Evaluation of the piloting

“Improving the quality and sustainability of learning using early intervention methods based on learning analytics”

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Abstract	This report presents the results of a teacher questionnaire conducted after the piloting phase of learning analytics dashboards across partner institutions. The goal of the activity is to evaluate the dashboards’ usability, clarity, and pedagogical value, as well as to collect lessons learned for future improvements. A total of 20 teachers completed the questionnaire, which combined Likert-scale and open-ended questions organized into four sections: dashboard usability and visualization clarity, usefulness for teaching and student monitoring, frequency and type of interventions, and effectiveness of interventions with future use intentions. Results show that teachers rate the dashboards positively, with average scores above 4.0 across most items. They particularly value the clarity of engagement visualizations and the ability to monitor participation. Teachers frequently use the dashboards to provide personalized feedback and plan interventions, reaching 10–25% of students in most cases. Open-ended comments suggest further improvements such as better navigation, automatic alerts for low engagement, enhanced reporting, and training with practical examples.
Keywords	Learning analytics, dashboard, teacher feedback, intervention, usability, student engagement, course monitoring, educational data, pilot evaluation, survey

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1 Introduction

The goal of Activity 4.4 is to collect and analyse teacher feedback after the piloting phase. All interventions and the active use of learning analytics dashboards have already been completed in selected courses at all partner institutions. Activity 4.4 focuses on analysing how teachers experienced the dashboards and how the dashboards supported their interventions during the piloting. The aim is to evaluate the usability, clarity, and pedagogical value of the dashboards from the teachers’ perspective. It also collects insights that will guide further improvement of the platform and the intervention guidelines.

The main objectives of Activity 4.4 were to:

- Evaluate how easily teachers could navigate the dashboard and interpret the data presented.
- Determine whether the dashboard supports the identification of students requiring additional support and provides sufficient information for timely instructional interventions.
- Evaluate the extent to which teachers adjusted their teaching strategies based on dashboard insights.
- Collect suggestions for missing features, improvements, and future training needs.

The questionnaire included both quantitative (Likert-scale items) and qualitative (open-ended) questions. The questions were divided into four sections, each focusing on a key aspect of the pilot experience:

- **Section 1: Usability of the Dashboard** (questions 1.1 - 1.6) - measured navigation, clarity of performance and engagement data, actionable insights, and support for decision-making.
- **Section 2: Usefulness of Dashboard** (questions 2.1 - 2.5) - assessed whether the dashboard helped teachers identify students requiring additional support, adjust their strategies, and stay aware of student engagement.
- **Section 3: Frequency of Dashboard Use for Interventions** (questions 3.1 - 3.6) - included categorical and open-ended questions about dashboard usage frequency, types of interventions (individual, group, feedback), and the proportion of students supported.
- **Section 4: Effectiveness of Interventions** (questions 4.1 - 4.8) - evaluated how dashboard data informed teaching actions, improved student engagement, and influenced teachers’ plans for future use.

The questionnaire was sent to all instructors who participated in the pilot activities at partner institutions. In total, 20 teachers completed the questionnaire after the pilot ended,, so their feedback reflects real classroom experience. The collected data were analysed using descriptive statistics (means, standard deviations, response distributions) and through a discussion of the answers to the open-ended questions.

2 Results

2.1. Section 1 - Dashboard Usability and Visualization Clarity

Questions in section 1 collected information about the usability of the dashboard, clarity of the visualizations, usefulness of the insights, and the extent to which the dashboard design supported teachers in decision-making. Table 1 shows the mean, standard deviation, and median for the six questions in this section.

Table 1. Statistics for Section 1 items (Dashboard Usability and Visualization Clarity)

Questions	Mean	SD	Median
1.1 The dashboard is easy to navigate and understand	4.15	0.81	4
1.2 The visualizations clearly represent student performance data	4.30	0.72	4
1.3 The visualizations clearly represent student engagement	4.35	0.99	5
1.4 The dashboard provides actionable insights about student progress	4.20	0.89	4
1.5 I feel confident interpreting the data presented on the dashboard	4.20	0.83	4
1.6 The dashboard’s design supports my decision-making	4.20	0.89	4

Questions from Section 1 have average scores above 4.0, showing that teachers have a positive opinion about the dashboard’s usability and clarity. Question 1.3, “The visualizations clearly represent student engagement,” has the highest average score (Mean = 4.35, Median = 5). Most teachers agree with this statement, which means that student engagement visualizations are clear and useful. Question 1.1, “The dashboard is easy to navigate and understand,” has the lowest score (Mean = 4.15). Some teachers give lower ratings on Question 1.1, which shows that navigation is not equally easy for everyone. Question 1.2, which refers to student performance data visualizations, has the smallest standard deviation (SD = 0.73), which shows a high level of agreement among teachers. Question 1.3 has the highest standard deviation (SD = 0.99), meaning that answers to this question are more varied.

Based on these results, dashboard usability and visualization clarity are rated by teachers as clear and easy to use. Engagement visualizations receive the highest

ratings, while navigation shows the most variation in teacher experience, indicating that navigation is the area where improvements are most valuable.

2.2. Section 2 - Usefulness of Dashboard

Section 2 measured how the dashboard helped teachers identify students requiring support, monitor participation, and adjust teaching strategies.

Table 2. Statistics for Section 2 questions (Usefulness of Dashboard)

Question	Mean	SD	Median
2.1 The dashboard helps me identify students who may need additional support	4.05	1.15	4
2.2 The dashboard allows me to adjust my teaching strategies	4.05	0.94	4
2.3 The dashboard supports my ability to provide timely interventions	4.15	0.99	4
2.4 The dashboard identifies/predicts at-risk students	3.95	1.10	4
2.5 The dashboard enhances my awareness of student engagement and participation	4.4	0.68	4

Similarly to Section 1, all questions from Section 2 have averages above 4.0, which shows that teachers rate the dashboard as a useful tool for supporting teaching and monitoring students, with the strongest agreement on its role in improving awareness of student engagement and participation.

The highest rating is for Question 2.5, “The dashboard enhances my awareness of student engagement and participation,” with a mean of 4.40 and a median of 4, showing that teachers see the dashboard as very effective for monitoring student participation. The lowest rating is for Question 2.4, “The dashboard identifies/predicts at-risk students,” with a mean of 3.95, and answers are more spread out (SD = 1.10), showing mixed opinions among teachers. Questions 2.1–2.3 have similar results, all above 4.0, showing that the dashboard helps teachers find students who need extra support, adjust teaching strategies, and give timely interventions.

2.3. Section 3: Frequency of Dashboard Use for Interventions

Questions in section 3 evaluated how often teachers accessed the dashboard and what types of interventions they implemented during the course. Questions 3.1–3.5 use multiple-choice answers, so results are presented as frequency counts and percentages rather than averages. Question 3.6 is open-ended and is analysed thematically.

Half of the teachers access the dashboard more than five times during the course, and over one third use it 3–5 times. Very few report using it once or twice, and none say they never use it. Results are summarized in Table 3.

Table 3. Frequency of Dashboard Access (Q3.1)

Option	Number of Answers	%
Never	0	0%
Once during the course	1	5%
2 times	1	5%
3–5 times	7	35%
More than 5 times	10	50%
Other	1	5%

The most common type of implemented interventions is personalized feedback (70% of teachers). About one third adjust lesson plans or meet individually with students, and a quarter organize group activities. No teacher reports that they do not implement interventions. Results for Question 3.2 are summarized in Table 4.

Table 4. Types of Interventions Implemented (Q3.2)

Type of Intervention	Number of Answers	%
Personalized feedback to individual students	14	70%
Assigned additional resources or assignments	8	40%
Adjusted lesson plans or teaching strategies	7	35%
Conducted one-on-one meetings	6	30%
Organized group activities or discussions	5	25%
None	0	0%
Other	1	5%

A shown in Table 5, most teachers (70%) initiate at least three individual interventions, showing frequent use of dashboard insights for personalized support. Group-level interventions, shown in Table 6, are less common: 30% of teachers report none, and most others implement one or two during the course.

Table 5. Number of Individual Interventions (Q3.3)

Times	Number of Answers	%
0	1	5%
1–2	5	25%
3–5	7	35%
More than 5	7	35%

Table 6. Number of Group Interventions (Q3.4)

Times	Number of Answers	%
0	6	30%
1–2	8	40%
3–5	5	25%
More than 5	1	5%

The results show that interventions are implemented for about 10–25% of students in most cases, while one quarter of teachers reach up to half of the class. Only a small number of teachers report intervening with more than half of their students. These results are summarized in Table 7.

Table 7. Proportion of Students Receiving Interventions (Q3.5)

Coverage	Number of Answers	%
Less than 10%	3	15%
10–25%	10	50%
26–50%	5	25%
More than 50%	2	10%

Open-ended Question 3.6 focuses on other interventions or considerations teachers made based on dashboard insights. Teachers describe several actions they take during the course. Many mention adjustments to teaching content, such as adding extra exercises or refining assignment instructions (e.g., “I created extra exercises for students who struggled with programming tasks.”). Some teachers report changes in course organization, including moving deadlines or balancing the weekly workload (e.g., “I moved deadlines to give students more time for quizzes.”). Teachers also highlight direct communication with students, sending reminders, encouragement, and feedback, or arranging short meetings with those with low participation (e.g., “I contacted students with low participation individually.”).

2.4. Section 4: Effectiveness of Interventions

Questions in section 4 examine how teachers evaluate the impact of interventions and their intention to continue using the dashboard. Questions 4.1–4.6 use a 5-point Likert scale which results are summarized in Table 8, while Questions 4.7 and 4.8 are open-ended questions.

Table 8. Statistics for Section 4 questions (Effectiveness of Interventions)

Question	Mean	SD	Median
4.1 The dashboard helps me take timely action	4.15	0.88	4
4.2 The dashboard improves my ability to support students	4.25	0.84	4
4.3 The interventions have a positive effect on student engagement	4.10	0.91	4
4.4 The interventions have a positive effect on student performance	4.05	0.94	4
4.5 The dashboard helps me improve my course design	4.00	0.95	4
4.6 I plan to continue using the dashboard in the future	4.30	0.80	5

The highest mean score is for Question 4.6 (Mean = 4.30), showing that most teachers plan to continue using the dashboard in the future. Questions 4.3 and 4.4, which ask about the effect of interventions on engagement and performance, have slightly lower scores (Means = 4.10 and 4.05) but still show agreement that interventions are beneficial. Open-ended responses confirm that teachers value the dashboard but also see opportunities for improvement. Teachers highlights the need for more detailed visualizations of student progress (e.g., number and scores of assignments per student), clearer representations of test results, and better integration with other platforms and tools. Some request faster system performance and more intuitive filtering options. Several comments highlight the need for instructor training to ensure correct interpretation of the data. Others suggest using generative AI to explain charts or to create automated recommendations for students. There are also requests for more flexible statistics and the possibility to generate combined reports from multiple courses.

3 Conclusions

In conclusion, the results of the teacher survey indicate that the piloting of the learning analytics dashboards within the ISILA project was successful and positively received across partner institutions. Teachers consistently evaluated the dashboards as clear, usable, and pedagogically valuable, with average ratings above 4.0 across almost all items. In particular, visualizations of student engagement and participation were highlighted as especially helpful, confirming that the dashboards effectively support teachers in monitoring learning processes and maintaining awareness of student activity throughout the course.

The findings also demonstrate that the dashboards actively informed teaching practice. Most teachers accessed the system multiple times during the course and

used it to implement targeted interventions, primarily through personalized feedback and individual support. Interventions were typically directed at a meaningful proportion of students, showing that the dashboards did not remain a passive monitoring tool but functioned as a practical instrument for early intervention. Teachers reported that the insights gained enabled them to adjust teaching strategies, refine course organization, and provide timely support, contributing to improved engagement and perceived student performance.

At the same time, the survey results highlight areas for further development. Variability in responses related to navigation, prediction of at-risk students, and certain visualizations suggests that improvements in interface design, reporting features, and predictive functionality would enhance the overall user experience. Teachers also expressed interest in additional training, clearer guidance for data interpretation, improved integration with other systems, and the introduction of more advanced features such as automated alerts and AI-supported recommendations.

Overall, the piloting phase confirms that learning analytics dashboards can meaningfully support early intervention strategies and enhance data-informed teaching practices. The positive intention of teachers to continue using the dashboards demonstrates their perceived long-term value. The feedback collected through Activity 4.4 provides a strong foundation for refining the platform and ensuring its sustainability, scalability, and continued alignment with teachers’ practical needs in real educational contexts