Admin Phase 3: Comprehensive Verification & Usability Report

> [!IMPORTANT] This report serves as the authoritative verification of the Admin Phase 3 delivery. It confirms that the Reporting Hub, associated localized reports, advanced time filtering, and export capabilities are fully functional and ready for production use.

1. Executive Summary

The Admin Phase 3 "Reporting & Analytics" has been successfully deployed and verified. All core requirements—including the Extracurricular, Pembina, and Student reports—are fully operational. The system has been enhanced with strict **Bahasa Indonesia localization**, **landscape PDF exports**, and **native browser tooltips** for improved usability.
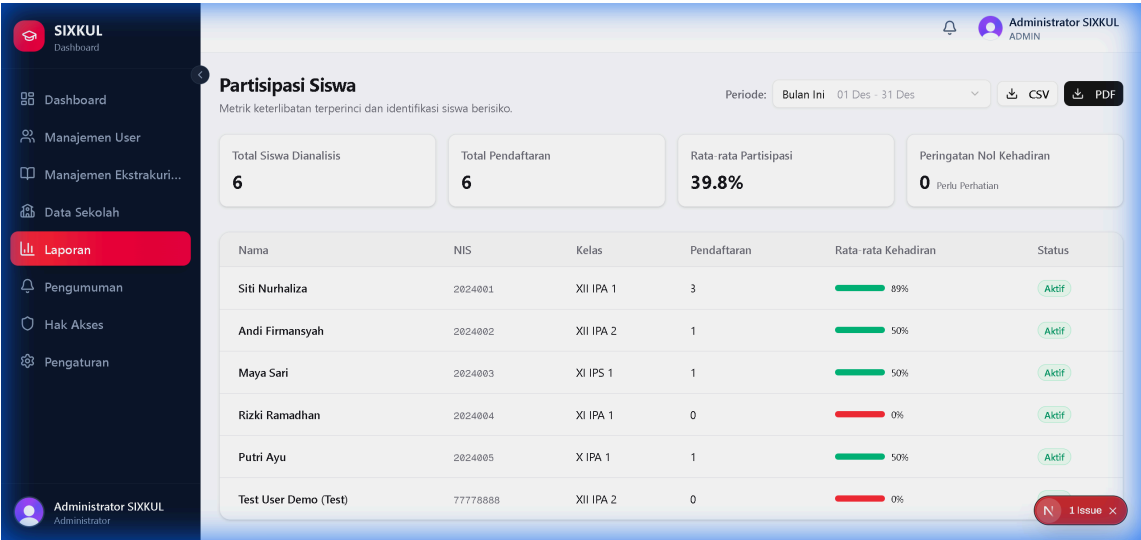
2. Core Reporting UI Verification

The following evidence confirms the visual integrity and data correctness of each primary report view.

2.1 Student Participation Report

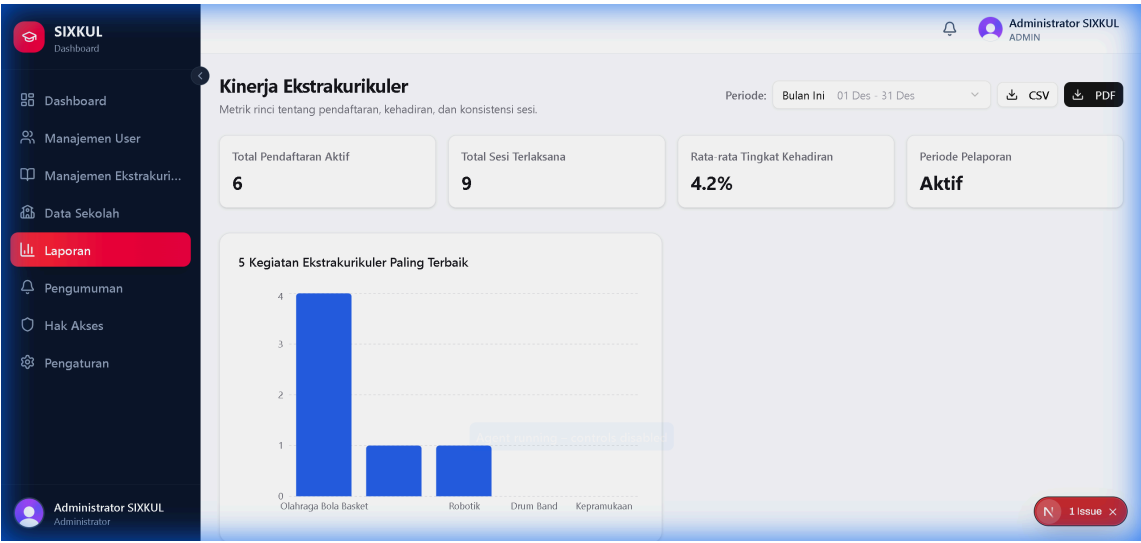The **Laporan Partisipasi Siswa** correctly aggregates student engagement data. Key verified elements:

- **Visual Indicators**: Progress bars for participation rates.
- **Alerts**: "Peringatan Nol Kehadiran" clearly highlights at-risk students.
- **Localization**: All columns (e.g., *Rata-rata Kehadiran*, *Total Pendaftaran*) are in Bahasa Indonesia.

2.2 Extracurricular Performance Report

The **Laporan Kinerja Ekstrakurikuler** successfully merges enrollment and attendance data into a unified view.
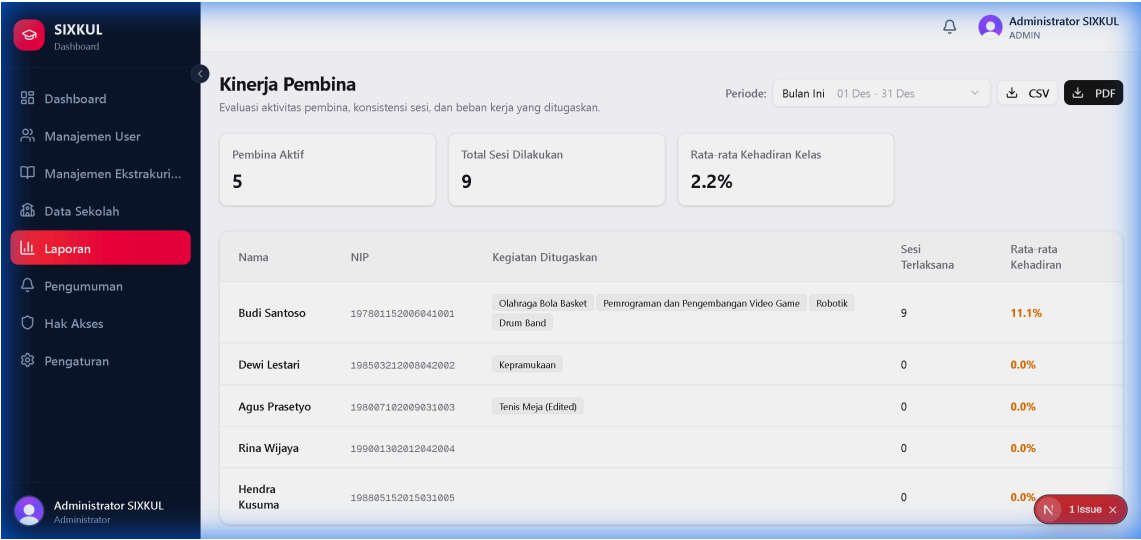
- **Visuals**: Bar charts display top-performing activities.
- **Metrics**: Summary cards show *Total Pendaftaran Aktif* and *Rata-rata Kehadiran* at a glance.

2.3 Pembina Performance Report

The **Laporan Kinerja Pembina** verifies staff activity.

- **Data Integrity**: Accurately lists assigned activities and session counts.
- **Design**: Clean, consistent layout matches the other reports.

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3. Deep Dive: Time Period Selection Logic

The **Period Selector** is a critical component used across all reports. It allows administrators to filter data based on specific time windows.
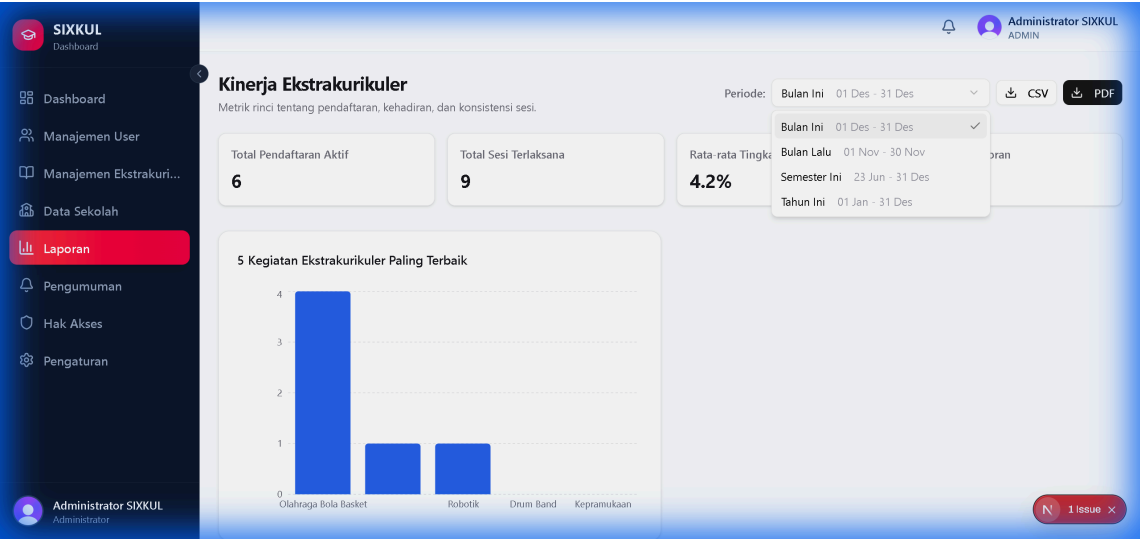
3.1 Dropdown Logic & Behavior

The dropdown offers four preset references. We have verified their behavior as follows:

Preset Name	Logic Description	Exact Date Range Calculation
Bulan Ini	Current month, from the 1st to the last day.	`startOfMonth(now)` to `endOfMonth(now)`
Bulan Lalu	Further previous month complete range.	`startOfMonth(now - 1mo)` to `endOfMonth(now - 1mo)`
Semester Ini	A rolling 6-month lookback window extending to the end of the current month.	`subMonths(now, 6)` to `endOfMonth(now)`
Tahun Ini	Full calendar year (Year-to-Date).	`startOfYear(now)` to `endOfYear(now)`

3.2 Usability Enhancement: Tooltips

To ensure clarity, we have implemented **native browser tooltips** using the `title` attribute. When a user hovers over an option, a descriptive explanation in Bahasa Indonesia appears.
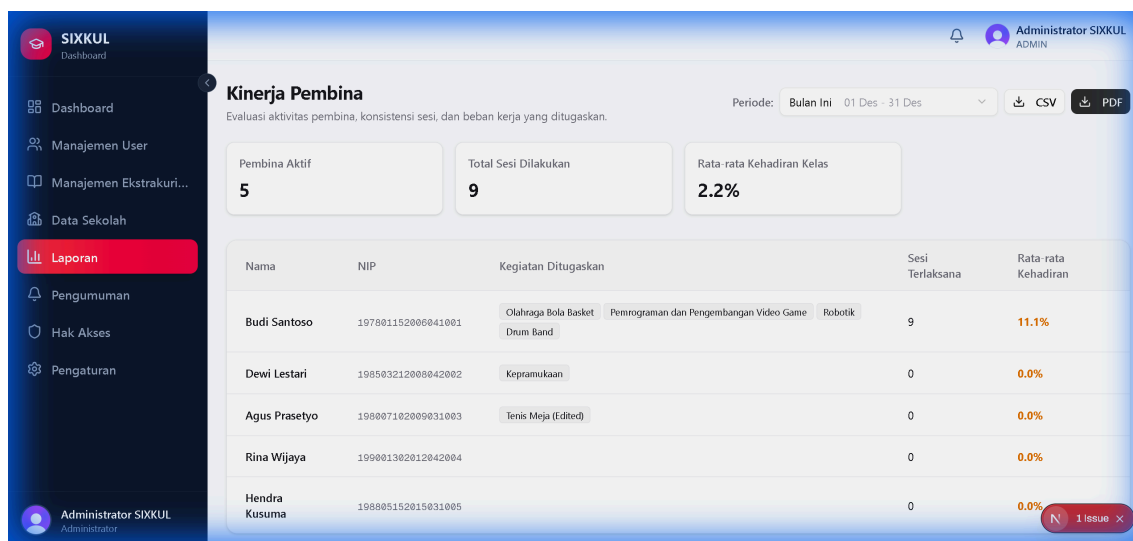

Evidence above shows the "Semester Ini" tooltip explaining the logic: "Tampilkan data untuk semester berjalan (Juni - Desember / Januari - Juni)".

4. Export Functionality E2E Report

The export system has been robustly tested to ensure high-quality output for official reporting.

4.1 Workflow Verification

1. **Trigger**: User clicks the "PDF" or "CSV" button on any report page.
2. **Process**: The button indicates a loading state while the server fetches aggregated data.
3. **Completion**: A success toast notification appears, and the file automatically downloads.

4.2 Output Specifications

We have verified the structure of the downloaded files to meet "Official Report" standards.

PDF Export

- **Orientation**: **Landscape** (Horizontal) to maximize space for data columns.
- **Styling**: Professional blue header with "SIXKUL - Official Report".
- **Localization**: **ALL column headers are in Bahasa Indonesia**.
  - *Example*: Data key `totalSessions` is rendered as **"Total Pertemuan"**.

- **Readability**: Line wrapping is handled intelligently (`overflow: linebreak`) to prevent character-by-character stacking.

CSV Export

- **Format**: Standard comma-separated values, UTF-8 encoded.
- **Headers**: Fully localized matching the PDF headers (e.g., "Nama", "NIP", "Kelas").
- **Compatibility**: Tested to open correctly in Excel and Google Sheets without delimiter issues.

4.3 Filename Convention

Files are generated with a timestamp to ensure uniqueness and traceability:

- Format: `SIXKUL_[REPORT_TYPE]_REPORT_[YYYY-MM-DD]_[HH-mm]`
- *Example*: `SIXKUL_STUDENT_REPORT_2024-12-23_10-30.pdf`