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ABSTRACT

This 20-minute videotape features 2 schools that have maintained a school culture based on using myriad data sources and processes to fuel their school-improvement activities. In the video the voices of teachers and administrators in each school articulate the ways they have used data to improve student achievement. They highlight numerous data sources, analysis strategies, and actions taken as a result of examining data. A companion booklet is intended to support and extend the utility of the video. Following an introductory section, the next section of the booklet contains descriptions of the schools featured in the video. These two brief summaries provide information helpful in understanding the unique contexts of both schools. The next section contains three group activities intended for use by educators before or after viewing the video. The final section of the booklet contains numerous data resources: books, articles, and websites on data use in schools. In addition, an annotated listing of data tools and services is provided. (Author/WFA)

Data Exploration: A Journey to Better Teaching and Learning

Activity Booklet [with Videotape]

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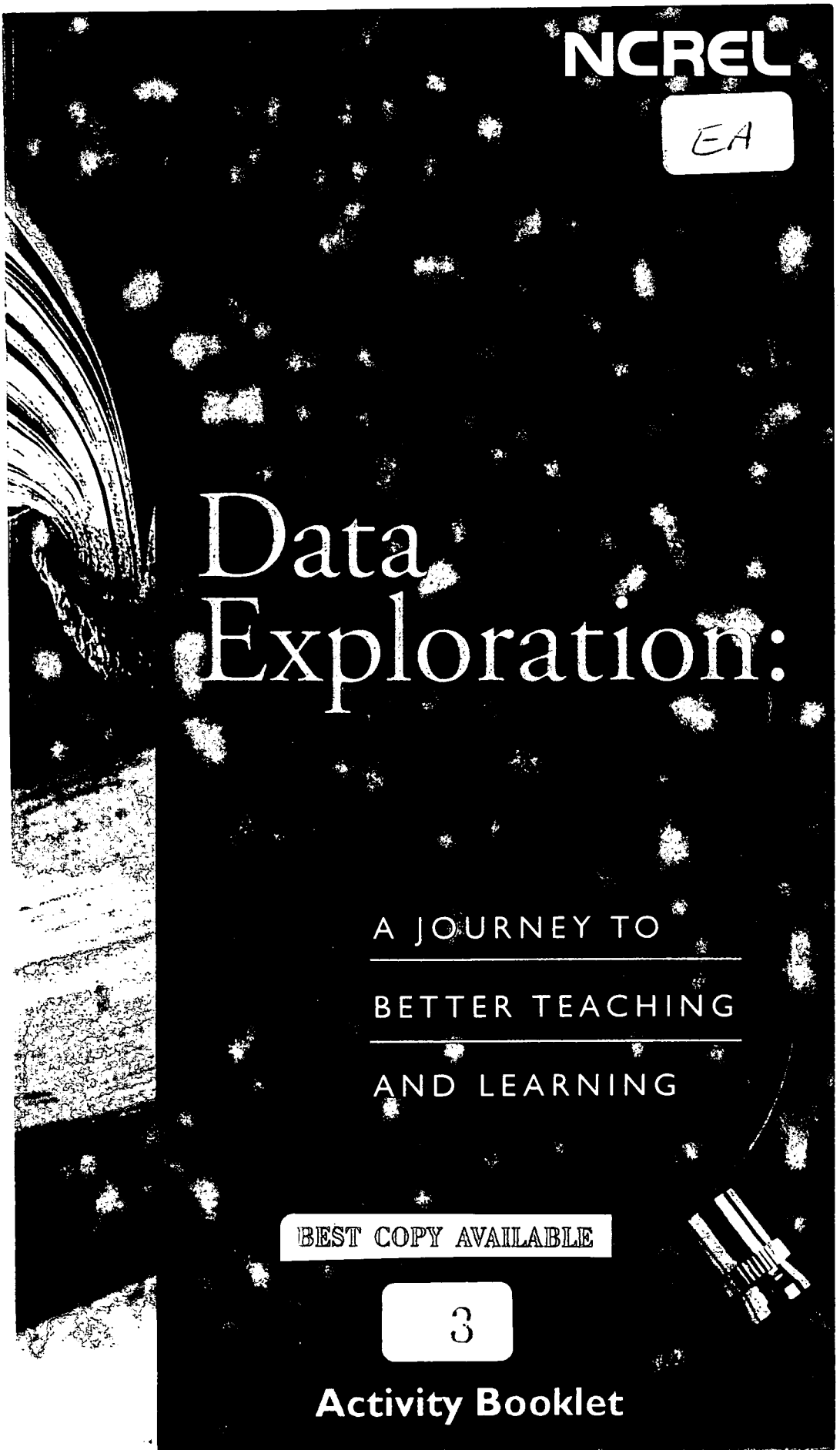
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Data Exploration:
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Activity Booklet

ACKNOWLEDGMENTS

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PART I: INTRODUCTION

The Issue

With the recent passage of the No Child Left Behind Act of 2001, school-level accountability has taken center stage in the lives of K-12 educators. As state departments of education examine the implications of this act and take steps to comply with its expectations, local-level educators and administrators are quickly learning that the way in which they have measured and viewed student achievement must change. They are learning, for example, that the data used to measure student achievement must emphasize their state assessment that is closely aligned to state learning standards. They are learning that these state assessment data must be analyzed not only at the subject and grade level, but also at the level of specific subgroup student populations. Most importantly, however, educators are learning that data must become the foundation and driving force behind their school improvement process. Fortunately, there are schools that are already operating within a data-driven school improvement system. These schools have managed to cultivate a school culture that supports and values not only extensive data collection and analysis but also strategic, data-based school improvement activities that focus on increasing student achievement.

The Video

The *Data Exploration: A Journey to Better Teaching and Learning* video features two schools that have maintained a school culture based on using myriad data sources and processes to fuel their school improvement activities. In the video, which is approximately 20 minutes long, the voices of the educators and administrators in each school clearly articulate the ways they have used data to improve student achievement. They highlight numerous data sources, analysis strategies, and actions taken as a result of examining data.

The Booklet

This booklet is intended to support and extend the utility of the *Data Exploration: A Journey to Better Teaching and Learning* video. It contains summaries of the two schools in the video, three data activities for school staff, and a list of practical data resources.

Part II of this booklet contains descriptions of the schools featured in the *Data Exploration* video. These two brief summaries provide information that is helpful in understanding the unique contexts of both schools.

Part III contains three group activities intended for use with educators before or after viewing *Data Exploration*. The first activity, Exploring Data Use, is a group processing activity designed to elicit participants' concerns, needs, and attitudes surrounding school data. It is an excellent starting point—for educators who are just beginning to examine data or for those who want to revisit the critical importance of data-driven school improvement.

The second activity, In Terms of Data Use, emphasizes the usefulness of a common data vocabulary. Participants investigate each other's affinity for or dislike of key data terms and concepts. In Terms of Data Use is an activity appropriate for educators at any point along the data-driven improvement process, and especially for those schools that have experienced significant staff turnover.

The purpose of the third activity, Data Culture, is more strategic than the first two activities. In Data Culture, the goal is to build consensus among participants around a central data-related issue. Sometimes referred to as a storyboarding or affinity process, Data Culture's outcome is a schoolwide answer to a fundamental question underlying the use of data for school improvement.

Part IV of this booklet contains numerous data resources. These resources represent some of the best books, articles, and Web sites on data use in schools. In addition, an annotated listing of data tools and services is provided.

PART II: SCHOOL SUMMARIES

Fritsche Middle School

Milwaukee, Wisconsin

Gustav A. Fritsche Middle School is an urban school within the Milwaukee Public School system. The vision at Fritsche is to create a world-class institution that provides its students with the opportunities "to prepare to earn a living, become productive citizens of the country and world, and pursue lifelong learning."

Since the school's opening 37 years ago, the Fritsche community has experienced significant demographic change. Originally, the school served primarily a European-American, blue-collar community. Today, Fritsche serves a far more ethnically diverse population. Due in large part to the district's open enrollment policy, the student population is composed of 43 percent European Americans, 30 percent African Americans, 19 percent Hispanics, 6 percent Asians, and 2 percent Native Americans. Also, 66 percent of the students qualify for free or reduced-priced lunches.

The school curriculum is reported to be fully aligned with the district and Wisconsin state learning standards. Fritsche is an Investigative Learning Center, which incorporates a challenging, hands-on multiyear instructional program utilizing a daily, four-block model schedule. Consistent with the middle school concept, each grade level functions within collaborative team environments.

Since the 1980s, the Fritsche staff has embraced the principles of Total Quality Management and continuous improvement in education. The school recently implemented the Baldrige Continuous Improvement System to drive student performance to high levels of excellence.

Fritsche staff and administration recognize the importance of stakeholder involvement in the design of the educational program. The active School Governance Council includes parents, faculty, community representatives, and students. This group uses research-based strategies

and a data-based decision-making process to produce a positive school climate in which student achievement is the primary goal.

Success at Fritsche can be summed up in one word: change. The Fritsche staff and school community continuously seek the most successful research-based instructional strategies available. These strategies are assessed by staff, parents, and the school community according to their usefulness to Fritsche students. Selected strategies are first piloted. Data is collected and analyzed during the important pilot period, and if the instructional strategy is successful, it is implemented schoolwide. It is fair to say that the Fritsche staff wholeheartedly embraces a data-based, continuous-improvement model.

Fritsche Middle School
2969 South Howell Avenue
Milwaukee, WI 53207
414-294-1000

Sources: Fritsche 2001-2002 Blue Ribbon Schools Application; 2001-2002 Fritsche Vision Report.

Taylor Park Elementary School
Freeport, Illinois

Located in northwest Illinois, Taylor Park Elementary School is part of the Freeport School District. Taylor Park's vision is to provide all students with an educational experience that "maximizes their ability to learn and succeed in an ever-changing world."

The school serves Grades 1-4, and its students come from very diverse backgrounds. Taylor Park qualifies for Title I schoolwide funding, and 52 percent of its students qualify for free or reduced-priced lunches. Student demographics are as follows: 62 percent Caucasian, 35 percent African American, and 3 percent Hispanic. Teachers at Taylor Park are dedicated and experienced. Most of the faculty members have taught at the school between 5 and 20 years, and eight teachers each bring more than 25 years experience to the classroom.

The Taylor Park curriculum is driven by the Illinois Learning Standards. Students are stimulated by authentic learning experiences in reading, writing, mathematics, science, and social studies. Additionally, there is a schoolwide focus on multicultural education. Staff members work hard to teach children to better appreciate one another and the world around them.

The Taylor Park community is active in shaping its school's focus. In 1995, several community members formed a committee called the Freeport African-American Ministers United for Change (FAAMUC). This committee asserted that the Freeport School District, including Taylor Park Elementary, was not adequately educating African-American children. After analyzing student-achievement data, the district agreed to examine its education programs and make strategic changes in how they serve the needs of African-American students. This process of examining data to make more informed decisions on how to improve the education for all students is a continuous process at Taylor Park Elementary.

Taylor Park has many processes in place to help determine and meet all students' needs. There is the school improvement plan, called Plan on a Page, which is continually reviewed and updated based on attendance, student achievement, discipline data, and parent and staff surveys. In addition, a school committee structure has been developed that is linked to the goals and focus areas articulated in the school's Plan on a Page. Each of four school committees focus on the areas of staff climate, partnerships, equity, and student performance, and all are charged with using a data-based decision-making process for improvement.

Taylor Park Elementary School
806 East Stephenson Street
Freeport, IL 61032
815-232-0399

Source: Taylor Park 2000-2001 Blue Ribbon Schools Application.

PART III: GROUP ACTIVITIES

Activity 1 – Exploring Data Use: A carousel brainstorm group process

Overview

This carousel brainstorming exercise is intended to generate discussion around key data-use questions. It can serve as either a warm-up activity before viewing the video or as a synthesis activity after viewing the video. The process begins with a number of different data questions posted around the room on chart paper. Participants are divided into small groups and assigned a starting point to begin the brainstorming process. Groups spend several minutes brainstorming and recording responses to a given data question. They are then instructed to move on to the next question and repeat this brainstorming and recording process. This continues until all groups have had the opportunity to brainstorm each question. There are a variety of ways to summarize this learning and bring closure to the process.

Content

This activity focuses on data use in education and the participants' specific school. The questions included in the activity vary in subject matter.

Purposes

The specific purposes of the carousel brainstorm are the following:

- Starting data conversations
- Assessing knowledge, needs, interests, and attitudes
- Exploring multiple perspectives
- Building a common vocabulary

Time

Allow 45 minutes for this activity. (If also viewing the video, add 20 minutes.)

Materials Needed

- Easel, chart paper, and different colored markers
- Carousel brainstorm questions (See list of possible questions on page 10.)

Room Setup

- Questions are written on sheets of chart paper, which are posted on the walls around the perimeter of the room.
- Markers are available for recording brainstorm ideas.
- Space is allowed for participants to move to and from the questions.

Before the Session

- Create a set of questions, and write each one on a sheet of chart paper.
- Set up the room.

During the Session

- Introduce data use in the school or district and the purposes of this group process.
- Explain to participants that they will be brainstorming responses to the questions posted around the room, and that this brainstorming will be a small-group activity. Divide the large group into small groups of three to five people. Encourage participants to record all responses on the chart paper as they brainstorm, and/or to build on an idea that is already listed.
- Ask for examples of "Guidelines for Effective Brainstorming." Record them on chart paper and post these guidelines for all to see. If needed, use Tips for Effective Brainstorming listed on page 12.
- Before allowing the small groups to begin, review the data questions posted around the room, assigning each group a question with which to begin. Explain that each group will have only a few minutes to brainstorm answers for each question. Develop a signal to let the groups know when it is time for them to move to the next question. It is recommended that later rounds be given progressively less time (e.g., Rounds 1 and 2 may take 4 minutes each; Round 3 may take 3 minutes; Round 4 may take 2 minutes).
- When all groups have responded to all questions, ask each group to return to the question with which it began and to review all the responses on the chart paper.

- Ask each group to report to the whole group, briefly summarizing the themes and important implications for their work related to their original data question.

Facilitator Note: You may want to ask for a volunteer to word-process the results of the brainstorming and later distribute the results to each participant.

Possible Questions for Carousel Brainstorming

The questions listed here are not comprehensive but encompass a spectrum of data issues and topics. Depending on the level of data use within the group, choose questions that lead to constructive and engaging conversations.

It will be necessary for the facilitator to choose the questions to be posted. The number of questions depends on the number of participants and groups.

Multiple Sources

- What data do I have, and what data do I need?
- What data does the school collect that I can use?
- How often should data play a role in my everyday teaching and lesson planning?
- What other types of data can be used to assess student achievement other than performance data?
- How can a district/school start to measure perceptions data? What tools would be helpful?
- How can a district/school start to measure program data? What tools would be helpful?
- What levels of data are needed to make sound decisions?
- How can I organize all the data into a helpful and useful form?

Creating a Data Culture

- How can I, as a principal, superintendent, or teacher, help create a data culture in my building(s)?

- How am I supposed to make sure the parents are familiar with local tools and practices?
- Who should be the "go-to" people—the people to ask questions about data and about other issues surrounding data-driven decision making?
- How is data to be kept as a decision-making tool and not a teacher-performance tool?
- How do students benefit from knowing and participating in the data culture, and what can help them see this benefit?
- Where is professional development found to help teachers, staff, and others start to learn about data-driven decision making?
- How can it be understood by all stakeholders that data suggests change?

A Common Language

- How can data help my staff and me to create goals? develop data trends? plan and use common interventions?
- What types of classroom activities can be used to make sure students understand the teacher's use of data?

Keep Data Public

- If data is public, how should the school or district confront confidentiality issues?
- How does a teacher track his or her students' progress publicly without humiliating some students?
- What is the use of keeping data public, and tracking progress for students?

Reflective Collaboration

- How can a teacher find the time to continuously collect, record, analyze, and display data?
- What is the use of sharing my data with my fellow teachers?
- Where can a teacher find the skills to learn how to use data?
- When should a teacher reflect with his/her students, and how should that be done?

- How do I form the all important questions that need to be answered with data? What are important questions?
- Who should teachers and staff meet with to talk about data?

General Data-Use Questions

- What types of systems should be used districtwide, and schoolwide, that will help staff with data use?
- How can we keep the community up to date on decisions, data, school improvement plans, and goals?
- Why is tracking data over time an important aspect to data-driven decision making?
- Why is it important to keep being skeptical?
- What do I expect the data to tell me? What did the data really tell me?
- How do I create these pictures so I can see my data more clearly?

Tips for Effective Brainstorming

Before groups start the activity, a review of effective brainstorming might be needed. Ask participants to give some examples of "Guidelines for Effective Brainstorming." Record them on chart paper and post them for all to see.

If needed, use the tips and guidelines below for effective brainstorming:

- Remember that all ideas are acceptable.
- Record every idea on a list that everyone can see.
- Withhold comments and criticisms about ideas.
- Take turns giving ideas about a topic, one idea per turn.
- Permit members to pass if they have no idea to give during a turn.
- Expand and build on the ideas of others.

Activity 2 – In Terms of Data Use: A magnetic words activity

Overview

Magnetic words is an activity that facilitates interaction among participants, allowing all to build a common vocabulary around data use. It may be helpful to view the *Data Exploration: A Journey to Better Teaching and Learning* video prior to this activity.

Magnetic word posters, displaying data-use terms or phrases, are placed around the room on the walls. Participants are asked to go to a word, phrase, or question that either "attracts" or "repels" them, and to introduce themselves and converse with others about why they feel the way they do. Conversations are synthesized and shared with the whole group.

Content

This activity focuses on types of data and vague or unfamiliar data terms or phrases. Participants are encouraged to become comfortable with the data terms or phrases, and explain them in their own words.

Purposes

The specific purposes of this magnetic words activity are the following:

- Building a common vocabulary
- Starting conversations
- Tapping prior knowledge and beliefs

Time

Allow 25-35 minutes for this activity. (If also viewing the video, add 20 minutes.)

Materials Needed

- Posters (one for every three to five people in the group) with a magnetic word, phrase, or question written on each one. (See list of possible terms and phrases on page 15.)

Room Setup

- Magnetic words are posted on the walls around the perimeter of the room.
- Space is allowed for participants to move around freely.

Before the Session

- Create a set of data-use magnetic words, phrases, and/or questions. Choose words that will be either *attractive* or *repulsive* to the participants. (The facilitator might also plan to create them with the participants.) Write one word or phrase on each sheet of chart paper.
- Set up the room.

During the Session

- Introduce the purposes of this activity and briefly summarize the steps of the process. Review the data-use magnetic words placed on the walls around the room. Invite participants to stand near the poster they are *attracted* to, and have them discuss with the others in their poster group what makes the term or concept attractive to them.
- Float among the groups, listening carefully for common themes or connections among groups. When all individuals within the poster groups have had a chance to discuss, move to the whole-group debriefing.
- Begin with one poster group and "whip" around the room, asking each participant to introduce one person in his or her group.
- Then ask one person from each group to summarize the discussion related to the magnetic word or phrase. (For larger groups, you may choose not to have each person introduced.) Use effective questioning techniques, and rephrase responses as needed. Connect group responses with the session goals.
- Repeat the above process, but have participants stand next to the word or phrase that most *repels* them.

Possible Data-Use Terms and Phrases

- Data culture
- Perceptions data
- Program data
- Achievement data
- Data-rich characteristics
- Student-data use
- Formative data

Activity 3 – Data Culture: A storyboarding group process

Overview

The storyboarding process is effective for facilitating, sharing, and organizing concrete, practical ideas among participants on data use in schools. Storyboarding (similar to "cardstorming" or affinity-diagram techniques) is also a powerful method for building consensus in a team and creatively solving practical problems. This process is frequently used in team decision making, strategic planning, or design.

It may be helpful to view the *Data Exploration: A Journey to Better Teaching and Learning* video prior to this activity. During this storyboarding exercise, individuals respond to a data question. Small groups of four to six are formed, and participants take turns sharing individual ideas, brainstorming, and recording group ideas. The ideas are then sorted, clustered, and categorized within each small group. Finally, each small group shares its ideas with the whole group.

Content

Storyboarding is a very adaptable process, and it can be customized to fit many purposes and situations. This learning experience focuses on data use in the educational setting, including the classroom, school, and/or district.

Purposes

The specific purposes of this storyboarding group process are the following:

- Building consensus
- Starting conversations
- Structuring learning

Time

Allow 45-90 minutes for this activity. (If also viewing the video, add 20 minutes.)

Materials Needed

- Cards—plenty of large (no smaller than 4 x 6 inches) index cards, custom-made cards, or sticky (e.g., Post-it) notes. Two colors of cards or notes are needed: one color for idea phrases and one color for category names.
- Markers or pens—one for each small group. Tips should be wide enough so that printing can be seen by everyone in the room.
- Masking tape (if needed)—several short lengths rolled into small loops for adhering cards to the wall or to a chalkboard.
- Data question for storyboarding. (See list of possible questions on page 18.)
- Colored, circle-shaped stickers (if needed)—three or four for each person.

Room Setup

- Tables and chairs are arranged for groups of four to six participants at each table. If the whole group comprises 15 or fewer participants, one large conference table or an L-shaped configuration of small tables could be used, enabling participants to make eye contact with one another.
- A large, bare wall is available, with a surface to which tape or sticky notes can adhere easily.

Before the Session

- Create a data-related question that fits with the goals and purposes of the session, and that will elicit practical responses from participants.
- Distribute cards or pads of sticky notes for idea phrases to each table—enough for five or more responses per person. Also, distribute several cards or sticky notes for category names to each table.
- Set up the room.

During the Session

- Introduce the purposes of the group process and outline the steps of storyboarding.
- Pose the data question to the entire group. Ask each participant to *individually* brainstorm three to six responses to the question.
- Ask participants to record each response on a separate card or note (of the specified color), using large print and one phrase of three to five words per card.
- Form table groups of four to six people, and ask that all participants share their responses with their group. Instruct group members to cluster similar ideas into categories and then to name each of these categories, using cards of the specified color. (Alternative: If the entire group comprises fewer than 15 participants, the clustering and categorizing can be done as a whole-group exercise.)
- As participants are organizing ideas, encourage them to talk about why responses are grouped together and the patterns that are apparent.
- If participants need assistance discussing and categorizing the ideas, use the following priority-setting process:
  - Display all notes/cards/categories so all group members can study them.
  - Give each person three or four colored, circle-shaped stickers.

- Ask each person to put those circles on the categories he or she feels are most significant. All circles could be put on one category, or two on one and two on another, and so on.
- Ideas or categories with the most circles are selected. The group should decide how ties are broken. Remaining ideas or categories can be consolidated if desired.
- The process can be repeated if further consolidation or deletion of items is necessary.

- After participants have had sufficient time to group and regroup ideas, ask each group to agree on a preliminary posting or display of its ideas.
- Begin a "tour": Ask one team member to remain with each team display to answer questions and clarify the group's thinking. Ask other team members to leave their groups and investigate what other groups have created. Allow 5-7 minutes per table for the tour.
- Ask teams to return to their tables to share what they have learned from other groups' work. Then ask them to revise their own work, for example, adding cards, reorganizing cards, or renaming categories.
- After all small groups have completed their revisions, ask a representative from each group to share the general insights gained or discoveries made as they completed this process.

Possible Questions for Storyboarding

- How can I, as a principal, superintendent, or teacher, help create a data culture in my building(s)?
- What are the characteristics, strategies, and practices that need to be implemented if data use is to become more frequent and helpful?
- How do students, teachers, and the community benefit from knowing and participating in the data culture, and what can help them see this benefit?
- PLUS — please refer to questions developed for Activity 1–Exploring Data Use, the carousel brainstorming activity.

PART IV: DATA RESOURCES

Books

Bernhardt, V. L. (1994). *The school portfolio: A comprehensive framework for school improvement.* Larchmont, NY: Eye on Education.

Creighton, T. B. (2001). *Schools and data: The educator's guide for using data to improve decision making.* Thousand Oaks, CA: Corwin Press.

Doyle, D. P., & Pimentel, S. (1997). *Raising the standard: An eight-step action guide for schools and communities.* Thousand Oaks, CA: Corwin Press.

Herman, J., & Winters, L. (1992). *Tracking your school's success: A guide to sensible evaluation.* Newbury Park, CA: Corwin Press.

Levesque, K., Brady, D., Rossi, K., & Teitelbaum, P. (1998). *At your fingertips: Using everyday data to improve schools.* Berkeley, CA: MPR Associates.

Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of new methods.* Newbury Park, CA: Sage Publications.

Roza, M. (1998). *Using data to improve schools: Raise student achievement by incorporating data analysis in school planning.* Newton, MA: New England Comprehensive Assistance Center.

Tucker, S. (1996). *Benchmarking: A guide for educators.* Thousand Oaks, CA: Corwin Press.

Articles and Publications

American Association of School Administrators. (2002). *Using data to improve schools: What's working.* Arlington, VA: Author. Retrieved December 11, 2002, from http://www.aasa.org/cas/UsingDataToImproveSchools.pdf

Cromey, A. (2000, November). Using student assessment data: What can we learn from schools? *Policy Issues, 6*, 1-10. Oak Brook, IL: North Central Regional Educational Laboratory. Retrieved December 11, 2002, from http://www.ncrel.org/policy/pubs/dddm.htm

Kober, N. (2002, October). What tests can and cannot tell us. *TestTalk for Leaders, 2*, 1-15. Washington, DC: Center on Education Policy.

North Central Regional Educational Laboratory. (2000, Summer). How schools use data to help students learn (Focus of issue). *NCREL's Learning Point, 2*(2), 4-15. Oak Brook, IL: Author. Retrieved December 11, 2002, from http://www.ncrel.org/info/nlp/lpsu00.htm

Web Sites and Online Resources

Hassel, B. (1998). *Making good choices: A guide for schools and districts.* Oak Brook, IL: NCREL. Retrieved December 11, 2002, from http://www.ncrel.org/csri/tools/makegood.pdf

North Central Regional Educational Laboratory. (2000). *The ToolBelt: A collection of data-driven decision-making tools for educators.* Retrieved December 11, 2002, from http://www.ncrel.org/toolbelt

North Central Regional Educational Laboratory (2000). *Using data to bring about positive results in school improvement efforts.* Retrieved December 11, 2002, from http://www.ncrel.org/toolbelt/tutor.htm

Products and Services

Blueprints: A Practical Toolkit for Designing and Facilitating Professional Development

The *Blueprints* CD-ROM is designed to help experienced as well as aspiring facilitators learn how to create effective professional development programs for mathematics and science educators. As they explore the CD-ROM, facilitators will use and adapt over 80 activities designed to assist groups of math and science professionals

in learning about four content areas: planning professional development, crafting curriculum, refining instructional practice, and making assessment decisions. The activities model the use of 22 interactive group processes that, together with the content and a template for creating a professional development plan, serve as a computer-based toolkit for facilitators. More information about *Blueprints* is available at **www.ncrel.org/tools/bp/index.html**.

Data Retreats

During the last several years, NCREL has developed a wealth of information-gathering tools ranging from simple checklists to comprehensive online surveys and evaluation services. These tools are intended to help educators collect data about their students, classrooms, schools, districts, and community. The information from these tools can be used to assess needs, measure growth, and inform decision making. To complement the data tools, NCREL invested in the development of a process called Data Retreats for training school and district leadership teams to use data on an ongoing basis to guide instructional practice and overall school improvement. To learn more about opportunities surrounding Data Retreats, visit **www.ncrel.org/toolbelt/retreats.htm**, or see the back of this booklet.

Curriculum Mapping

This interactive Web site provides for the input of local mathematics and science curricula data. The site builds visual displays of local data and national and international comparison data based on the Third International Mathematics and Science Study (TIMSS). Visit the *Curriculum Mapping* Web site at **www.ncrel.org/currmap**.

Characteristics of Successful Schools

Any school or district serious about helping all children succeed will want to begin by asking members of the school community where they think schools do well and where they think schools

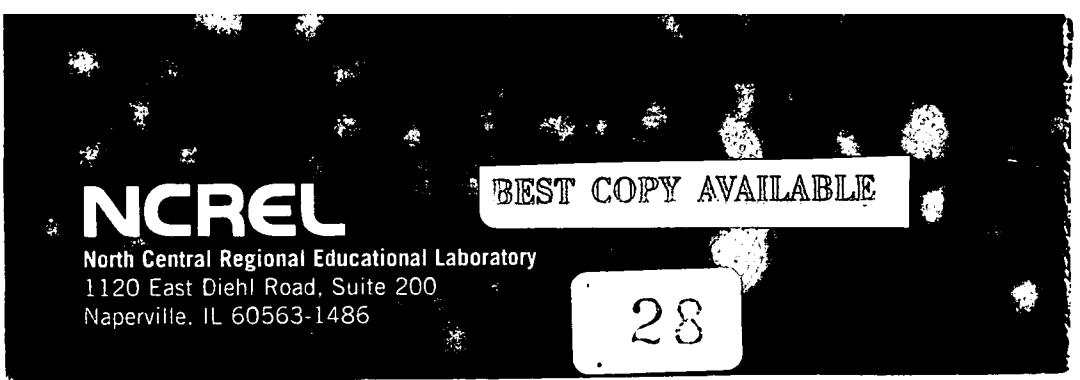
can improve. The eight surveys available in *Characteristics of Successful Schools* will help schools answer the question "Where are we now?" Visit **http://goal.ncrel.org/winss/winss.htm** to learn more.

Quality School Portfolio (QSP)

The QSP consists of two free software applications that offer schools a solution for collecting and storing student data that can best inform their practices. Visit **http://qsp.cse.ucla.edu/** for more information on QSP.

enGauge

This Web-based framework helps schools and districts plan and evaluate the systemwide use of educational technology. Developed by NCREL with the Metiri Group, *enGauge* provides a comprehensive view of critical factors that strongly influence the effectiveness of educational technology. It provides online assessments to help schools and districts gauge their progress with learning technology and develop an informed plan of action. It also presents information on the effective uses of technology to advance student learning and the educational system conditions required to use technology effectively. Visit the *enGauge* Web site at **www.ncrel.org/engauge/**.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