Graduates
of Professional Development School
Programs:
Perceptions of the Teacher
as Change Agent

By Jeanne B. Cobb

In the period of time since the mid-1980s, professional development schools have taken root and blossomed throughout the United States. Out of the climate of reform following the publication of *A Nation at Risk* (National Commission, 1983), *Tomorrow's Teachers* (Holmes Group, 1986), and Goodlad's (1990) *Teachers for our Nation's Schools*, in which the professional development school movement was conceptualized, the initiative gained momentum. Partnerships of university colleges of education and local elementary, middle, and secondary schools have been established and are thriving. The professional development school (PDS) was proclaimed as the vehicle through which public school education would be revamped for the 21st century. Educators believed that the preservice teachers who were trained in such learning communities with a focus on inquiry, growth, and change would be better prepared and equipped to become the change agents for the reforms so desperately needed in the public schools.

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As public education enters the new millennium and the professional development school initiative matures, it is imperative that we evaluate and examine closely the graduates of these learning communities

who are now beginning teachers to determine whether or not their unique teacher preparation programs have indeed made a difference.

The Problem: Butterflies or Clones?

"A butterfly stirring the air today in Peking can transform storm systems next month in New York" (Gleick, 1987, p. 8). With this quote, Costa and Garmston (1994) began their treatise on *Cognitive Coaching*, a transformational plan to mentor young professional educators as one aspect of the Renaissance School. They envision a Renaissance School as an interdependent, reflective community of learners bound by common values with a respect for diversity, which captures the spirit of the Italian Renaissance of the 1600s. Professional development schools are one translation of the Renaissance School concept where learners of all ages struggle together to formulate a new vision of learning and growth toward change.

As a symbol for new life, metamorphosis, and change, the butterfly is one possible metaphor to use when describing the fledgling beginning teachers who are emerging from the secure cocoons of the professional development schools. These preservice teachers have been protected, nurtured, and inspired by caring, experienced classroom teacher-mentors and enthusiastic university faculty instructors. They have been exposed to the idealism of *best practice* and have participated in field experiences in real classroom settings, designed to exemplify equity and excellence for all learners.

What happens when the preservice teachers hatch and leave the protective cocoon, finding themselves in a real world setting, perhaps in a public school that does not conform to the philosophy of the educators in their professional development school environment? Do they hatch into butterflies and become change agents who make the first fluttering movements toward reform in their schools? Or do they abandon their idealism and become clones, conforming to some of the less desirable practices they see around them? Or are they able to make sound decisions about good instructional practice, becoming clones when they see practices worth imitating and becoming reformer butterflies when they observe less desirable practices?

A self-report questionnaire, the Beginning Teacher as Change Agent Self-Perception Scale, was designed to assess a new teacher's perception of self as change agent and to assess the extent to which a beginning teacher reports practicing behaviors indicative of change. The purpose of this article is to describe the development of the scale, to report preliminary research data collected during initial field testing of the instrument, and to offer the instrument to other professional development school educators for possible use in their own settings for follow-up investigations of their graduates.

The Teacher as Change Agent—Theoretical Framework

The idea of the teacher as change agent has roots in the progressive education

movement and was first articulated in Dewey's (1920) book, *Reconstruction in Philosophy.* Counts (1932) echoed the philosophy in his classic work, *Dare the Schools Build a New Social Order?* The belief that society must be transformed and that schools can be the agents for the transformation of the present social order has been more recently articulated by Apple (1978, 1987) and Giroux (1983, 1988). These visionary philosophers would point to the profile of a teacher as change agent, as an educator who possesses the skills, desire, and motivation necessary to make schools more equitable. The teacher who is a change agent believes that schools must not simply perpetuate the present social order but seek to effect change by assuring that all students have the necessary skills for equal access to the job opportunities that, in turn, will provide access to the good life.

Translating this philosophy into observable teacher behaviors is necessary in order to determine if professional development school graduates exhibit these desirable traits and if new teachers practice those behaviors that result in change and reform in public school education. However, this is not a simple task since practitioners and researchers may differ in defining a progressive teacher. A literature search was conducted using the terms *change agent*, *public school reform*, *professional development schools*, *beginning teachers*, and *effective schools*. While the search did not yield a definitive profile of the teacher as change agent, 10 teacher behaviors were identified that were reported by two or more sources (See Table 1).

Space limitations prevent a complete discussion of all literature references with respect to descriptors of teachers as change agents. Some pertinent studies are discussed here. In one research project published by the U.S. Department of Education (1993), teachers at the Goals 2000 Forum outlined critical reform

Table 1

Teacher Behaviors That Are Indicative of Change
as Identified from Research Literature

A teacher who is a change agent:

- has a student-centered learning climate within his/her classroom.
- uses a variety of assessment methods in addition to standardized tests.
    Examples: naturalistic teacher-made tests, portfolio assessment.
- has an expanded definition of back to basics that includes problem solving, higher level thinking skills, and computer literacy.
- has high expectations for all students.
- uses a variety of teaching methods in addition to teacher-centered approaches.
    Examples: cooperative learning, hands-on activities, simulations, individualization, peer tutoring, learning centers
- does not rely solely on the standard state adopted textbooks and teacher's manuals.
- uses holistic, integrated instruction.
- incorporates technology in instruction.
- takes advantage of all opportunities to continue learning and gain new ideas.
- sends clear messages to students that success is expected and provides strong academic press.

elements and described innovative teaching behaviors. These teachers believed that an emphasis on higher level thinking skills and teacher involvement in curricular and budgetary decisions were important. Also listed as essential, according to the teachers at this forum, were collaboration with colleagues and time to grow professionally. Teacher involvement in decision-making processes was also supported by Maeroff (1993).

The above items were also included in an Office for Educational Research and Improvement study (1992) published as an outgrowth of a Florida forum on educational reform. The Florida teachers' list of characteristics that innovative teachers possess included a teacher's willingness to take risks, use of technology for instructional planning, reflective practice, the use of new and better ways to involve students in instructional activities through hands-on approaches, excitement about teaching, and a less structured teaching philosophy.

One characteristic of teacher change agents that ranked high in all research studies was high expectations of all students and the belief that all students can learn. In a report of a major school reform study, this essential quality was referred to as *strong academic press* (Consortium on Chicago School Research, 1996). The Network for Effective Schools (1987) also ranked high expectations of students as the most critical quality of a teacher committed to excellence and reform.

Kaufman and McDonald (1992) discussed the visions of preservice teachers and the naïve idealism with which they enter the teaching profession. Findings included the premise that pessimism and depression often surface when new teachers are confronted with the realities and complexities of teaching. However, the authors found that if beginning teachers are able to perceive themselves as focal points of change, there ideals might re-emerge. This study's findings pointed to the importance of an empowering environment as one critical component of the new teacher's becoming a change agent.

Difficulties are inherent in defining such an empowering school climate because of the diverse interpretations among researchers as to what constitutes an environment that enables teachers to be change agents. A school that is most likely to foster change may not be progressive in all aspects but may have at least a minimum number of components needed to enable teachers to become change agents. Likewise, schools that are not considered progressive may possess few of the components for change and yet, surprisingly, may have teachers who are reform agents, spurred on by the desire to effect change in that non-productive climate.

The effective schools research of Edmonds (1980, 1982, 1983a, 1983b) is applicable here. Edmonds concludes that some schools appear to be effective and progressive even in low-income, high-risk neighborhoods with heavy concentrations of children of color. Edmonds consistently found certain essential characteristics in evidence in these *beat the odds* schools: strong administrative leadership, a clear instructional focus, teachers with high expectations, and a positive school climate.

Rafferty (1993) points to PDSs as examples of progressive climates for change.

She argues that while many traditional attributes such as content knowledge and pedagogical expertise are needed in a progressive school, other elements are likewise critical to produce change and innovation. These critical attributes which schools must foster for teachers' professional self-efficacy and in order for their development as change agents are a flexible and adaptive stance toward challenges, opportunities to practice reflective thinking, and a collaborative and cooperative climate. Rafferty concludes that PDSs should be exemplary sites and are likely to include these attributes.

A literature review using the following descriptors yielded conflicting opinions: *reform*, *program effectiveness*, *progressive schools*, *educational innovation*, *professional development*, and *effective schools* yielded conflicting opinions. McDaniel (1993) pointed to an emphasis on information process instead of information transmission as important for school reform. Kalapothakos (1996) described schools with teacher change agents as those that emphasize computer technology integration, critical thinking skills, and student-centered, responsive classrooms as contrasted to information process as a focal point.

The Network for Effective Schools (1987) study included ten critical components for school reform. Ranking high on their list were excellence in equity, emphasis on basic skills by the end of grade six, and the importance of linking assessment with instruction. The reader is referred to additional references, which provide further discussion concerning progressive school characteristics indicative of reform climates (Hultgren & Riedlinger, 1996; Kyle, 1993; McLauren, 1988;Quaglia & Brown, 1994).

Thirteen characteristics of progressive schools that may empower teachers to be advocates for reform were identified. Those characteristics, confirmed by two or more sources, are presented in Table 2. It should be noted that this author recognizes that some of the characteristics in the list may also be present in more traditional, less progressive settings. It is not the author's intent to convey the idea that a school having one or more of these characteristics is progressive, rather that the presence of these elements is more likely to enable teachers to practice reform and initiate change. The current literature is supportive of the premise that these elements are conducive to reform.

Methodology

The principal investigator, as site coordinator of a professional development school learning community serving three elementary schools and three middle schools, was in daily contact with public school colleagues over a five-year period. Study groups, steering committee meetings, seminars, mentor training sessions, and formal long-range planning meetings frequently centered on the characteristics and behaviors which define quality instruction and the teacher's role as change agent. These interactions were invaluable in pinpointing the traits that public

school teachers and administrators believed were essential for progressive reform practices and informed the investigator's work in designing the instrument. A review of field notes and reflections as well as minutes of PDS meetings revealed six broad topics and/or areas of concern frequently found in university/public school interactions: (1) the extent to which PDS graduates see themselves as change agents; (2) behaviors and teaching practices exhibited by PDS interns and graduates; (3) the school's role in influencing and encouraging innovative practice; (4) curriculum concerns; (5) assessment practices; and (6) discipline and classroom management concerns. A thorough review of the literature confirmed that these issues identified in daily contacts in the public school setting were also documented in the current research literature.

Tables 1 and 2 were shared with two public school administrators, one associate dean in the teacher education department of the researcher's university, two professors who were also site coordinators of different professional development schools, and two mentor teachers. The themes of concern, which had emerged in the researcher's field notes, were discussed and these educators gave feedback on the traits and areas that they felt should be included as items on the questionnaire.

With this input, an instrument, the Beginning Teacher as Change Agent Self-Perception Scale was constructed to address our priorities and to answer the following research questions with respect to change: (1) Do graduates of a professional development school program perceive themselves as change agents? (2) Do

Table 2

School Characteristics which May Empower Teachers
To Be Change Agents as Identified from Research Literature

A school climate that may foster change may be a setting in which:

- principals and teachers have authority to make decisions on budget, schedule, curriculum, personnel.
- new teachers are included in the budget, curriculum, and scheduling decisions.
- new teachers are socialized into school culture and mentored as respected colleagues.
- there is precise, frequent talk about *best practice* and teachers are engaged in teaching one another the craft of teaching.
- planning time is available during the school day for all teachers.
- parental support is valued and community volunteers are welcomed in the classrooms.
- quality professional development and inservice training is ongoing.
- quality professional journals are readily accessible to faculty members.
- there is positive conflict resolution.
- the principal is interested in individual student achievement and individual teacher professional growth.
- there is a focus on the acquisition of basic reading, writing, and math skills by end of elementary grades.
- curriculum reflects higher level thinking and substantive academic rigor.
- there is a climate of collegiality and a shared vision.

graduates of a professional development school program report that they implement practices that are indicative of change? (3) Are the public school settings chosen by the professional development school graduates as their first job sites supportive of change, and do those schools exhibit characteristics which would encourage beginning teachers to initiate reforms? (4) Are there significant differences between the responses of first-year teachers and those beyond the first year with respect to beliefs about change and their teaching practices?

Description of the PDS

The site of this particular research study was a PDS in the middle years' phase of its development (Castenell, 1997; Fullan, 1997). At the time of the research, this PDS was a partnership between the researcher's university and one elementary school with a student body population of approximately 620 students in grades K-6; 76.3 percent of the children were Caucasian, 9.5 percent African American, 10.1 percent Hispanic, 2.9 percent Asian and Pacific Islanders, and 1.1 percent were Native American. Approximately 33 percent of students were economically disadvantaged. There were 38 full-time public school faculty members.

The mission of our university center as originally conceived was based on the research of Goodlad (1988, 1990) and the Holmes Group (1986, 1990). In the first school year, collaboration began at our PDS with the site coordinator, a university faculty member, conferring frequently with the principal, assistant principal, and a core group of interested teachers (designated as the PDS steering committee). This dedicated group began the journey toward realization of shared goals for school reform and a better way of preparing teachers to meet the challenges of educating children in our state. The following year saw the full implementation of the model as drafted by the PDS steering committee. The university faculty support team was composed of one professor, one lecturer, one doctoral student, and a master teacher from the school's faculty who taught a total of seven courses to 60 university students at three different levels of expertise. Each semester the three blocks were offered, and every teacher in the school, with a few exceptions, was designated as a participating teacher, cooperating teacher, or mentor teacher. In the first semester, students were enrolled in a child development course and a literacy block of basic developmental reading and language arts, a total of nine semester hours. In the second semester, students were enrolled in senior level methods courses for a total of 12 hours: curriculum, science, social studies, and math methods. In the final semester, students returned to do their student teaching internship.

Some of the respondents in the present research study were graduates of the PDS model as described above. Other respondents were trained in the PDS in subsequent years when the model had been redesigned to include two additional elementary schools and three middle schools. The newer model was scaled down from a three-

semester program at three levels of coursework to a two-semester internship of methods courses followed by a student teaching semester just prior to graduation, with no more than thirty PDS interns placed at any one school.

Procedures

The survey was mailed to 85 former students who had graduated from the investigator's professional development school program during the time period from 1994-1998, a total of seven different cadres of preservice teachers. The survey respondents were now primarily beginning teachers in the first, second, third, and fourth years of service in metropolitan public schools in a large Southwestern state. Thirty-eight beginning teachers responded. Eight questionnaires were subtracted from the total originally mailed out since they were returned undeliverable with no forwarding addresses. Three of the 38 respondents were unable to complete the survey since they were stay-at-home mothers who had never taught. This yielded a response rate of 45.4 percent. Data are based on percentages of the 35 completed and returned surveys.

Of the respondents, 91.4 percent were Caucasian and 94.3 percent were female. Of the PDS graduates who responded to the survey, 77.1 percent were 29 years of age or younger. Eighty percent of the PDS graduates were teaching in suburban school districts, with 74.3 percent teaching in grades K-5, 22.9 percent in middle school, and 2.9 percent in special education. Of the PDS graduates, 14.3 percent were in their first two months of teaching when they completed the survey while 51.4 percent had one year of teaching experience, 28.6 percent had two years of experience, and 5.7 percent had three years of classroom experience.

Respondents were asked to indicate agreement or disagreement with concise statements. The response categories were strongly agree, agree, uncertain, disagree, and strongly disagree. In order to query teachers with respect to the frequency of practiced reform behaviors and the characteristics of the climate of the school, a second section of the survey required respondents to indicate their beliefs using a different set of response categories: always, frequently, unsure, rarely, or never. For the purpose of analysis, the categories were assigned sequential numerical values, i.e., 1, 2, 3, 4, 5.

Construct Validity/Reliability

Small sample size in this pilot study prevented the use of factor analysis to establish construct validity since only PDS graduates from one university program site were included. Subsequent use of the scale will afford validity and reliability information and will likely give direction for revisions of the original instrument. Statistical analysis of the internal structure of the instrument would then be possible with administration of the scale to a larger population that would include PDS and non-PDS graduates.

Since the respective questions were developed out of five years of daily contact with teachers and administrators in PDS settings and confirmed through a thorough literature search, the items are felt to be reflective of current thinking with respect to progressive teaching practices and behaviors in a particular context. The author recognizes that there is great pedagogical and structural diversity within the PDS movement and invites dialogue and feedback from PDS colleagues in other geographical areas as to the validity of this particular PDS's view of a teacher as change agent as reflected in the instrument's design.

Results

Although the findings from this study are not generalizable to any extent to other PDS sites, some interesting patterns emerged from the data analysis. Data are reported in percentages based on numbers of teachers responding in each response category out of a total of 35 completed surveys.

Research Question One

Upon analysis of data pertaining to research question one, the extent to which the beginning teachers perceived themselves as change agents, it was apparent that the PDS graduates responding to the survey believe that they are change agents. Of those responding, 65.7 percent agree or strongly agree that the program instilled in them a desire to be a change agent, and 94.3 percent of the teachers responding believe that PDS graduates have a responsibility to make schools better for children. Of the respondents, 62.9 percent believe that their principals view them as change agents, and 48.6 percent believe that their school colleagues see them as change agents. Of the PDS graduates who responded, 62.8 percent strongly disagree or disagree with the premise that one individual beginning teacher cannot effect change (See Table 3 for data on research question one).

Research Question Two

A teacher who is a change agent will not just articulate a reform philosophy but will also demonstrate change through actions. Research question two sought to ascertain whether or not the PDS graduates reported frequent use of research-based teacher practices, which would confirm that their daily practices matched their reform philosophies. Findings with respect to research question two confirmed that not only did the graduates perceive themselves to be change agents, but that they reported a perception that they implemented reform practices (See Tables 4 and 5).

Illustrative of this statement is the finding that 77.2 percent of the respondents report attending a seminar or professional workshop within the past three months that was not required by their school districts. Of the beginning teachers responding, 57.2 percent report that they subscribe to one or more professional journals. Similarly, 51.4 percent report that they do not use state adopted texts as their primary

source for instruction, with 80 percent indicating that the teacher's manual is not their primary source of ideas/activities. Of respondents, 82.9 percent report that they do not conform to teaching the way it has always been done, and 100 percent believe that they are pragmatists who love new ideas, trying whatever motivates and challenges all students to learn. Likewise, 100 percent agree with the statement that an effective teacher must be continually learning and growing.

Table 5 displays additional information on research question two in the area of instructional practice and planning. Of the PDS graduates who responded, 97.1 percent report that they always or frequently use a variety of instructional approaches, and 97.2 percent report that they engage in reflective practice. This practice is defined as always or frequently reflecting on a failed lesson and reteaching it in a different way the following day. Of the PDS graduates responding to the survey, 94.3 percent report that they always or frequently send clear messages to students, communicating high expectations. This characteristic of effective

Table 3

Graduates of a Professional Development School Program:
Perceptions of Self as Change Agent

My educational experiences in the PDS program instilled in me a desire to be a change agent for reform.

1	2	3	4	5
11.4%	54.3%	28.6%	5.7%	0

I believe my colleagues perceive me to be a change agent in my school.

1	2	3	4	5
5.7%	42.9%	48.6%	2.9%	0

My principal believes that I am a change agent on the faculty.

1	2	3	4	5
8.6%	54.3%	31.4%	5.7%	0

As a single new teacher, I am unable to effect change in my school.

1	2	3	4	5
0	11.4%	25.7%	45.7%	17.1%

PDS graduates have a responsibility to make schools better for children.

1	2	3	4	5
71.4%	22.9%	5.7%	0	0

I feel that I am often "marching to a different drummer" at my school with respect to teaching philosophy.

1	2	3	4	5
8.6%	20%	22.9%	40%	8.6%

Response Key:	1	2	3	4	5
	SA	A	U	D	SD

SA-Strongly Agree; A-Agree; U-Uncertain; D-Disagree; SD-Strongly Disagree

innovative teaching coupled with high expectations is often referred to as strong academic press (Consortium on Chicago School Research, 1996).

Another aspect of reform practice in the area of instructional planning involves dialogue with colleagues about best practice and interactions with administrators to grow professionally. Findings in this area, also a component of research question two, were quite positive. Of the PDS graduates who responded, 88.6 percent indicated that they always or frequently initiate discussions with colleagues about

Table 4

Graduates of a Professional Development School Program:
Use of Research-Based Teaching

Practices Indicative of Change

I find myself conforming to the norm of teaching according to "the way it has always been done" in spite of all the knowledge I've gained and the desires I have to be progressive in my approach.

1	2	3	4	5
0	11.4%	5.7%	62.9%	20%

I primarily use state adopted/system adopted basal textbooks in my teaching.

1	2	3	4	5
5.7%	34.3%	8.6%	20%	31.4%

My primary source of teaching materials and ideas is the teacher's manual for the subjects I teach.

1	2	3	4	5
0	20%	0	40%	40%

I love to try new ideas. I believe I am a pragmatist when it comes to education. Whatever motivates and challenges all students to learn is what I use to teach a concept.

1	2	3	4	5
48.6%	51.4%	0	0	0

I believe in the premise that all children can learn and be successful, and I provide opportunities for all children to feel competent.

1	2	3	4	5
60%	34.3%	5.7%	0	0

When I hear a colleague make reference to a child as being "unteachable", I am angry because this is not a premise that I tolerate.

1	2	3	4	5
31.4%	37.1%	20%	5.7%	2.9%

In order for me to be an effective teacher, I must be continually learning and growing.

1	2	3	4	5
91.4%	8.6%	0	0	0

Response Key:	1	2	3	4	5
	SA	A	U	D	SD

SA-Strongly Agree; A-Agree; U-Uncertain; D-Disagree; SD-Strongly Disagree

best practice, and 68.6 percent report that they always or frequently place copies of creative teaching ideas in their colleagues' mailboxes. Additionally, 54.2 percent of respondents report always or frequently inviting their administrators into their classrooms to view ideas and children's work, with 40 percent reporting that they always or frequently initiate discussions with their principal and/or assistant principal about best practice.

The data from this category of the survey confirmed that the beginning teachers

Table 5
Graduates of a Professional Development School Program:
Frequency of Implementation of

Instructional Teaching Practices Indicating Change

In my classroom concepts are generally taught through teacher-centered methods.

1	2	3	4	5
0	34.3%	8.6%	54.3%	2.9%

I use technology in my classroom for preparation of instructional materials during lesson planning.

1	2	3	4	5
22.9%	51.4%	0	25.7%	0

I use technology in my classroom for administrative purposes, such as grade reporting.

1	2	3	4	5
57.1%	17.1%	5.7%	5.7%	14.3%

In my classroom I use a variety of instructional approaches such as inquiry, individualization, discovery, flexible ability grouping, hands-on activities, and cooperative learning.

1	2	3	4	5
45.7%	51.4%	2.9%	0	0

I "go along" with ideas that I believe are not in the best interest of children if the majority of teachers on my team/school believe it is the best way because I am reluctant to voice my dissent.

1	2	3	4	5
2.9%	8.6%	2.9%	54.3%	25.7%

Whenever a lesson I have planned fails, I reflect on the lesson and reteach the concept in a different way the following day.

1	2	3	4	5
42.9%	54.3%	2.9%	0	0

I send clear messages to my students that success and hard work are my expectations for them.

1	2	3	4	5
80%	14.3%	0	2.9%	0

Response Key:	1	2	3	4	5
	A	F	U	R	N

A-Always; F-Frequently; U-Unsure; R-Rarely; N-Never

perceive that they practice reform. A large majority of the professional development school graduates reported high frequencies of the identifiable teacher behaviors (See Table 1) that point toward innovation, reform, and growth. Not only do the beginning teachers see themselves as change agents, but they perceive that their actions confirm it.

Research Question Three

This question was concerned with the type of school settings chosen by the PDS graduates as their first employment sites and the extent to which these settings were supportive of reform efforts. The beginning teachers' responses in this category were diverse, yet generally positive. Respondents perceive their school environments to be collegial and supportive of their change efforts. A majority of respondents report respect for new teachers' ideas, involvement in decision-making processes, and an expanded school definition of the basics, which includes higher level thinking skills, problem solving, and computer literacy. Although the new teachers believe that their schools place emphasis on computer literacy, 51.4 percent of the respondents report that their students rarely or never have access to the Internet.

With respect to the factor of parental and community involvement as an important element present in schools that are at the forefront of reform, the new teachers were almost equally divided, with 48.6 percent reporting that parent volunteers are rarely or never involved in their classrooms and 42.8 percent reporting that parents are always or frequently involved.

The data indicated that approximately half of the beginning teachers perceive their school environments to be supportive of reform. Technology and flexible scheduling were two areas in which a majority of teachers perceive their school environments to be less innovative in reform practices. A third area of reform, the use of cognitive coaching, was also not being widely used by the new professional development school graduates. Only 28.6 percent of respondents reported that this form of peer evaluation was always or frequently being used in their school settings.

A Closer Look/Research Question Four

In reviewing the research of Kaufman and McDonald (1992) and Ryan (1986), it became apparent that years of teaching might affect the extent to which a teacher subscribes to change and reform practice. Ryan, in his book *The Induction of New Teachers*, identified four stages of teaching: fantasy, survival, mastery, and impact. Kaufman and McDonald (1992) similarly identified distinct stages and related this growth process to the factors of change and reform. These researchers stated that new teachers often become pessimistic and depressed when first encountering the realities of the profession, but may later reclaim their idealistic beliefs if they perceive that they are the focal points of change.

In order to answer research question four and to determine if there were significant differences in the perceptions and reform practices of those PDS

graduates who were in their beginning induction year of teaching as contrasted to those who were in the second, third, and fourth years of service, inferential statistical methods were used. One-way analysis of variance (ANOVA) was used to determine the variation of responses within and between the four groups (years 1, 2, 3, 4 of teaching) with respect to the independent variable, number of years teaching. No significant differences were found in intern response on 47 of 48 questions (dependent variables) of the Self-Perception Scale. However, significant differences were found on question 23 which queried teachers about their use of portfolio assessment, $F(3,31)=3.473$, $p <.05$ (See Table 6).

After determining the significant F value on question 23, a post hoc multiple comparison test, the Tukey *a* (Tukey method, HSD, honestly significant difference) was performed in order to discover the exact location of significant differences. Table 7 displays significant differences between respondents who are in the second year of teaching and respondents who are in the third year of teaching (Note key: *1* indicates one full year of teaching completed with respondent at beginning of year 2, and *2* indicates 2 full years of teaching completed with respondent at beginning of year 3).

This particular question (23) queried the PDS graduates' beliefs about whether or not it is unrealistic to expect busy teachers to use portfolio assessment. Some teachers in the present study agreed with the premise that portfolio assessment is a valuable vehicle for the classroom (29.6 percent), but only those who were beginning the third year of teaching. PDS graduates who were in years one and two of teaching reported uncertainty (48.6 percent) or disagreement (22.9 percent) about the feasibility of portfolio assessment. This confirms earlier research indicating a period of pessimism and loss of idealism during the induction year(s) since the use of naturalistic assessment is often perceived as too time-consuming.

Closer analysis revealed that the new teachers' lack of support for portfolio assessment was likewise apparent in findings from other questions (items 14, 15) pertaining to naturalistic assessment, as 68.5 percent report that they rarely or never use this assessment procedure with all children, and 57.2 percent report that they rarely or never use portfolio assessment, not even with at risk children. It should be noted that this attitude toward portfolio assessment is not surprising since effective implementation of this concept was not often seen by the professional development

Table 6
Analysis of Variance for PDS Graduates' Beliefs
about the Feasibility of Portfolio Assessment Use

	Sum of Squares	df	Mean Square	F	Sig.
Q23					
Between groups	8.294	3	2.765	3.473	* .028
Within groups	24.678	31	.796		
Total	32.971	34			

Note: * $p < .05$

school students in their mentor teachers' classrooms. Although it was strongly emphasized in preservice coursework, it should also be noted that this researcher has often encountered negativism in discussions with public school teachers about portfolio assessment. Veteran teachers have often expressed to this author the same concerns and reservations about time constraints and portfolio use as did the beginning teachers in this pilot study.

In summary, findings in the present study parallel findings from research studies discussed previously (Kaufman & McDonald, 1992; Ryan, 1986) which state that as teachers gain experience, they increasingly gain a sense of control over the time and managerial demands and begin to reclaim their idealistic value system.

Limitations

Findings in this pilot study cannot be applied to all professional development school graduates or to beginning teachers, in general. Findings are based on a small sample (N=35) from one major research university and should not be generalized to other institutions' field-based teacher preparation programs. The sample did not include a wide cross-section of ethnicities, years of teaching experience, or school settings and, unfortunately, included primarily female students. The gender and

Table 7
Tukey's HSD for PDS Graduates' Beliefs
about the Feasibility of Portfolio Assessment Use

Dependent Variable	(I) Years Teaching	(J) Years Teaching	Mean Difference (I-J)	Standard Error	Sig.
q23	2	00	-.6000	.4887	.614
		1	-.9889*	.3519	.040*
		3	.4000	.6911	.938
	3	00	-.1.0000	.7465	.546
		1	-1.3889	.6650	.179
		2	-4.000	.6911	.938
q23	00	1	-.3889	.4510	.824
		2	-.6000	.4887	.614
		3	1.0000	.7465	.546
	1	00	.3889	.4510	.824
		2	.9889*	.3519	.040*
		3	1.3889	.6650	.179

Key: 00-year 1 of teaching; 1-year 2 of teaching; 2-year 3 of teaching; 3-year 4 of teaching

Note.* $p<.05$

ethnicity data closely paralleled the demographics of the typical education class at this particular university at the time of the study. Another limitation is that the primarily suburban setting may also differ from the make-up of urban at-risk schools, where there are typically more emergency credentialed teachers employed. The instrument needs further testing to establish reliability and validity across professional development school programs that vary in structure and setting from the one in the present study.

It is somewhat discouraging to note that 39 students failed to return a completed survey. Efforts were made to improve the response rate. Follow-up phone calls, when phone numbers were available, were made as reminders about the survey return deadline. However, the university database does not release phone numbers of alumni to researchers, which prevented this investigator from making calls to all non-respondents. Site visits were not a workable option since the schools of the beginning teachers covered a 500 square mile area, making it very difficult to conduct individual interviews with each non-respondent. Bias is a concern since it may be inferred that those beginning teachers who did find the time to respond are more dedicated, committed, and motivated and would be more likely to respond with the viewpoints of change agents; consequently, the findings might be affected. A similar concern, as with all self-report measures, is the difficulty in drawing conclusions about what teachers are actually doing in their classrooms as contrasted to what they say they are doing.

Conclusions

Given the factors discussed above, several conclusions can be drawn from the preliminary data in this research study about these beginning teachers in the first, second, third, and fourth years of teaching who graduated from a professional development school program at a major research university in the southwestern United States. While the low response rate makes it impossible to draw conclusions about the non-responders' role as change agents, a majority of the professional development school graduates who did respond believe that they are change agents and that their principals and colleagues view them as agents of reform. In addition, they strongly support the premise that they have a responsibility to make schools better for children.

A second conclusion that can be drawn from the data is that the PDS respondents in this study perceive that they practice behaviors that are indicative of change and report that change behaviors are frequently a part of their instructional routines.

A third conclusion is that about half of the recent graduate respondents perceive their school climates to be nurturing, collegial, and conducive to reform efforts. In spite of less desirable factors with respect to schoolwide technology access for students and flexible scheduling, a majority of the PDS graduates report that they

are implementing varied approaches for instruction and utilizing technology in their teaching.

A fourth conclusion is that significant differences in responses, based on years of teaching experience, were noted with respect to the use of portfolio assessment. Teachers in the induction years one and two were less certain of the value of naturalistic assessment and less confident in their ability to implement portfolios effectively. Teachers in the third year of teaching were more confident about the feasibility of using portfolios effectively. This difference relates directly to the previous research about the demands of the first years of teaching, often characterized by experts as "survival" years. It was at the beginning of the third year of teaching that respondents in this study began to view portfolio assessment, a typically time-consuming and labor-intensive reform practice, as feasible; whereas, in years one and two, they did not view this practice as realistic.

Future Directions/Refinement of the Instrument

This research study focused on the query, "What happens when preservice teachers hatch and then leave the protective cocoon of the professional development school, finding themselves in real world settings?" A self-perception scale was designed to determine if recent graduates of a professional development school program hatch into butterflies and become change agents. This study followed the recent PDS graduates and questioned their practices, beliefs, and behaviors once they encountered real world problems and conflicts. The findings in this preliminary study were inconclusive for several reasons. The instrument used in the present study needs further refinement and revision. Another sample, more diverse and including non-PDS trained teachers as well as PDS and non-PDS teachers from another institution, would be desirable. Factor analysis to identify items that do not appear to be related to other items would be helpful. Also, items containing "loaded" wording that would invite obvious agreement or disagreement need to be eliminated from the scale.

While this researcher discovered that there were some brightly-glowing butterflies making the first fledgling efforts to become the change agents so needed in the new millennium, others failed to take the time to return the questionnaire. More research is needed to document the effectiveness of professional development schools. In order to provide concrete support for the continuation of immersing preservice teachers in professional development school settings, suitable instruments with acceptable validity and reliability are needed. Professionals who labor in these field programs are often junior faculty seeking tenure with limited time for planning and conducting the quality research needed to answer the important effectiveness issues because of the time demands of collaboration. The expertise of senior colleagues on university campuses in designing and in validating instruments which can address the critical questions

frequently posed by the stakeholders in the PDS reform movement is urgently needed.

There is a need for well-designed longitudinal research, both quantitative and qualitative, to track new teachers and to compare the career records and length of service of professional development school graduates and non-professional development school graduates. This researcher strongly supports the concept that professional development school learning communities are cultures, which may nurture preservice teachers until the time when they can emerge from their cocoons and become butterfly change agents, but definitive and conclusive research in this area is still lacking.

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