

Activity Data for Assessment and Adaptive Learning

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Cecilie Hansen has her background from cultural science, and is a researcher at the Technology for Practice research group at Uni Research Health, and affiliated researcher at Centre for the Science of Learning & Technology (SLATE, UiB). She has been working with technology enhanced learning for 15 years, and her research interests include learning analytics, data literacy and teacher inquiry.

ABSTRACT: The presentation will inform on the project *Activity Data for Assessment and Adaptive Learning* (AVT). The goal of AVT is to develop a framework for learning analytics with a focus on *activity data exchange* that will increase the quality of teaching and learning in schools for teachers and individual students. The framework will be a reference for school owners and content vendors who wish to implement such technology in schools.

1. AVT PROJECT BACKGROUND

The AVT project is a collaboration between a municipality in Norway, a research centre, and the national organization of municipalities, with the goal of developing a framework for exchange of activity data between vendors to ensure that data about a learner's achievement of competence goals in different products is available for all vendors and stakeholders.

2. A FRAMEWORK OF THREE MODELS

The AVT framework, see figure 1, will include three models:

1. A model for the appropriate organisation of learning goals related to the school's local curriculum and the content providers' detailed learning goals, and their relationship to the competence objectives in the national curriculum. The national curriculum is available in a machine-readable database (GREP). A key task is to develop a sustainable structure and management of these goals in a common database for participating schools and content providers.

2. A model for quality assurance of the content providers' encoding of raw data student activity in learning applications and assessment of competence, based on national standardisation work in the field. The model should include a quality assurance of the corresponding decoding of the raw data. This model will ensure that all content providers have equal access to all activity data generated by applications of the content provided, and commit to sharing their data. This includes the registration, transmission, and interpretation of these data, such as to ensure the integrity of the statistical validity. The work is based on the Norwegian adaptation of the International Standard Experience API abbreviated (xAPI).

3. A model for identifying the student's academic level linked to relevant learning resources. The model describes how a student's competence gap can be identified based on the activity data, and describes how to identify relevant learning content that could contribute to the student's further progression. The model should also contain a methodology for appropriate linking to learning resources that can bridge the identified competence gap.

Figure 1 presents the preliminary architecture of the framework. *GREP* is a national database of competence goals from the national school curriculum. *LMbase* is the first model that is being developed to encompass the GREP competence goals, the local school's learning goals, and the goals of the vendor's learning application. *FEIDE* is a national service for student accounts. *Dataporten* is a new national service for data exchange between vendors, vendors and schools, etc.

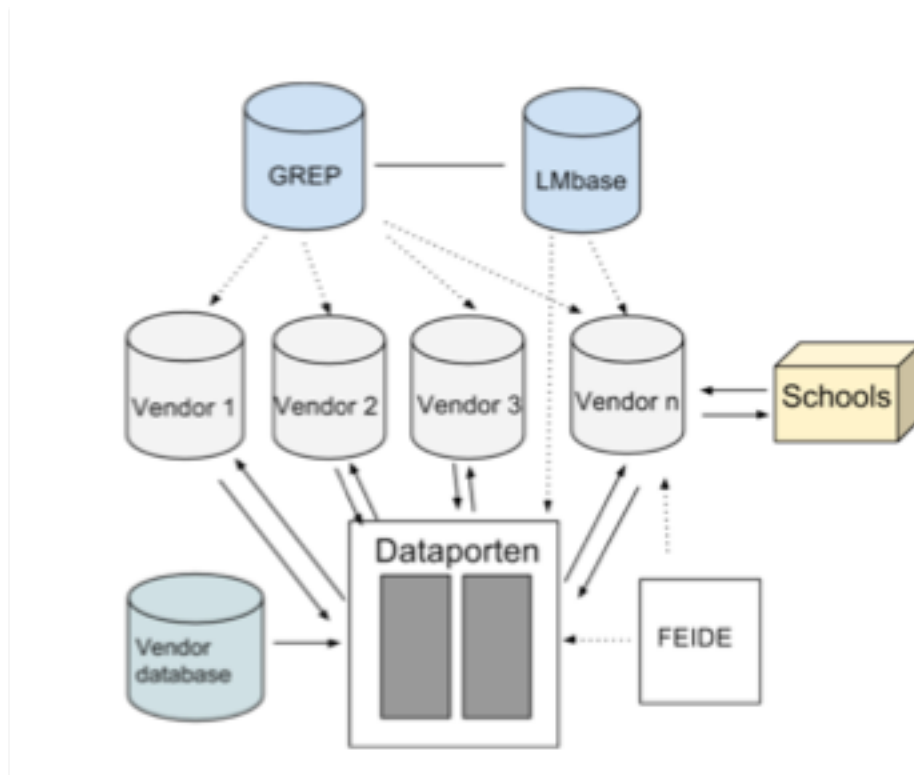


Figure 1: AVT Framework

3. CHALLENGES OF WORKING WITH STAKEHOLDERS

The project invites collaboration with school owners, schools, and vendors e.g., publishers, Edtech companies, to ensure that the framework should consider type of data collected and shared, and how the data is analysed, interpreted, and visualised for the stakeholders. There are several challenges: sharing of data between vendors, ethics, and visualization of data.

The project is a collaboration between a Oslo Municipality, The Centre for the Science of Learning & Technology (SLATE), and KS (the National Municipality Organisation).