, and AIR as a Mediator:

Including diverse characters in films is not without its challenges. One concern is tokenism, which occurs when underrepresented characters are introduced without fully developed storylines. This can lead to backlash and damage LTAE if viewers perceive the diversity as being insincere , which can ultimately affect the perceived quality of the film (Smith, 2016). For example, when minorities are introduced through tokenism, it can create the perception of a "racial agenda," which is often disliked by viewers (King, 2020).

Moreover, negative stereotypes are seen as a gross misrepresentation by balanced critics who advocate for avoiding films with stereotyping regardless of representation. Since critic reception plays a crucial role in shaping LTAE, misrepresentation is likely to lead to a decline in LTAE (Hofmann, 2016; Ghiassi, 2017; Kuppuswamy, 2016; Kumar et al., 2022).

Furthermore, these negative depictions can cause minority groups to disengage completely from the media. For example, a study by El Hazzouri (2019) found that ethnic minorities who saw public health ads featuring people from their own ethnic group were less likely to follow the advice in the ads than those who saw ads featuring white people. The authors explained this by saying that minorities felt like they were being negatively stereotyped by the advertisers.

In contrast AIR can have a positive effect if done correctly. According to research, large-budget films in 2021 performed better when they had more racial authentic representation. (Lazar, 2020) The study emphasizes that racial representation must be authentic in order to foster empathy, understanding, and connection among viewers. There is an intuitive belief that racial diversity leads to authentic inclusive representation (AIR). The rationale behind this notion is straightforward. The more people from different ethnicity are included, the more likely it is that one of them will provide an authentic representation for that ethnicity.

Moreover, others argue that diversity encompasses a variety of perspectives and experiences, which can enhance authenticity of characters. This is because diverse casts can help to challenge stereotypes and assumptions about different cultures. As a result, they can help to create more nuanced and complex representations of people from different backgrounds. (Smith, 2020).

Furthermore, there is a growing body of research that suggests that authentic representation of diverse individuals on screen, free from stereotypes, has a profound educational and socially engaging impact on audiences. (Bamford, 2018) This transfers to all types of media, as shown by a study by Roberts, (2021) which found that news stories that portrayed diverse cultures and identities in an authentic way were more likely to foster empathy and understanding among readers. This is likely because seeing oneself and one's own experiences reflected in the media can lead to a deeper emotional connection with the characters and the story, making the media more engaging. Therefore, the hypothesis will be the following:

**H2:** The relationship between racial diversity and LTAE is mediated through AIR.

2.5 Conclusion

This literature review has examined the complex and nuanced relationship between racial diversity in Hollywood films and long-term audience engagement (LTAE). The review has defined and elaborated on the key concepts of LTAE and racial representation, and has highlighted the importance of authentic inclusive representation (AIR) within the latter concept.

The review has also identified several gaps in the current literature. For example, more research is needed to understand how different types of racial diversity impact LTAE. Specifcally, more research is needed to understand the role of AIR in the relationship between racial diversity and LTAE.

The findings of this review have important implications for the film industry and for society as a whole. By understanding the relationship between racial diversity and LTAE, filmmakers can make more informed decisions about how to represent diversity in their films. Additionally, the findings of this review can help to promote understanding and empathy for people from different backgrounds.

2.6 Conceptual framework

A diagram of a person's relationship

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Figure 1 Conceptual model paper

Figure 1 indicates the conceptual model consists of three relationships. AIR being the mediator of the relationship between diversity and LTAE. As shown in the figure all relationships should be positive. These relationships will be examined through regressions models. Thorough model specification can be found in the research methodology.

3. Research Methodology

This study seeks to explore the correlation between racial diversity and Long-Term Audience Engagement (LTAE) in films, with a particular emphasis on Authentic and Inclusive Representation (AIR). In the following sections, I will delve into the details of the data collection and sampling procedures. Additionally, a clear description of the operationalization of the variables (notably, AIR will be discussed across three distinct levels) is provided.

3.1. Data sources

*Film characteristics*: I collected data on film characteristics from IMDb, along with two other trusted sources: The Numbers and The Movie Database (TMDB). These are all trusted platforms with millions of registered users, ensuring credibility and diverse perspectives (Ghiassi, 2017).

*LTAE:* To assess the generalizability of the findings, considering the DV is rooted in the behavior of IMDb users, demographic data on IMDb users was collected and compared to filmgoers.

IMDb's user base is 62% male, which is comparable to the gender distribution of ticket sales (59% male). In terms of age distribution which can be seen in Figure 2 and 3, IMDb's demographics align with those of filmgoers, except that older age groups are underrepresented on IMDb. (MPAA,2022; Similaweb, 2023).

A screenshot of a graph

Description automatically generatedA graph with numbers and a number of people

Description automatically generated with medium confidenceMoreover, IMDb's user base is predominantly American, according to Similarweb's 2023. Nevertheless, given the study's focus on the Hollywood film industry, and the cultural nuances of racial representation, it makes sense to focus on the United States for the analysis. The results can potentially be transferred to countries with a similar cultural landscape and other demographic similarities with the United States.

Figure 3 Age distribution Filmgoears MPAA (2022)

Figure 2 Age distribution IMDB users

I was particularly interested in whether differences in ethnicity between filmgoers and IMDb users could potentially influence the dependent variable. Previous research suggests that IMDb's demographics are representative of the broader filmgoing audience (Ghiassi, 2017; Partha and Chakraborty, 2019; Apala, 2013). Therefore, given its large user base and diverse perspectives, I assumed that IMDb data is reliable for producing generalizable and accurate findings.

*Ethnicity determination:* I used the Kairos API, a deep learning algorithm that can detect ethnicity through facial recognition, to determine the ethnicity of actors and actresses in the films that were studied. This API is chosen because of its efficiency, accuracy (99.63%), and ability to handle a large dataset (Kairos, 2023). In the films a total of 121,898 characters were present. This count includes instances where an actor or actress appeared in multiple films. It also included uncredited people (13.491). The API analyzed 28,564 images found on IMDb or TMDB of the total 39,400 unique actors and actresses, excluding uncredited people.

The API had one challenge: it only provides probabilities that a person belongs to one of the ethnicities: White, Black, Asian, or Hispanic. I will discuss the handling of the probabilities in the operationalization part of racial diversity.

In the complete dataset, 15% of individuals linked to characters did not have associated images. Among unique actors and actresses, this figure increased to 28%. Meaning that people without images were more likely to play fewer roles. In the few cases where all actors were used for an analysis, such as for robustness checks, the ethnicities of the imageless people were based on their first and last name using the R package Rethnicity, which has an accuracy of around 80%.

*AIR determination*: To determine AIR, this study builds on previous research, such as Agarwal's work in 2015 and automated implementations of the Bechdel test. My study extends the work of the CSS UCLA 2020, which has also tried to use the Bechdel test for racial representation, but does not differentiate between different minority groups or use automation.

The Bechdel test offers us three gradations (T1) two named characters of {ethnicity} ethnicity appear in film X, (T2) who speak to one another, (T3) about something besides a white character. This approach allows to examine and quantify the presence of AIR across various measurements, facilitating a more nuanced evaluation of representation in films.

Traditionally, screenplays have been used to conduct the Bechdel test to determine the level of AIR in films (Argawal, 2015). However, I decided to take a different approach and use subtitles for the hearing impaired. Subtitles represent the final version of the film's dialogue, capturing it exactly as it appears in the film. In contrast, film scripts can be changed during production, so they may not match the final film. Moreover, due to the subtitles being for the hearing impaired it provides more information on who is talking at which moment.

Therefore, subtitles from subtitles.org were used and a logic to identify scenes within these files was developed. I was able to find half of the films which were in a format that could be standardized for testing. I will discuss subtitle processing in the operationalization part of (T2) and (T3).

3.2 Sample

The films for the sample were chosen carefully and based on specific criteria. The sample was limited to films released after 1998 because the dependent variable (LTAE) became publicly available then. Nevertheless, The steep increase in ranking which can be seen in Figure 4 is not due to films becoming less popular over time, but rather to the fact that IMDb popularity rankings were not widely used or reliable between 1998 and 2000. Therefore, there was am additional filter for films from those years.

Films produced outside the United States and animated films were also filtered out, because Hollywood is the focus of this study and voice actors are not represented on screen and this undermines representation. Following Joshi and Mao (2012), the analysis only included films that received a wide release, requiring a minimum of 500 screens at their launch. Observations with missing data were also eliminated.

After applying the criteria of release date (after 2000), production country (United States), film type (live-action), and wide release (500 screens), the final sample consisted of 2,201 unique films.

A graph with a line going up

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Figure 4 Average popularity per year

3.3: Variable operationalization

*3.3.1 LTAE (DV):* Long term audience engagement was operationalized using IMDb's MovieMeter, a metric derived from popularity rankings. The score means that film was the most popular with regards to clicks, page views and reviews on IMDB. Therefore, this film score includes direct indicators of LTAE, such as online discussions, reviews, and word-of-mouth conversations. By examining film scores over time, I aimed to measure sustained engagement, where lower scores indicate higher popularity.

To measure popularity, I used the average popularity rankings of a film over a one-year period, starting in the third year after its release. I chose this metric because it shows how engaged audiences are with a film after a few years, and the average reduces the influence of any spikes or certain drops in popularity. Figure 4 shows the average LTAE scores for films released in different years.

*3.3.2 Racial diversity (IV)*: To measure racial diversity, I used the inverse Simpson index (1949). The Simpson diversity index is a measure of diversity that takes into account the number of ethnicities present, as well as the relative abundance of each ethnicity. It is calculated using the following formula:

D = 1 - / (Σ ni(ni-1)/N(N-1))

Where:

-n is the number of actresses and actors that belong to an ethnicity i   
- N is the total number of actresses and actors .

Using the Kairos API, I extracted the ethnicity of each actor or actress in the dataset. On average, the probabilities of the four ethnicities were as follows: Asian (0.086), Black (0.122), Hispanic (0.074), and White (0.7148). This indicates that the dataset was skewed towards White actors, providing evidence of whitewashing in the industry. Moreover, it supports previous research that the Hispanic community is the least represented ethnicity group. Figure 5 shows the distribution of probabilities for the different ethnicities, which is unequal. This is due to the abundance of White actors in the dataset, which creates a lot of low probability values for the other three ethnic groups.

A graph of different sizes and shapes

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Figure 5 Distribution probabilities ethnicities

Nevertheless, as can be seen in table 1 the confidence associated with the different ethnicities do not differ. Therefore, given the probabilities and the unequal distribution, I established an initial filtering process to assign ethnicity values to the actors and actresses using the following thresholds:

- A probability exceeding 0.6 led to an ethnicity assignment value of 1.

- Values between 0.25 and 0.6 received an assignment value of 0.5.

Table 1 Confidence probabilities Kairos

|  |  |  |
| --- | --- | --- |
| Ethnicity | Average Confidence | Assigned |
| Asian | 0.9972 | 1 |
| Black | 0.9988 | 1 |
| Hispanic | 0.9990 | 1 |
| White | 0.9985 | 1 |
| Asian | 0.9961 | 0.5 |
| Black | 0.9951 | 0.5 |
| Hispanic | 0.9987 | 0.5 |
| White | 0.9984 | 0.5 |

Using the 0.6 threshold, I was able to successfully identify the ethnicity of 98,905 characters. I used the additional 0.25 threshold to categorize the remaining observations. This approach allowed me to keep as much available information as possible while accurately assigning people to their ethnicity, including those who are of mixed ethnicities. However, it is important to note that this approach may lead to some characters being assigned more than one ethnicity with a value of 0.5. And some people might be assigned a 1 and a 0.5 with this logic.

After determining the ethnicities of individuals, I explored two different methodologies for calculating the reverse Simpson index.

* Assessing the diversity of the entire cast, regardless of whether the cast included characters which were generic (e.g., "repair man").
* Assessing the diversity based only on the named characters. (inspired by the first step of the Bechdel test)

The initial approach yielded an average inverse Simpson diversity index of 0.4001. When considering only the diversity of named characters, the average of the index was 0.3953. This displays that when focusing solely on named characters, ethnic diversity in films tends to decrease, suggesting a tendency for films to feature important characters of the same ethnicity. How named characters were identified and removed will be discussed in the following paragraph.

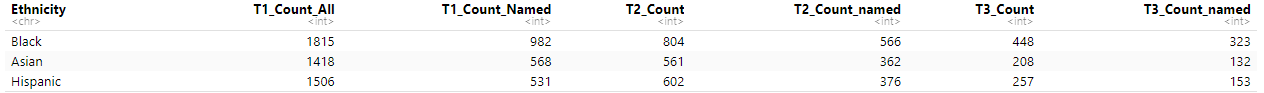
*3.3.3 Mediator AIR*

*(T1) Non named character filtering:* The first step in the AIR test is to filter out non-named characters. To filter generic characters from the dataset, I identified frequently occurring tokens, where a token is a segment of a name divided by spaces. I then removed these tokens using a stop word list. The stop word list eventually contained 915 words, such as "doctor," "agent," and "the." The list can be seen in the Appendix.

I made an exception to the stop word filter: I did not remove a character if the stop word was the first token in their name. For example, "Colonel Rich Bron" was kept. However, there was an addition to this exception which was that if the character's name consisted of only one word. For example, a character named "Colonel" would still be removed.[[1]](#footnote-1)

Table 2 shows the number of films that had two or more characters from an ethnicity and two or more named characters. As you can see, if the character must be named, the number of films is significantly lower. All of the films that pass the first step for all characters but not for named characters include at least one generic character of color. This suggests that these films may be engaging in tokenism by including characters of color who are not named.

Table 2 (T1) all characters versus named characters



To further explore the relationship between more inclusive characters and racial diversity, I used steps 2 and 3 of the Bechdel test. To do this, I processed the subtitle files. I will explain this process in the next paragraphs.

*(T2 ,T3) Subtitle file parching:* To assess who speaks to one another (T2) and whether they talk about something besides a white character (T3), I used subtitle files for the hearing impaired. These files can be extracted from a film in the form of .srt files, which are text files with strict formatting. Each subtitle in an .srt file has a unique identifier, precise start and end times, and one or two lines of text. For example, here is an example from the opening of the film "300: Rise of an Empire": 1

00:00:38,363 --> 00:00:40,698

(HORSE NICKERS)

2

00:01:02,654 --> 00:01:07,024

QUEEN GORGO: The oracle's

words stand as a warning.

3

00:01:07,026 --> 00:01:08,225

A prophecy.

4

00:01:08,227 --> 00:01:11,796

"Sparta will fall.

I cleaned the subtitle files and applied a logic for scene identification. In the subtitle files, when it is not clear who is talking, that person is mentioned (e.g., "QUEEN GORGO"). This is referred to in the datasets as the "speaker." To identify the people in the scenes, I used the en\_core\_web\_md model of the Natural Language package spaCy. This means that my dataset consisted of speakers, people mentioned, and scene index.

To identify scenes, I wrote code which went through the subtitle file and looked for pauses in dialogue. If a pause exceeded five seconds, the code identified it as a new scene. I chose five seconds because it allows the audience to mentally adjust to the new scene without disrupting the narrative flow. Because this is a threshold, even if a scene switch took longer, I would still be counted it as one scene switch.

Therefore, this approach has only two ways of causing errors:  
1. It does not identify scene changes with had dialogue pause shorter than five seconds.  
2. It does not identify dialogues that did not change scene even after a five-second break in dialogue.

To see if these errors occurred robustness checks were performed.

3.4 Covariates:

Although demand factors are not the substantive focus of the paper, controlling for their effect allows for more precise testing of the effects of the market factors. In order to account for additional factors that have been identified as influencing a film’s success, this study draws upon previous research. Combinations of the following variables explained 60% of the variation in box office revenue for certain studies. The variables considered in this study include Series, the star power of Actors and Directors, MPAA rating, Number of screens, Critical Acclaim, Awards, Budget, Genre, Source and Seasonality. Table 3 provides detailed information on all the variables and how they are measured.

*Series:* Films belonging to a series, such as sequels or prequels, tend to enjoy greater success. Fans of the series are already familiar with the characters and story, making them more inclined to watch the new installment (Hofmann, 2016; Clement, 2014; Kuppuswamy, 2016; Kumar et al., 2022). In this study, (SERIESi) represents the number of sequels associated with a film.

*Star power of actors and directors:* Films featuring well-known actors and directors are more likely to succeed as audiences are drawn to familiar and esteemed talent (Hofmann, 2016; Clement, 2014; Ghiassi, 2017; Kuppuswamy, 2016; Kumar et al., 2022).

The star power score (STARPOWERi) is derived from Nelson and Glotfelty's (2012) measure, based on the four highest-grossing actors' ranking on The Numbers. (DIRECTORPOWERi) is similarly measured using the highest-grossing directors' ranking on The Numbers. If the director was not provided a star power this would be 0.001. Why the introduction of this small number is discussed later.

*Critical acclaim:* Films that receive positive reviews from critics are more likely to be successful than films that receive negative reviews. This is because positive reviews can help generate interest in the film and encourage people to see it (Hofmann, 2016; Ghiassi, 2017; Kuppuswamy, 2016; Kumar et al., 2022). The (CRITICSi) value is the average rating on metacritic.com

*Awards:* Films that win prestigious awards, such as Oscars and Golden Globes, tend to be more successful, as these accolades lend credibility and appeal to audiences. (Kuppuswamy, 2016; Kumar et al., 2022; Hunter et al., 2016).

This research will use the actual number of award (NOMINATIONSi) as a proxy for award nomination. (WINSi) will also be added to the model to represent awards wins. Because there is an abundance of available film awards of which some are more known and valuable than others, there is focused on a select group of awards following the research of Gemser, Leenders and Wijnberg (2008). [[2]](#footnote-2)

*MPAA rating:* Films with a PG-13 or R rating are more likely to be successful than films with a G or PG rating. This is because audiences are more likely to see films that are considered to be more mature and exciting (Hofmann, 2016; Clement, 2014; Kuppuswamy, 2016; Kumar et al., 2022). (MPAAi) rating is given by the Motion Picture Association of America and is used in the United States and its territories to rate a film's suitability for certain audiences based on its content. These ratings are encoded [0 = unrated; 1 = G; 2 = PG; 3 = PG-13; 4 = R;5 = C-17].

*Number of Screens* (#SCREENSi): Films shown on more screens are more likely to succeed because they reach a wider audience (Hofmann, 2016; Michel Clement, 2014; Kuppuswamy, 2016; Kumar et al., 2022; Hunter et al., 2016).

*Budget:* Films with a higher budget are more likely to be successful than films with a lower budget. This is because higher budgets can be used to produce higher-quality films with better special effects and production values (Michel Clement, 2014; Kuppuswamy, 2016; Kumar et al., 2022; Hunter et al., 2016). *(BUDGETi*) was the production budget available at one of the three data sources used, if multiple production multiple budgets where available across the sources the average was taken.

*Genre:* Some genres, such as action and comedy, are more popular than others, such as drama and documentary (Hofmann, 2016; Michel Clement, 2014; Ghiassi, 2017; Kuppuswamy, 2016; Kumar et al., 2022). This study introduces 20 genres , Action, Adventure, Comedy, Crime, Drama, Family, Fantasy, Horror, Romance, Musical, Sci-Fi, Mystery, Thriller, Western, Biography, Documentary, History, Music, Sport and War. Because a film could have multiple genres, these dummy variables are not mutually exclusive.

*Seasonality*(SPRINGi, SUMMERi, FALLi, WINTERi): Films that are released during the holiday season or during summer are more likely to be successful than films that are released at other times of the year (Hofmann, 2016; Michel Clement, 2014; Kuppuswamy, 2016; Kumar et al., 2022). Within this study the four seasons are encoded as the following. Spring[March, April, May] Summer [June, July, August] Fall [September, October, November], Winter [December, January, February].

*Runtime:* (RUNTIMEi) is included as the actual numerical value in minutes, following (Holbrook, 1999).

Furthermore, following Hofmann, Clement, Völckner, and Hennig-Thurau (2017), multiple dummy variables were added to control for whether the film was ({BASED ON}i) a book, comic, novel, short story, or TV series. Moreover, whether the film is a (REMAKEi) or (SPINOFFi) (Hennig-Thurau and Houston, 2019; Hofmann, Clement, Völckner, and Hennig-Thurau, 2017). These variables are important to control for because remakes, spinoffs and films which are based on existing sources tend to be more successful at the box office than original films due to their established familiarity with audiences and existing fan bases. Similar , to the genre variables these dummy variables are not mutually exclusive because a film could be based on multiple sources.

To control for possible differences over time, (YEARi) dummies for every year in the sample were added to the model. Because log-log linear regressions are used in this research, all control variables that are not dummy variables were log-transformed.

Finally, it is crucial for this study to be cautious in every step of the process to possibly achieve causality. Therefore, every factor previously mentioned will also be analyzed on its influence on the racial diversity of the film before it is included as a control variable.

Two significant factors have demonstrated a correlation with racial diversity in previous research. In 2019, action films exhibited a notably higher likelihood of including characters from underrepresented racial and ethnic groups. Additionally, films with larger budgets tend to have more diverse casts, as they possess greater resources to hire a wide range of actors (Smith, 2020).

Table 3: Measures of Variables

|  |  |  |  |
| --- | --- | --- | --- |
| Variable Name | Description | Measure | Data Source |
| Simpson diversity indexi | Measure of diversity which takes into account the number of species present, as well as the relative abundance of each species. | Continuous value between 0-1. 1 being complete diversity. | IMDB, TMDB , Kairos |
| AIRi | Authentically Inclusive Representation. | Dichotomous variable with three separate levels | Subtitles.org |
| Log(LTAEi) | IMDB popularity score where a higher score means being less popular. | Average ranking over a one year period of time in the third year after release logged. | IMDB |
| Covariates |  |  |  |
| SERIESi | Number of films associated with the film |  | IMDB |
| Log(STARPOWERi) | Log-transformed score of the top three actors in the film + 0.001. | Log-transformed sum of the top 4 actors, the year of the film release. | The Numbers |
| Log(DIRECTORPOWERi) | Log-transformed score of the number one director in the film + 0.001. | Log-transformed sum of 100 divided through the director ranking + 0.001 (e.g., log(100/rank 2 +0.001)) for the director one year before the film release. | The Numbers |
| Log(CRITICi) | Log-transformed average rating the film received from professional film reviewers + 0.001. | Log-transformed average rating the film received from professional film reviewers | Metacritic |
| Log(NOMINATIONSi) | Number of award nominations the film received. | Log transformed number of award nominations the film received + 0.001. | IMDb |
| Log(WINSi) | Number of award wins the film received. | Log transformed number of award nominations the film received + 0.001. | IMDB |
| Log(MPAAi) | MPAA rating, the film received 1 = Not Rated, 2 = G, 3 = PG, 4 = PG-13, 5 = R, 6 = NC-17 | Log transferred of the interval ranking | IMDb |
| Log(SCREENSi) | Number of screens at release | Total amount of screens logged | Numbers |
| Log(BUDGETi) | Production budget of film | The average production budget of the data sources | IMDB, Numbers, OMDB |
| ACTIONi | Genre Action | Genre Action = 1, Other = 0 | IMDb |
| ADVENTUREi | Genre Adventure | Genre Adventure = 1, Other = 0 | IMDb |
| ANIMATIONi | Genre Animation | Genre Animation = 1, Other = 0 | IMDb |
| COMEDYi | Genre Comedy | Genre Comedy = 1, Other = 0 | IMDb |
| CRIMEi | Genre Crime | Genre Crime = 1, Other = 0 | IMDb |
| DRAMAi | Genre Drama | Genre Drama = 1, Other = 0 | IMDb |
| FAMILYi | Genre Family | Genre Family = 1, Other = 0 | IMDb |
| FANTASYi | Genre Fantasy | Genre Fantasy = 1, Other = 0 | IMDb |
| HORRORi | Genre Horror | Genre Horror = 1, Other = 0 | IMDb |
| MUSICALi | Genre Musical | Genre Musical = 1, Other = 0 | IMDb |
| MYSTERYi | Genre Mystery | Genre Mystery = 1, Other = 0 | IMDb |
| ROMANCEi | Genre Romance | Genre Romance = 1, Other = 0 | IMDb |
| SCI-FIi | Genre Sci-Fi | Genre Sci-Fi = 1, Other = 0 | IMDb |
| THRILLERi | Genre Thriller | Genre Thriller = 1, Other = 0 | IMDb |
| WESTERNi | Genre Western | Genre Western = 1, Other = 0 | IMDb |
| BIOGRAPHYi | Genre Biography | Genre Biography = 1, Other = 0 | IMDb |
| DOCUMENTARYi | Genre Documentary | Genre Documentary = 1, Other = 0 | IMDb |
| MUSICi | Genre Music | Genre Music = 1, Other = 0 | IMDb |
| HISTORYi | Genre History | Genre History = 1, Other = 0 | IMDb |
| SPORTi | Genre Sport | Genre Sport = 1, Other = 0 | IMDb |
| SPRINGi | Film released in the spring | Spring release = 1, Other = 0 [Mar, Apr, May] | IMDb |
| SUMMERi | Film released in the summer | Summer release = 1, Other = 0 [Jun, Jul, Aug] | IMDb |
| AUTUMi | Film released in the autumn | Autum release = 1, Other = 0 [Sep, Oct, Nov] | IMDb |
| WINTERi | Film released in the winter | Winter release = 1, Other = 0 [Dec, Jan, Feb] | IMDb |
| Log(RUNTIMEi) | Duration of a film in minutes | Log-transformed duration of a film in minutes | IMDb |
| BOOKi | Film is based on a book | Film is based on a book = 1, other = 0 | IMDb |
| COMICi | Film is based on a comic | Film is based on a comic = 1, other = 0 | IMDb |
| NOVELi | Film is based on a novel | Film is based on a novel = 1, other = 0 | IMDb |
| SHORTSTORi | Film is based on a short story | Film is based on a short story = 1, other = 0 | IMDb |
| TVSERIESi | Film is based on TV seriess | Film is based on a TV series = 1, other = 0 | IMDb |
| REMAKEi | Film is a remake | Film is a remake = 1, other = 0 | IMDb |
| SPINOFFi | Film is a spinoff | Film is a spinoff = 1, other = 0 | IMDb |
| YEAR2000i | Year2000 | 2000 = 1, other = 0 | IMDb |
| YEAR2001i | Year2001 | 2001 = 1, other = 0 | IMDb |
| YEAR2002i | Year2002 | 2002 = 1, other = 0 | IMDb |
| YEAR2003i | Year2003 | 2003 = 1, other = 0 | IMDb |
| YEAR2004i | Year2004 | 2004 = 1, other = 0 | IMDb |
| YEAR2005i | Year2005 | 2005 = 1, other = 0 | IMDb |
| YEAR2006i | Year2006 | 2006 = 1, other = 0 | IMDb |
| YEAR2007i | Year2007 | 2007 = 1, other = 0 | IMDb |
| YEAR2008i | Year2008 | 2008 = 1, other = 0 | IMDb |
| YEAR2009i | Year2009 | 2009 = 1, other = 0 | IMDb |
| YEAR2010i | Year2010 | 2010 = 1, other = 0 | IMDb |
| YEAR2011i | Year2011 | 2011 = 1, other = 0 | IMDb |
| YEAR2012i | Year2012 | 2012 = 1, other = 0 | IMDb |
| YEAR2013i | Year2013 | 2013 = 1, other = 0 | IMDb |
| YEAR2014i | Year2014 | 2014 = 1, other = 0 | IMDb |
| YEAR2015i | Year2015 | 2015 = 1, other = 0 | IMDb |
| YEAR2016i | Year2016 | 2016 = 1, other = 0 | IMDb |
| YEAR2017i | Year2017 | 2017 = 1, other = 0 | IMDb |
| YEAR2018i | Year2018 | 2018 = 1, other = 0 | IMDb |
| YEAR2019i | Year2019 | 2019 = 1, other = 0 | IMDb |

3.5 Models:

Following the approach outlined by Clement, Wu, and Fischer (2014), this research employs log-log linear regressions. However, it is worth noting that numerous continuous variables had zero values, and taking the logarithm of '0' would result in an error. To address this, a small constant value of '+0.001' was added to all films characters which were continuous before taking the logarithm, ensuring meaningful results.

The mediation analysis consists of two models, with the path between AIR and LTAE involving multiple regression. Since AIR is a dichotomous variable, the model relating racial diversity and AIR follows a logistic regression framework.

The Simpson index, being a number between 0 and 1, cannot be logged. Moreover, not logging it simplifies the interpretation of the results. The detailed model specifications are provided below.

Main relationship:

log(LTAEi) = β0 + β1 × SIMPSONDIVERSITYINDEXi + β2 × SERIESi +

β3 × log(STARPOWERi) + β4 × log(DIRECTORPOWERi) +

β5 × log(CRITICi) + β6 × log(NOMINATIONSi) + β7 × log(WINSi) +

β8 × log(MPAAi) + β9 × log(SCREENSi) + β10 × log(BUDGETi) +

β11 × ACTIONi + β12 × ADVENTUREi + β13 × ANIMATIONi +

β14 × COMEDYi + β15 × CRIMEi + β16 × DRAMAi + β17 × FAMILYi +

β18 × FANTASYi + β19 × HORRORi + β20 × MUSICALi +

β21 × MYSTERYi + β22 × ROMANCEi + β23 × SCI-FIi +

β24 × THRILLERi + β25 × WESTERNi + β26 × BIOGRAPHYi +

β27 × DOCUMENTARYi + β28 × MUSICi + β29 × HISTORYi +

β30 × SPORTi + β31 × SPRINGi + β32 × SUMMERi +

β33 × AUTUMNi + β34 × WINTERi + β35 × log(RUNTIMEi) +

β36 × BOOKi + β37 × COMICi + β38 × NOVELi + β39 × SHORTSTORi

β40 x TVSERIESi  + β41 x REMAKEi + SPINOFFi + β42 ×YEAR2000i +

β43 × YEAR2001i  + β44 × YEAR2002i + β45 x YEAR2003i +

β46 × YEAR2004i + β47 × YEAR2005i + β48 × YEAR2006i +

β49 × YEAR2007i + β50 × YEAR2008i + β51 × YEAR2009i +

β52 × YEAR2010i + β53 × YEAR2011i + β54 × YEAR2012i +

β55 × YEAR2013i + β56 × YEAR2014i + β57 × YEAR2015i +

β58 × YEAR2016i + β59 × YEAR2017i + β60 × YEAR2018i +

β61 × YEAR2019i + εi

Mediation models:

Path A:  
AIRi = β0 + β1 × SIMPSONDIVERSITYINDEXi + β2 × SERIESi +

β3 × log(STARPOWERi) + β4 × log(DIRECTORPOWERi) + … β61× YEAR2018i + β62 × YEAR2019i + εi

Path B:

log(LTAEi) = β0 + β1 × AIRi + β2 × SERIESi + β3 × log(STARPOWERi) + β4 × log(DIRECTORPOWERi) +… β60× YEAR2018i + β61 × YEAR2019i + εi

4. Results

Additional analysis

The last remark this study would like to make is that as explained previously, films and culture are deeply intertwined. In today’s society the following values are seen as highly important belonging, community, and personal growth, which are all closely related to representation. (Neufeld, 2020) It is proven that films that properly represent the cultural zeitgeist in which the film is made are more successful. (Ettema, 2005)

Therefore, it is reasonable to assume that films that reflect the values related to representation will be more successful in today's cultural landscape. However, as societal norms and values evolve, this appreciation might wonder off. This study aims to explore how much of a film's success is due to the effects caused by representation, and how much is due to the degree the films is displaying the current cultural zeitgeist which is focused on representation.

Finally, prior studies (Malik, 2022; Kuppuswamy, 2016) have overlooked cofounding variables and macro environmental factors, and have largely focused solely on the relationship between racial diversity and film success. This study introduces cultural resonance to the analysis, arguing that it is a crucial factor in the success of films with diverse casts, as it may influence how one's cultural values shape their perception of these films.

2.5 Cultural resonance

Cultural resonance, as discussed in this study, refers to how well a film connects with the cultural values, experiences, and zeitgeist of its audience. It can be achieved by either reflecting or challenging the audience's own culture, values, and experiences in a thought-provoking way. (Ettema, 2005) Representation is key, as films that represent different cultures and experiences can broaden audiences and create a sense of connection. (Bamford, 2018)

For the sake of clarity and illustration, the film Black Panther was praised for its positive portrayal of African culture and its representation of African people. It was released at a time when representation was a major topic of discussion, and its popularity amplified the conversation about race and representation. Additionally, its positive portrayal of African culture helped to promote African fashion. Thus, Black Panther is both a product of culture, parts of its success is caused by culture and it is a force for change in culture.

2.5.1 Culture as cofound/moderator

Culture has a big impact on how long audiences stay engaged with a film. Racially diverse films often explore important social and cultural issues, which can lead to lasting discussions about race, identity, and social justice. As Garrett (2020) points out, "Films about race offer us the chance to grapple with past and present constructs of racism, power, and oppression." This shows that cultural shifts are driving conversations about racial diversity, which are essential for keeping audiences engaged in the long term. This underscores the idea that when films activate these conversations they will remain more under the attention for longer periods of time.

*Brokeback Mountain, https://www.tandfonline.com/doi/full/10.1080/19359705.2013.792128*

Moreover, contemporary film critics place a high value on representation and inclusion in media. (Akser, 2021) As a result, films featuring racially diverse casts tend to receive more favorable critical reception, which in itself contributes to LTAE. Finally, cinema's transformative capacity on culture extends to its influence on the hiring practices within the industry, resulting in increased racial diversity in films. (Khrebtan-Hörhager, 2011) With regards to the above considerations, the following hypothesis is proposed:

**H4**: The relationship between racial diversity and LTAE is cofounded by culture resonance.

.2.3 Study 3: Cultural resonance as cofounding variable

Oscars so white   
https://www.tandfonline.com/doi/full/10.1080/15205436.2017.1409356?src=recsys

*Variable operationalization* : for the relationship studied a diff in diff analysis was seen as the most fitting. Quantifying whenever racial representation started to become a major topic in today’s culture. Eventually the event #oscarssowhite was chosen as natural schock. n the context of a difference-in-differences (DiD) analysis, a "natural shock" refers to an external event or occurrence that affects one group or entity being studied but not another group, and it is not caused by any deliberate intervention or treatment by the researchers.

*Model* :

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1. Previous data showed that imageless characters tended to play fewer roles. The filtering process showed that imageless characters were also more likely to play less prominent characters. After the filter for generic names, 77% of characters without images were removed, compared to 66% of characters with images. This suggests that named characters were mostly played by people with images. As a result, the percentage of characters that were assigned an ethnicity through their name instead of facial recognition decreased from 15% to 11% of the dataset after filtering for non-named characters. As a result, imageless people are also more likely to play characters that were not authentic and inclusive (AIR). This suggests that filtering for AIR characters might also include filtering for characters played by people without images. This is an area for further exploration. [↑](#footnote-ref-1)
2. The awards used in this research are the following: Academy Awards, Critics’ Choice Awards, Directors Guild Awards, Golden Globe Awards, Golden Laurel Awards, Independent Spirit Awards, Los Angeles Film Association Awards, MTV Awards, National Board of Review Awards, National Society of Film Critics Awards, New York Film Critics Circle Awards, People’s Choice Awards and the Screen Actors Guild Awards. [↑](#footnote-ref-2)