

# Research & Evaluation Brief

Department of Accountability, Research & Planning

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## Introduction

- Bob Rodosky

Greetings from the JCPS Research & Planning Department. We are proud to present the 3rd issue of our Research and Evaluation Brief. Our aim is to communicate the research & evaluation activities that are occurring in JCPS, and in the wider educational research world.

In this brief, you will find:

- ◆ evaluation results of various programs in JCPS such as Collaboration in Math and Science (CIMS) and Protecting You, Protecting Me®;

- ◆ guidelines for developing reliable and valid classroom observation tools;
- ◆ information about embedding formative assessment in teaching practices;
- ◆ the use of quality indicators to measure progress in realizing our Theory of Action;
- ◆ practical evaluation tools for practitioners to learn how to evaluate the effectiveness of their programs (2nd in series).

Stay tuned to upcoming issues where you can learn about the impact of other district initiatives

such as Elementary Student Assignment and Magnet Programs, Elementary Redesign, Cultural Competence, High School Freshmen Academy and much more.

Our Research & Evaluation Briefs are published three times per year and are available on our website.

Please feel free to contact the Research Department if you have any feedback about the briefs or would like to learn more about any of the topics we cover.

## Collaboration in Math and Science (CIMS) 2008-2009 Program Evaluation

- Beverly Winsch

This report provides initial results from the first year of a two-year initiative which provided professional development (PD) focused on content knowledge and pedagogy for college algebra and physics. Graduate-level coursework was delivered via a partnership between math and science classroom and resource teachers at JCPS and University of Louisville faculty. Teachers were released from their schools five times over the school year to engage in PD in a professional learning community setting. The year culminated in teachers attending an intensive five day seminar. Collaboration between JCPS and the University of Louisville College of Arts & Science resulted in the creation of two graduate level math and science courses for pre-service and existing teachers.

The research questions were:

- Does the CIMS program lead to more teachers completing graduate level instruction in their content areas?

- Do teachers participating in the CIMS program increase their content knowledge and improve their pedagogy?
- Do the students of teachers participating in the CIMS program show improved academic achievement?

The evaluation featured a quasi-experimental design. Twenty-two JCPS high school College Algebra and Algebra II teachers were recruited for the mathematics component of the program. Likewise, 15 JCPS Integrated Science teachers, not certified in physics, were recruited for the science portion of the program. Control groups were constructed for mathematics and science using teachers meeting the same teaching requirements as the participants. Program impact on teacher content knowledge and pedagogy was measured using both quantitative and qualitative approaches (i.e., observations, content tests, and self-ratings). Teams consisting of JCPS and University personnel collected classroom observation data which were used for formative evaluation

purposes. Teachers completed pre and post-tests of content knowledge and self-ratings concerning content knowledge and pedagogy. Student data were also collected. This report focused on teacher outcome findings.

In summary, all CIMS teachers completed the graduate level instruction components of the program. Math teachers demonstrated statistically significant improvements in content knowledge compared to the control group of teachers. Both math and science teachers increased their self-ratings concerning content and pedagogy. The results are promising regarding the effectiveness of providing teachers with a professional learning community that features a collaborative partnership between District and University personnel to target content knowledge and pedagogy. The continuation of the CIMS program this year provides graduate-level coursework in a professional learning community focused on chemistry and applied math.

## Did you Know?

**In 2008-09, JCPS Seniors earned more than \$81 million in scholarships.**

**Did you know that over 84% of JCPS teachers hold a Master's Degree or above.**

ISSUE EDITOR:  
DEVEN VAUGHT

## Protecting You/Protecting Me® Evaluation Results

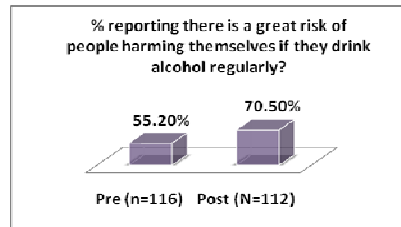
- Judi Vanderhaar and Brittany Carpenter

“To teach is to learn twice” -J. Joubert, 1842

Protecting You/Protecting Me® (PY/PM) is a unique, research based program that provides high school students the opportunity to teach young children about alcohol and vehicle related safety issues. PY/PM combines service and learning objectives with the intent of impacting both the high school students (providers) and elementary school students (recipients). The primary goals of the program are to reduce and prevent alcohol abuse and unsafe driving/riding vehicle incidents among youth, and promote safety. Program participants were K-2nd and 9th-10th graders from 2 high, 3 elementary, and 1 combined school during 2008-2009.

A liaison and resource teacher from the JCPS Office of Safe and Drug-Free Schools implemented the interactive

PY/PM curriculum with the high school students. Following, the students were transported to their respective elementary schools and taught their lesson plans to the K-2 students in large and small “buddy” groups. These lessons included many hands-on activities including the use of puppets and art.



Key K-2<sup>nd</sup> curricular components focused on brain functions & protection, riding with unsafe drivers, and thinking before acting. The results demonstrate a sizeable impact on the high

participants' alcohol use and binge drinking behaviors, and perceived risk of driving or riding with someone under the influence. Qualitative data revealed a high level of enjoyment from teaching with the K-2 students and perceived meaningfulness of the content as it promoted valuable lessons critical for their safety in the short and long term. Elementary participants demonstrated an understanding of the key concepts taught to them and satisfaction with their “buddies.” PY/PM helped facilitate the development of meaningful interactions/associations between participating schools. Several of the high school students served as volunteers at the elementary school in which they taught. If you would like the full evaluation report, please contact our office.

## Developing an Observation Measure for the Teaching American History Project in High Schools

- Florence Chang

In 2006-2007, Jefferson County Public Schools was awarded a ‘Teaching American History’ (TAH) grant to support professional development for high school teachers of U.S. History. Over the last three school years, the grant supported JCPS in providing a variety of professional development opportunities such as book clubs, visiting scholars programs, seminars, summer institutes, and professional history conferences.

In order to assess the impact of the program, one component of the evaluation involved the observation of U.S. History teachers after their participation in the intensive institute. Conducting observations after a professional development is one of the most direct ways to assess the impact of the professional development on participant practices. The following guidelines were helpful in the design of a reliable and valid observation measure and can be generalized to other programs when formulating an observation checklist:

1) *Be specific with the indicators-* having items that are too subjective

results in observation measures that are unreliable. For example, instead of ‘uses information from the professional development’, each component from the professional development was included in the observation measure (e.g., use of geographic tools, use of argument and debate, promotion of visual literacy, connecting topic to historical location).

2) *Include dimensions of both quantity (how much) and quality (how well)* - for example, quantity of use may examine the number of primary sources used to teach the history lesson, while quality of use may examine the extent to which key issues were identified in the primary sources.

3) *Develop a codebook of definitions-* the reliability of the observation can be increased by the development of a codebook which further clarifies and defines each indicator. For example, in defining whether to rate the identification of key issues of primary sources high, it was decided that at least two or more of the key issues and main points had to be analyzed for each

primary source included in the lesson. This reduced the interpretation of ‘high’ for the observers using this instrument.

4) *Inter-observer reliability-* often times, more than one person will be conducting observations using the same instrument. When this is the case, it is important to have observers work with each other to become reliable users of the instrument. This can be achieved by having observers begin in pairs, where they both observe the same class and then discuss their ratings afterwards to resolve differences in interpretation. More sophisticated inter-reliability measures are also possible, such as the computation of a Cohen’s kappa.

In sum, observations can provide valuable information on participant implementation of new knowledge and skills. Because they are time-consuming, it is essential that they are developed to be reliable and valid. A copy of the instrument and codebook used in the Teaching American History project for high school teachers is available from the Planning Department.

## Teaching-Embedded Formative Assessment to Improve Student Learning

-Marco Muñoz

We have embarked in a district-wide effort to embed formative assessment into the daily teaching in our JCPS classrooms. Probably, we need to start by having a common language and understanding of "Assessment *for* Learning." Another helpful element in this discussion is to analyze the difference between Assessment OF Learning and Assessment FOR Learning in a balanced assessment system.

Let's start this discussion by identifying what is NOT Assessment *for* Learning. Assessment *for* Learning is different from the end-of-the-year state-based accountability system or the every-six-weeks district-based benchmark system. Furthermore, Assessment *for* Learning is different from the end-of-unit summative classroom assessment that serves the purpose of grading students in subject areas or courses. All these aforementioned examples would fall under the category of Assessment OF Learning: valuable from a balanced assessment perspective, but with a different purpose and use.

So, what is Assessment FOR Learning? It is an assessment that is so embedded into the daily teaching activities that it is difficult to even differentiate it as something detached from good teaching. It helps learning by providing information that teachers AND students can use as FEEDBACK so teachers can modify their teaching and students can adjust their learning. However, it is not all about identifying learning needs. This is just the first, diagnostic part. The second part, the prognostic part (using the medical metaphor) is the most important one: the assessment becomes formative when the evidence is ACTUALLY USED to adjust the instructional process by teachers and adapt the learning process by students. The bottom line is: once you get the formative evidence, what do you do with it? In this sense, from the student perspective,

this means that the formative assessment motivates students to take an active role in their educational experience.

Following our District's leadership guidance, we are promoting formative assessment efforts at the classroom level. We need to understand the value of a balanced assessment system. More importantly, formative assessment quality requires five keys associated with *accuracy* as well as *effective use* (Stiggins, Arter, Chappuis, & Chappuis, 2006). Accuracy is about the assessment (1) purpose (i.e., accountability, benchmarking, formative); (2) learning target (i.e., knowledge, reasoning, performance skill, product); and, (3) assessment design (i.e., selected-response, open-response, performance, personal communication). Effective Use is about (4) effective communication (e.g., using rubrics) and (5) student involvement (e.g., using self- and peer-assessment). All five keys of assessment quality are equally important!

In this kind of formative assessment, we need to keep in mind three guiding questions: (a) Where are you trying to go? (b) Where are you now? And, (c) How can you get there? Under these three guiding questions, there are seven Assessment FOR Learning strategies (Chappuis, 2009): (1) provide a clear statement of the learning target, (2) use examples and models, (3) offer regular descriptive feedback, (4) teach students to self-assess and set goals, (5) design focused lessons, (6) teach students focused revision, and (7) engage students in self-reflection, sharing, and keeping track of their learning!

We will be learning more about issues associated with the know-how and to what extent the Assessment *for* Learning changes teaching practices and attitudes. In the spring of 2009, teacher teams at nine schools volunteered to be part of the pilot phase of the Assessment *for* Learning implementation. With the support of Vanderbilt University, JCPS has started an evaluation of this Assessment *for* Learning experience. We will share results of this and other studies as we move forward.

## Using Quality Indicators to Measure Progress

-Dena Dossett

In education, it is imperative to know whether our instructional efforts are producing positive outcomes for our students. A first step is to identify what are the outcomes that we desire for our students and then develop and implement the necessary conditions and strategies to be successful. The JCPS Theory of Action is a framework which guides our actions and outlines broadly what we want to achieve and how we plan to do so. Quality indicators serve as a way to operationally define whether we are making progress in reaching our goals. Quality indicators could be used to flag potential problems, follow trends over time, and identify disparities as well as success stories.

The district has begun initial work on how to assess our progress towards realizing the Theory of Action. We have made a distinction between "process" and "product" quality indicators. The process indicators would measure the quality by which we "create caring and culturally-responsive

classroom communities; provide high-quality, personalized instruction; ensure equitable access for all students to a consistent, world-class, inquiry-based curriculum; and prepare leaders to engage in collaborative strategies." The product indicators would assess the extent to which all students graduate with "a high level of academic performance; strong character development and civic engagement; and enhanced health and wellness." For both the process and product quality indicators there are various measures that can be used to judge success.

We have engaged in conversations with different stakeholder groups (principals, JCTA, board members) concerning which measures would be best suited to operationally define and represent the complex constructs represented in our Theory of Action. There are several data sources that we currently collect which would serve well as measures for quality indicators, and yet there are other indicators that we would need to develop data collection procedures to best capture a particular

construct. These conversations have been very informative and will be used in determining the focus on our next steps in this process.

Below are some next steps that we will engage in the upcoming months:

- Create an ad hoc task force to monitor and design the Quality Indicator implementation
- Prioritize which Quality Indicators would be developed first and develop timeline
- Develop a plan for how to use the Quality Indicator data at the district and school level
- Determine benchmarks and long-term goals
- Design a format based on different audiences
- Consider adaptive issues that may arise

We are only beginning the journey of developing and using quality indicators to measure our progress in reaching our goals. There are many next steps that we need to undertake in this process. Our desired outcome in this effort is to foster an environment of shared responsibility and reciprocal accountability.

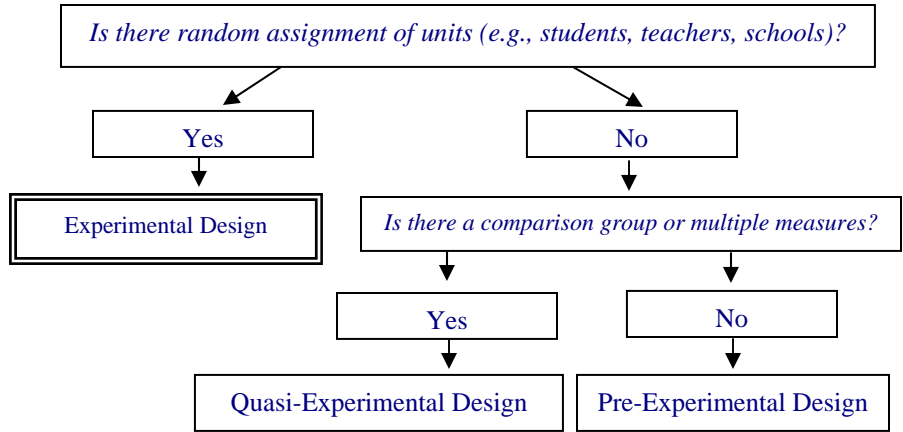
# How Will You Know if your Program is Really Working ?

- Dena Dossett

In the last series, we discussed how to develop evaluation questions by considering the purpose of the evaluation, reviewing existing research, and assessing the resources that can be devoted to the project. Clearly defined evaluation questions will help determine the scope of your project and prepare you to move to Step 2 – Selecting an evaluation approach.

It is important to note that there are many different approaches to evaluation and that no one method is always appropriate. The right approach depends on various factors including your evaluation questions, resources and stakeholder interests. Before deciding on an approach, you need to consider *what* you want to know about the program (implementation of activities, outcomes), *why* you are evaluating the program (program improvement, high stakes decision), and *how* you plan on conducting the evaluation.

**Figure 1: Evaluation Designs**



There are four common designs used in program evaluation:

- (1) experimental,
- (2) quasi-experimental: comparison group,
- (3) quasi-experimental: interrupted-time series
- (4) pre-experimental: no-comparison group

In the next series, we will cover the pros and cons of each design and point out common pitfalls to avoid when selecting an evaluation approach.

In the meantime, please feel free to contact the JCPS Research Department if you have any questions about program evaluation.

## Accountability, Research and Planning

The Accountability, Research & Planning Department produces research & program evaluations of numerous federal, state and local grants as well as district initiatives. Please check our website for reports on these programs: <http://www.jefferson.k12.ky.us/Departments/Planning/ProgramEvaluation/ProgramEvaluation.html>



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### Our Mission Statement

*In support of the District's Vision and Goals, the Accountability, Research and Planning Department will enhance the utilization of data-driven decision making, quality indicators, programmatic evaluation and district wide accountability measures that will lead to continuous student, school and district improvement.*