MIDA Research & Insights

Publication Date
March, 2024

The perspectives and analyses presented in this article reflect the research, fieldwork, and professional judgment of MIDA Learning Technologies' researchers and consultants.

Executive Summary

A survey of 73 K–12 educators examined how Defined Learning supports project-based learning. Respondents most often used the platform for enrichment, with particularly strong integration in science. Teachers reported positive perceived effects on student engagement, teamwork, collaboration, communication, and academic performance. Findings also identified opportunities to expand instructional use and strengthen the adoption of Student-Led Academic Teams.

Horizon Valley School District

Report of Teacher Demographics and Perceptions Regarding Defined Learning

Confidentiality Notice

Horizon Valley School District is a fictitious name used throughout this report. The client's identity has been withheld to honor confidentiality restrictions. The response counts, findings, and analyses are retained from the original study

Michael Speziale, Ed.D.

Introduction

In March 2024, a survey was conducted among the educators of Horizon Valley School District to gather insights into their experiences and engagement with project-based learning (PBL). With a focus on utilizing Defined Learning, a platform designed to enhance educational experiences through PBL, the survey sought to understand how teachers are integrating PBL into their classrooms, the subjects most influenced by it, and the perceived impact of PBL on student outcomes. This summary aims to provide a detailed overview of the findings from the 73 respondents.

Participant Demographics

The survey participants represented a wide range of grade levels, from elementary to high school, highlighting the diverse application of PBL across educational stages. The most common grade taught was Grade 6, while the "Other" category, indicating non-graded educators, was the least represented.

Application of Defined Learning

Defined Learning has been primarily used for enrichment purposes, indicating its value in offering students extended learning opportunities. Instructional use followed, showing its role in the core teaching process, whereas assessment and other purposes, such as project ideation and skills reinforcement, were less common.

Project Engagement

The frequency of project engagement varied, with the majority of educators having completed between 1 to 4 projects since the start of the academic year. This suggests a cautious but growing adoption of PBL practices among the educators.

Subject Integration

PBL finds its most significant application in Science, with an 82% adoption rate among science teachers, followed closely by other subjects such as Mathematics, English Language Arts (ELA), and Social Studies. The lowest incorporation was observed in English, indicating potential areas for further PBL integration.

Impact on Student Outcomes

The perceived impact of PBL on student engagement, academic performance, teamwork, collaboration, and communication was overwhelmingly positive. Teachers reported notable improvements in student engagement and teamwork, with average scores indicating a substantial positive change in these areas. Academic performance and communication also saw positive impacts, albeit with a slightly wider variation in teacher experiences.

- **Student Engagement**: Teachers observed a significant boost in engagement, with most responses indicating substantial positive change.
- **Academic Performance**: There was a moderately positive effect on performance, though experiences varied more in this area.
- **Teamwork and Collaboration**: A notable improvement in these skills was reported, with a majority of teachers witnessing positive changes.
- **Communication**: Similar to teamwork and collaboration, communication skills among students were seen to improve considerably.

Student-Led Academic Teams (SLAT

The adoption of SLAT in PBL classrooms is still in its infancy, with a significant number of teachers yet to start or just beginning to integrate these strategies. This suggests room for growth in the use of formalized academic teaming processes within the PBL framework.

Data Collection

In the exploration of teacher experiences with Defined Learning within the framework of project-based learning (PBL), our research methodology centered around a concise yet comprehensive survey instrument. The primary aim was to gather both quantitative and qualitative data that would shed light on the educators' demographic backgrounds, their practical applications of Defined Learning in the classroom, and their subjective perceptions of its impact on both teaching practices and student outcomes.

This survey consisted of 11 carefully designed questions, ensuring a balanced approach to collecting meaningful data without imposing a significant time burden on respondents. The initial portion of the survey sought to capture essential demographic information, including grade levels taught, subjects handled, and the educational setting in which the teachers operated. This foundational data was critical in contextualizing the subsequent findings and allowing for a nuanced analysis of how PBL via Defined Learning varies across different educational contexts and disciplines.

Following the demographic section, the survey delved into specific aspects of how teachers are utilizing Defined Learning within their PBL initiatives. Questions in this section were crafted to identify the multifaceted roles that Defined Learning plays in the classroom, encompassing instruction, enrichment, assessment, and other innovative applications. Teachers were invited to share not only the frequency of their engagement with Defined Learning projects but also the diversity of subjects these projects spanned, offering insights into the adaptability and scope of PBL strategies across the curriculum.

The core of the survey focused on teacher perceptions regarding the impact of PBL and Defined Learning on student learning and engagement. This segment employed a Likert scale to gauge educators' observations of changes in student engagement, academic performance, teamwork, collaboration, and communication skills. Such a scaled approach enabled the collection of data that reflects the degree of perceived impact, facilitating an analysis of PBL's effectiveness in fostering essential academic and social competencies among students.

In conclusion, the survey was designed to capture a holistic picture of how Defined Learning is being integrated into project-based learning environments across Horizon Valley School District. By balancing demographic inquiries with detailed questions on usage, perceptions, and outcomes, the survey instrument serves as a vital tool in assessing the current state of PBL implementation and its impact on the educational ecosystem. This methodology ensures that the findings presented in this report are grounded in comprehensive and authentic teacher experiences, offering valuable perspectives on the journey towards more engaging, effective, and student-centered learning methodologies.

Sample

A variety of grade levels were represented in the overall sample. The breakdown was as follows:

- Grade 6 is the most frequently taught, with 14 teachers indicating they teach this grade.
- Grades 1, 3, 4, and 5 are also commonly taught, with 10 to 13 responses each.
- Grades 2, 7, 8, 9, 10, 11, 12, and 13 have similar frequencies, ranging from 7 to 12 teachers.
- Other (non-graded) is the least frequently appearing, with only 3 educators indicating they were in this category.

How Are Teachers Using Defined Learning?

Teachers were asked to identify how they are using Defined Learning in the project-based environment. They were given choices of instruction, enrichment, assessment or other. In many cases, teachers are using the platform for multiple purposes.

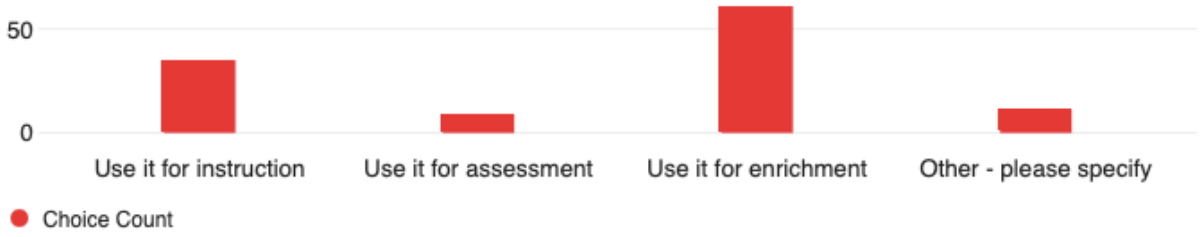


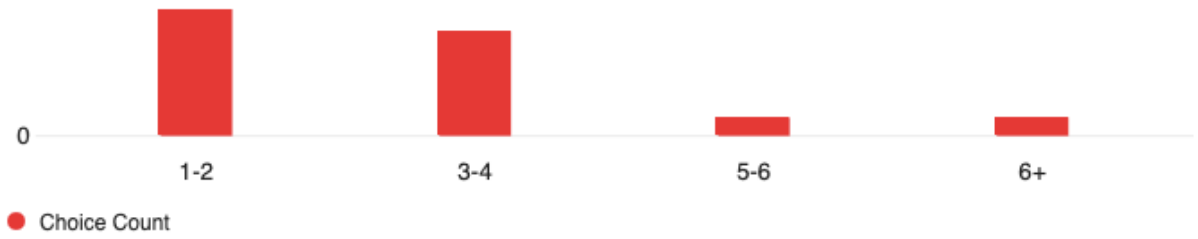
Figure 1: Breakdown of Strategies Employing Defined Learning

- Instruction: 34 teachers are using Defined Learning for instructional purposes.
- Assessment: 9 teachers are using it for assessment.
- Enrichment: This is the most common use, with 60 teachers using Defined Learning for enrichment activities.
- Other: 11 teachers indicated they use Defined Learning for other purposes not listed in the categories provided. Other unique applications that were mentioned include:
    - applying knowledge
    - collaborative projects across the school to create a theater production
    - I have used for Defined Learning to generate ideas and a few tasks. I take what I have done in the past, the ideas from Defined Learning, student interests, standards, and time limitations to help with spiral review to prepare all year for the PM 3's in ELA, Math, Science, and Writing.
    - I plan to use it at the end of the year after the state end of course test
    - I sometimes use Defined Learning for ideas to introduce content.
    - I use it as a guide to create PBL lessons. This allows the focus to be on the content of the lesson rather than who gets to use the computer and if the computer is being used appropriately.
    - I use it to get ideas for tasks to do with my students that I can alter to fit my need.
    - skill Practice/Review
    - reinforcement

Enrichment is the predominant use of Defined Learning among the teachers who responded, suggesting that they find it particularly valuable for providing additional learning opportunities beyond the standard curriculum. Instruction also has a significant number of users, indicating its role in the regular teaching process. Assessment and other uses are less common, with assessment being the least reported use.

How Many Tasks to Date

Teachers were asked to share the number of tasks that they have completed from the beginning of the academic year. The factor that is not present in this question is the duration of a project. It is a simple count of how many projects teachers have engaged in with their students. The majority of teachers fall into the 1-4 projects combined category.



What Subjects?

Figure 2 provides data on the number of teachers who teach various subjects and those who incorporate project-based learning (PBL) in those subjects.

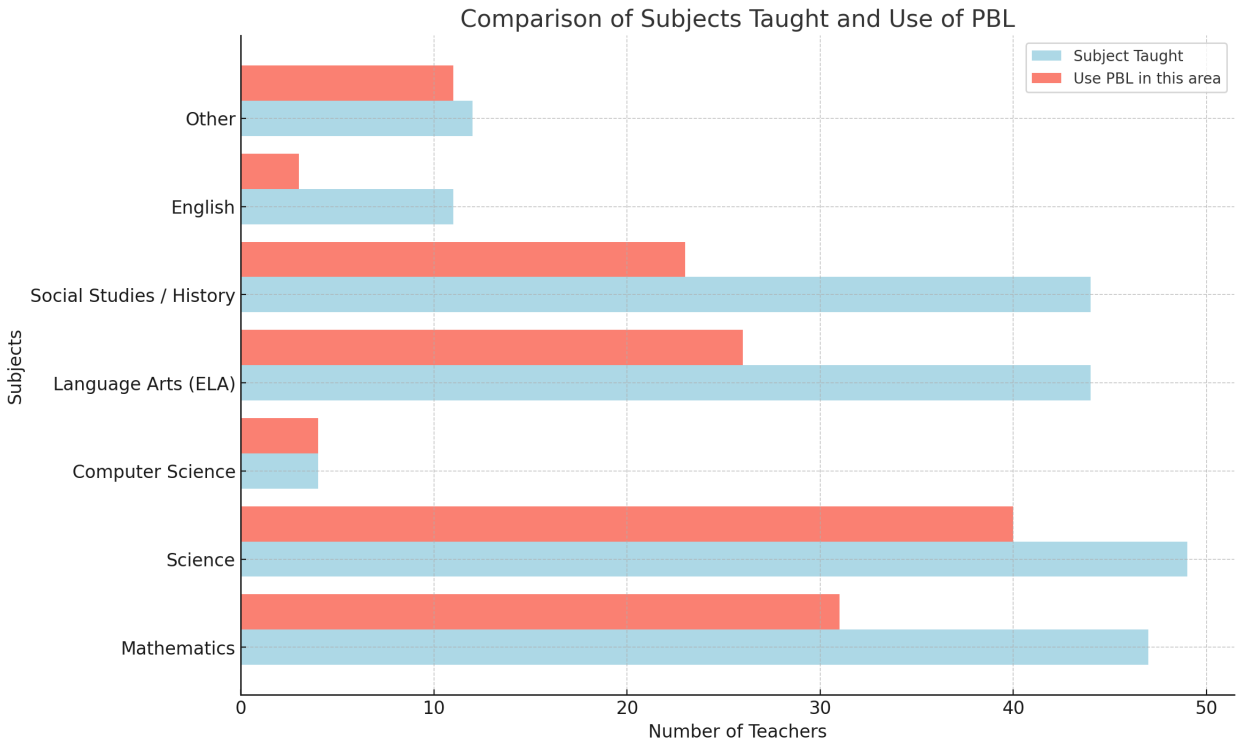


Figure 2: Subject taught and areas of PBL inclusion.

Figure 2 summarizes how teachers are using project-based learning (PBL) in different subjects. The blue bars represent the number of teachers who teach each subject, and the salmon bars represent the number of teachers who use PBL in that subject. It's evident from the chart that while a substantial number of teachers teach Mathematics, Science, Language Arts (ELA), and Social Studies/History, a

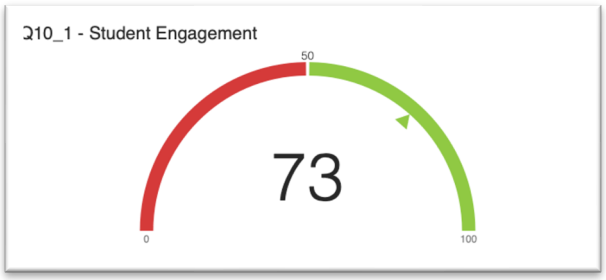
relatively high percentage of them also incorporate PBL into their teaching, especially in Science. The numeric breakdown is as follows.

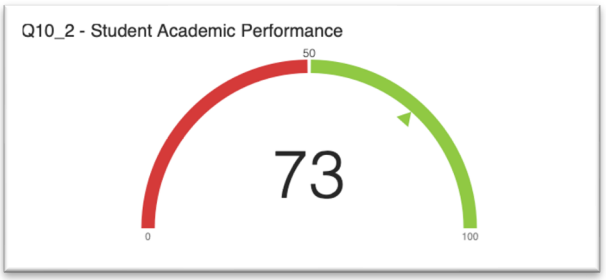
- Mathematics: 47 teachers teach this subject, and 31 of them use PBL in their instruction.
- Science: Out of 49 teachers teaching science, a substantial number, 40, apply PBL in their teaching.
- Computer Science: It is taught by 4 teachers, all of whom use PBL in their instruction.
- English Language Arts (ELA): 44 teachers teach ELA, with 26 of them using PBL.
- Social Studies / History: This subject is taught by 44 teachers, and 23 of them incorporate PBL in their teaching.
- English: 11 teachers are teaching English, but only 3 use PBL.
- Other: 12 teachers indicated they teach subjects categorized as Other, and 11 of them use PBL.

This data suggests that science teachers have the highest incorporation of PBL, with approximately 82% of them using it. On the other hand, English has the lowest incorporation, with about 27% of the teachers using PBL. Overall, there's a considerable uptake of PBL across different subjects, with many teachers adopting this method in their teaching practice.

Teacher Perceptions of PBL Impact

Teachers were asked to compare their experiences in a traditional classroom setting to those in a project-based learning setting. They were asked to consider student behaviors in four areas and report on how much, if any, progress they had observed in each area. The dashboard below summarizes the four areas, including student engagement, student academic performance, teamwork and collaboration and communication. Calculating a mean of all responses shows that teachers have an overall favorable perception of the impact PBL and Defriend Learning is having on students in their classrooms. Below the dashboard, data is broken out in more detail for each individual area.





Student Engagement

The data collected from 73 responses regarding teacher impressions of student engagement in a project-based learning environment shows that, on a scale from 1 (no change) to 100 (a great deal of positive change), the average score is approximately 77.95. This suggests a generally positive effect on student engagement due to project-based learning.

The standard deviation is around 21.03, indicating some variability in the responses. The lowest score recorded is 9, which suggests that at least one teacher observed almost no change, while the highest score is 100, which several teachers attributed to observing a great deal of positive change.

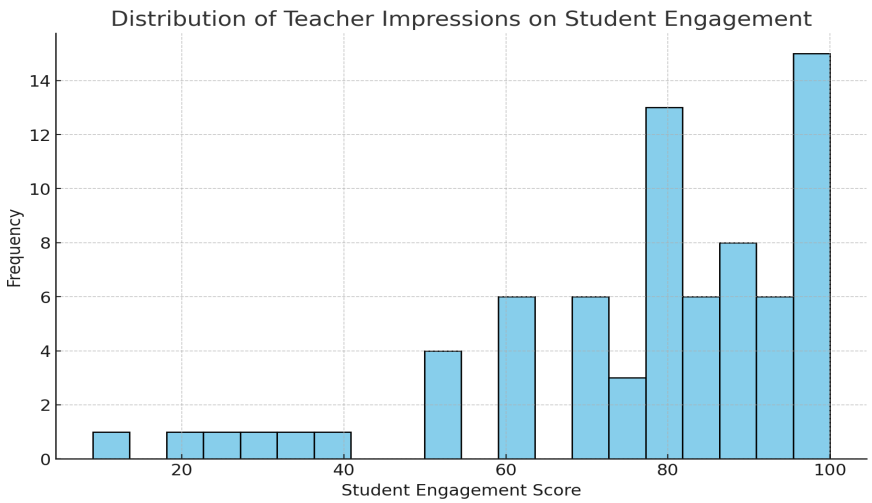


Figure 3: Student Engagement

The majority of scores are clustered between 70 and 100, as shown by the 25th percentile (70) and the 75th percentile (94), suggesting that most teachers observe a significant positive change in student engagement when compared to a traditional classroom setting.

The histogram displays this distribution and confirms that most responses are positively skewed towards higher engagement, with a peak in the highest score category. There is a small number of outliers or lower scores, which might represent specific circumstances or contexts where project-based learning did not result in as much positive change in student engagement.

Student Academic Performance

The analysis of 73 responses regarding teacher observations of student academic performance in a project-based learning environment shows the following:

The average score is approximately 68.56 on a scale from 1 (no change) to 100 (a great deal of positive change). This indicates a moderately positive effect of project-based learning on student academic performance when compared to traditional classroom settings.

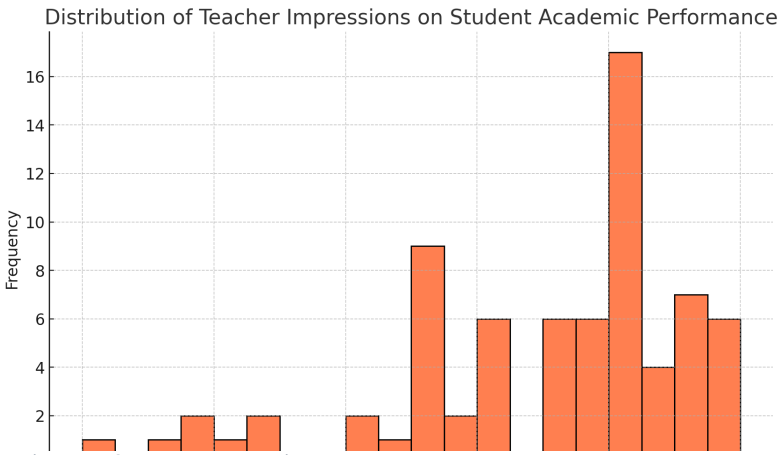


Figure 4: Student Academic Performance

The standard deviation is about 22.89, which shows a fair amount of variation in the responses. This suggests that teachers have had a range of experiences with the impact of project-based learning on student academic performance.

The minimum score reported is 0, which indicates that at least one teacher observed no positive change or possibly a negative change. Conversely, the maximum score is 100, indicating that some teachers saw a significant positive change.

The median score is 76, which is relatively high, indicating that more than half of the teachers observed a substantial positive impact on student academic performance due to project-based learning.

The 25th percentile is at 54, and the 75th percentile is at 82, implying that most teachers' observations fall within this range.

The histogram visually presents this information, showing a distribution that leans towards higher scores, but with a wider spread of responses compared to student engagement. There is a noticeable number of lower scores, suggesting that while many teachers see improvements, the impact on academic performance might be more varied than on engagement.

Teamwork and Collaboration

The data on teacher observations of teamwork and collaboration in a project-based learning environment has been analyzed with the following findings from 72 responses:

The mean score is approximately 76.97, which reflects a positive impact of project-based learning on teamwork and collaboration.

The standard deviation is around 24.73, indicating a considerable range in the teachers' observations.

The minimum score is 1, showing that at least one teacher observed very little positive change, while the maximum score is 100, with numerous teachers observing a great deal of positive change.

The median score is 82, suggesting that more than half of the teachers see good improvement in teamwork and collaboration with project-based learning.

With the 25th percentile at 70 and the 75th percentile at 93.25, most of the observations are weighted towards higher effectiveness in teamwork and collaboration.

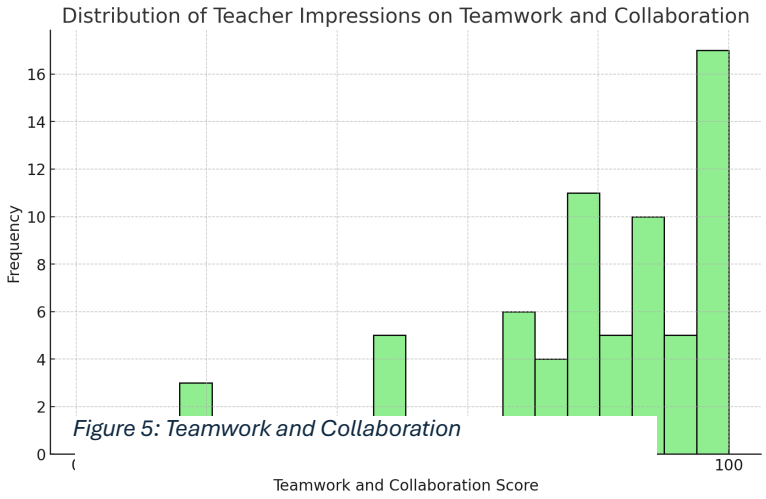


Figure 5: Teamwork and Collaboration

The histogram, presented in light green, visually supports these conclusions, demonstrating a substantial number of responses in the higher score brackets, but also showing some variability with a few lower scores. This variability indicates that the impact of project-based learning on teamwork and collaboration is generally positive but can differ depending on the context or implementation.

Communication

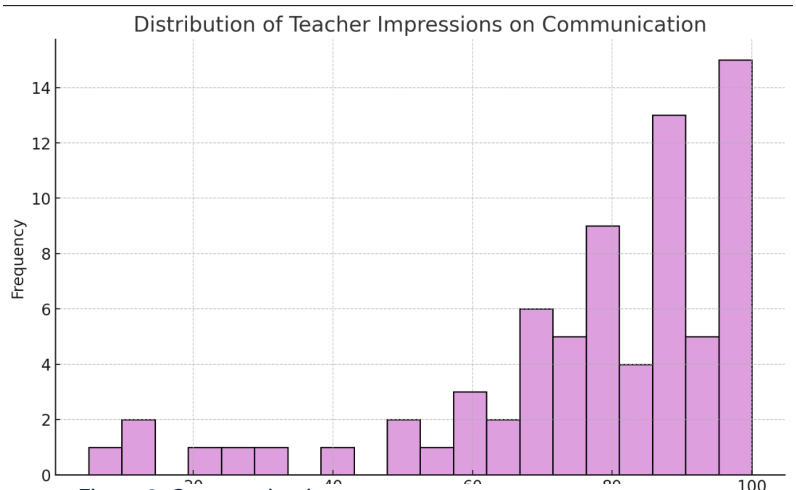


Figure 6: Communication

The analysis of teacher observations on student communication in a project-based learning environment is based on 72 responses and yields the following insights:

The mean score is approximately 77.38, indicating that teachers generally perceive a positive influence of project-based learning on student communication.

The standard deviation is 23.09, which is quite wide and suggests there is considerable variation in how teachers view the impact on communication skills.

The lowest score is 5, showing minimal change or improvement as perceived by at least one teacher. The highest score is 100, indicating that some teachers see a very significant positive impact on communication.

The median score is 84, which shows that more than half of the teachers observed good improvement in communication with project-based learning.

The scores are largely spread out, with the 25th percentile at 70 and the 75th percentile at 91.5, indicating that while many teachers note improvements, experiences vary widely.

The histogram, displayed in plum color, illustrates this spread of scores, with a heavy concentration of responses in the higher score region but also a tail extending into the lower scores, reflecting a varied perception of the impact on communication.

Student Led Academic Teams

The question posed to teachers was:

Are you using the formalized strategies for Student Led Academic Teams (SLAT) and the formalized academic teaming process in your project-based learning classroom?

The summary of the responses to the question regarding the use of Student Led Academic Teaming (SLAT) in project-based learning classrooms from teachers is as follows:

- 43 teachers indicated a status of 1, meaning they have not yet started using SLAT.
- 19 teachers reported a status of 2, indicating they are just getting started with SLAT.
- 11 teachers indicated a status of 3, meaning they are using SLAT extensively.

It seems that a significant number of teachers have not yet implemented SLAT in their teaching, while a smaller group has either just started or is using it extensively.

Report Summary

This interim report analyzes survey data from 73 teachers within Horizon Valley School District who are incorporating project-based learning (PBL) into their classrooms. The focus was on understanding how teachers are using Defined Learning, the types of PBL projects they are undertaking, and their perceived impact of PBL on key student outcomes.

Key Findings

- **Diverse Grade-Level Representation:** Teachers from a wide range of grade levels, including elementary, middle, and high school, are utilizing PBL.
- **Enrichment Focus:** The most common application of Defined Learning is for enrichment activities, followed by instruction. Assessment is the least frequently reported use.
- **Subject Area Integration:** PBL is prominently used in Science, with strong uptake in Mathematics, ELA, and Social Studies. English has the lowest PBL integration.
- **Positive Perceptions of Impact:** Overall, teachers report positive changes in student outcomes due to PBL. The strongest positive impacts were observed in student engagement, teamwork & collaboration, and communication. Student academic performance also showed improvement, though with some variation in teacher responses.
- **Varied SLAT Implementation:** Adoption of Student Led Academic Teams (SLAT) is mixed. Many teachers have not yet begun implementation, while others are either starting or using it extensively.

Considerations and Future Research

- **Factors influencing PBL success:** It would be valuable to explore the factors that contribute to the variation in teacher responses about the impact of PBL on student academic performance.

- **Long-term effects:** Further research could track changes over time and explore whether the positive PBL effects are sustained.
- **SLAT and student outcomes:** Investigating the relationship between SLAT implementation and student outcomes could illuminate its effectiveness within the PBL framework.

Conclusion

This report provides initial insights into the adoption and perceived impact of project-based learning in Horizon Valley School District. Findings suggest positive effects on student engagement, behavior, and learning outcomes.

The interim report on the experiences of Horizon Valley School District' teachers with PBL reveals a positive reception and impactful outcomes associated with the integration of project-based learning and Defined Learning into the educational curriculum. While enrichment remains the predominant use of Defined Learning, the application for instructional purposes underscores its role in supporting the core educational process. The significant impact on student engagement, teamwork, collaboration, and communication highlights PBL's potential to enhance student learning experiences and outcomes. However, the varied adoption and integration across different subjects and the nascent use of SLAT indicate areas for further development and exploration in maximizing the benefits of project-based learning in educational settings.

About MIDA Learning Technologies

MIDA helps education leaders, institutions, funders, and innovators understand what works, improve implementation, and turn evidence into confident decisions.

www.midalearning.com

mspeziale@midalearning.com