Action Research and UbD

What is Action Research?
Action research (AR) is an on-going, collaborative inquiry into various aspects of schooling, including persistent achievement problems, student and staff motivation, and the influence of structural changes (e.g., a new schedule, classroom white boards, or new assessments). We believe that action research is one of the most professionalizing approaches to school improvement. It operates under the assumption that local educators, not outside experts, know best about how to improve their schools. Through an on-going process of action research and the development of new designs and policies, staff make the changes needed for sustained improvement.

Action Research empowers faculties to identify problems and shape solutions. Externally-imposed programs often fail to respect the local context, by-passing the valuable contributions that teachers and administrators can offer and relying, instead, on "one size fits all" solutions. By placing teachers and administrators at the center of all efforts, this worry is lessened.

AR becomes an energizing, goal-focusing, and team-oriented approach to data collection and school improvement. Instead of relying on once-a-year test scores to let us know "how we're doing," on-going AR leads to an improved ability to identify and clarify local needs based on shared data. It fosters a culture of collaborative problem-solving and the creation of an ever-growing bank of solutions and ideas.

How does Action Research fit with Understanding by Design (UbD)?
Understanding by Design encourages student inquiry through essential questions and authentic tasks. Similarly, action research promotes staff inquiry and meaningful PLC work. The UbD curriculum design process and Peer Review guide the design, review, and refinement of curricular units, assessments and instruction. Action research helps identify school improvement needs identified through analysis of external test results, reviews of student work, and collection of data on professional practices and school structures. Moreover, the UbD 3-stage "backward design" process offers a planning framework for *any* important school initiative, not simply curriculum planning.

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Examples of Action Research

Action research (AR) can be undertaken by Professional Learning Communities, grade-level and department teams, or the entire faculty, simultaneously or in sequence, throughout the school year. Here are a few examples of possible action research projects.

1. Analyze UbD unit plans. Collect and review teacher developed units against UbD design standards. (Suggestion: Begin with volunteers.) What patterns emerged? (i.e., What were the strengths? ... weak areas?) What does student work reveal? What changes are needed?

2. Assess the assessments. Collect and analyze all assessments for a given in the school/grade level/department for a designated time frame (e.g., 1 month). Examples of analysis – % of items at each level of Bloom's or Webb's Taxonomy; the % in various formats (e.g., multiple-choice, extended writing), the degree of alignment with content standards. Report the results to the full faculty.

3. Team scoring and "anchoring." Score student performance on an agreed-upon assessment as a team (grade level or department) using agreed-upon rubric(s). Select anchors (examples of work at each score point). Identify the most successful aspects of student work as well as patterns of weakness that emerge. Collectively, identify specific actions for addressing the problem areas.

4. Analyze scoring/grading practices. Review scoring/grading practices to identify degree of consistency across teachers. For example, give the same student writing product to different teachers and ask them to grade it. Or, ask teachers to identify the various factors they consider in determining a report card grade. What do the results suggest?

5. Survey students. Collect data (pre/post) from students and about students on what is engaging/effective work, the clarity of standards and expectations, fairness of grading, etc. Report the results to the full faculty.

6. Survey constituencies. Collect data from recent graduates, parents, next level of schooling, and/or local employers about strengths and weaknesses of former students. Interview alumni about how well the school prepared them for their current situation (school or employment). What advice do they offer?

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Using Essential Questions to Frame Action Research

Just as essential questions can stimulate student inquiry, such questions can be the basis for staff inquiry into professional practices and needed changes. Here are some examples that could be used to initiate school-based action research.

MISSION and BELIEFS
- *What educational beliefs about teaching and learning do we hold?*
- *What assumptions about learning guide our instructional and assessment practices?*
- *To what extent do our policies, priorities, and actions reflect these beliefs?*

CURRICULUM
- *To what extent does our curriculum highlight enduring knowledge and authentic performance?*
- *To what extent do textbooks function as the syllabus (rather than a resource)?*

ASSESSMENT
- *Is anything important "falling through the cracks" because we are not assessing it?*
- *How might our assessments promote learning, not simply measure it?*

INSTRUCTION
- *To what extent is our instruction engaging* and *effective?*
- *To what extent does our instruction reflect research and best practices?*
- *Are we effectively teaching ALL students in the most responsive ways?*

GRADING & REPORTING
- *To what extent does our current grading and reporting system communicate clearly, honestly and consistently?*

PROFESSIONAL DEVELOPMENT
- *To what extent do our professional development practices reflect the research on adult learning?*
- *How does our staff view professional development?*
- *To what extent is our professional development appropriately differentiated?*

POLICY, STRUCTURES, CULTURE
- *What is the best use of our time when teachers are <u>not</u> with students?*
- *To what extent do we have a culture of continuous improvement?*
- *How do teachers and administrators receive honest feedback to help them improve?*

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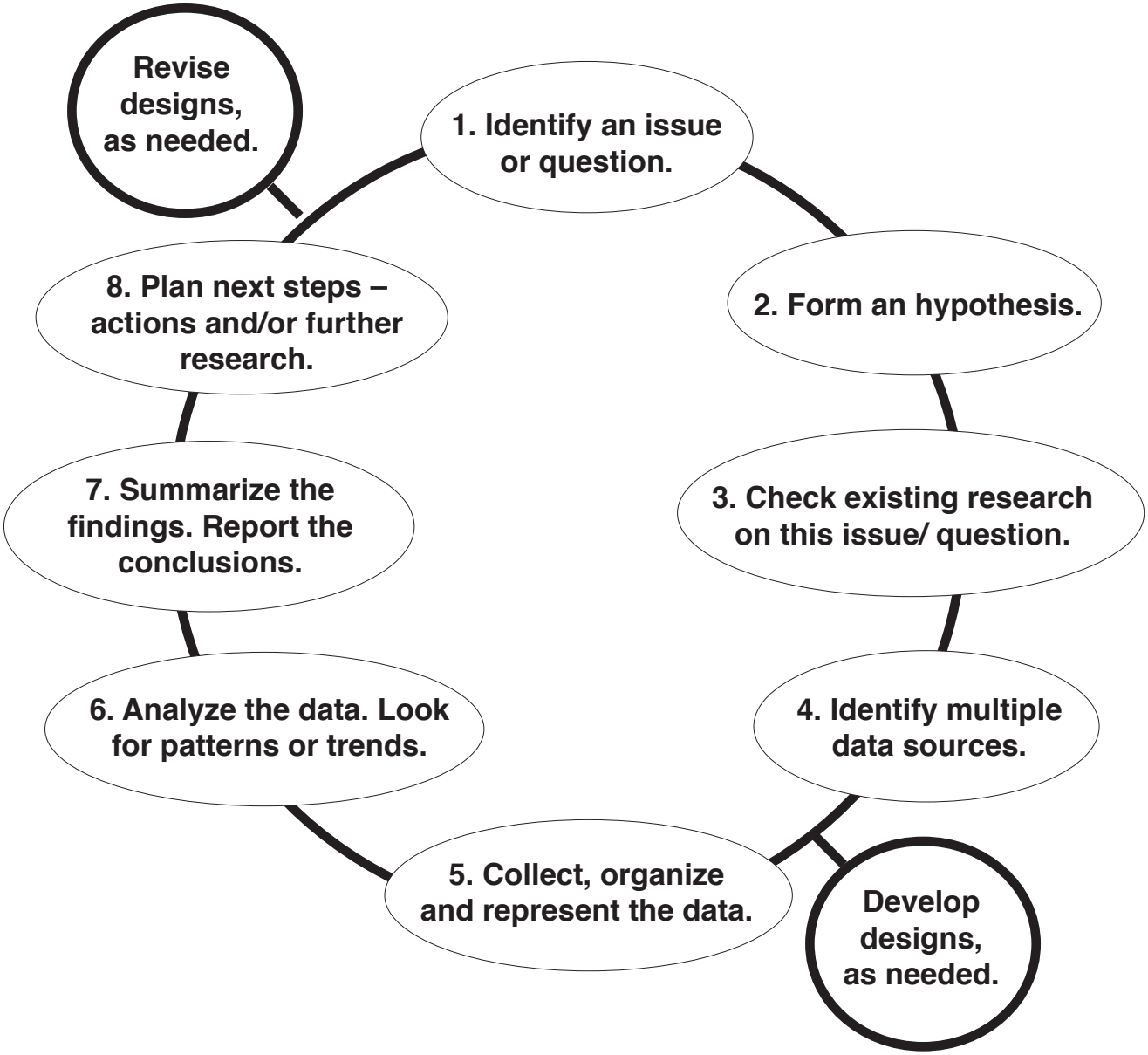
Action Research Process

The following diagram presents a general process for conducting action research around an identified issue, problem or question. Two related Templates with examples are provided on the following pages to assist in the process.



Note: While there is a general logic to action research, the process is not rigidly sequential. Rather, action research is recursive, similar to the writing process. For example, teachers will frequently return to refine the initial research question as they begin to collect data.

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Action Research Design Template

Topic, issues, problem: Calculators in Primary Classrooms

Research Question:

Can the use of hand calculators increase primary students competency in basic math facts?

Hypothesis:

Given instruction and repeated practice, hand calculators will increase primary students competency in basic math facts.

Data Collection Methods:

1. Baseline kindergarten and composite records & pre/post test on math facts
2. Teacher/students logs following calculator lessons
3. Individual interviews with selected students & bi-monthly quizzes.
4. Observation checklists used during lessons

Quantification Method(s):

1. Comparison of pre/post data on individual students
2. Rubrics to examine student/ teacher logs for indication of calculator impact
3. Tallies showing responses to interviews and quizzes
4. Rubric to evaluate observations

Data Analysis – data representation(s) and pattern search,

- Correlation of pre/post data on math facts
- Graphs of results of rubrics from teacher/student log entries
- Graphs of interview results and quizzes over semester
- Items on checklist graphed to show patterns

Research Results

No correlation was found between initial baseline data and final assessment scores on math facts. Results of the interviews showed that while students could explain the concepts, that understanding seemed to have little impact on mastery of those facts. Observation checklists showed that calculators appeared to be a distraction to learning. Other manipulatives may be more beneficial at the primary level.

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Action Research Design Template

Topic, issues, problem: _____

Research Question:

Hypothesis:

Data Collection Methods:

Quantification Method(s):

Data Analysis – data representation(s) and pattern search,

Research Results

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Some Ideas for Getting Started in Action Research

1. *Test your "best design" criteria*. Research the validity of the list of "best design" features from the workshop. Do the best designs in fact have the features identified? Are there any features we missed? under-emphasized? over-emphasized? Are the adults' views confirmed by watching students in classes and looking at results? Does student feedback on what worked and what didn't confirm the list?

2. *Shadow a student for a day.*
   - Is it easy to tell where the unit is headed, what the student's responsibilities are, why the work matters, the larger purposes, etc.?
   - Is the work engaging? boring? Does the teacher try to "hook" kids to consider the big ideas?
   - Is there ample opportunity to explore big ideas and essential questions?
   - Are authentic applications a part of the learning and assessment?
   - Are learners does "one size, fits all" teaching predominate?
   - Are there opportunities for learners to rethink, reflect, revise based on feedback?

3. *Sample of two*. Select two students (a high- and lower-achiever) and track their reactions to a class over the course of a week. Ask them to describe what worked and what didn't, when they were most engaged, ...bored, etc.

4. *A Place Called School – reprise*. Repeat the classic John Goodlad student survey as to which courses are seen as most engaging and effective and why. Ask: Which courses are most engaging? ... interesting? ... challenge you the most? ... do you most hate to miss or show up for? etc.

5. *Predicting trouble*. Try to predict student misunderstandings and errors in a unit you are about to teach. Use pre- and on-going assessments to check for these potential problems. Plan and try specific actions to help overcome and avoid them. Were you accurate in your predictions? Did predicting them help? Did the assessment yield more helpful information than usual?

6. *Is less really more?* Does less "teaching" and more "assessing" actually improve ultimate student performance results? Try designing a more self-sustaining unit so that you free yourself up to coach (i.e., observe at work and provide more feedback). See what happens when you build in more timely and on-going feedback and provide opportunities for students to use it to practice and revise.

7. *What kinds of questions do I ask?* What percentage of my oral and test questions are factual (i.e., converging toward a desired factual answer) vs. those requiring analysis, synthesis, and evaluation.

8. *Do students know the big ideas and priorities?* Interview students at random and ask, "Why are you doing what you are doing?" as they are doing it. Ask them to explain what they will have to do on the culminating assessments and how this unit relates to the last one.

9. *Reverse normal sequence*. Using two groups, one as control, completely alter the sequence. In one class or group, immerse students in problems and issues, and only teach on an as needed basis. Follow a typical text-book driven sequence in the other. Use the same assessment for both groups. What are the results - on achievement of unit goals? ... on interest and engagement?

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