

# Full Project Report: Migrating SASL Literature and Curriculum Material from DVD to a Learning Management System

**Project:** Migrating the Handlab SASL content from DVD format to LMS format via the use of SADIaR infrastructure

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## Introduction

This report presents a comprehensive account of the development of a Learning Management System (LMS), a digital platform designed to host South African Sign Language (SASL) educational materials and make them available to schools for the Deaf across South Africa. Said development was a collaboration between SADiLaR and Handlab, a Deaf-led initiative in the Department of General Linguistics at Stellenbosch University, that has been at the forefront of developing curriculum-aligned SASL resources aimed at improving access to education for Deaf South African learners from pre-Grade R to Grade 12. These resources are primarily literature and other types of texts (advertisements, debates, dramas, poems, short and longer stories, etc.) for the mainstream school subject SASL as Home Language, with a set of resources for subjects offered to Deaf learners in Schools of Skills and to Deaf learners in the Differentiated CAPS stream.

As educational technologies evolved and the limitations of traditional distribution methods became increasingly evident, the need for a more efficient, scalable, and accessible system emerged on the part of Handlab and the schools that they serve. After thorough investigation of the commercially available and other LMSes available, it became apparent that existing LMSes did not have the capacity or required functionalities to host a large corpus of video texts and their accompanying written-language documents. This led to the conceptualisation and implementation of the LMS reported on here. The development of the LMS for Handlab serves as a replicable case study of migrating from DVD to online storage and distribution of SASL material. As such, this report outlines the rationale behind the transition to an LMS, the intended functionality of the platform, the development process, the challenges encountered, and the lessons learned throughout the project. It also provides a brief overview of how the platform operates in practice.

## Rationale for the LMS

Prior to the development of the LMS, Handlab distributed its SASL educational materials primarily through DVDs, USB drives, and printed teaching guides. While this system initially enabled schools to access Handlab's SASL-related resources, it became increasingly unsustainable due to technological and logistical challenges. Many schools reported that newer laptops and devices no longer supported DVD playback, making it difficult or impossible to access the materials. In addition, the process of physically distributing resources across the country involved significant courier costs and administrative effort.

Another limitation of the DVD-based system was its static nature. Once materials were distributed, they could not be updated or corrected, which meant that errors or

improvements could not be easily addressed. Schools also faced challenges related to damaged or lost DVDs, and replacement processes were inefficient. Furthermore, access to materials was restricted to physical copies, limiting flexibility in teaching and learning environments.

The need for a digital solution became increasingly clear as schools began requesting alternative formats such as USB drives and online access. The LMS was therefore developed as a means of transitioning from a static, physical distribution model to a dynamic, centralised digital platform. This shift aimed to improve accessibility, reduce costs, enable real-time updates, and support a more modern and flexible approach to teaching and learning in Deaf education.

## **Intended Functionality of the LMS**

The LMS was designed to serve as a centralised platform where teachers and learners could access all Handlab materials in a structured and user-friendly manner. The system is built on Moodle and had to organise content according to grade, genre, and specific text titles. This structure allows users to navigate the platform intuitively and locate relevant materials with ease.

A key feature of the LMS is the integration of high-quality SASL videos, which serve as the primary mode of instruction. For SASL as Home Language, these videos include the main text, comprehension questions, and vocabulary components. Supporting materials, such as teaching guides in both English and Afrikaans, are also included to assist teachers in lesson planning and delivery. The LMS had to ensure that the SASL video remains the central learning resource, with written materials functioning as supplementary support.

The LMS also incorporates features aimed at improving usability and accessibility. These include icons and thumbnails that would allow clear visual navigation, consistent layout structures across all lessons, and the ability to embed video content seamlessly. In the long term, the platform is expected to support additional functionalities such as interactive quizzes, assignments, and discussion forums, as well as integration with a comprehensive SASL vocabulary database.

Accessibility considerations have been central to the design of the LMS. Given the varying levels of internet connectivity across schools, efforts have been made to optimise the platform for lower bandwidth usage, including the potential for adjustable video quality. Although the current system requires internet access, offline access solutions to accommodate schools with limited connectivity is being explored.

## Development Process

The development of the LMS involved a complex and multi-phased process that required the coordination of content, technical infrastructure, and design elements. One of the most significant components of the project was the migration of existing materials from DVDs into a digital format suitable for online delivery. This process required the export of all video content, followed by uploading the videos to a hosting platform, Streamable, from which they could be embedded into the LMS.

To manage the large volume of content, a master Excel spreadsheet was created to serve as the central repository of information. This spreadsheet captured all relevant data, including video titles, Streamable links, file names, and completion status. It functioned as the “source of truth” for the project, ensuring consistency and enabling efficient tracking of progress. The process of populating this spreadsheet was extensive and time-consuming, taking approximately one year to complete due to the volume of materials and the need for manual verification.

File management and standardisation were critical aspects of the development process. All videos were renamed using a consistent naming convention, and efforts were made to ensure uniformity across all content. This step was essential for enabling bulk uploads and maintaining a coherent structure within the LMS.

The design and structure of the LMS were developed iteratively, with ongoing input from both the Handlab team and the technical developers at SADiLaR. The platform was organised according to a hierarchical structure of grade, genre, and text, with each lesson containing a standard set of components. Multiple revisions were required to refine the layout, navigation, and visual identity of the platform, ensuring alignment with Handlab’s branding and user needs.

Initially, Handlab was responsible for uploading content directly to the LMS. However, this responsibility later shifted to the SADiLaR team, who implemented a bulk upload process. This change allowed for more efficient integration of content and reduced the technical burden on the Handlab team. Handlab’s role became focused on preparing and organising content and on verifying correct display after upload, while SADiLaR handled the technical implementation.

## Challenges and Lessons Learned

The development of the LMS was not without challenges. One of the primary difficulties was the condition and organisation of the existing content. Some videos were missing or

incomplete, and file naming was inconsistent, which complicated the migration process. The lack of a predefined template at the outset also resulted in additional work, as structures had to be refined and standardised during the project.

Technical challenges included limitations of the video hosting platform, particularly the lack of bulk upload functionality in the early stages. Large file sizes also affected system performance, requiring optimisation strategies such as improved loading techniques. Design challenges emerged as the team worked to balance functionality with visual identity, leading to multiple revisions of the interface.

Infrastructure limitations at schools presented another significant challenge. Many schools have limited internet access, high data costs, or insufficient devices for teachers, which impacts their ability to use the LMS effectively. These constraints highlighted the importance of designing for low-resource environments and considering alternative access solutions.

Communication and coordination across the Handlab and SADiLaR teams also required careful management. Miscommunication and delays occurred at various stages, emphasising the need for clear documentation, defined roles, and regular updates.

Through these challenges, several key lessons were learned. The importance of establishing clear templates and naming conventions from the outset became evident, as did the value of maintaining a centralised master Excel file to track and manage upload progress collaboratively. The project also demonstrated the necessity of user testing, particularly in real school environments, to ensure that the platform meets practical needs. Finally, it reinforced the importance of flexibility and adaptability in managing a large-scale, collaborative project.

The development and populating of the LMS was a highly time-consuming, complex and detailed process which required extensive technical skill and a deep knowledge of what the end users of the LMS would require from the user interface. The LMS required extensive coordination, technical work, quality control, and continuous communication between the Handlab team and the technical developers at SADiLaR. A Handlab video editor first had to export every individual video from the DVDs (such as the text itself, the list of signs, the comprehension test, and any addendums), split the content into separate sections, create organised folders, and rename all files using the agreed convention. This process also involved dealing with formatting issues, exporting complications, and compressing large video files into suitable formats that would maintain quality while being compatible with the LMS platform. The exporting, rendering, and compressing process alone took a significant amount of time due to the size and number of video files, especially in the case of older compressed DVD materials that were not originally designed for online platforms.

Once the videos were ready and uploaded onto the shared drive, the Handlab quality control officer uploaded each video individually onto Streamable and populated all the required information into the master Excel spreadsheet. This process demanded constant attention to detail, as even a small mistake in file names, formatting, links, sequencing, vocabulary, or lesson information would result in time-consuming corrections and rechecking. At times, uploads failed, videos were incorrect, files were missing, formatting changed during export, or Streamable memory limits were reached, which caused delays and required adjustments. Some videos also had to be re-exported or compressed again because of compatibility or playback issues.

In addition, the Handlab team required ongoing training and guidance on how to integrate Streamable content into the Moodle LMS platform. The LMS was specifically designed for Handlab to ensure that teachers could easily access and use the materials in the classroom, but preparing the content for Moodle required exporting and separating lessons into various components before upload. Although a bulk population system was eventually developed, errors could still occur during uploads, making quality control essential. Every lesson had to be checked carefully to ensure that the correct video, teaching guide, comprehension test, vocabulary list, thumbnails, numbering sequences, and genre information were linked properly. This involved continuous communication between the Handlab and SADiLaR teams to confirm what had been completed, identify errors, and resolve missing or incorrect information. The process often required going back and forth to make adjustments, reorganise lesson structures, fix formatting problems, or add missing content and metadata.

The LMS project therefore required far more than simply uploading videos onto a platform. It involved months of technical preparation, exporting, formatting, compressing, organising, uploading, testing, troubleshooting, and quality checking to ensure that the final platform would function correctly and remain accessible for learners and teachers. Although the process has taken considerable time and effort, the LMS will provide a sustainable, accessible, and modern platform for Deaf education once fully finalised.

## **Brief Description of LMS end-user experience**

The LMS is designed to provide a straightforward and intuitive user experience. Upon accessing the platform, users are presented with a homepage displaying grade-level options, each represented by a distinguishing visual icon. Selecting a grade leads to a structured set of content organised by genre, such as short stories or poems. Within their selected genre, users select the lesson they are interested in.

Within each lesson, users encounter a consistent layout that begins with an introduction intended for the teacher. The introduction contains a short description of the main (SASL)

text (e.g., a summary of the plot of a drama) and typically lists the accompanying texts. The introduction is followed by the main SASL video, which serves as the primary instructional content. Additional components include comprehension questions, a list of signs, and a teaching guide (amongst others, containing the comprehension test memorandum) available in both English and Afrikaans. Videos are embedded directly into the platform, allowing for seamless playback, and thumbnails provide visual cues for navigation.

The LMS's design prioritises clarity, consistency, and ease of use. The platform is currently dependent on internet access. Planned enhancements include use in contexts with poor internet access, the addition of interactive features (such as quizzes, discussions, and assignments), improved navigation, and expanded vocabulary integration.

## Conclusion

The development of the LMS represents a significant advancement in the delivery of SASL educational materials. By transitioning from a physical distribution model to a digital platform, Handlab and SADiLaR have created a more accessible, efficient, and sustainable system for supporting Deaf education. While the process involved considerable challenges, including content migration, technical limitations, and infrastructure constraints, the outcome is a robust platform that lays the foundation for future growth and innovation.

The LMS not only improves access to high-quality SASL resources but also positions Handlab to expand its impact in Deaf education and empowerment through interactive learning and broader digital integration. As the platform continues to evolve, it has the potential to transform the way SASL education is delivered and experienced across South Africa.