Data-driven Instruction to Improve Learning and Teaching

Description: Data-driven instruction (DDI) enables teachers to make timely and targeted instructional adjustments in their classrooms in order to meet students' unique needs.

Rationale: When teachers who share content collaboratively analyze the results of common assessments, they are in a stronger position to identify root causes of students' learning gaps and make necessary adjustments to instruction. Through conducting item- or question-level analysis, teachers can pinpoint not only *what* mistakes occurred but *why* they occurred.

MAKING IT WORK: RESOURCE IMPLICATIONS

Implementing DDI will have implications for people, time, money and potentially technology in your school. These implications are noted below, alongside specific questions to answer during the planning process.
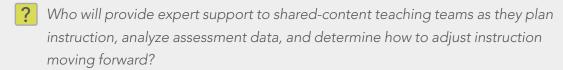
PEOPLE

- **Organize shared-content teaching teams:** Teachers need to work with peers who share the same grade- and subject-based content so they can plan backwards from common standards and analyze the results of common assessments. Each team should have a designated meeting facilitator to ensure that collaborative planning time (CPT) adheres to clear agendas and decision-making protocols in order to maximize participants' time. As much as possible, expertise should be balanced across teams.

> **?** *Who are the people who will form each shared-content team? To create teams where expertise is balanced, teacher reassignments and hiring may need to take place prior to the start of the school year.*

> **?** *Within each team, who will act as meeting facilitator, and what agenda and decision-making protocols will guide use of the CPT?*

- **Expert support:** Teaching teams require expert support on the following activities related to DDI:

  ○ Planning lesson units backwards from common assessments, which will help ensure instruction takes place at the correct level of rigor.

  ○ Question-level analysis of assessment results to identify where teachers need to adjust instruction and provide intervention.

○ Determining how to adjust instruction moving forward and designing appropriate interventions.

Outside of CPT, experts should have opportunities to observe teachers implementing instructional adjustments in order to provide coaching, and to identify common areas of development for the teaching team. Experts may take the form of administrators, coaches, external support providers, or teacher leaders depending on available expertise, and they may also serve as meeting facilitators. Note that expertise should ultimately be housed in the administrative staff but can be ramped up in the short term through temporarily relying on an external partner who is deeply familiar with content standards and the level of instructional rigor required for students to master them.

> **?** *Who will provide expert support to shared-content teaching teams as they plan instruction, analyze assessment data, and determine how to adjust instruction moving forward?*

TIME

- **Class time for the administration of common assessments:** Interim assessments need to be administered roughly every four to eight weeks. Typically each assessment requires 40 minutes for multiple choice question and 40 minutes for open-response questions; these sections can be administered on two separate days if necessary.

> **?** *When will common interim assessments be scheduled into the master calendar?*

- **Collaborative planning time for teachers:** Ongoing, teachers typically need the following type of time built into the schedule to support DDI:

  ○ A total of three to six hours in shared-content teams to plan backwards from each common interim assessment.

  ○ One-and-a-half to three hours to analyze assessment results and determine how to adjust instruction. Time required for these activities is likely higher during the Year 1 of implementation.

If sufficient expertise is available in-house, a school may consider having its teachers lead the development of common interim assessments during CPT with heavy support from administrators. This approach is time intensive: likely at least two to three months of teacher CPT will need to be set aside early in Year 1 of implementation to both develop and iterate on the content. When teachers develop the assessments directly, the resulting data may be perceived as more credible among staff members. If administrators do not have the time or expertise to closely oversee this process, however, an outside partner may be the better source of common assessments.

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> ? *When will teaching teams have scheduled time for 1) planning instruction backwards from interim assessments and related standards, 2) analyzing interim assessments results and determining how to adjust instruction moving forward?*
>
> ? *If staff plan to generate common interim assessments in-house, how much time will this approach require of teachers and administrators? When will this phase of work be scheduled into the master calendar, and when will the required time be schedule in the school day?*

- **Independent teacher planning time:** After a teacher receives the data report following the interim assessment, he or she typically needs one to two hours to analyze the results and generate hypotheses about why students did or did not demonstrate mastery over specific standards. These hypotheses help drive the discussion at the meeting with his or her team members.

> ? *Do teachers currently have sufficient independent planning time in their schedules to complete the pre-work needed for CPT? If not, when will this time be built into their schedules?*

- **Expert time:** Individuals responsible for providing expert support will need time outside of CPT to ensure DDI is implemented effectively. This includes the following:

  ○ Planning for CPT, which typically takes at least the length of the actual meeting.

    – Reviewing draft lesson plans that the team has designed as part of the backwards-planning process
    – Examining individual classrooms' interim assessment results
    – Identifying any trends across classrooms and specific opportunities for teachers to provide support or insight to their peers
    – Designing training to meet common development needs

  ○ Observing teachers' instruction and debriefing with them.

  ○ If responsible for an in-house internal data reporting system, troubleshooting any problems that arise.

> ? *How will experts' schedules be structured to ensure they have sufficient time for their responsibilities outside the formal facilitation of CPT?*

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- **Professional development:** Teachers need professional development in order to execute key tasks in DDI effectively, particularly in Year 1 of implementation. Learning new skills typically takes 15 to 20 hours during the start-up period, and mastery of these skills builds over the course of the first year. Common areas of development include how to interpret data reports, how to carry out question-level analysis with peers, and how to determine key strategies for correcting instruction.

> **?** *When will professional development in key parts of DDI take place in the master calendar, and how much time will be required of teachers and other staff members?*

MONEY

- **Professional development:** Schools with insufficient internal expertise in DDI may wish to rely on a vendor in the early stages of implementation. Schools that choose to contract with an external provider for support with planning backwards against standards or data analysis (such as The Achievement Network) will need to pay vendor fees that are based on the scope and duration of the contract. Other schools may choose to send a core group of staff to intensive training on DDI. If lead administrators are already familiar with DDI and able to lead professional development in-house, costs may be minimal.

> **?** *Given current levels of expertise in DDI, what's the best source of professional development for your teachers and other administrative staff?*

- **Assessments and data reports:** An external vendor will need to provide rigorous interim assessments and easy-to-read data reports if staff do not have the time or expertise to develop them in-house. Typically the vendor who provides professional development in DDI can also be contracted to provide the assessments and data reports.

> **?** *Where will rigorous interim assessments be sourced from, and at what cost?*

- **Data software and scantron machines:** If a school chooses to process the results of common interim assessments in-house, staff will require access to software to generate easy-to-read reports and scantrons for quick data entry. Associated costs are typically minimal and incurred largely in Year 1 of implementation.

> **?** *If data reports will be developed in-house, what type of technology is required to create them quickly and easily, and at what cost?*

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SUMMARY OF KEY QUESTIONS TO GUIDE THE PLANNING PROCESS

PEOPLE

- Who will form each shared-content team? To create teams where expertise is balanced, teacher reassignments and hiring may need to take place prior to the start of the school year.

- Within each team, who will act as meeting facilitator, and what agenda and decision-making protocols will guide use of the CPT?

- Who will provide expert support to shared-content teaching teams as they plan instruction, analyze assessment data, and determine how to adjust instruction moving forward?

TIME

- When will common interim assessments be scheduled into the master calendar?

- When will teaching teams have scheduled time for 1) planning instruction backwards from interim assessments and related standards, 2) analyzing interim assessments results and determining how to adjust instruction moving forward?

- If staff plan to generate common interim assessments in-house, how much time will this approach require of teachers and administrators? When will this phase of work be scheduled into the master calendar, and when will the required time be schedule in the school day?

- Do teachers currently have sufficient independent planning time in their schedules to complete the pre-work needed for CPT? If not, when will this time be built into their schedules?

- How will experts' schedules be structured to ensure they have sufficient time for their responsibilities outside the formal facilitation of CPT?

- When will professional development in key parts of DDI take place in the master calendar, and how much time will be required of teachers and other staff members?

MONEY

- Given current levels of expertise in DDI, what's the best source of professional development for your teachers and other administrative staff?

- Where will rigorous interim assessments be sourced from, and at what cost?

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- How will easy-to-read reports be generated quickly following the administration of common interim assessments, and at what cost?

- If data reports will be developed in-house, what type of technology is required to create them quickly and easily, and at what cost?

WATCH-OUTS/ CHALLENGES	IDEAS/TIPS
Teachers currently don't trust each other enough to share assessment results or collaborate closely.	• Because effective DDI depends heavily on a trusting, collaborative working environment, time may need to be set aside to develop stronger relationships. • Teachers may be more amenable to a new process if school leadership communicates that taking risks to improve instruction may involve early mistakes, and that these mistakes will not be held against them in the formal evaluation process.
Teachers may resist the additional time required to collaborate and analyze data.	• Administrators may need to identify how to repurpose existing staff time to DDI, and communicate transparently about what other work or initiatives will be deprioritized as a result. • Consider piloting DDI with one amenable teaching team and using positive results to build buy-in with the rest of staff.
It's hard to find enough time in the schedule for CPT.	• Schedule the CPT before or after school, adjacent to other planning blocks in the schedule. If contractual constraints prevent this, consider offering stipends for additional time. • Schedule periodic half or full "Data Days" into the calendar, either as part of or in addition to professional development days. If necessary, consider offering stipends for additional time.
Grade-level sizes are too small to support shared-content teams.	• Consider combining teachers across adjacent grades to analyze assessment results that focus on common concepts such as fractions or relying on evidence in a text. • Alternatively, consider forming cross-school shared-content teams. Note that master calendars and assessments will need to be aligned to advance.
The district already requires interim assessments, but they are poorly aligned with your school's curriculum and/or don't provide helpful data.	• Seek an exemption from district assessments from your central office and offer to provide your school's interim assessment results as a substitute.

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Other Resources:

Bambrick-Santoyo, P. (2010) *Driven by Data: A Practical Guide to Improve Instruction.*
Wiley Publications: Offers a step-by-step guide on how to implement DDI using interim
assessment cycles.

Achievement Network: www.achievementnetwork.org: A national, high-impact non-profit
specializing in DDI. Services include coaching, data reports, and other support for elementary and
middle schools.

Data-driven instruction at Queens Metropolitan High School

NEW YORK, NY

"The teachers' approach has definitely changed after implementing data-driven instruction. You can hear teachers talk more specifically about what students are mastering and what they need help on. It has personalized instruction a lot more...focusing on the data is where you can actually see a school make a huge jump in terms of student success and learning."

—Principal Greg Dutton

Context: Queens Metropolitan High School is a diverse urban high school serving 1,100 students in the New York City borough of Queens. When Greg Dutton became principal in 2012, only 62 percent of students were on track to graduate. Teachers administered assessments over the course of the year, but the resulting data was not harnessed to make significant improvements in student learning. The implementation of DDI served to organize teachers and students around a clear, cyclical method for identifying and quickly addressing gaps in student learning over the course of the school year.

RESOURCE IMPLICATIONS

PEOPLE

- **Teaching teams:** Teachers who share grade- and subject-specific content work in teams of three to five to develop common interim assessments and analyze the resulting data reports.

- **Expert support:** Content-specific assistant principals lead shared-content teaching teams in the development of common interim assessments, question-level analysis of assessment results, and the development of Corrective Instruction Action Plans.

TIME

- **Year 1 professional development:** During the first semester of Year 1, the majority of weekly one-hour department meetings were devoted to developing common assessments and learning how to carry out DDI.

- **Administering interim assessments:** One to two 45-minute class periods are used to administer the assessments every nine weeks over the course of the school year.

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- **Independent teacher time:** Following the generation of data reports on the interim assessment results, teachers review the results independently to arrive at hypotheses as to why the report's trends showed mastery or lack of mastery on specific standards or sub-standards.

- **Independent administrator time:** Aside from supporting teachers with the developmet of common assessments, administrators also review data reports prior to the team meeting in order to identify trends across classrooms and generate hypotheses as to why instructional techniques they have observed did or did not help students reach mastery.

- **Collaborative planning time:** Teachers have 45 minutes of daily CPT. Following independent analysis of interim assessment data reports, teachers typically spend one to two planning sessions with their assistant principal carrying out question-level analysis of the exam and developing Corrective Instruction Action Plans.

MONEY

- **Software and scantrons:** During Year 2 of implementation, the school purchased DataLink Connect for use schoolwide for less than $2,000. This software, accompanied by scantron machines, automated the production of easy-to-read data reports that disaggregated results by question, standard, and student proficiency. Teachers can now access these data reports as soon as they enter grades.

LEARNING FROM IMPLEMENTATION

- **Teacher-created interim assessments:** Although it took considerable time, the administration saw significant value in having teachers create their own assessments. The resulting data was more credible because teachers knew they were working with high-quality assessments.

- **In-house professional support:** Principal Greg Dutton and his assistant principals directly ran the professional development that teachers received in Year 1, with the assumption that expertise needed to be built up in-house. The use of new data reports and more advanced item analysis in Year 2 was piloted with a strong team of teachers first, who then led professional development on it with their colleagues.

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- **Flexibility on process:** When teachers needed more time to develop common assessments, or needed subject-specific accommodations to how assessments were structured, assistant principals worked with them to make it happen. The process was flexible based on need, but expectations for the outcome were kept consistent.

RESULTS

When Principal Greg Dutton assumed leadership of Queens Metropolitan High School in 2012, he made DDI a central part of the school's improvement efforts. Two years later, its student cohort outperformed peer schools statewide in math by 9 points and in English Language Arts by 10 points.[1] In 2015, U.S. News and World Report awarded Queens Metropolitan High School a Bronze medal in its national ranking of the best high schools in America.[2]

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1 http://data.nysed.gov/reportcard.php?instid=800000069161&year=2014&createreport=1&enrollment=1&freelunch=1&attendance =1&teacherqual=1&teacherturnover=1&staffcounts=1&hscompleters=1&hsnoncompleters=1&postgradcompleters=1&naep=1 &cohort=1&regents=1&rct=1&nyseslat=1&secondELA=1&secondMATH=1&unweighted=1&gradrate=1.

2 http://www.usnews.com/education/best-high-schools/new-york/districts/new-york-city-public-schools/queens-metropolitan-high -school-144692.

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Artifacts

Master Calendar of Key Stages in the DDI process:
http://bit.ly/2tK7Eq5

Corrective Action Instruction Template (blank):
http://bit.ly/2tDdSE9

Corrective Action Instruction Template (completed sample):
http://bit.ly/2tKzF0N

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