

Introduction









UNIVERSITY OF TWENTE.





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DATAUSE Project Overview

Data have become increasingly important in an age of increased accountability and significant school autonomy. As schools are being held more accountable for the education they provide the data-driven decision making is becoming increasingly important. Data can be used to formulate appropriate and effective education policy and to measure the effectiveness of programs and instructional interventions. Data can also be used to measure individual student progress, guide the development of curriculum, determine appropriate allocation of resources, and to report progress to the community. But despite the leverage that can be gained by using data effectively, many schools still struggle with data-driven decision-making. Despite the importance of using data, very little training exists throughout Europe to help school leaders and their staff use data effectively. The DATAUSE project was created to build the capacity of school leaders and staff to establish learning communities where data are used to improve educational outcomes.

The DATAUSE project, funded by EU Comenius Program from 1 November 2010 to 31 October 2012, involves 5 partners: from Poland, Germany, the Netherlands, the UK, and Lithuania. The experience and expertise brought to the DATAUSE project by the partners has contributed significantly to realizing the projects goals, particularly the development of the Data Use Professional Development Course which has been designed to address the documented lack of capacity of school leaders and staff to effectively use data to improve student outcomes.

Project Outcomes

The anticipated outcomes of the DATAUSE project include:

- websites in each of the partners' languages presenting the DATAUSE project and its deliverables
- comparative research report on data use in each of the partner countries
- a data use survey that can be used by schools to identify their strengths and areas for improved data use
- Professional Learning Communities (PLCs) established in each partner country that champion the use of data for school improvement



 Data Use for School Improvement – a professional development course designed to build school-based capacity to use data that includes extensive support materials

The professional development course and data use survey bring to European educators a set of tools that will help them build their capacity to use data to improve teaching and learning. The survey instrument can be used by school leaders to gauge the extent of data use within his/her school and identify areas of strength and areas of need. The Data Use for School Improvement course includes tools and activities that help build capacity within school-based teams to establish a culture of utilizing data to inform decisions about policy, programs, and instructional practice. It is designed to build the capacity of school Professional Learning Communities to use data and for them in turn to build the capacity of teachers throughout the school to better use their data. The benefits for each school taking the data use course include:

- practicing the process of data collection and analysis to solve school problems through problem identification, root cause analysis, action planning, initiative implementation and monitoring, and evaluation
- developing a professional school-based team proficient in data use
- hands on application of data use principles to address an urgent issue identified by the school

Project Partners

The DATAUSE project partners brought their unique experience and expertise to collaboratively produce high quality courseware and tools that address the needs of schools of the XXI century. The project partners include:

Public Consulting Group (PCG) <u>www.pcgeu.com</u>, DATAUSE project coordinator, a global management consulting firm with more than 1000 professionals in 33 offices around the U.S., Canada, and Poland. For nearly 25 years, PCG has been helping central and local government agencies maximize resources, achieve their performance goals, and optimize services to their clients. PCG professionals are dedicated to bringing proven consulting methodologies, subject matter expertise, and innovative technology solutions to the public sector. The PCG education team has the expertise, capacity, and scale to help educators improve their decision making



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processes and achieve measurable results in the areas of education analytics, school accountability and supervision, and student success planning. PCG aims to be a leading provider of consulting services that combine management best practices with analytics and innovative technology to clients in Poland and throughout the European Union. PCG takes a long-term approach towards building business and developing a network of partners with similar interests in expanding educational capacity and improving outcomes for students.

The Institute for Information Management Bremen GmbH (ifib) www.ifib.de, DATAUSE project partner, a not-for-profit research and consulting organization at the University of Bremen. ifib's main fields of work are: e-government and educational technologies; these two branches are working closely together in joint projects. Since 2003, the Institute of Information Management Bremen (ifib) is doing empirical research and formative evaluation of ICT integration in public institutions. The educational technology branch of ifib conducted several research projects on data use in schools and is currently cooperating with different State Education Ministries in Germany. ifib hosted the first international conference of data-driven decision-making in schools which was documented in an edited book.

Modern Didactics Center (MDC) <u>www.sdcentras.lt</u>, DATAUSE project partner, a non-profit, nongovernmental organization for continuing adult education and in-service training. Modern Didactics Center was established in 1999 as inter-university Center by an initiative of Vilnius Pedagogical University and the Open Society Fund-Lithuania. MDC initiates, develops and runs national and international projects, develops new programs, courses for initial teachers' education and in-service training, delivers different training programs, creates methodical materials for schools, provides consultations and expertise on project management, teaching & learning strategies, lessons planning & assessment, school community development, etc. MDC also organizes study visits, seminars, conferences, summer schools on different educational topics, organizes research on urgent educational issues, and publishes project products.

Specialist Schools and Academies Trust (SSAT) <u>www.ssatrust.org.uk</u>, DATAUSE project partner, an independent, not-for-profit membership organization dedicated to raising levels of achievement in education. SSAT has a membership of over 5,600 schools and organizations. SSAT is a registered charity. SSAT works with head teachers, teachers, and students to



encourage them to develop and share new and effective teaching and learning practice, and to improve schools to raise standards and levels of achievement. SSAT's Data Enabler program reaches a significant proportion of England's secondary schools. This work enables SSAT to engage in next and best practice in the use of data to raise standards.

The University of Twente (UT.) http://www.utwente.nl/gw/co/en/, DATAUSE project partner, based on three central pillars: education, research, and valorization. UT strives to excel in education, research, and valorization because talent attracts talent. University of Twente is well known for its innovative educational research. The Department involved in this project is the Department of Curriculum Design & Educational Innovation (CD&EI). Researchers at this department are, among other things, specialists in the field of data-driven decision making, design research, and professional development of school staff. One of the University's research areas is how to support schools in the effective use of data, such as assessment data, survey data, and student background data. UT is involved in national as well as international projects data use founded and chair an international on data use, they network: http://www.icsei.net/icsei2011/datausenetwork



Data Use Theory of Action



As part of the DATAUSE project the partners conducted a comparative study of data use which informed the development of a Data Use Theory of Action. This construct provided the framework for the data use survey and the foundations for the data use professional development course.

The Data Use Theory of Action recognizes <u>policy</u> as the major influence on data use in the schools. School policies affect each of the following foundations for effective data use by either enabling or erecting barriers to them.

- the organization (e.g. availability of data use expertise, teacher collaboration time assigned for data use),
- the **data** (e.g. accessibility, quality) and
- the users (e.g. knowledge, skills and attitudes)

School policies impact how extensively, if at all, school personnel use data to inform their decisions. The Data Use Theory of Action identifies three types of data-driven decision making:



- for school development (e.g.: policy development, teacher professional development, flexible groupings),
- for accountability purposes (e.g.: meeting legal demands, communication with stakeholders) and
- for **instructional development** (e.g.: monitoring progress, adjusting instruction).

If data are used for these different purposes, this may lead to **stakeholder** (e.g. teachers, school leaders, parents) **learning**. For example, a teacher might decide to make instructional changes based on data (data-driven decisions). This leads to improved instruction by the teacher (outcome: teacher stakeholder learning). Stakeholder learning in turn may lead to **student learning** (e.g. inquiry of students into their own learning and improved student achievement).



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Implementation of the Data Use Theory of Action

After developing the general Data Use Theory of Action the project partners designed an inquiry model to provide a framework to support PLCs as they learn how to use data for problem solving and decision making in their schools. The model has the following stages of inquiry: Discovery, Diagnosis, Doing and Evaluation. The inquiry needs to be proceeded by the Preparation stage which allows for proper planning, building the capacity and competences in the team of educators collaboratively working to improve student outcomes. The Data Use Professional Development course is based on this model. In the course, the presented stages guide a PLC through all critical steps of the inquiry process, allowing the opportunity for the PLC to iteratively learn the process. In addition to guiding the PLCs through a structured development process the DATAUSE Course focuses also on helping participants to develop the technical, analytic, and collaborative skills necessary to implement the Data Use Theory of Action and to use data to improve teaching and learning.





DATAUSE Course Learning Goals

Phase	Learning Goals		
Preparation How do we organize for data use?	 Assess data use within the school Clarify roles and responsibilities Inventory available data Build assessment literacy 		
Discovery What's the issue or problem?	 Identify a critical problem or issue in the school that will be the focus of inquiry Articulate questions that will help the PLC accurately define and describe the problem or issue Identify data sources that will help inform the discovery process (e.g. student learning data) 		
Diagnosis What's the root cause?	 Analyze data and formulate a clear evidence-based statement of the problem or issue that needs to be addressed Formulate hypotheses that explain the root cause of the problem or issue Identify additional data sources needed to confirm the root cause (e.g. school process and instruction data) Analyze root cause data and clearly articulate the root cause, which, if addressed, will fix the problem or issue articulated in Discovery 		
Doing What are we going to do about it?	 Identify initiatives that will fix the root cause identified in Diagnosis and select the highest impact initiative Break down the initiative into an action plan Identify how the plan will be monitored and how success will be measured Implement the initiative 		
Evaluation What results did we get?	 Plan for evaluation Reassess data use within the school 		



DATAUSE Course Organization and Curriculum

The table on the following pages outlines each module in terms of learning objectives, activities, and homework. Modules 1 and 2 are Preparation modules that will build the capacity of the PLC to engage in data work. Sessions 3 to 11 take the PLC through each stage of the data use inquiry model: Discovery, Diagnosis, Doing and Evaluation. This material constitutes obligatory elements of the course program and allows the PLC to complete the whole inquiry process within one school year.

These course materials include also a set of optional materials that help the PLCs to continue the work with data use for school improvement. After completion of the obligatory program Module 12 helps the PLC data team use their newly gained knowledge and skills to build an improvement plan for data use in the school. In Module 13 the PLC members can continue to apply what they learned in Modules 3 to 11 to deepen the investigation of the initial problem identified by the PLC or follow the same process to address a new problem. The emphasis will be on deepening the work and increasing autonomy and expertise within the PLC. In Module 14 PLCs will summarize the progress they have made in data use in their school and reflect upon the initiatives they implemented throughout the course. They will prepare for continuing the data use work into the future throughout the school by crafting and seeking approval for a school-wide vision for data use.

Each of the modules is planned for a delivery within an up to 3 hour session. Each activity presented in the guidebook includes time estimation which is a minimum allocation required to go through an activity. The Data Coach who will deliver the session will adjust the real time needed to go through activities based on the PLC's specificity, data use experience, complexity of the problem tackled, amount of data for analysis, etc. In addition to that there are 10 check-in meetings in-between the sessions with a data coach in order to work on the homework and prepare for the forthcoming session. The following table presents an overview of the course content and structure.



Data Use Course Curriculum

Phase: Preparation - How do we organize for data use?			
Module Title	PLCs will be able to:	Activities	Homework
Module 1: Getting Started	 Describe the framework for data use. Create norms to promote effective collaboration. Analyze survey results to identify perceived strengths and weaknesses in the use of data in your school. Use communication tools to help make the work of your PLC transparent to all stakeholders in your school community. Use tools and strategies to organize for effective collaborative work. 	 Norm Setting Data Use Survey Analysis Communication Organizer Template PLC Data Meeting Agenda Template PLC Data Meeting Notes Template 	 Develop an agenda for a meeting to be held prior to your next session. Use the PLC Data Meeting Notes Template to record the results of the meeting. Use the Communication Organizer Template to help develop and distribute communications on results of the Data Use Survey and your findings to the school community, and goals of the data use project to stakeholders.
Module 2: Data Literacy	 Describe the types of assessments used in your schools. Understand data use terms and concepts. Collaboratively create a data inventory that documents all data available in your school. Prepare to identify a significant student related issue to investigate 	 Understanding Assessments Used in Your School Data Use Survey Analysis Creating an Inventory of Data in Your School Asking the Right Questions 	 Individually, review the examples in "Activity 2.4 – Asking the Right Questions" to begin to identify issues for investigation. Meet as a team to identify several student related issues or problems to investigate (Remember to develop an agenda and record meeting minutes any time the team meets!) Bring your issues or problems to our next session for refinement. Continue to develop your data inventory. Bring the completed inventory to the next session.



Phase: Discovery — What's the issue or problem?			
Module Title	PLCs will be able to:	Activities	Homework
Module 3: Identifying a Problem	 Identify a critical problem or issue in the school on which to focus your inquiry. Develop a discovery focusing question that will help the PLC accurately define and describe the problem or issue. Identify data elements and sources that will help inform the discovery process. Recognize high quality data and describe the characteristics of a good data display. 	 Focusing Question Formulation Identifying and Locating Data Sources 	 Using the data inventory you created in Module 2 as well as the information that you generated in Activity 3.2, collect data related to your focusing question. Build data displays prior to the next session that "tell a story" about what the data say about your focusing question.
Module 4: Evaluating Data	 Evaluate the quality of collected data Critique your data displays Plan for improvements 	 Assessing Data Quality Assessing Data Display Quality 	 Use the information generated in activities 4.1 and 4.2 to make improvements in your data set and data display.



Phase: Diagnosis— What's the root cause?			
Module Title	PLCs will be able to:	Activities	Homework
Module 5: Analyzing Discovery Data	 Apply the collaborative data analysis process. Make factual observations from data sets and displays. Form inferences from factual observations of the discovery data. Articulate a clear, evidence-based statement of the problem. Formulate clarifying questions to refine the problem. Identify additional data needed to answer the clarifying questions. Develop a plan for the collection, display, and analysis of the additional data sets. 	 Data Analysis Activity Problem Statement Worksheet Clarifying Question Formulation Activity Identifying and Locating Data Sources Activity 	 Determine if your PLC has a quality problem statement. If it is determined that your problem statement needs to be refined, complete activities 5.3-Clarifying Question Formulation and 5.4-Identifying and Locating Data Sources. Collect the data necessary to address your PLC's clarifying questions. Generate high quality data displays to communicate what the data say about each of your clarifying questions.
Module 6: Hypothesizing Root Causes	 Refine the evidence-based problem, if necessary, based on any clarifying questions. Hypothesize the root cause of your problem. Identify additional data needed to confirm the hypothesized root cause. 	 Refining Evidence-based Problem Statement Why? Why? Why? Digging into Root Cause Data Building Your Knowledge Base Consult Your Colleagues Worksheet 	 Using the Digging into Root Cause Data Template, collect and display any additional data needed to test your root cause hypothesis.
Module 7: Analyzing Root Cause Data	 Confirm the root cause of the identified problem Collect research and best practice examples on ways to address the root cause of the problem. Identify staff, outside of the PLC data team, who may provide insight into ways to address the root cause of the problem. 	 Root Cause Data Analysis Problem of Practice Worksheet Building Your Knowledge Base Consult Your Colleagues Worksheet 	 Investigate the practice and research literature to gain more knowledge about the identified problem. As appropriate, engage other staff members in the investigation to gain further insight into the problem. Discuss and summarize, in writing, what the team has collectively learned about the root cause and the problem of practice in preparation for work in Module 8.



Phase: Doing— What are we going to do about it?			
Module Title	PLCs will be able to:	Activities	Homework
Module 8: Brainstorming Initiatives	 Use the knowledge gained through research to identify initiatives to address the root cause. Identify "high impact" initiatives to implement in their school. Rate the feasibility of implementing these high impact initiatives. 	 Brainstorming Possible Initiatives Rating Initiative's Potential for Success Feasibility of Implementation Checklist 	 Consult with your school administration to gather feedback on the impact and feasibility of implementing the high impact, high feasibility initiatives identified by the team. Consult with the teachers and teaching teams who would work with the PLC Data Team to implement the strategy or initiative to gather their feedback. Meet as a PLC data team to discuss the feedback and to reach consensus on the strategies that you will move forward with. Using the Communications Organizer introduced in Module 1, craft a memo describing the proposed initiative and the rationale for its selection. Distribute the memo about the selected initiative and solicit any last minute feedback from the stakeholders.
Module 9: Developing Action Plans	 Understand the action planning process. Write measurable improvement targets. Develop an action plan for implementing the initiative. 	 Action Planning Template Creating Measurable Improvement Targets Crafting Improvement Targets for the Action Plan 	 Using the action plan template, construct an action plan to address the identified problem and its root cause.
Module 10: Monitoring Implementation	 Finalize the action plan for implementing your initiative Develop an Implementation Monitoring Plan 	 Team Review of Draft Action Plan First Steps in Creating the Implementation Monitoring Plan 	 Implement the action plan. Complete the Implementation Monitoring Plan. Begin to monitor implementation. Collect formative data as required by the implementation monitoring plan.



Phase: Evaluation – What results did we get?			
Module Title	PLCs will be able to:	Activities	Homework
Module 11: Preparing for Evaluation	 Understand program evaluation. Develop an Evaluation Plan. Conduct a summative evaluation. Publish an evaluation report. 	The Evaluation PlanEvaluation Report	 Complete the Evaluation Plan Upon full implementation of the strategy, complete and publish the Evaluation Report
Appendices – o	ptional materials to continue data use		
Module Title	PLCs will be able to:	Activities	Homework
Module 3 Additional Resources	 To identify a critical problem or issue in the school on which to focus your inquiry. To develop a discovery focusing question that will help the PLC accurately define and describe the problem or issue. 	 Identifying Focusing and Clarifying Questions Types of Data Displays 	
Module 12: Building a Data Use Improvement Plan	 Identify a significant limiting factor to effective data use in your school Develop a Data Use Improvement Plan to address the limiting factor 	 Identifying Limiting Factors Limiting Factors: Root Cause Analysis Developing a Measurable Improvement Target Building a Data Use Improvement Plan 	 Complete the Data Use Improvement Plan. Implement the plan. Monitor your progress through the development and use of an Implementation Monitoring Plan similar to that used to Module 10 to monitor your action plan.
Module 13: Moving Forward	 Apply the data inquiry process (Discovery, Diagnosis, Doing and Evaluation) in new situations 	 Moving Forward 	 Continue to apply the data inquiry process to inform decisions in your school.
Module 14: Building a Vision for Data Use	 Draft a vision to guide school-wide data use efforts 	 Drafting a Vision for Data Use 	 Share the vision statement with stakeholders in your school and solicit their feedback. As a PLC data team, analyze feedback and revise the vision statement as appropriate. Present the final vision statement to school leadership for adoption.

