

1. Application Description

The DSTL (Data and Story Toolkit for Librarians) application is designed to empower librarians in meeting their data and storytelling requirements efficiently and effectively in their routine work. Demonstrating how libraries utilize local taxes and funds to benefit their communities and meet government requirements has been a crucial aspect of the librarians' work, requiring a skilled synthesis of data and narratives to demonstrate the library's impact. However, not all librarians have adequate data analysis and storytelling skills, preventing them from effectively utilizing the data and stories they possess. In addition, the compressed work schedule prevents librarians from acquiring the lacking skills. Therefore, a tool that enables librarians to conveniently and intuitively construct data narratives is required.

The DSTL application incorporates six essential dimensions: argument, motivation, attitude, strategy, dimension, and data story. Depending on the specific combination of argument, motivation, and attitude in a given story, the application will recommend corresponding narrative strategies. These strategies guide users in determining which dimension to address, thereby facilitating the development of a compelling data story. Not all users have equal permissions to make modifications in all dimensions. Regular users, who are primarily librarians in this case, have complete visibility to all six dimensions, while they can only create, edit, and delete dimensions and data stories. In contrast, the DSTL staff can modify the argument, motivation, attitude, and strategies, but cannot change the dimensions and data stories created by the librarian users. Beyond these users and staff, the system administrator can view and modify all dimensions.

2. Authentication and Authorization Scheme

In the DSTL application, there are three distinct user roles: librarian (target user), DSTL staff, and system administrator. Each role has specific permissions and responsibilities. The DSTL staff members, who possess in-depth knowledge of the application's mechanisms, have exclusive access to modify the major types of argument, motivation, attitude, and recommended strategies. This control ensures that the essential dimensions are handled by experienced individuals, guaranteeing the most effective narrowing down of scope in data storytelling. In contrast, librarians have complete control over the dimensions and data stories they create, allowing them to exercise creative freedom and tailor their narratives to the library's unique requirements. DSTL staff members are not authorized to modify or alter the creative elements contributed by librarians, ensuring that the ownership and integrity of their data stories are maintained. Additionally, system administrators possess the authority to make changes across all dimensions as needed, providing essential oversight and support for the application's smooth functioning.

The authentication and permissions scheme are shown below:

Visibility: Every user group can view all six dimensions. Visitors who are not registered can only view the About page.

Modification: The modification permissions for each user group are displayed in the table:

Dimension/ Role	Argument	Motivation	Attitude	Strategy	Dimension	Data Story
Librarian					✓	✓
Staff	✓	✓	✓	✓		
Sys Admin	✓	✓	✓	✓	✓	✓
Non-user visitor						

3. User IDs and Passwords

User ID	Role	Password
librarian	Regular User	{iSchoolUI}
staff	Regular User	{iSchoolUI}
sysadmin	Superuser	{iSchoolUI}
tester	Superuser	{iSchoolUI}

4. Testing Instructions

It may be easiest to test this application module by module.

Authorization and Permission Module

- Test if the user ID librarian, staff, sysadmin, and tester can be logged in the website with the password {iSchoolUI}.
- Test if user “sysadmin” and “tester” can view and make changes to all dimensions.
- Test if user “librarian” has the right accessibility
 - **Can** modify “Datastory” and “Dimension” sections.
 - **Cannot** modify “Argument”, “Motivation”, “Attitude” and “Strategy” sections
- Test if staff have the right accessibility.
 - **Can** modify “Argument”, “Motivation”, “Attitude” and “Strategy” sections.
 - **Cannot** modify “Datastory” and “Dimension” sections.

Create Module

- Click the “Create New” button and create a record by filling in the blanks
- Try to create a repetitive record and fail,

- The expected result is that the application should display a unique constraint message, except for the data story dimension. This dimension is designed to permit repetitive recordings because doing so will reveal the most prevalent stories

Detail Module

- Click on an existing record should lead to the record's detail page.
- Check if the detail page has the “Create New” button and “Delete” button.
- Check if the detail page shows detailed information about the record.

Edit Module

- Click on the “Edit” button should allow authorized users to make changes in the correspondent section.
- Try to change the details of an existing record and save the change by clicking “update.”

Delete Module

- Click on the “Delete” button should allow authorized users to delete an existing record.
- Check if the “delete protection” function is effective.
 - The application should prevent deleting records that are already associated with existing strategies or data stories. Only the “Datastory” can be deleted without protection.