

Enhancing User Experience: A Comprehensive Evaluation of Usability and Accessibility on TaoPiaoPiao Website

I. Overview

This report is dedicated to performing an analytical evaluation of TaoPiaoPiao Website and providing a redesign. Owned by Alibaba Pictures, TaoPiaoPiao is one of the top movie ticket selling companies in China, while it can be argued the user experience of its website, <https://dianying.taobao.com>, is yet to match its status. The analysis is divided into two main areas: usability and accessibility. The findings from this evaluation will inform the subsequent sections, which will detail proposed redesigns addressing the specific issues identified.

This report applies the established heuristic and accessibility guidelines to to assess the usability and accessibility of TaoPiaoPiao Website. The findings from this assessment will serve as a foundation to propose thoughtful and effective design modifications. These enhancements aim to make TaoPiaoPiao not only more user-friendly but also accessible to a broader audience, including people with disabilities.

II. Introduction of TaoPiaoPiao Website

TaoPiaoPiao Website has been selected for this evaluation due to its critical role in the entertainment industry as a platform for booking movie tickets. The statistics (iiMedia Research, 2021) indicate that TaoPiaoPiao is the second most-used online movie ticket booking platform, with a usage frequency of 60.8%. This is slightly lower than the leading platform at 65.5%, yet significantly ahead of all other competitors.

Unlike many websites that have been extensively reviewed in popular critiques, the analysis of TaoPiaoPiao Website's usability and accessibility appears to be infrequent, despite its complex user interface and significant user base. This website (hereafter referred to as 'the website') was chosen to ensure that the insights gained are original and have a possible impact on its future development.

The website is designed to attract a diverse audience, particularly young urbanites, who frequent cinemas. It appeals to people of all ages and varying levels of technological expertise, ensuring accessibility and usability for casual to regular movie-goers. From the preliminary observations, it is suggested that while the website meets certain user expectations well, there are notable areas where it could potentially improve to provide a smoother and more inclusive user experience. These observations will be expanded upon with detailed analyses in the following sections of this report.

III. Usability Analysis Using Selected Heuristics

This section evaluates the usability of the TaoPiaoPiao website. For this analysis, Ben Shneiderman's Eight Golden Rules of Interface Design have been chosen as the guiding framework. This decision is rooted in the specific nature of the observed usability issues and the practical applicability of Shneiderman's rules to a broad range of interface design problems. To be specific, these rules are (Shneiderman, n.d.): “

1. Strive for consistency.
2. Seek universal usability.
3. Offer informative feedback.
4. Design dialogs to yield closure.
5. Prevent errors.
6. Permit easy reversal of actions.
7. Keep users in control.
8. Reduce short-term memory load.”

The decision to focus on four of Shneiderman's rules—Consistency, Informative Feedback, Internal Locus of Control, and Short-term Memory Load—was made to efficiently address all the identified issues.

1. Consistency (Rule 1)

Many of the site's problems stem from inconsistent behaviors that confuse users, such as misleading icons and labels. This rule helps highlight these discrepancies.

For example, on the website, a "play" icon appears over a picture, and the cursor changes to a hand with a pointing finger when hovered over the icon, suggesting that it is clickable. However, clicking on the icon triggers no action, confusing users and contradicting expected interactive behaviors.

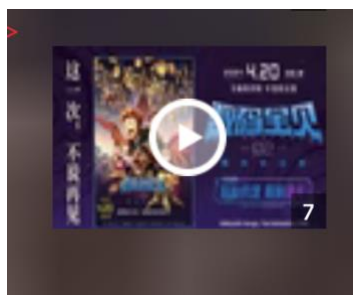


Figure 1 "Play" provides no feedback

Interactive elements like icons should consistently respond to user actions. An icon that changes the cursor to a pointing hand typically suggests it is clickable. Failure to execute expected actions (like playing a video) breaks user expectations formed by consistent UI patterns elsewhere on the web.

Also, On the homepage, a section labeled "popular trailers" includes a play button for each trailer. However, clicking the play button does not play the trailer but redirects users to the film's detail page, and there is no option to view the trailer on this redirection page.

热门预告片



Figure 2 Trailers with Button

A play button inherently suggests a media action will occur immediately upon interaction. Redirecting to a different page instead of playing a video creates a dissonance between the icon's symbolic meaning and its actual function.

Lastly, Users are presented with a pull-chord switch that suggests it will "switch movie," but upon interaction, it displays a carousel of movies instead of a single movie. This can confuse users who expect a direct action leading to a specific result as indicated by the switch's label.



Figure 3 "Switching movie" it says



Figure 4 What happens after pulling the cord

Interface labels should accurately describe their corresponding actions to prevent user confusion. A switch suggesting "switch movie" but showing a carousel instead is misleading.

2. Informative Feedback (Rule 3)

Issues related to unclear feedback from actions, such as the ineffective dismissal of a persistent banner, are critical as they directly impact the user's understanding and expectations.

As shown in the picture, there is a persistent banner advertising the mobile app that keeps reappearing with each new page navigation, even after being closed again and again by the user.

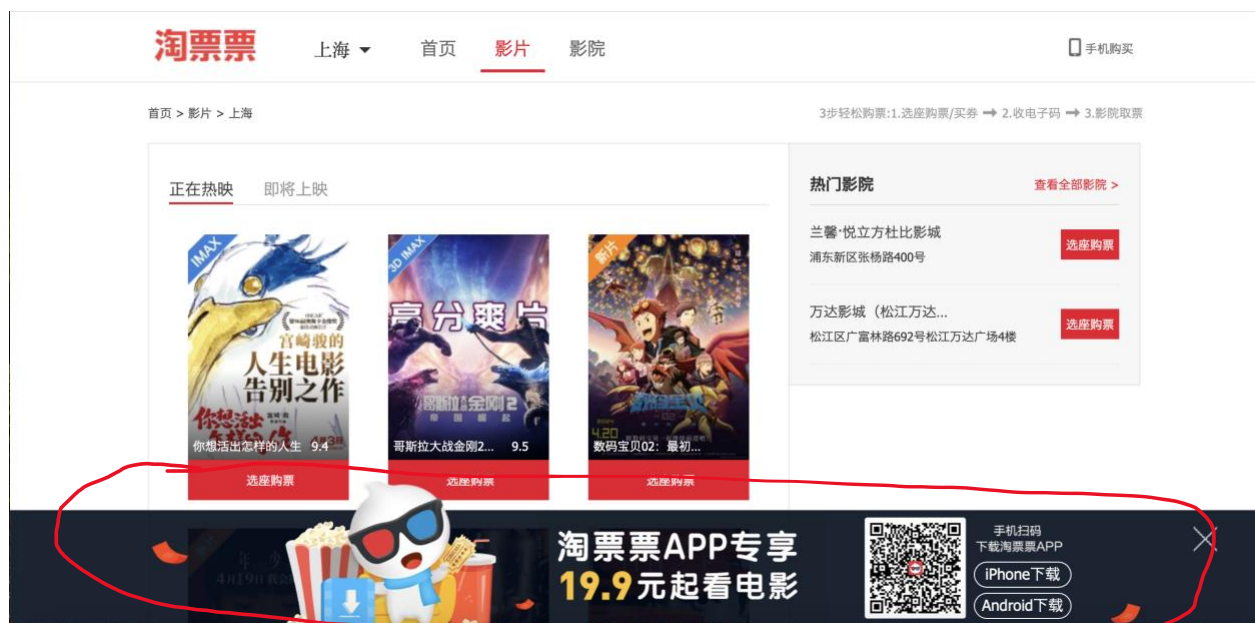


Figure 5 The Persistent Ad Banner

Feedback about actions (like closing a banner) should be clear and permanent unless specified otherwise. A banner that reappears after being dismissed does not adequately inform the user that the action is temporary or ineffectual. And it is very disturbing.

3. Internal Locus of Control (Rule 7)

This rule was chosen because several design choices on the site strip users of control, forcing them into unnecessarily complex or restrictive interactions.

The first example is force login. Users cannot buy a ticket without signing in. Even after clicking "directly purchase", it still directs the user to the sign-up/log-in page.

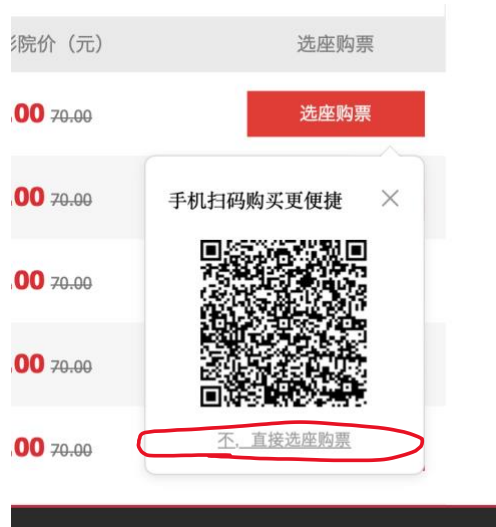


Figure 6 Purchasing the Ticket Button

Forcing users to log in, even when they select an option like ‘continue as a guest’, can make users feel tricked or helpless, reducing their sense of control over their browsing experience.

A second issue is faulty navigation control design. For example, after the website is loaded, there's no immediate information about buying tickets or even any movie. Users have to scroll down to find less obvious movie information to make a purchase. It is all about downloading the mobile app to book a ticket with the ad banner and ad carousel.



Also, after selecting a film to watch, users must switch between different cinemas and dates manually to check or compare ticket availability instead of seeing upfront which cinemas have tickets available. This process is time-consuming and inefficient.

选择区域: **全部区域** 宝山区 长宁区 崇明区 奉贤区 虹口区 黄浦区 嘉定区 静安区 金山区 闵行区
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图 ~没有找到你需要的排期, 你可以查看 [其他影院](#) 或者 [其他影片](#)

Figure 7 Movie Not Available

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放映时间	语言版本	放映厅	座位情况	现价/影院价(元)	选座购票
09:30 预计10:51散场	国语 2D	激光5号厅(影票盖章免费停车3小时)	宽松  Q	35.00 40.00	选座购票
11:05 预计12:26散场	日语 2D	激光5号厅(影票盖章免费停车3小时)	宽松  Q	35.00 40.00	选座购票




Figure 8 Available Screenings Shown




In addition, On the website, all films are displayed together without the availability of filters or a search function, making it challenging for users to find specific films quickly and efficiently. It is a very long list, the two pages below only show a few of them.

淘票票 上海 首页 影片 影院 手机购票

首页 > 影片 > 上海 3步轻松购票: 1. 选影院/片/时间 → 2. 选座位 → 3. 支付购票

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Figure 9 The Pictures in the Middle Are Movies



Figure 10 Scrolling down seeing more movies

Lack of straightforward navigational tools (like immediate ticket buying options, visibility of available tickets, and search filters) forces users into a tedious, manual process, diminishing their control and efficiency.

4. Short-term Memory Load (Rule 8)

Problems that overload the user's cognitive capacity make it difficult to navigate the site and retain important information, thus this rule's inclusion is to emphasize designing for ease of use and minimal cognitive burden.

For example, on the film detail page, a brief introduction of the film is displayed with an "unfold" button to see the full text, despite sufficient space being available to display the entire introduction without needing to expand it. This design unnecessarily complicates the user experience by hiding information and showing a blank space.



Figure 11 Before clicking "unfold"



Figure 12 After clicking "unfold"

Forcing users to expand text to view complete movie descriptions disrupts the flow of information and requires them to remember to click to see more, which is unnecessary cognitive overhead.

There are also problems of confusing ratings and carousel navigation. On the homepage, in a section dedicated to guidance for newly released films, every film poster is rated with 2 out of 5 stars, from the beginning to end. This uniform low rating across different films may mislead or confuse users about the quality of the films or the integrity of the rating system.

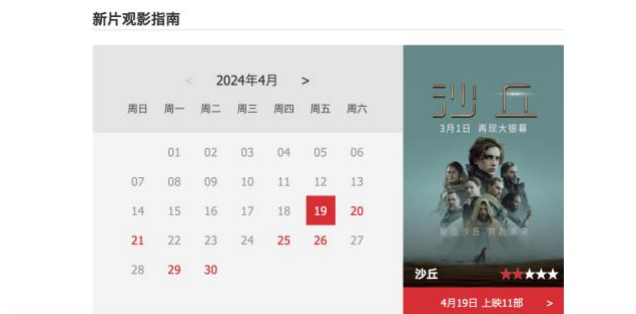


Figure 13 Film 1, 2/5 stars



Figure 14 Film 2, 2/5 stars

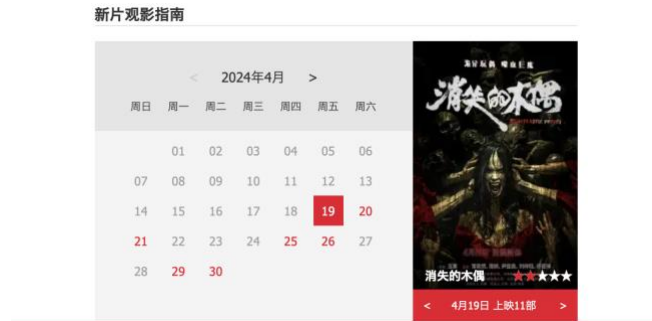


Figure 15 Film 3, 2/5 stars

On the homepage, a large, full-width carousel at the center displays an advertisement for the mobile app, which is irrelevant to the primary content focus on films. Furthermore, navigation buttons on the carousel do not change the displayed ad, as they only cycle back to the identical advertisement, misleading users about the functionality.



Figure 16 The Carousel in the center with default ad



Figure 17 The carousel ad after clicking next/last button

Presenting misleading or repetitive information (like uniform low ratings or the same advertisement) forces users to question the integrity of the data and remember that these elements are not reliable, increasing their cognitive strain.

From the analysis above, it is indicated that the website failed in many categories of usability, with confusing navigating, misleading functions, unnecessary and excessive emphasis on advertising the mobile app, and all issues presented above.

IV. Accessibility Evaluation

The Accessibility evaluation aims to design and develop websites that are inclusive to all demographics, minimizing barriers in communication and interaction. The section uses web aim tool to test the accessibility as well as identifies other issues.

Overall Accessibility

As the result shown below, the website exhibits several accessibility issues that could significantly impact users with disabilities. There are 41 errors, 66 contrast errors, and various other alerts that need to be addressed to improve accessibility.

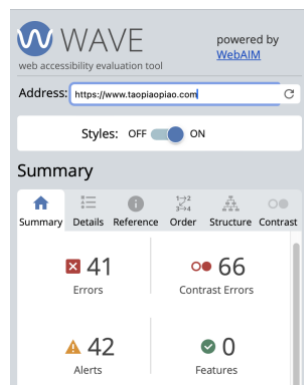


Figure 18 The Result of Webaim Test

Accessibility Issues

1. Missing Alternative Texts(24 issues)

Many images lack 'alt' text, which is crucial for screen readers. There are 24 missing alternative text errors of text display, usually the captions that indicating the name of the movies at the bottom the poster picture.. Also, for 7 linked images, there is no alt text.



2. Linked Images Missing Alternative Text (7 issues)

Similar to the previous type of issue, linked images without 'alt' text hinder understanding and navigation for those using assistive technologies.



Figure 19 missing alt text

3. Missing Form Label (1 issue)

Forms without proper labels are difficult for screen reader users to use, as they cannot understand what information belongs in each field.

4. Language Problems (1 issue)

Missing or invalid language settings can confuse screen readers about which language to use, affecting pronunciation and understanding.

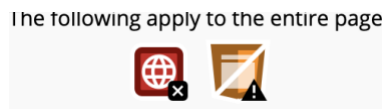


Figure 20 Language missing and no regions

5. Empty Elements (8 issues total)

Empty links and headings create navigation issues for screen readers, leading to confusion and potentially causing users to miss important content.



Figure 21 Empty Heading

6. Contrast Errors (66 issues)

Low contrast between text and background can make text unreadable for users with visual impairments, leading to accessibility barriers.



Figure 22 Very low contrast

7. Miscellaneous (42 alerts)

Includes orphaned labels, redundant links, skipped heading levels, etc., which can disrupt the logical flow and clarity of the website.

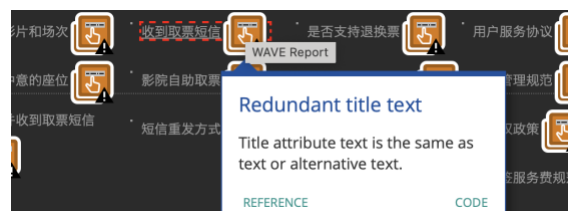


Figure 23 Meaningless attribute text

Significance

These issues are significant as they prevent a large segment of users from using the website effectively. Missing alternative texts and form labels can make navigation and usage of the site completely inaccessible to blind users or those with severe visual impairments. Contrast errors can also severely affect those with less severe visual impairments.

Solutions

For missing alt text elements, it should add appropriate alternative text to all images and links. This text should describe the function or purpose of the image/link.

To improve contrast, the colors used on the website should be adjusted to meet the minimum contrast ratios recommended by the WCAG (Web Content Accessibility Guidelines).

For label elements, the designer should ensure all form inputs have clear, descriptive labels and that headings are descriptive and used in a logical structure.

To fix the language problem, The `<html lang>` attribute should have a valid language identifier, e.g., `<html lang="en">`.

For better navigation, the important thing to do is correct empty and redundant links, ensure headings follow a logical order, and label all interactive elements clearly.

When redesigning, the designer should regularly use tools like WAVE and consult with accessibility experts to find and fix issues, ensuring compliance with accessibility standards like WCAG 2.1.

Addressing these issues not only helps in making the site accessible to a wider audience but also improves overall user experience and satisfaction.

V. Proposed Redesign

1. Strive for Consistency

The redesign will ensure that all interactive elements behave predictably enhances user confidence and minimizes confusion, crucial for a streamlined user experience. Non-interactive icons not changing cursor style is a fundamental principle of user interface design to avoid false affordances.

First, the play button will directly play trailers or link to the trailer playing page. Also, labels will be aligned with the outcomes of interactions. If a carousel is shown after

pulling the cord, the switch should be labeled something like "Browse movies," which does not imply a direct action.

This redesign directly addresses common user frustrations regarding unclear icon functionality, aligning perfectly with usability standards that advocate for consistent interface behavior.

2. Improve to offer Informative Feedback

In the new design, the banner will remember the user's action across different pages or sessions. By remembering user actions across sessions, the redesign respects user input and reduces repetitive tasks, crucial for a positive user experience as well as improve transparency, directly enhancing user trust and satisfaction by clarifying the system's behavior.

3. Improve to Support Locus of Internal Control

The new design will implement a true guest checkout process that allows users to purchase tickets without creating an account, clearly differentiating it from logged-in procedures.

Meanwhile, it will also the navigation interface by introducing visible ticket availability indicators, a prominent search bar, and dynamic filters to help users find movies based on specific criteria quickly.

Providing a guest checkout option empowers users by offering more control over how they interact with the site. Enhancing navigation aids like ticket availability indicators and search functions allows users to navigate more independently. These changes support user autonomy and reduce dependency on restrictive navigational paths, fostering a more empowering user environment and aligning with best practices in user-centered design.

4. Improve to Reduce Short-term Memory Load

The proposed design will display the full text of the movie information by default if space permits and use text overflow to manage the display if the text gets too long, avoiding the need for interaction just to read text that is already available.

It will also offer a more accurate rating system to reflect genuine user feedback, and ensure that navigation elements like carousels offer new, relevant content to justify the user's input and attention.

Displaying full text for movie descriptions and utilizing text overflow methods can significantly ease the cognitive burden on users. This approach allows them to engage with the content more naturally without the interruptions caused by hidden information. Simplifying how information is presented reduces the need for memory

recall and repeated interaction, which can deter user engagement and satisfaction. This redesign aligns with cognitive load theory by minimizing unnecessary cognitive strain.

5. Accessibility Improvements

This proposal addresses the critical accessibility issues identified through the WebAIM analysis, aiming to enhance usability for all users, particularly those with disabilities.

Based on the issues identified and possible solutions, the redesign will add appropriate alternative text to all images and links, increase contrast, use meaningful elements and labels, define a valid language for each page, possibly add more languages to support different groups of users, and remove empty elements or provide them with relevant content.

Enhancing visual accessibility through better contrast and alternative text directly addresses common barriers faced by users with visual impairments. Providing content in multiple languages and ensuring clear navigation labels broadens the site's usability. These improvements are crucial for complying with international accessibility standards and ethical design principles, which dictate that digital services should be accessible to all users regardless of disability or language proficiency.

A. Description of the Prototype

The prototype developed is a simple model designed to show some improved functionalities of the Taopiaopiao website. It integrates enhanced navigational aids, accessibility features, and user interface consistency, providing a better user interaction experience.

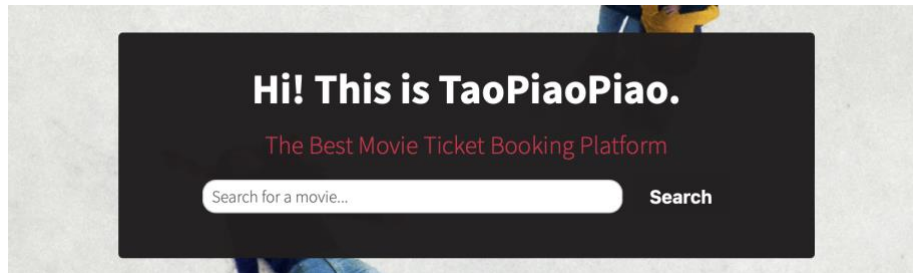
```
<!DOCTYPE HTML>  
<html lang="en">
```

It starts by define a language type, which is missing in the original website. It keeps the consistency in UI elements that all have predictable actions to prevent user confusion.

The prototype provides a "Skip to Content" link at the beginning of the page to allow users with assistive technologies to quickly navigate to the main content.

[Skip to Content](#)

It removes the irrelevant ad banner and replaces it with clearer movie picture. To improve navigation, it includes a search bar, help users finding what they need more efficiently.



Compared with the original homepage, the new design gives more emphasis on the main purpose of the website, to sell tickets, instead of promoting the mobile application.

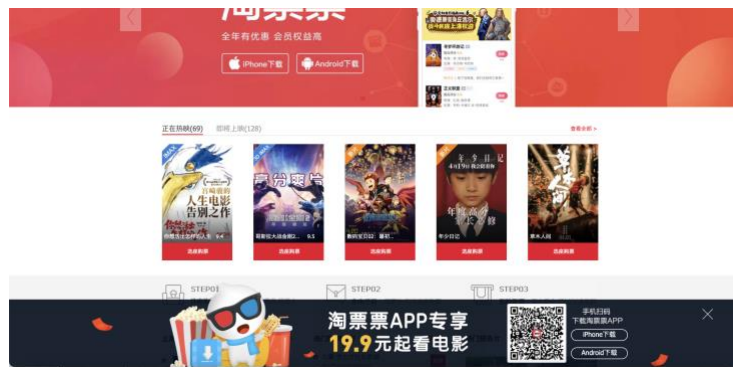


Figure 24 The smallest text at the bottom of each poster is the only relevant film buying info

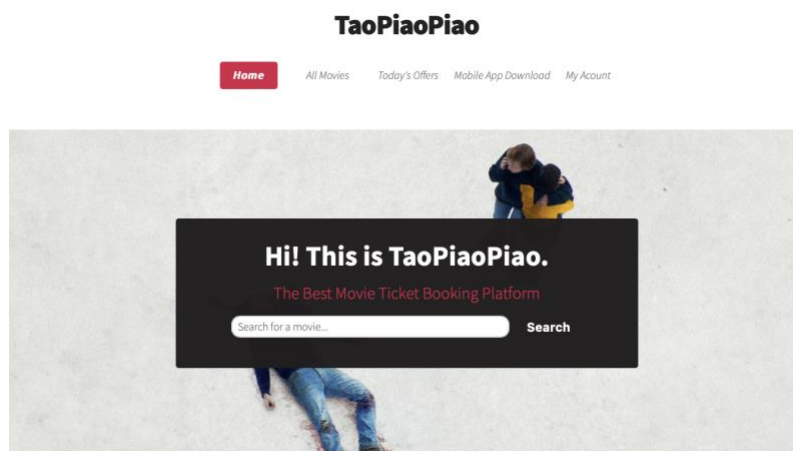


Figure 25 New design: everything is about purchasing ticket

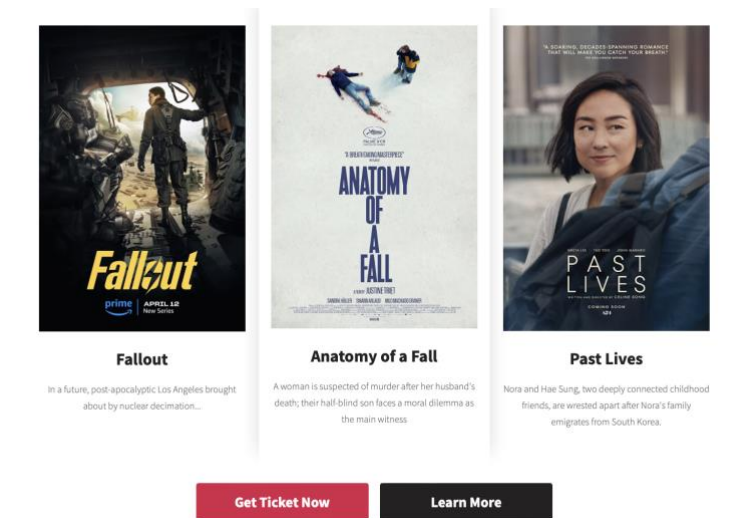


Figure 26 New Design: topic and function centered

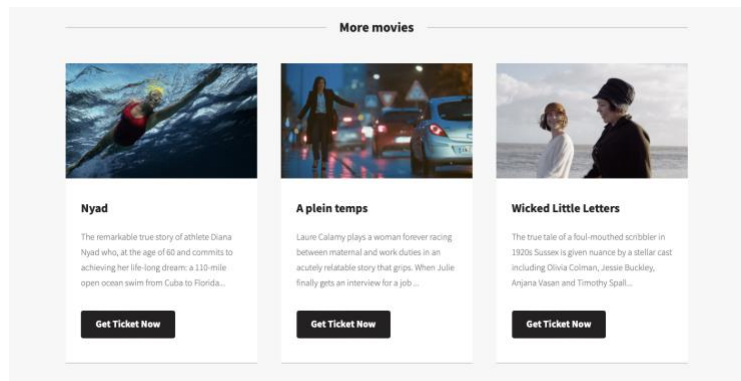


Figure 27 New Design: always present the buying button

Also, when users scroll down, less important but relevant information is provided for the user. Unlike the inaccurate previous 2/5 stars rating guidance and cramped calendar showing the dates (shown in Figure 13, 14, and 15), the new design gives clear and minimalistic presentation of the upcoming film information.

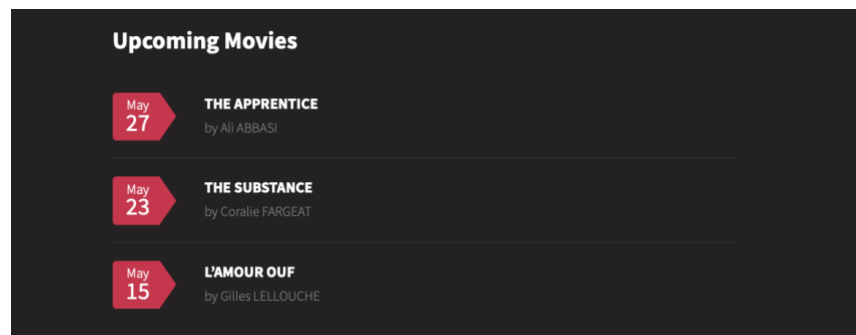


Figure 28 New Design Informing the Upcoming Films

The site now fully supports screen readers, offers high contrast visuals for better readability, and includes comprehensive alternative text for all images.

The prototype adheres to the latest WCAG guidelines, achieving AA, if not AAA, standards to ensure it is accessible to all users.

VII. Conclusion

This evaluation highlights several usability and accessibility issues on the TaoPiaoPiao website, ranging from inconsistent interactive cues to poor accessibility features for disabled users. The proposed redesigns focus on enhancing user experience through improved consistency, informative feedback, control, and reduced cognitive load, alongside significant accessibility improvements.

By addressing the detailed usability and accessibility issues, the redesign of TaoPiaoPiao's website can offer a more inclusive, satisfying, and user-friendly environment that reflects its status as a top entertainment platform in China. These changes not only enhance user engagement but also promote inclusivity, which is essential in today's diverse consumer space.

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