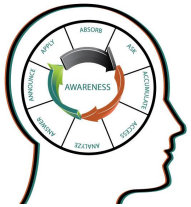

Develop Your Data Mindset

Module 2 - Data Standards and A+ Inquiry Framework

By Nathan Anderson, Amy Ova, Wendy Oliver, and Derrick Greer

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Learning Goals

- Increase knowledge of standards required for effective data utilization
- Increase knowledge of how data utilization standards may be synthesized using the A+ Inquiry framework

SLDS Data Use Standards

- S.1.B Alignment: Aligns question(s), type of data needed, and measurement tools (e.g., ASSESSMENTS, surveys, etc.) with goals and objectives

Overview

You're already aware that demographic, student learning, perception, school process, and behavior data are common data types in educational settings. You also know that these common data types are typically used in assessment, evaluation, and/or research processes.

In this module, we'll narrow our focus on knowledge, skills, and professional behaviors as standards for effective data use. We'll also take a look at how to put key standards into action by synthesizing them using the A+ Inquiry framework for effective data utilization.

Welcome Back

Welcome back from your summer break, teachers. I hope you enjoyed the time to work in your rooms and you met our Data Coach, who will be delivering this in-service. We are going to focus on data specific standards as well as a graphic organizer that will help you when identifying the purposes for which data are intended to be used to improve our school and help students reach their potential.

The standards describe essential knowledge, skills, and professional behaviors for effective use, while the A+ Inquiry framework illustrates how the data look in action. Just like there are standards driving what you teach every day, there are standards driving effective data use. When standards are ignored in math instruction, gaps of knowledge form and frustration grows among your students. When they are ignored in data instruction, gaps of knowledge form and frustration grows in you.

We want to move from frustration to true capacity.

Teacher Thought

If I know the stages of effective data use, I will be able to make evidence-based decisions that improve student learning.

SLDS Data Use Standards

3 sections comprising 14 subsections and 58 standards

Knowledge: 3 subsections comprising 17 standards

- Familiarity with the nature of data and concepts underlying data use; includes the learning and theory that education communities need as a foundation for using data to improve educational outcomes.

Skills: 7 subsections comprising 25 standards

- The ability to access, collect, analyze, interpret, act on, and communicate about data using appropriate tools and representations in a manner appropriate for the educator's professional role and responsibility.

Professional Behaviors: 4 subsections comprising 16 standards

- Habits of professional action based on values and beliefs that underlie an educator's practice as it is related to data use.

SLDS Data Use Standards - Knowledge

For example,

- Educators should know which questions can be answered with data, such as “Which students are at risk for poor performance?” or “Did a student improve performance from the beginning of the year to the end of the year?” (K.1.A)
- Educators should know what types of data they are collecting, such as demographic, perception, student learning, school process, and/or behavior. (K.1.C)
- Educators should know the differences, in form and function, between assessments, such as formative, interim benchmark, and summative. (K.1.D)

SLDS Data Use Standards - Skills

For example,

- Educators should be able to communicate a student's standardized assessment results to a variety of audiences, including the teacher's PLC colleagues, the student's parents, and the student. (S.6.C)
- Educators should be able to access the data they collect, such as being able to login to the NWEA web based reporting suite with their username and password and running the appropriate report. With this, educators know there are often many access points for data and they are aware of the benefits of using different access points for different purposes, such as knowing if they would like to see attendance with NWEA benchmark scores, logging into the ND SLDS is a better option than web based reporting from NWEA. (S.2.A)
- Educators should know how to analyze their formative assessment results to determine who in the class needs intervention, on-target instruction, and enrichment. With this, they know how to provide the feedback necessary to the students to announce and apply the results of their analyzing. (S.4.C)

SLDS Data Use Standards - Professional Behaviors

For example,

- Educators should act according to all rules and laws relevant to data utilization, such as ensuring a student's personally identifiable data is only shared with appropriate stakeholders, such as the school administrator or other colleagues who have a purpose for seeing the data, the student, and the student's parents. (B.2.A)
- Educators should make data utilization a priority by embedding data analysis and use into existing school initiatives, such as identifying strengths and weaknesses of individual students to guide differentiated instruction or evaluating the impact of a new instructional strategy implemented in the classroom. (B.3.D)
- Educators should use data as evidence to guide decisions and actions that improve achievement levels of students and educators. (B.4.C)

Activity

Indicate whether each data use standard subsection represents the knowledge, skills, or professional behaviors section

- Considerations: The knowledge of best practices regarding data use -
- Ethical use: Commits to proper use of data -
- Selecting: Locates, accesses, develops, and evaluates data sources -
- Rules and Regulations: Acts in accordance with the legal, social, and economic considerations involved in the use of data -
- Analyzing: Exhibits the technical skills necessary to examine data -
- Fundamental: The basic information needed to know how to use the data -
- Acting: Employs appropriate strategies based on findings -
- Collecting: Uses appropriate technologies and methods in acquiring data -
- Interpreting: Constructs meaning from data within a particular context -
- Planning: Strategies for data collection and management -
- Continuous Improvement: Embraces the challenge of evidence-based, continuous improvement and change through the use of data -
- Collaboration: Facilitates a collective effort to use and share data -
- Processing: The knowledge needed to understand actions that can be taken with data -
- Communicating: Conveys information about data -

Activity Answer

Indicate whether each data use standard subsection represents the knowledge, skills, or professional behaviors section

- Considerations: The knowledge of best practices regarding data use - Knowledge
- Ethical use: Commits to proper use of data - Professional Behaviors
- Selecting: Locates, accesses, develops, and evaluates data sources - Skills
- Rules and Regulations: Acts in accordance with the legal, social, and economic considerations involved in the use of data - Professional Behaviors
- Analyzing: Exhibits the technical skills necessary to examine data - Skills
- Fundamental: The basic information needed to know how to use the data - Knowledge
- Acting: Employs appropriate strategies based on findings - Skills
- Collecting: Uses appropriate technologies and methods in acquiring data - Skills
- Interpreting: Constructs meaning from data within a particular context - Skills
- Planning: Strategies for data collection and management - Skills
- Continuous Improvement: Embraces the challenge of evidence-based, continuous improvement and change through the use of data - Professional Behaviors
- Collaboration: Facilitates a collective effort to use and share data - Professional Behaviors
- Processing: The knowledge needed to understand actions that can be taken with data - Knowledge
- Communicating: Conveys information about data - Skills

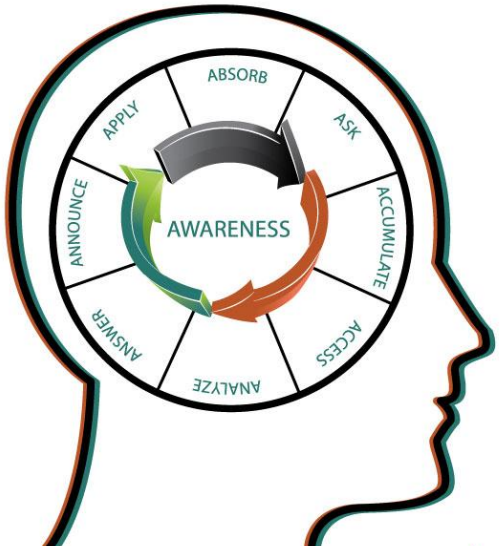
SLDS Data Use Standards

Now that we have a common understanding of some of the critical types of knowledge and skills required for effective data use, we will discuss how the knowledge, skills, and professional behaviors work together to ensure that data are used effectively, or, in other words, to ensure that the data have an intended purpose and that they serve their intended purpose by using the A+ Inquiry framework.

SLDS Data Use Standards and A+ Inquiry

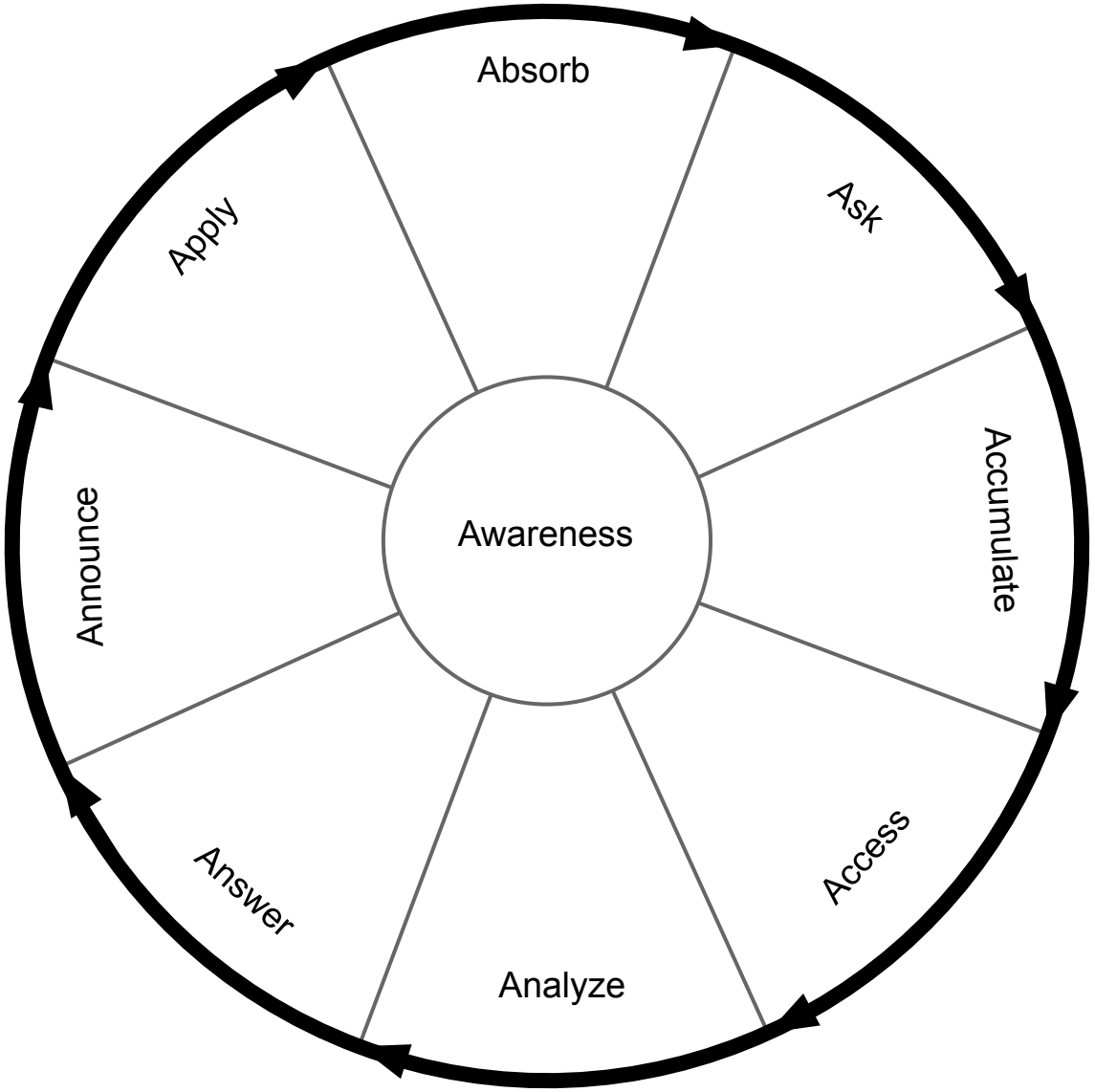
Using the A+ Inquiry framework with standards will help us this year as we…

- Train teachers and administrators the knowledge and skills required for effective data use.
- Build common language to engage in data conversations and initiatives.
- Establish rationale for previous or upcoming decisions and actions (evidence-based decision making).
- Diagnose gaps in the inquiry process
  - Do data help answer important questions?
  - Are data accessible?
  - Are we collecting the correct data?



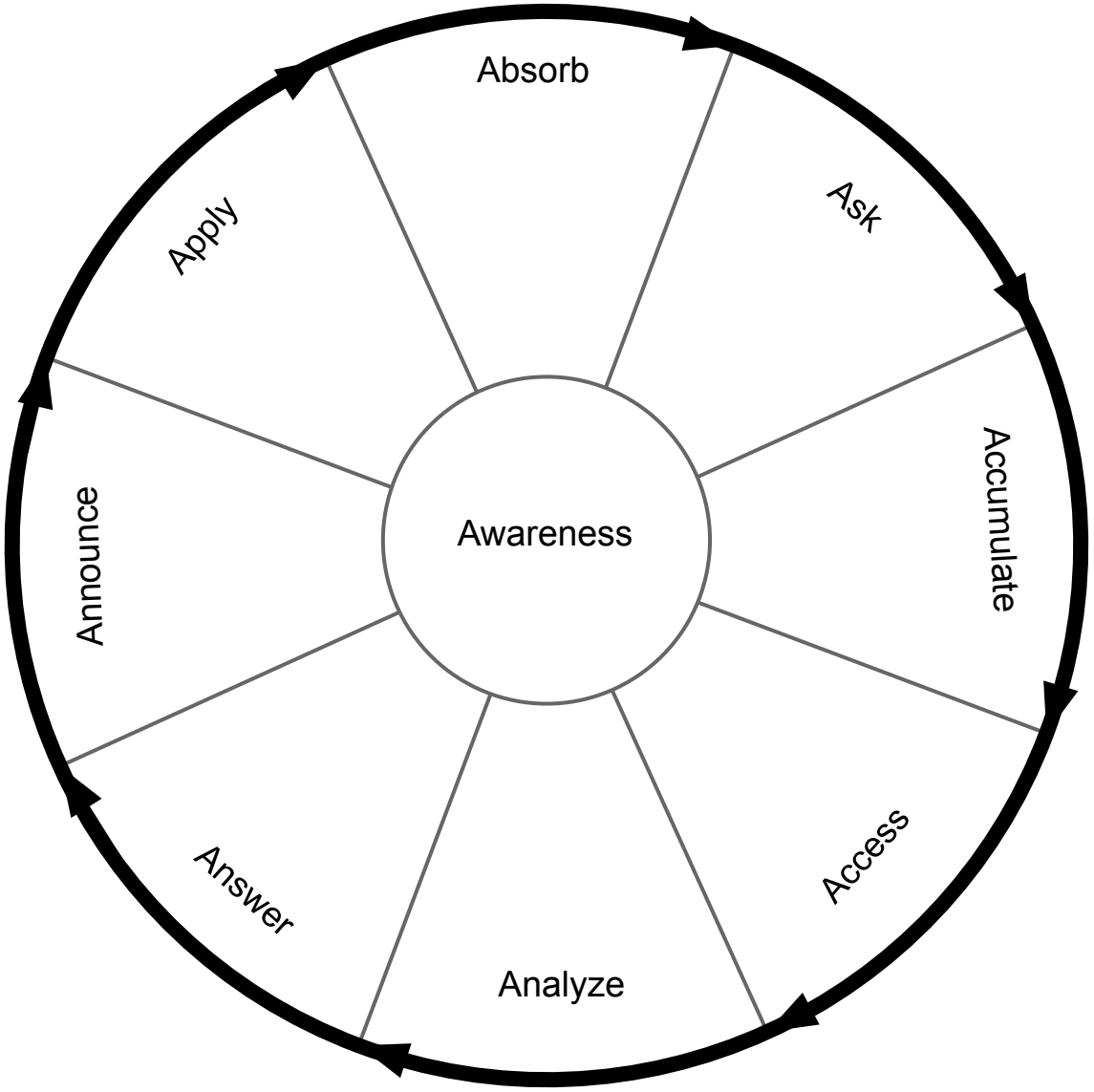
A+ Inquiry

The model includes 8 sequential stages connected by a hub in the center. Each stage and the hub begin with the letter “A,” hence the title of “A+ Inquiry.” Ideally, the use of alliteration and the wheel graphic of the cycle will help you to remember the stages. The stages include *Absorbing* a context, *Asking* a question, *Accumulating* data, *Accessing* data, *Analyzing* data, *Answering* the question, *Announcing* the answer, and *Applying* decisions and actions based on the answer.



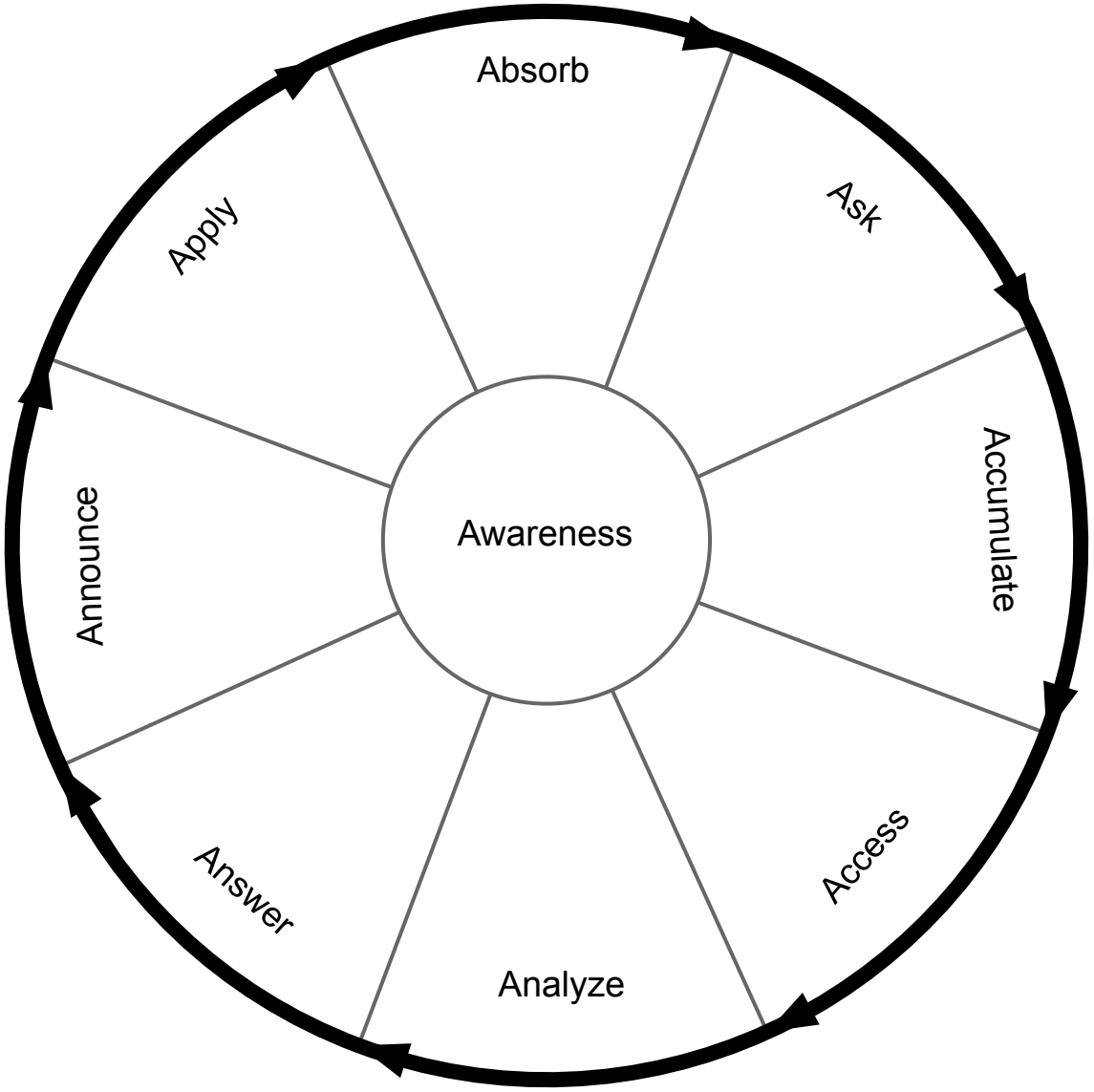
A+ Inquiry

If any of these stages is not addressed, the process will be incomplete and you could very easily become frustrated. At the center of all the stages is a hub of Awareness. *Awareness* represents a data user's ongoing understanding of all stages that allow data to work effectively.



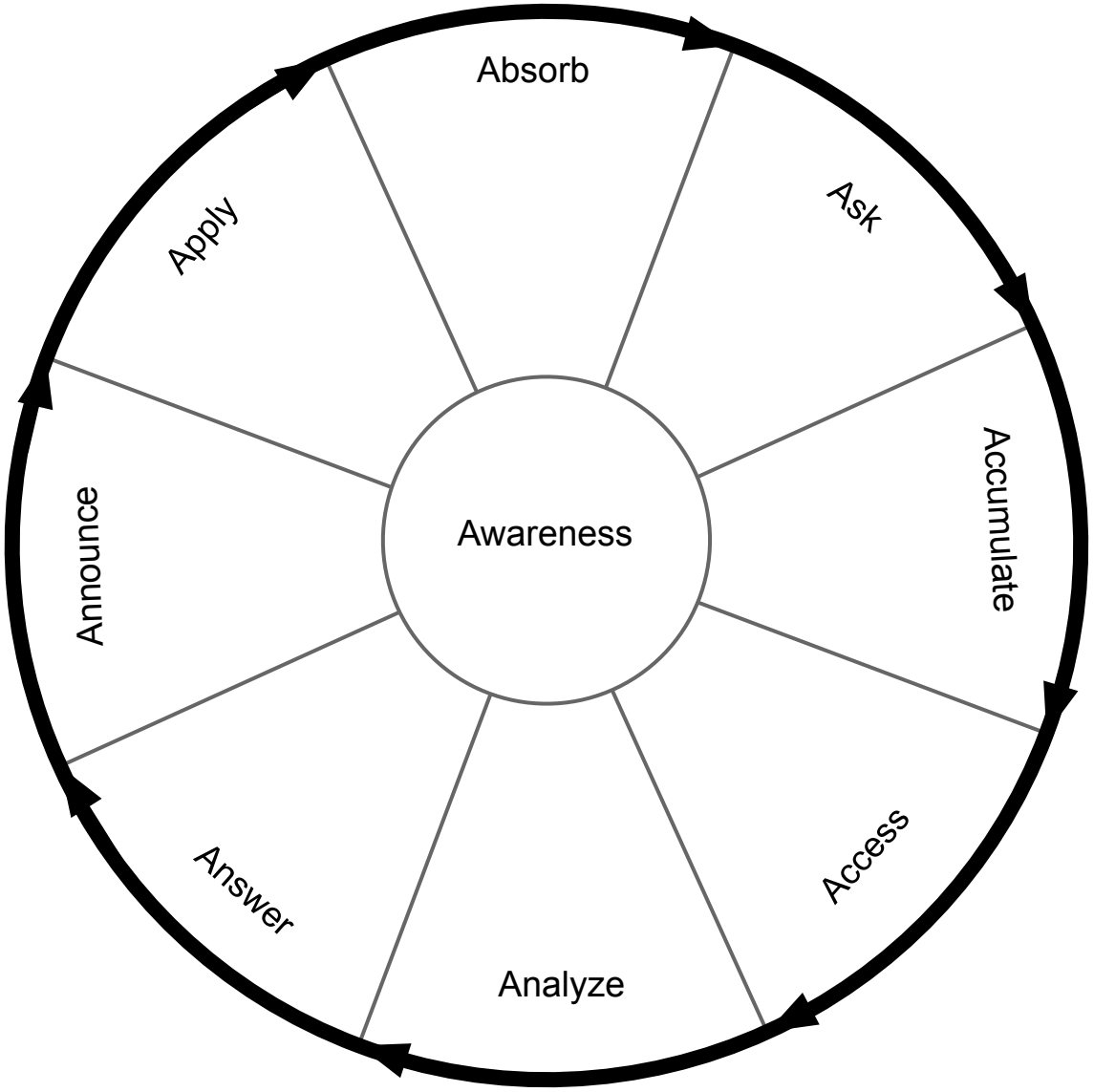
A+ Inquiry

In the *Absorb* stage, you identify a need to know more about something. In the *Ask* stage, you pose a set of questions that, if answered, will provide a better understanding of that which is not known. In the *Accumulate* stage, you determine if data required to answer the questions have already been collected or specify and implement methods to collect new data if needed. In the *Access* stage, you retrieve collected data from a data source.



A+ Inquiry

In the *Analyze* stage, you conduct analysis of the retrieved data. In the *Answer* stage, you respond to the initially posed questions and identify limitations and implications of the findings. In the *Announce* stage, you communicate findings to appropriate stakeholders. In the *Apply* stage, you make decisions and take action, if needed, based on the answer.

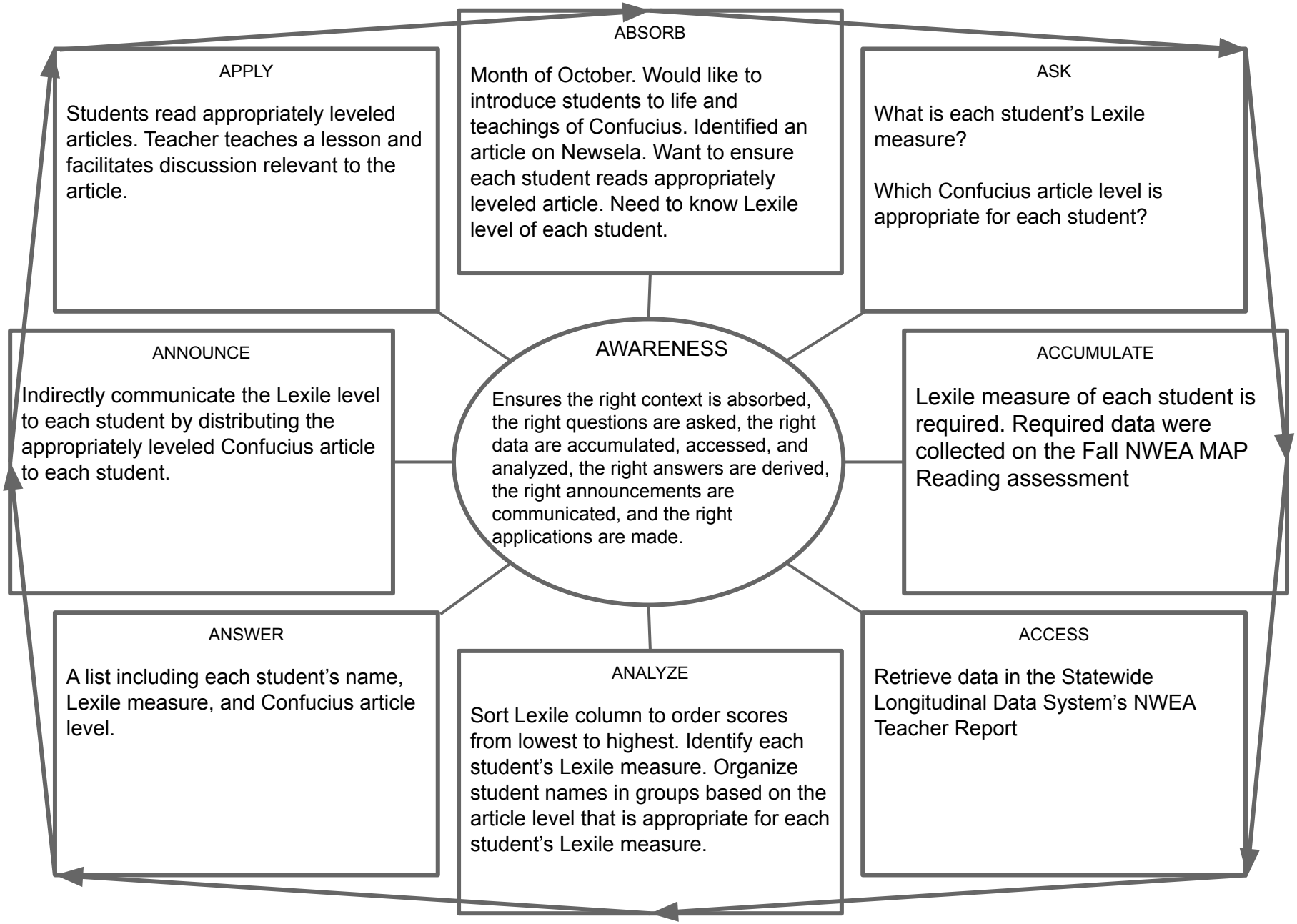


A+ Inquiry

Imagine if you knew this framework when I visited you in your room to review last year's scores. In addition, let's say your students completed a standardized reading assessment on the computer a couple weeks ago. Instead of logging in and viewing the data with no purpose or knowledge of how to proceed, you could have spent some time looking at in and then making some changes based on what you learned.

Using the A+ Inquiry framework, we could have walked through the stages of the cycle too. See the next slide for an example.

A+ INQUIRY
GRAPHIC ORGANIZER



A+ Inquiry

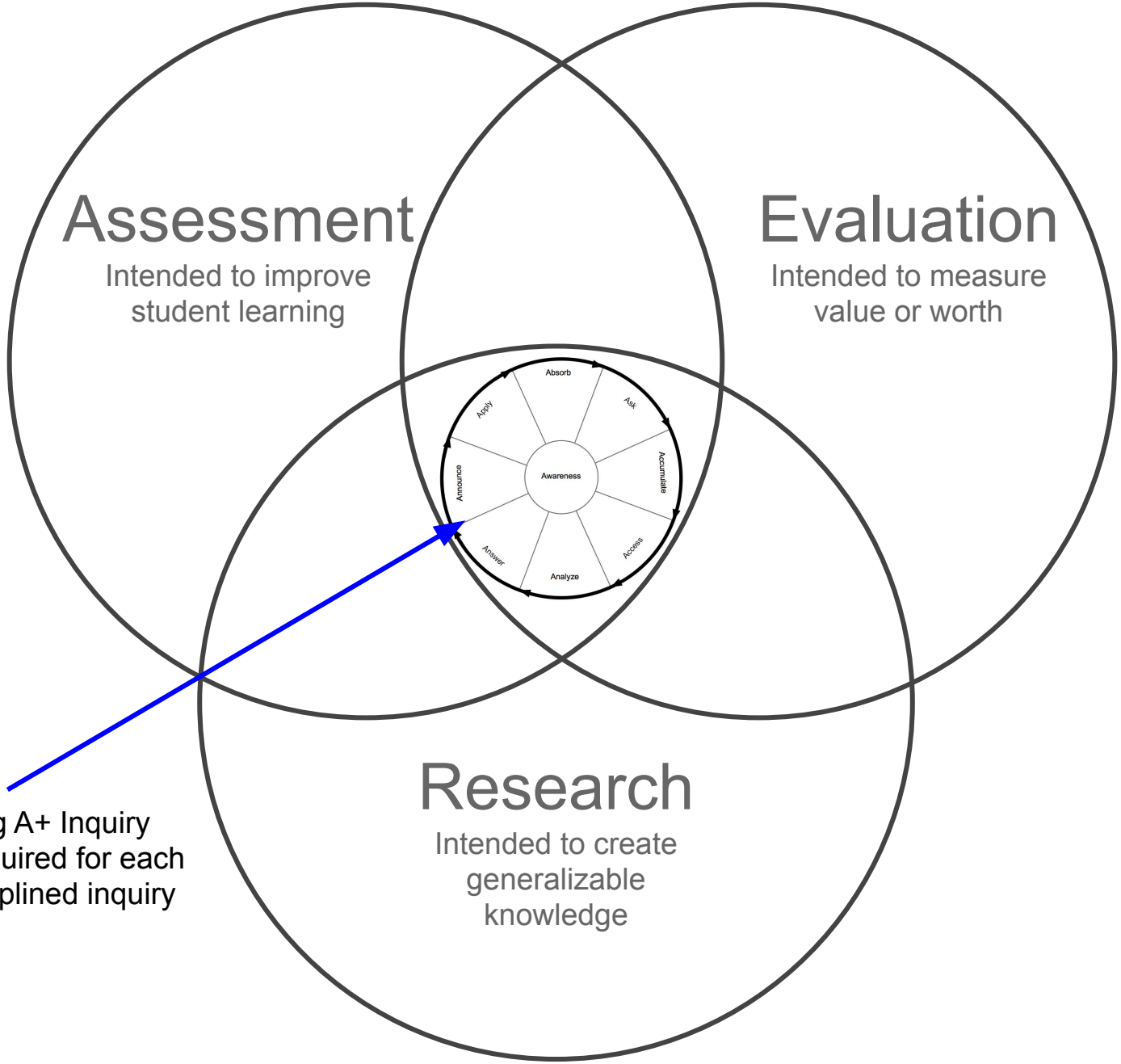
Regardless of the current data trend, the A+ Inquiry framework always unites disciplined inquiry types by their core stages. It is a simplified framework for asking and answering questions to optimize school effectiveness through processes that promote:

- Improved understanding
- New knowledge
- Informed decisions
- Evidence-based action

A+ Inquiry

Whether or not educators are able to specifically name the various types of data use processes being employed, they often implement data use standards through data use processes, which may include research, evaluation, and assessment.

Although these processes differ in purpose (i.e., research is intended to create generalizable knowledge, evaluation is intended to measure value or worth, assessment is intended to improve student learning), they each require educators to go through a common set of stages that make them complete. **Disciplined inquiry** is a general term representing the interaction of all stages that make research, evaluation, or assessment complete. A+ Inquiry is a framework for visualizing and explaining what a disciplined inquiry, or data use process, looks like in action.


Assessment
Intended to improve student learning
Evaluation
Intended to measure value or worth
Research
Intended to create generalizable knowledge
Absorb
Ask
Accumulate
Access
Analyze
Answer
Announce
Apply
Awareness
Navigating A+ Inquiry stages is required for each type of disciplined inquiry

Activity

Identify the A+ Inquiry stage representing each guiding question (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 1, 1-16

- What are limitations of the results? -
- Who analyzes the data? -
- What are implications of the results? -
- What actions are taken? -
- What are the general questions? -
- Why is there a need for more knowledge? -
- How are the results communicated? -
- Who identifies a need for more knowledge? -
- Who makes decisions based on findings? -
- What data are required? -
- What tools are required for analysis? -
- When are data collected? -
- What is already known? -
- Who formulates questions? -
- Where are the data retrieved? -
- What are the results? -

Activity

Identify the A+ Inquiry stage representing each guiding question (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 2, 17-32

- From whom are the data collected? -
- When are the results communicated? -
- When are the data retrieved? -
- What needs to be known? -
- What are the operationalized questions? -
- To whom are the results communicated? -
- Who communicates the answers? -
- Who retrieves the data? -
- When are the data analyzed? -
- Do the results respond to the questions? -
- Who takes action based on findings? -
- What is the focus of the questions? -
- What decisions are made based on the findings? -
- How are the data analyzed? -
- What materials are required for data collection? -
- What data need to be retrieved? -

Activity Answer

Identify the A+ Inquiry stage representing each guiding question (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 1, 1-16

- What are limitations of the results? - Answer
- Who analyzes the data? - Analyze
- What are implications of the results? - Answer
- What actions are taken? - Apply
- What are the general questions? - Ask
- Why is there a need for more knowledge? - Absorb
- How are the results communicated? - Announce
- Who identifies a need for more knowledge? - Absorb
- Who makes decisions based on findings? - Apply
- What data are required? - Accumulate
- What tools are required for analysis? - Analyze
- When are data collected? - Accumulate
- What is already known? - Absorb
- Who formulates questions? - Ask
- Where are the data retrieved? - Access
- What are the results? - Answer

Activity Answer

Identify the A+ Inquiry stage representing each guiding question (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 2, 17-32

- From whom are the data collected? - Accumulate
- When are the results communicated? - Announce
- When are the data retrieved? - Access
- What needs to be known? - Absorb
- What are the operationalized questions? - Ask
- To whom are the results communicated? - Announce
- Who communicates the answers? - Announce
- Who retrieves the data? - Access
- When are the data analyzed? - Analyze
- Do the results respond to the questions? - Answer
- Who takes action based on findings? - Apply
- What is the focus of the questions? - Ask
- What decisions are made based on the findings? - Apply
- How are the data analyzed? - Analyze
- What materials are required for data collection? - Accumulate
- What data need to be retrieved? - Access

A+ Inquiry

Do all inquiry stages need to be addressed sequentially? Not necessarily. Research inquiry cycles often begin in the Absorb stage where an inquirer identifies a need for new knowledge or understanding about something. However, some inquirers might begin in the Access stage; Accessing data helps an inquirer determine what types of data have been accumulated. Knowing what types of data have been accumulated and are accessible helps ensure the questions posed in the Ask stage are answerable.

The key is to remember we have a tendency to get stuck in the accumulation and access stages. Only completing two of the stages won't lead to effective data utilization. It will only lead to frustration and the feeling of wanting to throw your hands up in the air and hope this whole "doing data" idea in education goes away.

Who is responsible for each stage depends on the inquiry. A teacher working with a student to set goals might be responsible for all stages of the inquiry cycle. A school improvement team, on the other hand, might assign different stages to different team members.

A+ Inquiry

When you adequately address each of these stages, you are being an effective data user. As an effective data user, you use data as evidence to guide your decisions and actions. This is pretty similar to critical thinking, huh? Just like you teach your students, critical thinkers make conclusions based on evidence. By using data to guide your decisions and actions, you are very much modeling critical thinking for your students.

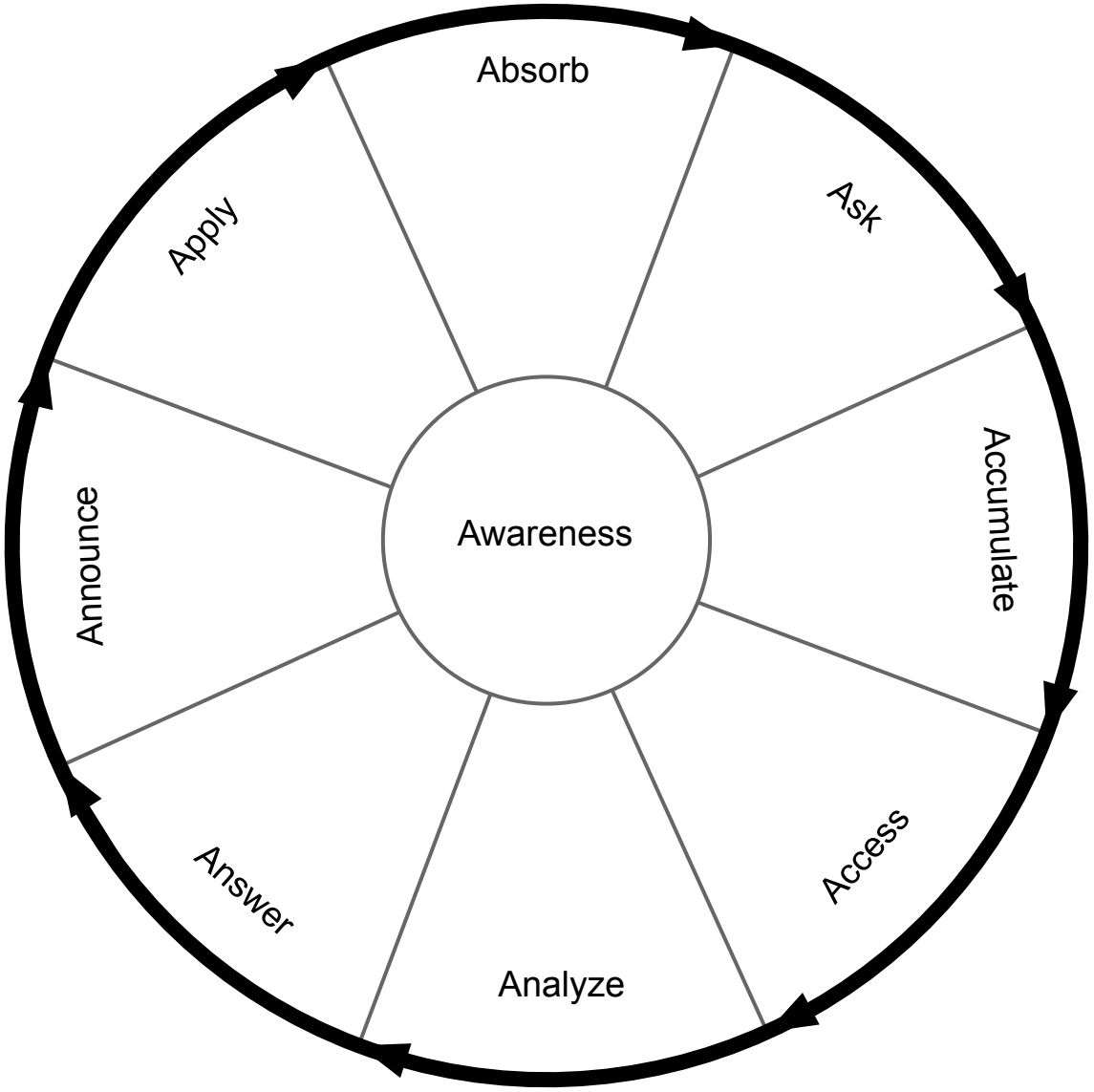
A+ Inquiry

Across our nation we are implementing tougher standards to teach our students to think critically. These standards provide clarity in how we will teach critical thinking. Just like with our students, data use standards, such as the *SLDS Data Use Standards: Knowledge, Skills, and Professional Behaviors*, can help explain data use in more concrete terms.

As stand alone supports for data use, inquiry frameworks can be a bit vague, overlooking finer details that allow complete navigation of the framework; standards on the other other hand, although providing more details about required sets of knowledge and skills, don't really show how the knowledge and skills look in action. A+ Inquiry has been used as a lens to explain how data use standards look in action.

A+ Inquiry

A+ Inquiry is the first framework to demonstrate how the SLDS data use standards look in action. Synthesizing the framework with the standards makes the abstract concept of data use more concrete for educators than either the framework or data use standards could do alone.



Activity

Identify the A+ Inquiry stage representing each data use standard (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness)

- S.2.A Data Discovery and Data Acquisition: Identifies and locates appropriate data sources and can access the data from various sources (e.g., classroom, school, district, state sources) for DATA ACQUISITION -
- K.3.B Data Limitations: Knows that data have limitations and that these limitations affect the interpretation and usefulness of data -
- S.7.B Action Plan: Develops and implements an action plan that includes provisions for evaluating the plans effectiveness, and can clearly articulate the link between the data, FINDINGS, and plan to appropriate audiences -
- S.6.A Presentation: Presents and displays data in various forms, both visually and in text, using appropriate technologies -
- S.4.C Aligned Analysis: Using appropriate technologies , conducts ANALYSIS suitable for the type of data collected; the VARIABLES identified, and the questions or hypotheses posed -
- S.3.A Facilitation: Collects data in ways that ensure VALID, RELIABLE data and that minimize BIAS -
- S.1.B Alignment: Aligns question(s), type of data needed, and measurement tools (e.g., ASSESSMENTS, surveys, etc.) with goals and objectives -
- K.2.D Data Context: Knows the circumstances and purposes for which data are collected -
- K.1.A Question Formation: Knows which questions can be answered with data and how to identify the nature and extent of the data needed to answer questions -

Activity Answer

Identify the A+ Inquiry stage representing each data use standard (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness)

- S.2.A Data Discovery and Data Acquisition: Identifies and locates appropriate data sources and can access the data from various sources (e.g., classroom, school, district, state sources) for DATA ACQUISITION - Access
- K.3.B Data Limitations: Knows that data have limitations and that these limitations affect the interpretation and usefulness of data - Answer
- S.7.B Action Plan: Develops and implements an action plan that includes provisions for evaluating the plans effectiveness, and can clearly articulate the link between the data, FINDINGS, and plan to appropriate audiences - Apply
- S.6.A Presentation: Presents and displays data in various forms, both visually and in text, using appropriate technologies - Announce
- S.4.C Aligned Analysis: Using appropriate technologies , conducts ANALYSIS suitable for the type of data collected; the VARIABLES identified, and the questions or hypotheses posed - Analyze
- S.3.A Facilitation: Collects data in ways that ensure VALID, RELIABLE data and that minimize BIAS - Accumulate
- S.1.B Alignment: Aligns question(s), type of data needed, and measurement tools (e.g., ASSESSMENTS, surveys, etc.) with goals and objectives - Awareness
- K.2.D Data Context: Knows the circumstances and purposes for which data are collected - Absorb
- K.1.A Question Formation: Knows which questions can be answered with data and how to identify the nature and extent of the data needed to answer questions - Ask

Activity

Identify the A+ Inquiry stage representing each description (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 1, 1-4

- An understanding of all stages that make up a complete data utilization cycle were demonstrated throughout the process, ensuring the right context was absorbed, the right questions were asked, the right data were accumulated, accessed, and analyzed, the right answers were derived, the right announcements were communicated, and the right application of decisions and actions was made. -
- You grade each student's test by dividing the number of questions the student answered correctly by the number of total questions on the test. You write the percent correct score on each test and place the tests with a score of 80% or higher in one pile and the tests with a score below 80% in another pile. -
- You separate the students into small collaborative learning groups, which include students who demonstrated proficiency and students who did not demonstrate proficiency. You instruct the students to engage in a peer teaching strategy in which the proficient students teach the learning target to the students who are not proficient. The students implement the peer teaching strategy. -
- The score written on each student's test is each student's percent correct on the assessment measuring achievement of the learning target. The pile of tests with scores at or above 80% represent students who demonstrated proficiency of the learning target. The pile of tests with scores below 80% represent students who did not demonstrate proficiency of the learning target. A limitation may be that a student did not demonstrate actual ability on the test; therefore, the score would not be an accurate representation of the student's achievement. Implications would be that the proficient students are ready to proceed to the next lesson and that the students who are not proficient may require peer teaching or other additional supports before moving to the next lesson.

Activity

Identify the A+ Inquiry stage representing each description (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 2, 5-7

- In order to answer the questions, you need to collect data that will lead to an answers. You create and administer a paper and pencil test with 20 items that allow each student to demonstrate his or her achievement of the learning target. Upon completion of the test, each student turns his or her test into you. You put the tests in a folder in a file cabinet. -
- You formulate questions that will lead you to a better understanding of each student's proficiency status before moving to the next lesson. You begin formulating questions by posing general questions: Which students demonstrate proficiency of the learning target? Which students do not demonstrate proficiency of the learning target? You operationalize these questions to make them answerable by posing the following questions: What is each student's percent correct on an assessment measuring achievement of the learning target? Which students scored 80% or higher on the assessment? Which students scored below 80% on the assessment? -
- You're a classroom teacher. You have been teaching a lesson in your subject area that is aligned with a learning target appropriate for your students. Your students should demonstrate proficiency of the learning target before moving to the next learning target. You define proficiency of the learning target as 80% correct on an assessment that measures achievement of the learning target. You would like to move forward to the next lesson, but you need to know if your students are proficient before proceeding. -

Activity

Identify the A+ Inquiry stage representing each description (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 3, 8-9

- You communicate test scores to the students by returning the appropriate test to each student. You inform the class that more attention toward the learning target is necessary and let them know they will be placed in small groups with their peers to review the learning target further. -
- During your planning period, you have time to grade the tests. You retrieve the tests from the folder in the file cabinet and place them on your desk for grading. -

Activity Answer

Identify the A+ Inquiry stage representing each description (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 1, 1-4

- An understanding of all stages that make up a complete data utilization cycle were demonstrated throughout the process, ensuring the right context was absorbed, the right questions were asked, the right data were accumulated, accessed, and analyzed, the right answers were derived, the right announcements were communicated, and the right application of decisions and actions was made. - Awareness
- You grade each student's test by dividing the number of questions the student answered correctly by the number of total questions on the test. You write the percent correct score on each test and place the tests with a score of 80% or higher in one pile and the tests with a score below 80% in another pile. - Analyze
- You separate the students into small collaborative learning groups, which include students who demonstrated proficiency and students who did not demonstrate proficiency. You instruct the students to engage in a peer teaching strategy in which the proficient students teach the learning target to the students who are not proficient. The students implement the peer teaching strategy. - Apply
- The score written on each student's test is each student's percent correct on the assessment measuring achievement of the learning target. The pile of tests with scores at or above 80% represent students who demonstrated proficiency of the learning target. The pile of tests with scores below 80% represent students who did not demonstrate proficiency of the learning target. A limitation may be that a student did not demonstrate actual ability on the test; therefore, the score would not be an accurate representation of the student's achievement. Implications would be that the proficient students are ready to proceed to the next lesson and that the students who are not proficient may require peer teaching or other additional supports before moving to the next lesson. - Answer

Activity Answer

Identify the A+ Inquiry stage representing each description (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 2, 5-7

- In order to answer the questions, you need to collect data that will lead to an answers. You create and administer a paper and pencil test with 20 items that allow each student to demonstrate his or her achievement of the learning target. Upon completion of the test, each student turns his or her test into you. You put the tests in a folder in a file cabinet. - Accumulate
- You formulate questions that will lead you to a better understanding of each student's proficiency status before moving to the next lesson. You begin formulating questions by posing general questions: Which students demonstrate proficiency of the learning target? Which students do not demonstrate proficiency of the learning target? You operationalize these questions to make them answerable by posing the following questions: What is each student's percent correct on an assessment measuring achievement of the learning target? Which students scored 80% or higher on the assessment? Which students scored below 80% on the assessment? - Ask
- You're a classroom teacher. You have been teaching a lesson in your subject area that is aligned with a learning target appropriate for your students. Your students should demonstrate proficiency of the learning target before moving to the next learning target. You define proficiency of the learning target as 80% correct on an assessment that measures achievement of the learning target. You would like to move forward to the next lesson, but you need to know if your students are proficient before proceeding. - Absorb

Activity Answer

Identify the A+ Inquiry stage representing each description (Absorb, Ask, Accumulate, Access, Analyze, Answer, Announce, Apply, Awareness) Part 3, 8-9

- You communicate test scores to the students by returning the appropriate test to each student. You inform the class that more attention toward the learning target is necessary and let them know they will be placed in small groups with their peers to review the learning target further. - Announce
- During your planning period, you have time to grade the tests. You retrieve the tests from the folder in the file cabinet and place them on your desk for grading. - Access

Indicate the extent to which you agree or disagree

	Strongly disagree	Disagree	Agree	Strongly Agree
This module part increased my knowledge of standards required for effective data utilization				
This module part increased my knowledge of how data utilization standards may be synthesized using the A+ Inquiry framework				

Well Done

You have completed this module part. You can begin the next lesson when you are ready.