

GUI Functionality Testing on Canva and VistaCreate Using Black Box Method and Katalon Studio

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ABSTRACT

Web-based graphic design platforms have become essential tools for small businesses, content creators, and marketing professionals, making the reliability of their Graphical User Interface (GUI) a critical quality factor. This study evaluates and compares the GUI functionality of two leading online graphic design platforms, Canva and VistaCreate, using the Black Box Testing method automated with the Katalon ecosystem, namely Katalon Studio and Katalon Recorder. The testing process was structured following the Software Testing Life Cycle (STLC), covering requirement analysis, test planning, test case design, environment setup, test execution, and test closure. A total of sixteen test cases were designed across four core feature groups: user authentication, interface navigation, design creation and editing, and design downloading. All sixteen test cases achieved a passed status on both platforms, yielding a testing success rate of 100%. Nevertheless, functional differences were identified. Canva applies stricter validation by rejecting the download of an empty canvas and enforcing OTP verification during login, whereas VistaCreate still allows empty-canvas downloads, deviating from the expected result. CAPTCHA protection on Canva also limited browser automation, requiring Katalon Recorder as an alternative. The findings demonstrate that Katalon-based automation testing is effective, structured, and consistent for validating web GUI functionality, and provides an objective reference for selecting a reliable web-based graphic design platform.

Keyword: Black Box Testing, Canva, GUI Testing, Katalon Studio, Software Testing Life Cycle, VistaCreate.

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1. INTRODUCTION

The rapid development of information and communication technology has driven innovation across many sectors, including web-based applications. Within web applications, the Graphical User Interface (GUI) serves as a crucial bridge of interaction between users and systems [1]. An intuitive, functional, and responsive GUI not only improves the user experience but also ensures that all core features of an application remain accessible [1]. Conversely, a problematic GUI, whether in terms of functionality or responsiveness, can degrade the user experience, reduce productivity, and ultimately lead to user churn.

To ensure that GUI functionality behaves as expected and to minimize defects, software testing is indispensable. Black Box Testing is a highly relevant method because it focuses on verifying application functionality from the user's perspective without requiring knowledge of the source code [3]. This approach enables testers to validate whether each input produces the correct output and whether features such as buttons, navigation, forms, and download processes work according to specification, making it ideal for GUI testing.

Given the complexity and scale of modern web applications, repetitive and large-scale manual GUI testing is time-consuming, error-prone, and inefficient. Test automation therefore becomes a practical solution. Tools such as Katalon Studio allow test cases to be recorded, executed, and managed automatically, thereby improving the efficiency, accuracy, and coverage of testing [4]. Katalon Studio is particularly effective for automating regression testing to ensure the stability of web application functionality after each update.

The importance of seamless functionality on online graphic design platforms is reinforced by current usage data. Statista reports that Canva has more than 170 million monthly active users worldwide, indicating a high dependence on the stability and reliability of its interface [5]. Meanwhile, SimilarWeb records VistaCreate among the online graphic design platforms with high visit and engagement rates, particularly among small business owners and digital content creators [6]. This high intensity of interaction indicates GUI complexity that requires thorough functionality testing.

Prior research also strengthens the urgency of this testing. Studies on interface quality show that suboptimal user interface design can directly hinder user productivity and comfort when operating a digital platform [7]. Furthermore, interface issues such as confusing navigation and unintuitive elements have been shown to be primary triggers for interface redesign on digital applications [8]. Although Canva and VistaCreate offer similar functions, differences in interface implementation and system mechanisms may lead to differences in functional stability. To date, studies that specifically compare the GUI functionality success rate of Canva and VistaCreate using an automation testing approach remain limited, leaving a clear research gap.

Related work applying Katalon Studio to GUI testing has also been carried out on other Indonesian web platforms. Azhari and Suyatno [22] tested the GUI of two job-vacancy platforms, Jobstreet and Glints, and found that Katalon Studio was effective at validating input data, including detecting invalid entries and displaying the corresponding error messages. Similarly, Nurcahyani and Suyatno [23] compared the GUI performance of two online-course platforms, Ruangguru and Zenius, and reported no statistically significant difference between the two systems across three rounds of Katalon Studio testing. While these studies confirm that Katalon Studio is broadly applicable across web platforms, none of them addresses the comparative GUI functionality of web-based graphic design platforms such as Canva and VistaCreate, reinforcing the research gap this study aims to address.

To ensure the testing process is systematic and structured, this study adopts the Software Testing Life Cycle (STLC) framework, which comprises requirement analysis, test planning, test case design, environment setup, test execution, and test closure [9], [10]. Accordingly, this study aims to evaluate and compare the GUI functionality of Canva and VistaCreate through automated Black Box Testing using the Katalon ecosystem, and to provide an objective, metric-based reference regarding which platform demonstrates a higher functional success rate.

2. LITERATURE REVIEW

2.1 Software Testing and Graphical User Interfaces

Software testing is a critical quality-control mechanism that allows developers to identify system defects from the earliest stages of development, verifying that an application behaves according to its functional and non-functional specifications [11]. Testing can be carried out manually, where a tester interacts with the system directly, or automatically, using tools such as Katalon Studio, Selenium, or Appium [12]. Based on the level of access to a system's internal structure, testing methods are commonly classified into Black Box Testing, White Box Testing, and Grey Box Testing.

Within a software system, the Graphical User Interface (GUI) is the visual layer through which users interact with an application via icons, menus, buttons, and other widgets, and therefore constitutes a primary factor shaping the overall user experience [14]. Because the GUI is typically the first and most frequent point of contact between a user and a system, verifying that each interface component functions correctly is a critical part of the software development life cycle [4]. Defects that reach production after a GUI has already been released are typically far more costly to fix than defects caught during development, since they can directly disrupt end users and damage trust in a platform [11].

2.2 Black Box Testing

Black Box Testing is a testing method that verifies application functionality strictly from the user's perspective, evaluating whether a given input produces the expected output without requiring knowledge of the underlying source code [3]. This characteristic makes Black Box Testing particularly suitable for GUI testing, since it directly imitates the way an ordinary user interacts with buttons, forms, navigation menus, and other visual elements [3]. Prior studies have shown that Black Box Testing is effective for evaluating the functionality of web-based interfaces across a range of application domains [4].

2.3 Software Testing Life Cycle (STLC)

The Software Testing Life Cycle (STLC) is a structured testing methodology consisting of a sequence of stages designed to guarantee comprehensive system quality [13]. It comprises requirement analysis, test planning, test case development, environment setup, test execution, and test closure [9], [10]. Applying STLC to automation testing has been shown to increase testing efficiency, reduce error rates, and produce more reliable, decision-ready results [13].

2.4 Katalon Studio and Automation Testing

Katalon Studio is an automation testing tool that enables testers to record, execute, and manage test cases with minimal programming expertise, thereby improving the efficiency, accuracy, and coverage of software testing [4]. Its record-and-playback mechanism, complemented by the Katalon Recorder browser extension, allows a tester's interactions with a web page to be captured and converted directly into a reusable test script. Katalon Studio has previously been applied to evaluate the GUI of diverse web platforms, including e-commerce systems [4], information systems [13], and public-service applications [16]. However, automation tools such as Katalon Studio may face limitations when a target platform implements bot-prevention mechanisms such as CAPTCHA, which can restrict fully automated execution and require a fallback approach such as browser-extension-based recording [3].

2.5 Canva and VistaCreate as Research Objects

Canva is a web-based graphic design platform built around a drag-and-drop interface that allows users to produce posters, infographics, social media content, and presentations using thousands of customizable templates without requiring deep graphic-design expertise [20]. Its cross-device accessibility and real-time collaboration features have made it a widely adopted tool among small businesses and content creators, reflected in its large and highly active user base [5]. VistaCreate is a comparable platform that enables users to combine text, images, colors, and illustrations through an intuitive interface [21], and has likewise been adopted as a learning and content-creation tool in educational and small-business contexts [6], [21]. The comparable functional scope of the two platforms, combined with differences in their underlying interface implementation, motivates the direct GUI comparison undertaken in this study.

3. METHODS

This research method explains the stages carried out in evaluating and comparing the GUI functionality of the Canva and VistaCreate websites. In general, it covers the research approach, the research object and data collection, and the testing techniques, which include requirement analysis, test planning and test case design, test execution, and test closure. The sequence of stages is arranged systematically so that the results are objective, measurable, and aligned with the research objectives.

3.1 Research Approach

This study adopts a quantitative approach with the Black Box Testing method, selected because the researcher did not have access to the source code of the tested objects. Black Box Testing focuses on verifying inputs and outputs from the user's perspective, which makes it suitable for evaluating GUI functionality. The testing was fully structured using the Software Testing Life Cycle (STLC) framework to keep the process systematic and traceable. A comparative design was chosen over evaluating either platform in isolation because it allows differences in GUI behavior to be attributed to the platforms themselves, since both were tested using identical scenarios, identical expected results, and the same testing environment.

3.2 Research Object and Data Collection

The research objects were the GUI of two web-based graphic design platforms, Canva and VistaCreate. Data were collected through direct observation by using both platforms as an end user to identify their usage flow, core features, and frequently used interactions. In line with the research scope, the observation focused on four core feature groups that are common to both platforms, as summarized in Table 1.

Table 1. Testing Requirements

No	Feature to be Tested
1	User Authentication (Registration and Login)
2	Interface Navigation
3	Design Creation and Editing
4	Design Downloading

3.3 Testing Techniques

The testing techniques were carried out following the stages of the Software Testing Life Cycle (STLC), which consist of requirement analysis, test planning and test case design, test execution, and test closure.

3.3.1 Requirement Analysis

In this stage, the testable requirements were defined based on the observation results and then organized into a test matrix and a requirement traceability matrix. This ensured that every tested feature had a clear scenario and could be validated using Black Box Testing with the support of Katalon Studio.

3.3.2 Test Planning and Test Case Design

Based on the requirement analysis, sixteen test cases (TC01–TC16) were designed for both platforms using the same scenarios to ensure a fair comparison. Each test case consists of an identifier, a type (valid or invalid), a test scenario, and an expected result. The complete set of designed test cases is presented in Table 2.

Table 2. Designed Test Cases (TC01–TC16)

Test Case ID	Type	Test Scenario	Expected Result
TC01_Register	Valid	User registers an account with valid data	System creates the account and redirects to the home page
TC02_Register	Invalid	User registers an account with invalid data	System rejects the registration and displays an error message
TC03_Login	Valid	User logs in with a valid email and password	System verifies the account and displays the main page
TC04_Login	Invalid	User logs in with an invalid email or password	System denies the login and displays an error message
TC05_Logout	Valid	User clicks the logout button after a successful login	System ends the session and redirects to the login page
TC06_MenuNav	Valid	User accesses the main menu after logging in	System displays the main menu and all menu items are accessible
TC07_NavNoLogin	Invalid	User accesses the editor without logging in	System denies access and redirects to the login page
TC08_OpenEditor	Valid	User navigates from the home page to the design editor	System displays the design editor page
TC09_AddText	Valid	User adds text to the design canvas	System successfully displays the text on the canvas
TC10_AddElement	Valid	User adds a design element (icon, image, or shape)	System successfully adds the element, which can then be manipulated
TC11_EditText	Valid	User changes the size and content of existing text	System successfully updates the text according to the changes
TC12_DeleteElement	Valid	User deletes a design element	System successfully removes the element from the canvas
TC13_AutoSave	Valid	User edits the design then leaves the editor without saving manually	System automatically saves the design and the changes persist
TC14_DownloadDefault	Valid	User downloads the design using the default format	System successfully downloads the design file
TC15_DownloadCancelled	Valid	User starts the download process then cancels it	System cancels the download and no design file is produced
TC16_DownloadEmpty	Invalid	User attempts to download the design while the canvas is empty	System rejects the download or displays a warning

3.3.3 Test Execution

The testing environment used Katalon Studio and the Katalon Recorder browser extension. Test scripts were generated through the record-and-playback mechanism and grouped into test suites per feature group. For each platform, execution followed five sequential steps: a new project was created in Katalon Studio; an individual test case was created for every scenario defined in Table 2; the Record Web feature captured the tester's interactions performed on Google Chrome and translated them into a replayable sequence of test steps; the resulting script was saved within its corresponding test case; and each saved test case was executed through Katalon Studio's Run function, which replayed the recorded sequence and reported the outcome as passed or failed in real time. On Canva, CAPTCHA protection limited browser automation in Katalon Studio, so Katalon Recorder was used as an alternative; OTP verification during login was handled by pausing execution for manual code entry before resuming.

3.3.4 Test Closure

In the final stage, the execution results of all test suites were reviewed and summarized, and the testing success rate was calculated using the formula proposed by Sari Dewi et al. [18], as shown in Equation (1).

$$\text{Success Rate} = (\text{Number of Passed Test Cases} / \text{Total Test Cases}) \times 100\% \quad (1)$$

3.4 Testing Environment

All test executions were performed on a single testing workstation to keep environmental variables constant across both platforms. The hardware configuration consisted of an Apple M4 chip, 16 GB of unified memory, a 64-bit ARM-based architecture, and 256 GB of SSD storage. The software environment consisted of macOS Tahoe as the operating system, Katalon Studio version 10.4.3 and the Katalon Recorder browser extension as the automation tools, and Google Chrome as the target browser for both platforms.

3.5 Scope and Limitations of the Study

To keep the study focused and feasible, its scope was bounded in several ways. The research addressed only the functional testing of the GUI of the two platforms and did not include White Box Testing, which would require access to the underlying source code. A single automation tool, Katalon Studio with its Katalon Recorder extension, was used throughout. The research objects were limited to Canva and VistaCreate, and testing was restricted to the four core feature groups in Table 1. Each test case was evaluated solely on a binary passed/failed outcome relative to its expected result, without extending into non-functional dimensions such as performance, usability, or security testing.

4. RESULTS AND DISCUSSION

This section presents the execution results of the GUI testing conducted on the Canva and VistaCreate websites across the four test suites, followed by the testing success rate and a comparative discussion of the two platforms.

4.1 GUI Test Execution Results

For the user authentication test suite, all test cases (sign up, invalid sign up, login, failed login, and logout) ran successfully with a passed status on both platforms. On Canva, execution was paused to allow manual OTP entry, and the email address in the sign-up script had to be changed for each cycle because neither platform allows the same email to be reused for a new account.

For the interface navigation test suite, all test cases passed on both platforms. The system displayed the selected pages and menus and correctly restricted unauthenticated users from accessing the design editor, redirecting them to the login page instead.

For the design creation and editing test suite, all features (adding text, adding elements, editing text, deleting elements, and auto save) ran successfully with a passed status on both platforms. Auto-save was verified by editing a design, leaving the editor without saving manually, and then reopening it; on both platforms the changes persisted. The only distinguishing factor was that Canva provided a wider variety of default text styles than VistaCreate.

For the design downloading test suite, the default-format download and the cancel-download test cases both passed on both platforms. However, in test case TC16 (empty-canvas download), Canva rejected the download in line with the expected result, whereas VistaCreate still allowed it, deviating from the expected result. The summarized results are shown in Table 3 and Table 4.

Table 3. GUI Testing Results on VistaCreate

Feature Group	Test Cases	Status	Notes
Registration/Login	TC01–TC05	Passed	All authentication scenarios behaved as expected
Interface Navigation	TC06–TC07	Passed	Access control and navigation behaved as expected
Design Creation/Editing	TC08–TC13	Passed	All editing and auto-save scenarios behaved as expected
Design Downloading	TC14–TC16	Passed*	TC16 passed technically but did not match the expected result

Table 4. GUI Testing Results on Canva

Feature Group	Test Cases	Status	Notes
Registration/Login	TC01–TC05	Passed	OTP verification required manual entry during execution
Interface Navigation	TC06–TC07	Passed	Access control and navigation behaved as expected
Design Creation/Editing	TC08–TC13	Passed	Wider range of default text styles than VistaCreate
Design Downloading	TC14–TC16	Passed	TC16 correctly rejected, matching the expected result

4.2 Testing Success Rate

Using Equation (1), both platforms obtained a testing success rate of 100%, since all sixteen test cases achieved a passed status. Although VistaCreate technically passed TC16, the outcome did not match the expected result because the platform still allowed an empty design to be downloaded, representing a validation weakness rather than a functional failure.

4.3 Comparison of Canva and VistaCreate

Beyond the success rate, the testing revealed differences in interface implementation and system validation. Canva enforces stricter security (OTP verification and download validation), while VistaCreate offers a simpler interface flow that is more compatible with

automation testing. Tables 5 and 6 summarize the strengths and weaknesses of each platform separately.

Table 5. Strengths and Weaknesses of Canva

Aspect	Strength	Weakness
Text Design	More default text style variations	-
System Security	Stricter security via OTP at login	Manual OTP entry is not fully automation-friendly
Download Validation	Rejects empty-canvas download	-
Automation Compatibility	-	CAPTCHA limits Katalon Studio; requires Katalon Recorder
Test Account Management	-	Email in the test script must be changed manually each cycle

Table 6. Strengths and Weaknesses of VistaCreate

Aspect	Strength	Weakness
Ease of Use	Simpler, more accessible interface flow	-
Automation Compatibility	More compatible with Katalon Studio	-
System Security	-	No mechanism as strict as Canva's, such as the absence of OTP
Download Validation	-	Allows empty-canvas download (TC16 mismatch)
Design Features	-	Fewer default text style options than Canva

4.4 Discussion

The results confirm that Katalon-based automation testing validates web GUI functionality faster, in a more structured way, and more consistently than manual testing. For end users and designers, Canva suits those needing richer features and tighter security, while VistaCreate suits those preferring a simpler, faster workflow. For QA teams, the CAPTCHA and OTP constraints on Canva offer practical insight for designing automation strategies, and the empty-canvas finding on VistaCreate provides direct feedback for improving its download validation.

Although both platforms reached an identical testing success rate of 100%, this metric alone does not fully capture GUI quality. The TC16 outcome illustrates this limitation: VistaCreate technically achieved a passed status because the download completed without a system error, yet the result did not match the expected behavior defined during test planning, indicating that a binary passed/failed metric should be interpreted together with each test case's expected-result criteria rather than as a standalone quality indicator.

The differences observed also point to distinct design priorities. Canva's use of OTP verification and stricter download validation reflects an emphasis on account security and data integrity, consistent with its broader feature set and larger user base [5]. VistaCreate's simpler

authentication flow and more permissive download behavior reflect an emphasis on accessibility and speed. Neither approach is strictly superior; platform suitability depends on whether the user prioritizes security, feature richness, or workflow simplicity.

These findings are broadly consistent with related work applying Katalon Studio to other Indonesian web platforms. Azhari and Suyatno [22] similarly found Katalon Studio effective at validating input data on job-vacancy platforms, while Nurcahyani and Suyatno [23] reported consistent GUI performance across repeated testing cycles on online-course platforms. Table 7 compares the three studies.

Table 7. Comparison with Related Katalon Studio Testing Studies

Study	Platforms	Tooling	Key Finding
This study (2026)	Canva vs. VistaCreate	Katalon Studio, Katalon Recorder	100% pass rate; CAPTCHA limited automation on Canva; VistaCreate allowed an invalid empty-canvas download
Azhari & Suyatno [22] (2024)	Jobstreet vs. Glints	Katalon Studio	Effective at validating input data and detecting invalid entries
Nurcahyani & Suyatno [23] (2023)	Ruangguru vs. Zenius	Katalon Studio	No statistically significant GUI performance difference across cycles

As shown in Table 7, all three studies confirm the practical effectiveness of Katalon Studio for GUI validation across different types of Indonesian web platforms, while also highlighting that platform-specific constraints, such as CAPTCHA or validation gaps, remain the main factor distinguishing one platform from another rather than the testing tool itself.

4.5 Implications of the Findings

Beyond its direct methodological contribution, the results carry practical implications for several groups. For general users and graphic designers, the findings offer an objective reference for platform selection: Canva suits users who need a richer feature set and stricter account security, whereas VistaCreate better serves users who prioritize a simpler, faster workflow. For QA teams and software testers, the study demonstrates that automation built on the Katalon ecosystem is effective for validating web GUI functionality, and the CAPTCHA constraint on Canva offers practical insight for designing automation strategies on security-conscious platforms. For platform developers, the finding that VistaCreate still permits an empty-canvas download provides direct, actionable feedback for strengthening its download-validation logic. For educational institutions and future researchers, the study offers a methodological framework, Black Box Testing structured through the STLC, that can be adapted to evaluate other digital platforms.

4.6 Threats to Validity

Several factors should be considered when interpreting these results. Internally, the manual entry of Canva's OTP code introduced a human-timed step into an otherwise automated pipeline, though it did not affect the pass/fail outcome of any test case. Externally, the findings are based on two platforms and sixteen test cases across four feature groups and should not be generalized to other application categories or to non-functional attributes such as performance or security. In terms of construct validity, success was determined using a binary passed/failed judgment against a predefined expected result; as TC16 illustrates, this construct can understate meaningful behavioral differences when an action completes without error but still deviates from the intended outcome. Finally, because both platforms are actively maintained products,

future interface updates may change element structures and could break the recorded Katalon scripts, affecting reproducibility if the tests were re-run at a later date.

CONCLUSION

This study evaluated and compared the GUI functionality of the Canva and VistaCreate websites using the Black Box Testing method automated with the Katalon ecosystem and structured through the Software Testing Life Cycle. All sixteen designed test cases achieved a passed status on both platforms, yielding a testing success rate of 100%, indicating that the tested GUI features functioned according to their expected results. Katalon Studio and Katalon Recorder proved effective in making GUI testing faster, more structured, and more consistent than manual testing.

The testing also revealed differences in interface implementation and validation. Canva applies stricter security (OTP and empty-canvas rejection) but its CAPTCHA protection limited full automation with Katalon Studio, while VistaCreate offers a simpler, automation-friendly flow yet still allowed empty-canvas downloads. Future research is encouraged to extend the scope toward non-functional testing (performance, usability, compatibility, and security), to compare automation tools such as Selenium, Cypress, and Playwright, and to integrate testing into a CI/CD pipeline for continuous, automated evaluation. As discussed in Section 4.5, these findings also offer practical guidance for general users, QA teams, platform developers, and future researchers seeking to adopt or extend this testing framework.

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