INNOVATION GRANT POOL — CONCEPT BRIEF

Tapping What Teachers Already Know:

Three Examples of Classroom Innovation Ready to Scale

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The Core Idea Behind the Innovation Grant Pool

Every school district runs professional development. Most of it flows one direction: from administrators and outside consultants down to teachers. The Innovation Grant Pool is built on a different premise — that the most valuable instructional knowledge in the Sioux Falls School District already exists inside the district, inside the classrooms, inside the grade books of teachers who have quietly developed better ways of doing things.

The Grant Pool's purpose is to find those teachers, validate what they have built, and create a pathway to share it with colleagues teaching the same subjects at the same grade levels. The cost to the district is minimal. The impact can be district-wide.

The three examples below are real. They come from classroom practice, not theory. Each one started as something a single teacher figured out — and each one is ready to scale.

1	Core Question Identification: Teaching to the Test — Done Right	*Scalable to District Level*

During World War II, the U.S. military faced a costly problem: too many planes were being shot down. Engineers studied the bullet holes on aircraft returning from combat missions and mapped where the damage clustered. The generals' instinct was to reinforce those areas with more armor. Statistician Abraham Wald said no — put the armor where there are no bullet holes.

His reasoning was precise: the planes with bullet holes in those areas had made it back. The planes that were shot down — the ones that never returned — were the ones hit somewhere else. The generals were drawing conclusions from the survivors and ignoring the missing evidence entirely. Wald called this survivorship bias.

The same error is made in almost every school in America when teachers analyze test results.

The typical PD approach tells teachers to find the question most students got wrong and reteach it. That sounds logical — but the analysis starts from a corrupted sample. A student who is guessing randomly on a multiple-choice exam will answer roughly 25% of questions correctly by chance alone. When failing students are included in the data, their random responses drown out the signal. The analysis is studying the wrong planes.

What One Teacher Figured Out

- Sort out the students who failed the exam before beginning any analysis. Their responses may reflect guessing, not instruction.
- From the students who passed, identify the minimum number of correct answers required to pass.
- Find the specific questions that the majority of passing students answered correctly — these form the "core."
- The core is what students need to walk into the exam knowing in order to have a reasonable expectation of passing.
- Repeat the same process at higher thresholds (e.g., the questions needed to score an 80) to build a tiered mastery map.

The Insight	Wald's lesson was to stop studying the planes that came back and start asking why the others didn't. In the classroom, that means removing the failing students from the analysis — not because they don't matter, but because their test responses don't tell you what was taught effectively. Once the noise is removed, the core becomes visible: the questions that passing students consistently got right. That is the armor that matters.

How This Scales

At the building level, the teacher who developed this method can demonstrate it to colleagues teaching the same course. One PD session, one spreadsheet, one shared framework.

But the larger opportunity is at the district level. For any city-wide standardized exam, this analysis can be performed centrally — once — by the district's curriculum team. The results (a clear picture of the core questions needed to hit each performance threshold) can then be distributed to every teacher in the district whose students take that exam. The teachers do not need to learn the statistics. They need a brief PD session explaining how to use the analysis they are given.

At the Building Level	At the District Level
One teacher demonstrates the method to same-grade, same-subject colleagues. Can be done in a single department meeting or PD session.	District curriculum team runs the analysis on standardized exams. Results distributed to all relevant teachers. Near-zero cost. Potential city-wide impact on scores.

Cost to District	Essentially zero. The analysis requires a spreadsheet and one person who understands the method. The PD to explain the output to teachers is minimal. The potential upside — measurable improvement in standardized test scores across the district — is significant.

2	Predictive Grading: A Personalized Study Plan for Every Student	*Teacher-by-Teacher Adoption*

Personalized feedback for 30 students is not a fantasy — it is an engineering problem. The solution is a weighted grade prediction algorithm built directly from the teacher's own grade book. Using unit test scores weighted according to how heavily each unit appears on the final exam, the tool predicts each student's final exam grade before the exam is given.

The formula improves each year. After the exam, the teacher compares predicted scores against actual scores using a correlation coefficient and adjusts the weights accordingly. Over time, the algorithm becomes highly accurate — routinely reaching correlations of around 0.9.

What This Produces for Students

Before each final exam, the teacher generates a short report for every student containing two things: the predicted grade, and the single unit that — if studied — would yield the greatest score improvement for that specific student. This is personalized feedback at scale, produced automatically from data already in the grade book.

The Insight	The student is not told to "study more." They are told which unit to study more — ranked by expected return on their individual time investment. That is the difference between generic advice and genuine instruction.

Why This One Scales Differently

Ideas 1 and 3 involve standardized exam data that exists at the district level and can be analyzed centrally. This idea is different. It lives inside each teacher's grade book — and grade books vary. The district cannot and should not impose a single grade book structure on all teachers. That would defeat the purpose.

The right path here is demonstration followed by adoption. First, show that the method works and that teachers who use it see measurable improvement in how their students prepare for exams. Then, make adoption as easy as possible for everyone else.

The Role of AI in Making This Accessible

The underlying algorithms already exist in Microsoft Excel and Google Sheets — tools available on every teacher's computer. The barrier is not access to technology. The barrier is knowing how to set it up.

The solution is an AI-generated teacher handbook: a concise guide containing specific, tested prompts that allow any teacher to describe their own grade book structure to an AI assistant and receive a customized implementation — column formulas, weighting logic, and the correlation calculation — tailored to how they actually grade. No two grade books have to look the same. The AI handles the customization.

At the Building Level	At the District Level
Willing teachers pilot the method and share results with colleagues. Success stories become the case for broader adoption.	District commissions a short AI-prompt handbook. Any teacher in any building can use it to implement the tool in their own grade book without any additional training.

Cost to District	The cost of producing the AI-prompt handbook is minimal — a single project that, once complete, is available to every teacher in the district indefinitely. No licensing fees, no software purchase, no consultant retainer.

3 Unit Effectiveness Analysis: Finding What Works and What Needs Work

Scalable to District Level

The same grade book data that generates student study plans can be turned inward to give the teacher a diagnostic of their own instruction. By comparing how students performed on each unit test against how they performed on the corresponding questions of the final exam, a teacher can calculate — mathematically — which of their instructional units transferred to the high-stakes exam and which ones did not.

What One Teacher Figured Out

- After the final exam, sort the final exam questions by unit.

- Calculate the correlation between each student's unit test score and their score on that unit's questions on the final exam.
- Rank units from highest to lowest correlation.
- The highest-correlation unit identifies the teacher's strongest instructional approach — the one worth repeating and sharing.
- The lowest-correlation unit identifies where students understood the material in isolation but failed to retain or apply it on the exam — a very specific and solvable problem.

The Insight	Most teachers reflect on their teaching by instinct. This tool gives them evidence. When the weakest unit is identified, the teacher is not guessing at what went wrong — they have a starting point. The concept was taught, assessed, and understood — then lost. That is a different problem than never being understood, and it points toward different solutions.

How This Scales

At the building level, a teacher can share this analysis with colleagues who teach the same course and compare notes on which units are holding up and which are not. That conversation alone — grounded in data rather than opinion — is more valuable than most department meetings.

At the district level, for any course tied to a city-wide standardized exam, this analysis can be run centrally across all classrooms. The district can identify which instructional units, across all buildings, are correlating with exam performance and which are not — then direct targeted PD and curriculum support toward the weakest links. This is systemic improvement, not building-by-building guesswork.

At the Building Level	At the District Level
Teacher shares unit correlation results with same-course colleagues. Department-level conversation anchored in data, not opinion.	District runs the analysis across all classrooms for standardized-exam courses. Identifies district-wide instructional strengths and gaps. Directs PD and curriculum support accordingly.

Cost to District	Like Idea 1, this analysis requires a spreadsheet and someone who knows how to run it. The data already exists — unit test results and final exam results are already recorded. The cost is in organizing and running the analysis, not in acquiring anything new.

What the Innovation Grant Pool Makes Possible

These three ideas did not come from a consultant. They did not come from a PD vendor or a university research team. They came from a teacher who was trying to do a better job — and figured something out.

The Sioux Falls School District has hundreds of teachers. The odds are high that right now, in buildings across this city, other teachers have figured out other things. Methods that work. Approaches that help kids. Insights that never get shared because there is no mechanism for sharing them.

The Innovation Grant Pool is that mechanism. It creates a structured pathway for a teacher's idea to

move from one classroom to a building, and from a building to the district. The three examples above show the range of what that can look like:

- An idea that starts with one teacher and scales to city-wide impact on standardized test scores — at near-zero cost.
- An idea that respects teacher autonomy and uses AI to make adoption frictionless for everyone.
- An idea that gives the district, for the first time, an evidence-based map of where instruction is working and where it is not.

The Bottom Line

The knowledge the district needs to move the needle on student outcomes is already inside the district. The Innovation Grant Pool is not about bringing in new ideas from the outside. It is about unlocking the ideas that are already here — and giving them a pathway to reach every student in Sioux Falls.

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