Action Research

Collecting and Analyzing Data

By Dr. Thomas G. Ryan

Action research has survived for many years via the support of enthusiasts, practitioners, and newcomers. Many new action researchers are educators and some are education students. From pre-service to in-service and from undergraduate to graduate programs there is a desire to become involved in action research projects related to education, teaching and improvement. Enthusiasts seek-out, and request guidance, support and reassurance as they move forward toward educational goals and research outcomes. Even veteran researchers take note of new developments and observe both the quality and pace of evolution within action research efforts. The following information was developed to address some of the needs of action researchers and to reexamine critical elements of action research such as the collection and analysis of data within action inquiries.

How to Collect Data

Introduction

Data is a curious word which is actually a plural noun. This realization requires attention and careful consideration. When we read the word 'data' in a sentence, we sense a slight bit of grammatical uncertainty. For instance, I could say that the data are correct. To the person who is unaware of the plurality of the word, data, this sentence seems somewhat awkward or incorrect. We now know however, that the sentence is fine. Therefore, when you read the word 'data' think of plurality and when you use the word data in a sentence reflect on its significance as a plural noun. Consider the question; do these data represent our students? It is useful to reread the sentence while checking your interpretation and comprehension, and then proceed.

Data are everywhere. Our observations (direct/indirect), experiences and daily life provide a rich source of data. In my current role as an educator, I speak to many people and gather data on a daily basis. In my research efforts, I may choose to speak directly to participants via informal conversation or formal interviews that require me to ask questions that provide feedback and information (data). Each communication mode is a means and opportunity to gather useful data. I could communicate indirectly with participants via a survey, questionnaire, or instrument (psychological - projective test), as commonly used in Special Education areas. A third source of information emanates from colleagues. Colleagues, who interact with the research participants, can share their perceptions and observations of research participants. Lastly, the researcher (participant or non-participatory) can provide observations' and this

information helps to build a picture or record that reflexively captures the context as perceived.

Within our communities, I can pick up a newspaper, a magazine or a journal and find data. If I locate the same data in different sources (corroboration) then we can suggest that information is somewhat credible (valid). I can elect to visit a business or school and from that experience gather data. In fact, we are constantly sensing data. It may be too cold or too warm and if we take some time to record these 'facts' daily or at least in some systematic and strategic manner we can then say that we have collected data in a manner that is uniformly credible. Credible data is within many stories. For instance, if a study reported, a seventeen-year-old female in the 11th grade ran a one hundred meter race in 9.5 seconds we could then make use of this information. We need to corroborate these data in other sources in order to affirm the credibility. Yet, there are many pieces of data in this short excerpt. We now know that the participant was female. She is also seventeen years old and she is, or was in the 11th grade at the time of this study. This seventeen-year-old female also ran 100 meters in 9.5 seconds. The information recorded and/or provided by participants in a study, is a source of data for the researcher and those who read the research.

As educators we live with evidence. It is within our conversations, emails, student products, video-tapes, audio-tapes, checklists, anecdotal observations, report cards, conference notes, staff meeting minutes, Board documents, test results and just about any artifact an educator can lay a hand on. What follows is a cursory look at some of these elements through the eyes of an action researcher.

Action Research within the Classroom: Locating Evidence

Student Products

Student products include all of the products they develop via the curriculum. It is these products that prove they have learned and achieved. It is evidence, and these products symbolically represent their knowledge, skills, and attitudes at a point in time. This evidence surrounds a teacher in a classroom and much of it has been systematically collected. Students produce, among many things, evidence of their ability to process information, think critically and construct products. Teachers regularly make use of checklists and daily observations to document student progress. Weekly tests, monthly tasks and yearly assessment and evaluation schemes aim to capture evidence of successful product completion.

Most teachers use a variety of means to gather data (assess) and eventually judge (evaluate) that data in order to decide the extent of teacher, student and/or class progress and need. Data collection in the classroom is a multifaceted and continuous task that prepares teachers to become action researchers, as the teaching process is, in many ways, analogous to the action research process.

Some student products commonly take the form of a collection of writing (journals), videotapes (performances), audiotapes (oral tasks), computer demonstrations (technology usage), bulletin boards (captured via photography), and debates (recorded). By capturing these sources of evidence, students can demonstrate their understanding, skills and attitudes. Teachers then judge the degree and level of growth in social and academic skills and attitudes.

Student (product development) tasks present an opportunity for authentic efforts. In other words the products can be intended for real audiences. Some examples include:

- Development and Marketing of a food product (Maple Syrup).
- A letter to the editor and/or articles for a newspaper (opinion).
- Student work published in periodicals/magazines.
- Displays in public places such as malls, businesses, and parks.
- Presentations to a local group such as a city council, historical society, or naturalists society (stance/issues).
- Artistic performances for the community (children/seniors).
- Story telling at a library or bookstore (Drama).
- Creation of oral history tapes (First Nations).
- Invention convention for the community or regional stage (Technology).
- Mall display of ecological studies (Biology).
- Contribution of math puzzles to children's magazines (Math).
- Televised student panel discussion of a community problem (Local).
- Student business plans reviewed by business community (Entrepreneur).
- Dramatization of an issue for the community (Community theatre).

Teacher Observations

Usually, traditional teacher observations fall into two categories, informal and formal. Within these two categories, it can be argued that teacher observations are largely driven by assessment and evaluation data collection goals. Informal observations may entail scanning a classroom for behavioural concerns while formal teacher observations can involve anecdotal observations (checklists), specific work tasks or controlled group work tasks such as tests, exhibitions or performances. Classroom tasks, whether formal or informal most often stimulate and instigate learning. These achievement opportunities can be recorded, documented, and used to inform the teaching process.

Within action research, there are multiple modes of observation. We can stand apart and be non-participatory while making observations or we can be a participant and observe from within. Participatory teacher observation takes place when we engage fully in an activity for instance; we join one side and play soccer during a physical education period. A third observational mode occurs when educators step outside of their direct responsibilities and attend another

class to observe or visit another school to make observations. This opportunity to observe passively while others teach means you are not responsible for the instruction. This is quite an opportunity and a privilege. Hence, the term privileged observer is often used to describe this mode.

We could argue that observation in our own research tends to bias our observations as we look for data related to our research problem(s) or hypotheses. This is something we need to write about, to make public and explain our level of observational bias awareness. We also need to remind ourselves that just being alive renders us natural observers. As we move through our day, we make informal observations of others and our own behavior. Our data, perception, interpretation and learning help us make sense of our world. It informs and guides our actions. Largely, our daily observation is habitual, principally unconscious and unsystematic. Our lived experiences help us to maintain commonsense interaction within our world. Our observations as educators are a research tool only when it is purposeful, planned, and recorded both systematically and strategically.

A lack of systematic and strategic control while observing in research brings about criticism as the data can be admittedly highly subjective, random and scattered. The educational system actually helps action researchers in these areas, as systems in schools are highly routinized, strategic, organized and systematic. Observer training in schools is part of their occupational role and is actually infused through curriculum initiatives. Timetables illuminate how each moment of the day will be used and lesson, unit and year plans detail the content of these moments. Therefore, most educators are mentally prepared and have an understanding of observation which is important for all researchers. Yet, we simply do not move from participant to non-participant to privileged observer without embracing the elements, which keep each mode distinct.

Whatever the observational mode chosen an observer is usually selective and attends to certain elements within the milieu. It is important not to try to attend to all elements within the research site, as it is overwhelming and even if a videotape was utilized, we would still be overwhelmed. We must attend selectively and focus. We work to become better and we search out means to improve in all occupations. A skilled teacher does not just happen; it takes a great deal of effort, practice and refinement. In action research, you can learn to be a careful, strategic and systematic observer. Preparing to be a skilled observer includes learning how to write in a descriptive manner. How to create a picture for the reader, which communicates context in a simple manner, is important in action research. Observing and writing what you perceive via the disciplined recording of field notes is not an easy task as you are attempting to recreate and reconstruct what you just observed. Knowing how to detach detail from trivia will permit your to construct a useful observational record.

To practice observing and recording is a necessary task. Strive to be a non-participant observer in a public place and then challenge yourself to be a participant observer in your work or social settings, and dare to be a privileged observed at city hall perhaps and record a council meeting. The apprenticeship process tests your abilities and each time you test yourself you improve. You move from inexperienced to experienced just by applying yourself in a strategic and systematic manner. Compare your observations with others and read other people's accounts of experiences. Involve yourself in a class that requires observational tasks and build your competencies.

Teacher Communications

A teacher is a communicator, whether they want to be or not, who is obligated to reach out to parents, administration, peers, students and the community. To do this requires the use knowledge, skills and attitudes that are informed and refined. A teacher is compelled to utilize effective written, verbal, nonverbal, and visual communication techniques to foster active inquiry, collaboration, and supportive interaction both in the classroom and in their community. In doing so, vast amounts of data are created that can then be gathered, sifted and examined. Our examinations can illuminate several realizations concerning teachers and communication.

We may realize that teachers understand communication theory, language development, and the role of language in learning as we read their report cards and Annual Education Plans (AEP). We realize that teachers understand how cultural and gender differences can affect communication in the classroom as we read Special Education forms (IEP's, IPP's, referrals). We may begin to see how teachers understand the social, intellectual, and political implications of language use and how they influence meaning in the classroom and the school community when we read the newsletters, letters, and flyers. We can start to uncover how a teacher understands the importance of audience and purpose when selecting ways to communicate ideas only after we read the transcripts of staff meetings and the contents of day books and/or parent-teacher meeting minutes.

Ideally, teachers model communicative activities as they put forward accurate, effective communications. Teachers are constantly conveying ideas and information. When teachers ask questions and respond to students they are modeling communicative behavior. To capture such evidence requires a focused eye and ear. It is possible to record by hand some of what is said yet an observer is overwhelmed by the non-verbal information. Using video allows us to review material repeatedly yet the video camera with its one eye and ear often distorts the reality and this is a limitation.

One action research study involved reflecting upon how we as teachers use effective questioning techniques to stimulate discussion in different ways for specific instructional purposes. This action research effort required not only a

good memory (reflection) but also a number of sources of data in order to corroborate claims and assertions within the action research. The study made use of student products, teacher's plans (written evidence), and an action research diary (reflections) to broaden and deepen the findings. Luckily, most teachers create varied opportunities for all students to use effective written, verbal, nonverbal, and visual communication in the classroom and this can become the evidence within an action research effort.

Most teachers challenge students in a supportive manner and this provides students with constructive feedback. The problem for the action researcher is capturing these efforts in a manner that is efficient and useful. We have mentioned video and we can add to the list tape-recording yet we can also enlist other recorders to help us collect data. You may want to have other action researchers become part of your study and each of you can observe (privileged observer) in another's classroom. Of course you may need release time and failing this, you may need to donate your preparation period for the cause. All teacher's use a variety of communication modes to effectively communicate with a diverse student population and it follows that all action researcher must use a variety of Teacher communications to investigate diverse research interests.

As you move forward within your action research effort, you are supported by the fact that most teachers already practice effective listening, conflict resolution, and group-facilitation skills. These skills are essential for all action research projects and the fact that all teachers communicate using a variety of communication tools allows researchers to utilize these tools.

Narrative Writing

Narrative is a form of communication that, if written well, allows readers to view the lived experience as the writer does. Narrative writing includes the life stories found in both biographies and autobiographies. The biographer tells a story of another and we can sense via the writing the perceptions of the writer. The autobiography, on the other hand, is a window into the personal story of a person who has elected to make public the perceptions and lived experiences as they themselves sensed it. Traditional narrative involves one of the oldest forms of knowledge construction (storytelling). When we write we reconstruct. We address a series of events and their causes. In addition, narrative also can involve the interpretation of stories that reveal past experiences, actions, opinions and happenings.

A narrative is built upon language and text, and it is naturally seamless, if it is well written. Most of us however think in terms of feelings and emotions and these seem to obscure and color the conscious collection of events, the discernment of actions, and

the intellectual processes required to understanding what is going on around us. Our
thought mechanisms filter the incidents and our senses colour the sensations.

In the biography mode, we rely on others' information of what they sensed (heard/saw). We compare it with the composite network of information stored in our memory. We compare it to what we think or know. Some biographers may add or misinterpret due to a lack of similar composite memories, which leads to misinformation or errors within the biography. I recently required a graduate class to construct a biography of a classmate assigned to them at random. The resultant tensions and frustrations during the process were tangible and at times quite stressful. The biographers wanted to 'get it right' however, the telling of ones life story is often not a convenient linear experience that can be assembled neatly. In conversation, events surface and themes emerge which can confuse and distance the biographer. Narrative requires people to prepare to speak or write. It requires deep thinking, reflection and broad communicative (writing) skills.

Narrative is most often built upon some type of organized deliberation. Narrative is about positioning what we reckon to be the most significant features of our thoughts within or upon a particular shape (linear or otherwise) and we are usually able to suspend the proof upon the sides of such a shape. Annotation, from within the story, is likely suspended from the shape in a complimentary manner. This approach is an orderly technique as bits of the supporting evidence can be skillfully interlaced. An exemplary narrative can present more than one voice, however this is quite difficult to maintain in the narrative form except by the most skilful of writers. I would encourage readers to read beyond this text and to look for more images and exemplars of narration. Look to biographies, autobiographies, ethnographies and those researchers such as Connelly and Clandinin (2000) who have detailed this mode of inquiry for many years quite capably.

Journaling

For educators the word journal is not a mystery however, when confronted with the task of constructing your own journal a number of questions can emerge. For instance, what does an action research journal contain? Usually, an action research journal will have a form that is maintained and your senses enlighten this form (shape). 'Shape' can be the area of concern, the problem, a set of questions, an action research model, or your topic, as it filters through your perceived thoughts, feelings, ideas and activities. Recording your experience allows you to capture interpretations and layout a chronicle.

Journaling can offer the writer a means to a greater sense of clarity about who you are, what you are doing and how it went. Your journal may contain

reflections upon the past, present and intuitive suggestions concerning the future. Journaling can be a method of finding your way, locating solutions to problems, organizing thoughts, setting goals and recording a means to reach them. Journaling improves your writing skills and documents your progress in many areas.

Getting started requires some discipline and time. You may like to select a bound book with blank pages or purchase a loose-leaf notebook with colored, lined or fine-looking
ornamental paper. I have used spiral notebooks that fit nicely in my palm or slip into a pocket. Write in something that compels you, or type on a palmtop, a laptop or desktop computer system. You could currently even buy 'dragon speak', a software program that can take your spoken word and commit this to paper via the computer/printer of course. I have used pocket recorders while teaching and then later transcribed this information to paper that evening away from the classroom.

Traditionally, we journal while sitting down and we reconstruct what has just happened. Do not throw up obstacles while writing, pay no notice to sentence structure or spelling and do not criticize or stifle yourself. Let yourself write and develop a flow, a feel for writing just as a swimmer develops a feel for the water. Write anytime, anywhere, about anything and do it often. However, we need to remember that the underpinnings of action research involve systematic and strategic actions that you design, nurture, and attend too. I found that I would write anywhere, preferably a quiet, private place. Writing is a portable activity as you can do it anywhere. I wrote when I was emotional (happy, scared, excited, worried, confused, content) and writing calmed my soul, provided perspective and an outlet for emotion. Sometimes I logged my activities, other times I focused on my thoughts, perceptions, and ideas concerning my action research project. For example, I noted this in my journal on October 17, 1997:

> Pat is really working at getting all the information she can quickly in order to get ahead. However, I did this too when I started teaching and discovered years later that teaching can never be mastered. Every day is a new challenge and a chance to add to our resource base. Change happens to you when you are least aware of it. It could be a decision to question differently or apply resources differently that reflects a shift in beliefs. (p. 6)

My note was a reaction to a small group discussion that occurred regularly in our action research group. Another member of our group wrote,

> I have a lot of experience in different areas and the thought of getting involved in more reflection, since I didn't like it in the Fac. of Ed., makes me think it will be different this time since teachers are

> doing it and not people who want/might be teachers. (October 8th, 1997, p 1)

A much later journal entry by Pat:

> After months of talking and teaching, I think its time for some kind of a break. It has been a tough year but we've pulled together and I feel we are better for it. I just hope I'll have a job next year with Bill 160 and enrolment. Anyway, I'll use what I have learned and it will help. (April 10th, 1998, p. 43)

These journal entries are honest, informative and help action researchers to pull together their thoughts for further consideration. Journal entries can create pictures in the minds of readers and if you cannot find the words possibly, a drawing may be appropriate within your journal to capture a moment.

Test Results

Tests, which are nothing more than a series of tasks completed by students, can illuminate student or class achievement, needs and assessment error. Test results allow us to rank, group and attach a value to results. Grades and achievement can be related to the completion of tests and can provide the evidence for researcher claims. Tests indirectly illuminate the quality of instruction and even the quality of the test can be called into question. We can examine test construction, application and marking practices. We can reflect on the progress of students and question the assessment and evaluation scheme. Testing within a classroom is a tradition that often includes formative and summative tasks as well as objective (multiple-choice, matching, true/false, etc.) and non-objective tasks (essay, student constructed responses) which can provide credible sources of data.

Recent innovations in classroom measurement has allowed for the use of authentic tests that permit students to apply skills and abilities as they would in real life. Authentic tasks (as noted earlier) such as the development of a new product or process or improving an existing one provides a wealth of data. Students who have a chance to exhibit their skills and abilities (performance) often believe that the process of performance and the embedded evaluation scheme is more logical and fairer than traditional means of assessment and evaluation. Indeed, the area of authentic assessment and evaluation is fertile ground for action researchers. Teachers today, faced with authentic performance tasks, exhibitions, and portfolios are grappling with questions of reliability, validity and equity when in fact the new assessment and evaluation innovations, just as in action research, are predominately non-generalizable and are rooted in the qualitative experiences that need to be valued on a case-by-case basis. This is what makes authentic assessment and evaluation so appealing. Authentic tasks do not easily lend themselves to tradition assessment and evaluation practices

such as ranking and comparative analysis. Gathering this type of data can be time-consuming however; with the use of multimedia tools, data collection is less frustrating.

Multimedia

If we had to characterize our current living environment, we would eventually use the word digital at some point in our description. The digital information age is more precise, expedient, and demands that the user be informed. Most teachers and researchers today could use a digital camera, a digital video camera, and a compact disc at some point in their day. Armed with a digital camera an action researcher can produce complete mobile files on compact discs that can later be re-examined. Innovations in education often require new modes of high-tech record keeping. 'Shop' classes today involve computer assisted design software and secondary classes in videography are common where students construct original video works and edit the same on computers. Teacher researchers can make use of these classes or develop courses (units) to gather evidence. For instance, evidence can be captured via digital camera and transmitted via the internet to remote sites where it can be archived and examined later. Digital cameras provide picture and sound therefore we can examine both nonverbal and verbal behaviours. We can create a record of physical behavior and use this to show human behavior in various milieus.

Questionnaires

Questionnaires help researchers by providing answers to specific questions. Sometimes statements are used to solicit information. The challenge for researchers is to develop each question or statement on the questionnaire so that it extracts accurate, useful information from respondents. The questionnaire provides insight, it illuminates and often reveals themes that can be further examined. A questionnaire can be an opportunity to use numbers as responses can be ranked (likert scale 1-5), summed, and averaged. The mix of quantitative and qualitative data is a good one for action research as you can gain support for your claims via each method.

Developing a new questionnaire is not always necessary since there have been many good, and not so good questionnaires constructed in past studies. For tips and hints to guide you as you prepare your questionnaire, visit, http://edresearch.org/pare/getvn.asp?v=5&n=3. I suggest you attempt to locate a questionnaire that is already out there and modify it to suit your needs. Another strategy to alert you to the pitfalls and successes inherent in questioning is to begin developing questions and have people respond to these probes. For instance, at your next meeting, ask people to write down answers to two simple questions. Ask for no more than a paragraph and collect this data. This preliminary work will allow you to see how difficult it is to simplify questions and

get the data you might expect. Your goal is to diminish misinterpretation, encourage responses, and do both efficiently. For example,

1. How often do you exercise?

   Daily _____

   Weekly_____

   Monthly _____

Is this a simple question, or do you need more context? For instance, during the summer I exercise more than I do in the winter so I may average my response. Another possible reaction to this question is to ask, what do you mean by exercise? What about exercise duration, intensity and the type of exercise as this will factor in somehow, so the question needs some work. Often while questioning in our classrooms, we refine our questions during the first one or two responses in order to zone in on the information we are attempting to elicit from respondents. We realize that closed-ended questions are more uniform as the responses are predictable. For instance, do you like hockey? The responses likely include yes or no. Open-ended questions leave room for the respondent to provide a more varied answer. For example, how does rainy weather make you feel? We could provide an exhaustive list of possible responses to assist respondents yet the issue of bias appears and therefore would need to be addressed.

We try to avoid ambiguous questions, vague terms, jargon, slang, or technical words that throw up barriers for respondents. The topic needs to be examined from various levels, as some statements/questions can be politically, professionally, or personally objectionable. Sensitive topics include (private issues, and areas that respondents believe are not for public viewing). Each item needs to be phrased positively to avoid misinterpretation. For instance, Teacher Unions should <u>not</u> include Principals. This type of statement confuses as respondents may agree but actually want Principals recognized as members of the Unions. Review your questions to address prejudice, and bias (quality).

I suggest a questionnaire be no more than a page in length and easily read so that respondents can complete the task without too much trouble. The next time you are in a restaurant take home a questionnaire that asks patrons how the service, quality of food and overall experience was.

Organizing the Data as You Collect It

One of my earlier action research efforts involved a group of Secondary science teachers. I opted to use this approach and described the data collection mode in this manner:

Over a period of eight months data were collected via supportive weekly tape-recorded discussion groups, individual interviews, classroom visitations, daily journals and randomly collected documentation. Data, collected through reflection, was in itself a systematic and strategic process. The reflection process, carried out by all participants, was the analysis, which led to theorizing and the transformation of understandings of assessment praxes. (Stinger, 1996) Within the transcripts and journal notes, evidence that supported changes in assessment thoughts and practice was identified and described. Winter (1996) explains that " action research is seen as a way of investigating professional experience which links practice and the analysis of practice into a single, continuously developing sequence" (p. 13). Thus, data collection and analysis were not separate acts; they occurred simultaneously. Some early action researchers (Corey, 1949, Lewin, 1946) have treated the act of data collection and analysis as separate entities. Barnsley and Ellis (1987) suggest an acceptable contrast in method as they explain: "data analysis can begin while the research is in progress as well as after the data has been gathered" (Part V - p. 24).

As the data were mounting, I began to skim the collection and commence the task of reflecting on what I had sensed. Further reflection brought to mind key concepts and words that supported these concepts. I use the word 'concept' to describe something that, to my mind, is unambiguous. The key concepts were used to assemble a matrix. I believed that the conception of data analysis articulated by Sagor (1992) suited me best:

> Data analysis can be most simply described as a process of sifting, sorting, discarding, and cataloguing in an attempt to answer two basic questions: What are the important themes in this data ? and (2) how much data support each of these themes ? (p. 48)

My assessment themes became key terms and were used on the horizontal axis of the matrix. These included: What, Why, Who, How, Time, Isolation and Views. The 'What' meant: What do you assess? The 'Why' meant: Why do you assess? The 'Who' meant: Who completes or develops the assessment? The 'How' meant: How do you assess? The 'Time' indicated that some mention or inference was made to time as a constraining feature of assessment praxes. 'Isolation' indicated that some mention or inference was made to teacher isolation

as a feature of assessment praxes. The 'Views' term indicated that a view had been expressed repeatedly and strongly.

On the vertical axis, I had sources of data (group discussion, one-to-one discussion, journal, classroom visit, informal communications, and documentation). Each key concept was given a colour code. As the data were skimmed, sifted, sorted and a linkage to the key concept was found, the data were highlighted in the corresponding colour. As well, in each box of the matrix, co-ordinates were noted, such as the date and page number. So, if I were looking for data concerning the 'what' (key concept - horizontal axis) of assessment praxes, I could go down the column to locate the source (group, 1:1, journal, document, visitation, informal note). Located in a specific matrix box would be the source's location by date and page number, thus enabling rapid location and recovery of the information.

In this short example, you can begin to see how I proceeded. Today action researchers can do the same yet I could have opted to use a computer and the accompanying software to accomplish the same ends. However, unless you have free access to qualitative analysis software, it can be an expensive undertaking.

A Case Study

Our study was entitled: The assessment praxes of a first year Secondary Science Teacher and I began with this introduction.

Introduction

The following descriptions and interpretations concern the actions of a first year secondary science teacher. 'Pat' (pseudonym) was a novice teacher who participated in our action research study in order to help us illuminate the assessment praxes of a first year Secondary science teacher. Central to our research was the term praxis, which is henceforth understood as an established teaching practice, and praxes indicating several established teaching practices. To illuminate teaching praxes required a non-evaluative mode of collaboration, often referred to as participatory action research.

Pat was part of a group who were collectively participating in this practical action research effort in order to bridge the gap between theory and practice. Each of the participants " . . . in participatory action research are joined by a thematic concern, that is, a commitment to inform and improve a particular practice " (McTaggart, 1997, p. 30). Hence, this examination of assessment praxes was linked thematically to a commitment to inform and improve assessment praxes.

Pat: Past and Present

Several images of Pat, as a participant and first year teacher, are described herein. Pat's images create an identity for her as she strives to increase her knowledge and understanding of assessment. It is through these images that rationales are connected to emerging themes. The themes and rationales were generated via our data collection and analysis. Our bouts of reflection served as a means of professional learning and much of our work culminates in the final sections where the images of Pat's assessment praxes are described as a search for competency and identity as a first year teacher.

Assessment Praxes: Preservice Experience

Pat and I usually met for one-to-one sessions in one of three science laboratories at the school. Since Pat had a copy of the meeting schedule she was 'ready' when she needed to be. I would arrive on time with tape-recorder in hand and we would commence our discussion focused on some aspect of assessment. This scene played out for most of our meetings, yet on a few occasions we were momentarily interrupted by some other staff member who came into the lab to get supplies. I would usually meet her during a preparation period, before class or after class, which meant that the room was quiet enough or empty enough so that our tape-recorder could pick up our conversation without interference. We never had technical difficulties with our tape-recorder and each of us became comfortable with the format. Pat wrote in her journal.

> I was not too crazy about the recording of what I said at first but since I will be hidden behind some pseudonym as well as the school then I guess that's good enough. It makes me feel what I say is important and I don't know if I'm ready for that. (October 30th, 1997, p. 17)

This entry struck me as honest and assured me that the data recorded would also be honest, sincere and heartfelt. On most occasions our discussions seemed to go beyond the allotted time because we were both engrossed in our conversation. This always left me with the impression that we didn't have enough time, yet it was probably due to the fact that we had so much to discuss in the area of classroom assessment.

We discussed preservice training and its aim to expose students to theory, methods, and skills. We reflected on our school placement experiences, which provided opportunities to apply preservice learning. We discussed the amount of effort a first year teacher requires. (Wideen, et al., 1998). We also discussed the alternative-based preservice program modes, which might include action research (Carr & Kemmis, 1986; Sagor, 1992) and reflective practice (Schon, 1983). As we reflected, it became apparent that Pat had experienced a mix of both alternative and traditional preservice training. I wondered to myself: Was it a

consequence of this preservice experience that certain opinions and beliefs developed within Pat? It seemed as though Pat's beliefs had come from an earlier stage of her life. If so, this supports the assertion of Wideen et al. (1998) who point out that beginning teachers enter preservice teacher education with firmly held views about teaching (p. 168).

The notion that graduates of preservice programs may enter the workforce with previously developed beliefs and values concerning teaching is useful to veteran teachers, teacher educators and researchers who might try to work with first year teachers. The preservice experience can then be viewed, by participants, from a highly critical stance. It can be perceived as a less than valuable experience. Indeed, beginning teachers are little influenced by the interventions that occur in preservice teacher education (Wideen et al., 1998, p.168). This may be because the teacher in training often devalues preservice and puts forward critical images of the experience when reflecting upon it, just as Pat noted in her journal early on:

> The Faculty 'process' of training teachers is not really valid. It is too subjective; it takes you down a path and asks you what you think along the way during the journey or asks you to reflect at certain endpoints. I didn't have an answer; it was too much reflection and not enough reality. I knew what teaching was and what it wasn't. At the Fac. of Ed. we talked about what if, and why and most people turned off. I woke up when I worked in classrooms and had to perform. (October 14th, 1997, p. 12)

Pat wanted more practice teaching in preservice. She valued it more than the theory she was exposed to in preservice. According to her, reflection in alternative based preservice programs is an overused practice. This seemed to be a frequent theme for Pat as she reflected on her days as a student at the Faculty of Education at the University of Toronto. During an October 1st, 1997, group discussion, in response to my question about assessment while in her preservice year, Pat recalled what assessment was like for her.

> Pat - OK, if you ran around, too! A lot of it has been very cognitive, very little creativity and, well, group work -- I'd say a lot of people assess group work very superficially. I mean, did you work? Great there you go, you got a ‘A‘. I mean, if you didn't break any windows, there you go, you got an 'A' in-group work. Assessing group work might be very, very subjective and it depends on how people work. Together, some people can do that and other people can't, I don't know. I just find it fairly subjective in class group work. I found I wasn't assessed that way in University at all. There is no creativity part at all. It was how you communicate and how you can write. It's hard to focus on the assessment. The assessment this year has been

> interesting because how to word a question and what they comprehend from the question . . . just from the assessment you can tell how the person thinks. I mean, yeah, they wrote something, here's an 'A'. And if you give them less than 60 percent, everyone complains. I'm not very happy with the grade 9 assessment; it's very different than the grade 10. You go from one step to the other so quickly. (p. 1)

I matched Pat's critical responses to the insights of researchers such as Wideen et al. (1998), who suggest that:

> Future work [in the area of preservice program development] must systematically challenge myths that underpin most current programs of teacher education and focus on the structures and the ethos that must be created to assist beginning teachers to examine their beliefs and to understand how to support new practices that are consistent with their changed beliefs. (p. 169)

I thought that the points made in this quote were essential to our discussion and I shared these with Pat, who laughed at their accuracy. Secondly, we thought that until these changes are made preservice teachers might consistently graduate with similar beliefs. For instance, Pat decided that the year invested at her Faculty of Education had not paid dividends. Clearly, not all in our group shared her opinion. However, I found a means to understand not only Pat's position on this question, but others' as well. My understanding became clearer once I had made attempts to decode Wideen, et al. (1998), who astutely point out that " . . . preservice teachers do not typically develop new perspectives, [they] simply become more skilful at defending the perspectives they already possess " (p 142). So, Pat was in a defensive and highly critical stance, as she suggested her preservice program required only 'breathing and running around' as criteria for passing. This opinion of Pat's was probably related to the views of some preservice teachers who suggest that " . . . teaching [is] something one does, not something one ponders " (Wideen, et al. 1998, p. 153). Therefore, sitting idle in a Faculty of Education classroom, quite removed from the 'front lines of teaching', caused Pat to be uneasy about her teacher training and some aspects of teaching in general.

In spite of her preservice experiences, reactions and impressions, Pat was, at this time, confident, yet frustrated in most areas of teaching -- including assessment. Within the group setting Pat often vented and seemed to be somewhat annoyed.

> Give me something concrete and I'll run with it. I'm not a cadaver. I did self-assessment and I did peer-assessment and the group said I got a 100%, everyone got 100%. I had just as many discipline problems. So, to say the old way is, I'm not saying all is good, there

> are a lot of problems. But a lot of people are incorporating a lot of things. I think the new method is very illogical in a lot of areas. Whereas the sheet of paper saying do A, do this, here's a handout, be quiet, boom, I mean until I can get some of that, I mean content is very important. (January 22nd, 1998, p. 4)

Obviously there was tension in the air as Pat addressed some of the frustrations she faced in her classroom. I asked myself if she was just making a case for giving up her ideals in favour of traditional practices (content-based program), as noted by Rosaen and Schram (1997) in their study of first-year teachers. Clearly, Pat supported a content-based program. Content-based programs offer a series of lessons that are regimented and cause students to follow a predetermined course of learning (Griffin, 1998). Pat viewed herself as a transmitter, there to deliver a body of knowledge. She wrote:

> In order to lay down the law in class you have to know your course of studies inside and out. Because I do I find it easier to take care of the behaviour of the students. Both of these areas are of interest to me. If I control their behaviour then we can deal with the content. If I can take control of the content then I can deal with their behaviour. (November 19th, 1997, p. 21)

This preoccupation with control (discipline) is well documented in the preservice literature (Rosaen & Schram, 1997;Schoonmaker, 1998). This insight may also be applicable to first-year (novice) teachers; it certainly seemed to be so for Pat. Later, during one of our many group discussions, Pat explained: " I'm the boss, I can make the rules and if you don't like it too bad, ha,ha,ha " (November 12th, 1997, p. 3). Pat then complained that grade 9 assessment was not ideal, but rather too subjective or easy, and grade 10 was too difficult, too large a step from grade 9. It could be that Pat might be experiencing challenges to some of the idealism created in preservice or even before preservice, while Pat was a student. Her current dilemma created serious problems and confusion for her (Wideen, et al. 1998).

Pat thought her Faculty of Education experience was enriched by her practicum. However, she felt that away from the practicum, in the areas of study that are more theoretical, there was less value for some teachers, who view it as too detached from practice. Indeed, Schoonmaker (1998) suggests
" the literature tells us that if . . . [a person's] development as a teacher is typical, she will leave the university with the conviction that theory is abstract and unrelated to the realities of teaching " (p. 562). The merits of this observation were explored in our group. Pat offered this insight concerning the development of assessment literacy at her Faculty of Education.

> T.R. Did classes in assessment help you?

> Pat - Nothing was good. Science was not bad and they did some assessment. Math was a total waste of time. Special Education was eight hours of ' there are special kids out there and don't worry about programming because the special education department will look after that. ' Obviously they don't, because I had to do it. Discipline, we played with pom-poms and found out what type of personality we are.
> Law was not bad: This is the law-bang-bang-bang. That was half-decent. The psychology was useless. He told us stories about how he grew up on the prairies. He was about 80 years old. The TSS course was off the wall; she didn't open her mouth the whole time. She told us her life. It was a really a huge waste of time.
> T.R. So, how would you change the year at the Faculty of Education to make it more useful?
> Pat - More practical exercises, such as making tests for grade 10 science. Stuff the reflection; we had reflection right out the wazoo.
> T.R. OK, the assessment classes were not useful, so your practicum was time well spent?
> Pat - I've got a strong science background and fairly strong math background, so they let me walk in and do things by myself because I was confident. It was teacher-to-teacher level and not teacher-to-student.
> T.R. During your placements, did you use any alternative assessments?
> Pat - Not portfolios, but self and peer-assessments. (January 7th, 1998, p. 3)

Pat, in fact, saw most of the preservice year as a waste of time, with the exception of her practicum and one or two of her professors. This highly critical stance towards the Faculty of Education can be linked to the striking contrast between what is done in preservice and what a teacher's needs are inservice. Therefore, the hindsight becomes quite cynical and some may say that " all is lost if teachers succumb to pessimism and cynicism " (Hargreaves & Fullan, 1998, p. 58). Yet, Pat was determined to overcome this pessimism. One means to overcome it was to be quite forthcoming, and I supported this virtue as best I could, as did our group. I noted in my journal early in our study:

> Pat is stands out because her insights seem so much out of 'sync' with what the other veteran teachers saying. I include myself as part of the veteran group. The established view versus Pat who brings in the alternative. I don't quite know how to describe it -- I guess I could just say she is a first-year teacher who has yet to become accustomed to certain ways and means in education. (October 10th, 1997, p. 2)

Pat reflected on her experience of being assessed and came to the conclusion that it was mostly cognitive and narrow. By this she meant traditional content-based assessment, with paper and pencil methods. Assessment, as she

experienced it, did not involve the application of skills or varied tasks from each of the three domains (psychomotor, cognitive and affective).

Pat viewed self and peer-assessment as less than adequate and not a valid way to assess either in the Faculty of Education or the classes she now teaches. Therefore, her assessment praxes involved many of the tools she was most familiar with and coincidentally believed in, such as multiple-choice, fill-ins and short-answer objective style questions. Pat's assessment praxes seemed to be a perpetuation of what has been done traditionally in assessment. Her influences have been her experiences as a student. Smith (1988) explains:

> Professors in faculties of education have told me that student teachers are not 'ready' for theory -- and that most practicing teachers are not either. These professors argue that student teachers must be given 'survival skills' to get through the day and that they must be prepared for the way schools are, not for the way schools ought to be. Teachers, like students, behave in ways that reflect how they have been taught. (p. 126-127)

If this insight had been available to her, Pat would possibly have graduated with a better impression of the Faculty and its educational program. Pat's assessment praxes closely matched those of her predecessors. However, as mentioned, Pat had been hired close to the beginning of the school year. Consequently, she felt under siege and was attempting to " ground herself " by doing what was easiest, given the multiple demands of the job.

Search for Competence

Pat, being the newest staff member, had many interesting perspectives on the role of a secondary science teacher and possible indicators of good teaching. For instance, on December 3rd, 1997, we had the following conversation.

> T.R. What criteria would you have that makes a good teacher?
> Pat - 1 Competent in their field, 2 Industrious, 3 Creative, 4 Energy, and 5 Patience; I think that's it.
> T.R. If I said to you: " A good teacher is one that wears a blue shirt." Would you wear one?
> Pat - Yes, I would. (p. 3)

Pat was the kind of staff member Principals look for, because of her enthusiasm, dedication and innumerable skills suited to the job. I was not the only member of our group to appreciate Pat's efforts. Jan, another veteran teacher, stated in an April 9th, 1998 group discussion that although Jan had trouble transcending routines, Pat seemed less constrained.

> I found that with a couple of courses I've taught, it has served as a limitation -- I'm teaching a new course, and to learn the content was impossible. I follow the plans I've inherited. That's what impressed me with Pat this year. As a first year teacher she has a binder. She is just not getting through the stuff as I did. She is making a lot of changes, and including computers. She is using some of the same labs, but I found that she is kind of a breath of fresh air for this particular Biology course. I think that's great. It might encourage me to do some new things. There have been other courses where I have been limited by the binder. I just kind of use it to get through the day and the semester. (p. 4)

Pat was willing to do whatever it took to develop her professional expertise and comments like Jan's helped Pat establish her professional identity. Beginning teachers can choose to follow many paths that are influenced by any number of people. The choice to follow a certain path is ultimately due to their own beliefs concerning notions of competency (good teaching)(Rosaen & Schram, 1997).

Assessment Praxes: Perspective Transformation

For Pat, our efforts to examine act and reflect caused her, over the course of eight months, to behave in a manner that demonstrated a change in philosophy. She began our study, I believed, in a defensive mode. I saw it more as an issue of trust. Yet, as time passed she began to see our efforts as a 'bottom-up' rather than a top-down' approach to the development of assessment praxes. And by the end of the project, she seemed to be quite proactive and open. Her transformation may have been due to our cultivation of an atmosphere of mutual respect and tolerance of others' views (Elliott, 1991). For example, by April 3rd (1998), Pat reflected:

> Getting together with other teachers has been something I usually do after hours. It was a time to relax. I find I am more able to do the same during school because our group lets me do this. I can lean on Jan or someone else while I get rid of my feelings, it's like being married and I'm not yet, but I guess I'm right. In the future I'll try to do more of this, it's been helpful. (p. 40)

From the onset of our study, Pat made it clear that although she was in her first year of teaching and had a basic understanding and appreciation of assessment, she wanted more. Pat understood that our discussions and interactions would impact her perspective and on-going transformation during this study. Our attention came in many forms. For instance, on several occasions I watched her in the classroom while she made changes in her praxes. My attention was general, yet I did have a specific concern, assessment. Pat did not always assess when I visited, hence my observations could be labelled 'general'

(Hopkins, 1993), on some occasions. I followed some good advice as I was careful not to move too quickly to judge; I used my interpersonal skills when 'invading another person's space', and I tried to follow my aide-memoire (Hopkins, 1993). On December 10th (1997) I visited Pat's class and came away with these impressions.

> I was the first person in the class, which was the same one used by Cal, Bob and Jan. As the students began to enter the room I noted the different types of clothing and where each one sat. It was funny, how girls tended to sit with girls and boys with boys, yet it was grade 10. Everyone came prepared to work but as soon as Pat stepped into the room everyone seemed to increase their level of activity, becoming more active and louder. Pat started to talk to various students about different issues such as work not done and poor grades, absences, and work without a name. I saw some students start to cross that behavioural line. I felt my own brow start to furrow. Pat turned, looked at the offenders, and made a quick comment about grades and turned back to the blackboard. The three students did become quiet, but as I was unaware of their past, I don't think I understood exactly what was going on. Pat handed out a worksheet and assigned text pages to read for homework. The remaining time was spent working from overheads (copied the ecosphere drawing). The class in general seemed to settle once the tasks were assigned and I left with a good impression of the period. Pat had only a few minutes before the next class so I told her we would talk later. (p. 33)

Following the advice of Hopkins (1993), I gave Pat her feedback within 24 hours, using facts, and welcomed a two-way discussion. After this class observation Pat suggested that this was her good class and they seemed to handle most tasks well. Later in the term, in this same class, she would experiment with more student assessment input. The decision to use this class was, in part, due to her perception that this class was easy to control. I knew what she meant, since I had visited her other two classes and seen that they were behaviourally more challenging. In her 'good' class, I think she appreciated the respect they showed her. They responded well to her behavioural prompts and cues. While in our group, Pat listened carefully and brought forward timely insights as we voiced our individual ". . . ways of looking at and thinking about events and interactions of the classroom as a basis for improvement "(Rudduck, 1991, p.18). For instance, Pat added:

> Assessment -- Well we have two choices, either go back to what we were doing or come up with applications to replace past practices. (March 4th, 1998, p.3)

Pat's straightforward approach was refreshing and to some extent a beacon for our group. She was eager to change (to engage in action) and mentioned that if someone would “give her the tools ” she would “ run with it ”. Pat felt she needed to have someone else provide the assessment tools. I understood this stance to mean that until this happened, little, if any, change was possible. For Pat, being able to find that 'time' to change assessment praxis tended to dictate what was possible and what was not. A lack of time meant her tests were like those of her colleagues, mostly content-based, traditional, and narrow. Yet upon closer examination, Pat's assessment praxes were a curious mix of tradition and alternative modes. On February 4th, 1998, I asked her about her assessment activities.

> What assessment means are you using in the second term that are new or refashioned from the first term?
> Pat - Well the way they work, independently, is not good. So, I'm setting up more group work, seminars, and I have them making web pages that are much more interactive. Because, that's what they want to do, so, that's what I want to do.
> T.R. To what extent will peer or self-assessment play a role?
> Pat - About the same as first term, but they are more involved.

She explained that she thought her use of many modes, such as peer-assessment and the ‘web’ (Internet), allowed students more opportunity to demonstrate achievement through involvement. This effort to involve students in assessment demonstrates a change in values, compared to a point early in our study, where Pat mentioned that most students were incapable of completing these types of assessment. As a group we agreed with Pat’s initial position, yet the group movement was towards these alternative and varied assessment modes, which indicated to me a shift in preconceptions. Pat noted early in our study:

> I use a lot of different methods and I don't have time to make my own assessments, so I need to borrow and beg from others. This is, after all, my first year and I'm just organising. (Journal, October 15, 1997, p. 3)

Pat was, in the early stages of our study, establishing standards and sorting out targets. This pursuit of self-awareness meant a movement from decisions based on theory to critical descriptions of practice. Her practice now became a place to theorise. Part of that development included her realisation that students could complete more self and peer-assessments. I noted this in my journal on October 17, 1997:

> Pat is really working at getting all the information she can quickly in order to get ahead. However, I did this too when I started teaching

> and discovered years later that teaching can never be mastered. Every day is a new challenge and a chance to add to our resource base. Change happens to you when you are least aware of it. It could be a decision to question differently or apply resources differently that reflects a shift in beliefs. (p. 6)

Pat always wanted to be viewed as the participant who was either already doing what we discussed or had already done it in her class. Eventually, she let us see another side of her -- in which she admitted that she, too, needed to collaborate with others more often and involve the students to a greater degree in assessment efforts. Pat added:

> I am just saying that if you need it you get it, I have stuff from Bob and others -- Or you find it yourself. I need to get a lot more information on assessment but I like to do this informally. It gets pretty sticky if it's formal. It's the same with the students. If you work with them informally then you get a lot more done. (March 4th, 1998, p. 1)

This sentiment contrasts with statements made by Pat earlier in our study, which were less open and more protective. Pat's transformation was mostly interpersonal, as she seemed to trust our group more as the relationship aged. Professionally, Pat became more collegial. Near the end of our study, March 4th (1998), I asked Pat about her readiness to share

> T.R. Do you exchange resources?
> Pat - I have stuff from Bob and others. I'm very independent, if I need it I go and find the answer. I don't like it forced on me. I don't like it because it's not my style.
> T.R. What do you mean forced?
> Pat - I am just saying, when someone says you have to do it this way or this person will help you, well, you may not be able to work with that person. I'd rather have it informal, rather than formal. Things that get official, get sticky. I get more work done unofficially, and, I'll go get assessment tools. If I have a question, and I want an answer, this is who I'll go talk to.

I hoped that our individual and group discussions had caused her actions (change). However, it could be that even our mere presence (peer-pressure) was the cause of her growth. Anyway, during another visit to her class I noted several changes,

> Pat was busy setting up a lab (limewater test for carbon dioxide) for her grade nine advanced class when I walked in room 123. I helped

> her make sure all the groups had the right materials. The task within the lab was to observe chemical change using commonly available substances. A few minutes later several students came in to help. These were her assessors from her grade 11 class. Pat gave them clipboards with pencils and asked them to note who did what. Great, I thought, Pat is delegating and empowering. I asked if these assessors were being graded and Pat said: “no,next time”. As the students arrived they seemed very serious (test faces) yet, Pat was quick to explain and show (exemplars) in great detail that they would have several chances to do well. I noted that this seemed to be evidence of an outcomes-based program and not content-based. I was happy for Pat as she moved around the room making suggestions and reminding assessors to help out. The 70 odd minutes flew by even for me and as the buzzer sounded, indicating the end of the period some students seemed frustrated that the period was so short. Pat remarked ‘you couldn’t please them all’. (March 25th, 1998, p. 47)

Pat was, for this class anyway, more of a facilitator then in her usual practice. Pat was looking for students who could not only apply skills but also explain it to an assessor. It was very open-ended and each student had opportunities to demonstrate an outcome. I believe our efforts helped Pat validate her perspectives and solve problems that faced her. Pat explained in her journal,

> Listening to other teachers complain is good. It lets me know that I’m feeling the same as others and this gives me a boost that I can run with for days. Meeting is a source of power; a refuelling that gets me over the next hump. (March 12th, 1998, p. 39)

In sum, our experiences led to a collegial mode of communication from one that was less so. Our group's ability to mesh allowed the examination of beliefs and dilemmas concerning assessment praxes and eventually led to the limited use of alternative and varied assessment tools. Sometimes our actions remained theoretical and other times they became part of a practice. If the research had continued we would have been able to more fully put into practice the modes we discussed and reviewed. Admittedly, we did not overcome the " constraints of overload, isolation, and compartalization that are endemic to schools " (Earl and Cousins, 1995, p. 42). To do so, entails fundamental change at the system level.

Note: Our Action research data was extensive and within this excerpt much of the information is missing due to the need to make this text more easily manageable. A case study is usually descriptively thick and deep in scope.

Ethical Considerations

We know that every teacher has the right to improve his/her own practice. Yet, the method of improvement, in this case action research, needs to heed ethical boundaries. We need to consider several critical issues within the data collection process. Data are something we require to complete our research. Informed researchers are obligated to evaluate data and describe, explain, predict, propose theory, construct summaries or offer conclusions. Data are synonymous with many words including, but not limited to 'information', 'facts', and 'record'. As researchers (scientists), we make observations in a methodical manner. Our methods are controlled in some manner (plan) and this data collection evidence needs to be protected. We need to be reminded that it is privileged information (data). When you move forward with your research, you must explain to potential participants, and understand for yourself, that all data (records) are kept confidential and secure. We do this to ensure that data are treated in an ethical manner and in confidence. After all, researchers often make public personal facts or gain access to the private lives of participants. Each of our lives has personal, political and professional elements that need to respected and secured. Most of us do not want our personal lives published or aired within a public domain. Sometimes this is not the case as action researchers and others deliberately choose to air the often very personal elements in their research for various personal, professional, and possibly political reasons.

Data are not always completely anonymous no matter what steps are taken. Data collected anonymously can sometimes be traced to the participants. Some research efforts may require that further information be collected that can be linked to the previous information. Most, if not all Universities have ethical reviews that must be complete before permission is granted to move forwards with any of the intended research. Ultimately, ethics approvals seek to ensure that no harm is done to anyone during the research.

Researchers ultimately need to be able to identify where the data came from. A coding system can be set up by labeling elements such as students (S1,S2,S3), classrooms(C1,C2,C3), teachers (T1,T2,T3) or schools. Further suggestions will be offered in the data analysis section. We seek to keep data anonymous, yet organized, structured, and within a framework that is confidential, secure (locked-up) and our sources are never revealed to the public.

We now know that data are privileged pieces of information that are collected for a purpose. The manner in which we collect data can be described in lengthy detail with the aim of ensuring that our data collection efforts are both effective and ethical. As a researcher collecting data we attempt to illuminate, a particular set of circumstances, an answer, provide a solution, or make an improvement. Some may view your efforts to improve as solutions or answers and others may interpret your actions as an effort to professionally develop. For instance, a teacher researcher might want to poise this research question: How can I

improve my classroom management? This seems like a common question, at least in education, and one that is worthy of research effort. Asking how you can improve your classroom management is a general research question that requires thoughtful research planning. You need to have a roadmap in order to find your way through the data collection jungle in an effective, prudent and ethical manner. Ethical research is informative and one essential element is to inform all participants, which usually means a letter to parents that action research will be undertaken. The following sample letter illustrates one example of a letter to administrators.

Principal_____

School_____

September 4th, 1997

Dear Principal: _____

I am inviting your school and 4 science staff to participate in an Action Research project. My project is being conducted within the Department of Curriculum, Teaching, and Learning at the Ontario Institute for Studies in Education from September 1997 to April 1998. My research project will be submitted as partial fulfilment of the requirements of the degree of Doctor of Education at the University of Toronto. By agreeing to participate in the Action Research project we will be able to explore issues and practices in assessment within science while working collaboratively as an Action Research group.

The Project

Each of the 4 participants of the project will be invited to discuss and plan meetings, critically reflect on practices, plan and design alternative curriculum materials and practices within this supportive group. We can implement developed materials in class, evaluate these in action, and share with others, our experiences, feelings, and ideas as a way of informing and guiding our group's professional development.

Data Collection

Data will be collected by tape-recording group meetings and field notes. Individual interviews will be held during the year with each participant. The recorded information will be transcribed and copies made available to the same teacher. I will be visiting participant’s classrooms upon their agreement.

Information collected will be shared with that teacher only. Visits are necessary to promote understanding and promote professional development.

Participants will be encouraged to keep a journal. Teachers are asked to note assessment reflections, decisions, practices, habits and rituals that they use in classes. Beliefs about assessment can be written, as can general thoughts concerning assessment theory and practice in science. I will be keeping a journal also. The information collected in the journals is important to the action research process.

Ethics

All work will be anonymous and confidential. All names will be changed, as will details that may reveal the identity of the participant. Only the field notes, interview transcripts, and journals will be seen by my thesis committee. All tapes and journals will be secured once the project is completed. Your consent will be necessary if any publication of this data is possible.

The project seeks to study teachers as they collaborate while participating in an Action Research Project in science. The actions of non-participants may appear only for background context. If student input is necessary administration, teachers, and parents will give permission first.

Findings and conclusions will be shared with participants and careful interpretations will be recorded as the project moves forward. An editing process will be used which is helpful and important. Our aim is to present an accurate, fair, and agreed upon account of experiences. If agreement is not reached both accounts will be written into the data. Participants may delete any text and a final summary will be provided.

Note: All have the right to withdraw at any point without reason.

If you are willing to participate in this research project, please complete the attached form. Thank-you for your support and co-operation in this Action Research Professional Development Process.

Respectfully,

Thom Ryan

Department of
Curriculum, Teaching,
and Learning (CTL)
OISE/UT
I can be reached at 705 326-2811

PRINCIPAL CONSENT FORM

I, _____ agree to allow my staff to participate in the study entitled: An Action Research Study of Secondary Science Assessment Praxes, as outlined in the attached letter.

Signature _____

Date _____

Researcher _____

In another research study, I had to ask the parents for permission and the following permission letter was used.

Dear Parent/Guardian:

I am a researcher from Nipissing University investigating students' perceptions of the nature and impact of the new curriculum: curriculum, teaching strategies, integration of technology, student evaluation and reporting, and teacher advisory program (TAP). Results and recommendations from this study will assist teachers in designing their curricula and adapting exemplar teaching strategies and quality assessment strategies for their courses. This study is conducted in accordance with the ethical standards for research at Nipissing University.

Your son/daughter has been randomly selected to take part in this study. The survey your son/daughter is asked to complete in class should take 10 minutes. It contains questions pertaining to teaching and evaluation methods used by each teacher, difficulty of the courses, classroom atmosphere, approximate course grades and the TAP program.

You can be assured that all information collected will be strictly confidential. In fact, students are asked not to put their names on the questionnaire. Please indicate below whether you would permit your son/daughter to take part in the study. Your cooperation will be sincerely appreciated. Please contact us at Nipissing University if you have any further questions.

Sincerely,

Thomas Ryan, Ed.D.
thomasr@nipissingu.ca
Tel: (705) 474-2461 Ext 4403

PARENT CONSENT FORM

Note: Completion of this survey is voluntary and your child can choose to withdraw without penalty.

I agree to allow _____ taking part in this study.
(Son/daughter's name)

I do not wish _____ to take part in this study.
(Son/daughter's name)

Parent Signature _____ Date _____
Please return this form to the Home Form Teacher

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