

Development Discussion Papers

**What's Communicated
in Classroom Assessment?**
*Judgment Crossroads
in Continuous Assessment*

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Abstract

Continuous assessment is an important instructional concept, supported by behavioral and cognitive theories of learning, but in practice, such assessment is frequently either diminished in form or ignored entirely. In its most common operational cast, continuous assessment becomes a procedural task, providing meaningless feedback that is lost within the complex, uncertain classroom environment. When properly practiced and better exploited, continuous assessment contributes noticeably to learning possibilities within the classroom. If ignored or not carried out well, which is usually the case in impoverished schooling contexts, there is little likelihood of thoughtful engagement and maximum exploitation of educational moments. This is the dilemma of educational reform—many “good” reforms depend on substantial talent and experience in the system to deal with difficulties and complexity.

In this study, highly structured mathematics and English lessons are observed in a scholastically impoverished schooling context to probe the communication features of continuous assessment in its various practiced and non-practiced forms. Continuous assessment does produce an enriched educational environment, signaling attitudes, important problems, and milestones along didactic, non-verbal, and symbolic communication dimensions. In this way, it can help escape the strange loops inherent to instructional processes. But few teachers use it well, thus neutralizing a possibly powerful component in reform.

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How do we tell if a student is learning in the classroom? We can give periodic tests, but they are distant and formal interruptions in the instructional process and unlikely to be formative indicators for changing instructional activities within the time frame of the experience. The typical recommendation is continuous assessment, where additional instructional events are set up as assessment indicators of progress, usually for each child. The progress of the class is considered as a whole, but each child is given special attention in terms of individual advancement, and the instructional processes are geared to these performance indications. If learning were simple and unidimensional, then this approach might work without reservation.

But learning is very complex and frequently not manifested in performance. Even under the best arrangements, the instructional process is not tightly linked to the grand outcomes hoped from education. Nor is it strongly linked to overall attainment, which is what is measured in a single assessment. Students meander in and out of attention in the classroom, learn some things below observable thresholds, and react individually, and also differently across time, to the “public” continuous assessment process. The interpretation of an assessment event is different across observers and participants. A great deal goes on in this exchange, and much of it is not observable. The ambiguities in assessments do not necessarily accurately inform the teacher or the child of individual progress, and the messages contained in the assessment activity are not always what we intend.

Communication is imperfect of course. The question is what happens when continuous assessment is used in instructional programs where the teachers are poorly educated and trained and the students come to school from scholastically impoverished communities? We would expect that the capacity to interpret the complex information of continuous assessment in a dynamic context would be limited and possibly render feedback less than useful. Does this feedback communication exacerbate the problems in such a system or help in some meaningful way?

ASSESSMENT CONSIDERATIONS

Assessment is an analogical process. We match our view of the student with a set of idealized categorical views. We say that the student: performed in ways that looked like he didn't know (Ignorance), acted confused and didn't get the intent or the content of the lesson (Confusion), or answered many questions correctly like someone who knew what she was doing (Competence). We map the students onto the categories that we have designated in accordance with our data theory, either implicit or explicit. As we increase the number or kinds of observations, the number of categorizations increases and is typically summarized in an overall rating or score. Students arrive at their total ratings or scores by a variety of combinations of their separate categorizations. The totals gloss over the differential profiles to present a single value. If this is done formally, then we might be talking about test items that are combined by some data rule. If this is done informally, then the rater, in some less explicit fashion, personally constructs the rating with the rater as the instrument. The final categorization is based on a number of comparisons within the selected analogical frame. Our measure of the student is only as good as our repertoire of comparisons or those embedded in the categorization methodology.

Time becomes an important factor. We'd like to have as many observations of the child as possible to make a formative statement about her performance that is reliable. Each observation takes up valuable time in the classroom, so it's easy to see how the process can overwhelm a teacher if he attempts to assess each child often to check progress or obstacles to learning. The result is to limit observations while trying to accurately assess problems. There are three kinds of simple problems on which continuous assessment provides feedback. The obvious one is the student's lack of accomplishment or attainment of the instructional objective. This is a *performance problem*. For the student, this may mean that there is no link between the intention of the lesson and the student accomplishment relative to that intent. If the student couldn't learn because the lesson was not implemented according to the intent, then this is an *implementation problem*. The teacher may need additional training or practice. Lastly, if the lesson is presented well and most students have not learned or performed, then this is a *design problem*. The instruction is not working as intended, regardless of the actions of the teacher. Direct information from the continuous assessment

presumes a performance problem or success. Additional information is required to specify an implementation or design problem, because their effects are reflected in poor performances by a large number of students and are not obvious from single instances.

Performance, implementation, and design problems are fairly straightforward instructional difficulties. They are remedied by additional instruction, improved instruction, and/or improved instructional design and materials respectively, or so it would seem. But a learning environment is not so simple and continuous assessment is prone to another, more invidious problem, called *strange loops* (Snyder, 1999).¹ If we judge the student to have a performance deficit, is it important? If we judge the student to have succeeded in performance, does it really matter? In a strange loop, we think that we're making progress but it's illusory. The student or class may seem to be learning, but are they learning what we intend? This depends on the links between the continuous assessment procedure, the instructional procedure, and the intents. Where the links are ambiguous or complex, which is the usual case in education, the procedures or processes loop back on themselves to become the targets, rather than the means to a grander intention. In the extreme case, no assessment takes place and there may be a mismatch in intents and instruction. If there's no assessment to check on the above problems, the underlying threat of a strange loop is totally ignored, by default, but its likelihood may increase because it won't be managed. Good continuous assessment information helps in the management of the instructional process. But poor continuous assessment confuses or misleads or wastes time.

We set up an ideal notion of a child entering school and another one for an accomplished first grader. The initial state is the baseline. When the children "graduate" from the first grade, they are expected to have the set of skills and the level of knowledge appropriate for that grade.² The instructional process is geared to improving their attainment through instructional events from the start of schooling to the first grade level—the "gain" from the baseline of no schooling to that of the newer attainment is called *achievement*. Of course the logic isn't foolproof. There are external historical effects before and during the educational process that may emerge as important during the instructional phase. Our analogy equates the processes and outcomes of the classroom events to those of the ideal achievement for that grade level progression. Analogies can be tight or loose. In continuous assessment, the analogies would be very loose, clouded by bias, prior interactional experiences, lack of time, inadequate observations, and miscommunication. Mistakes can be corrected if there are numerous observations, and all good information feeds modifications in the instructional process to improve chances of accomplishing learning goals.

If the technical purpose of the assessment were to loosely categorize students in levels of attainment, then a holistic rating of the students might fill the need. A loose fitting analogy might suffice (limited reliability and validity) in this case. But the purpose is more precise in continuous assessment because we need useful information for diagnosis. Instructional decisions and student activities hinge on the assessment in real time, even if under low stakes consequences. The categorizations must be accompanied by a deeper understanding of the child(ren) and their needs in order to lead to useful prescriptions for continuing, remediation, or enrichment. The holistic impression may not be sufficient for this diagnostic use, which is implied in continuous assessment. If the assessment cannot usefully inform the diagnostic work of the teacher, then particularly at the earlier ages, assessment might be unnecessary or wasteful. Then again, teachers are not likely to alter their plans or adjust their practices with no feedback. The children would get the same treatment regardless of the outcomes of the holistic assessment (as is the case with grades, where the outcome is attributed to the student and bears no relevance to the teaching or teacher). In fact, the absence of assessment in many classes implies this strategy, and this loss of information runs counter to learner-centered intentions. Here's our dilemma: we need information that helps in the instructional process to keep on target but poor assessment wastes time and may exacerbate classroom irrelevancies; good assessment has to be inclusive enough so that we don't follow false paths and lose perspective of the "real" goals of our schooling endeavor.

At first glance, the "ideal" achievement would appear to be immutable, from the teacher and student perspectives. The prescription is codified in the formal curriculum, and presumably not changeable for any particular instance of

¹ The strange loop is a recursive illusion that forms from the collapse of the goal-activity hierarchy. From the perspective in the loop, progress appears to be made, but from outside, we can see that the original goal has been replaced by a lower-order objective within the same level as the activity. This hierarchical tangle hinders a useful assessment of student progress on the original goal. We get confused, which in turn influences decisions or results in the lack of decisions about student activities.

² This is a behavioristic view that still dominates the language of instruction.

instruction. However, what happens in a classroom is shaped by other aspects, as is well known, and teachers end up modifying procedural objectives in line with the talents and conditions of the local context. Sometimes this process subtly alters the outcome. For example, if a test is developed, we shift focus from the grand intents of our original purpose to the immediate test content, almost without awareness. The test becomes the target. This happens in local events as well, and particularly happens in the subjective ratings of students in continuous assessment. The effect is to simplify or narrow the goal.³

This reduction in complexity of the original intent may result in a strange loop. A loop is caused by any reductionism that confuses or befuddles the recognition and direction of the goal(s). In this case, the loopiness can arise from the assessment process itself. We think we're making progress along the dimensions of the goal but we're actually addressing a different construct or essence that can mislead us. Progress, if any judgment is rendered, may be illusory under these circumstances (as dramatically depicted in Escher drawings, like the *Waterfall*). The classic example is the assessment of facts when more complex skills are implicated. Recall may not reflect thinking skills very accurately, and progress in short-term memory of facts may not affect thinking or may act as a disincentive to thoughtful practice in the content domain. The question hinges on the choices made by the teacher in the assessment, and the kinds of messages that are conveyed in the teacher-student-class interaction.

As we shall show in the Namibian context, most teachers, given the materials and choices, either did not use continuous assessment materials (CAMs) or they used them poorly. What is communicated when structured CAMs are presented, and what occurs in the communication process through the variety of interpretations of CAMs that are used? Writing or recognizing individual student performance details is a complicated task. In the development context, we're dealing with under-educated and formally under-trained teachers who survive on long-term practice in their context under very narrow dimensions and limited experiences. The demands of continuous assessment may outweigh their usefulness under these circumstances. That is, CAMs may use up energy and time but not seriously influence the direction or effectiveness of instruction. The question of communication becomes even more important. What role is this modern, complicated classroom strategy, called continuous assessment, actually fulfilling?

STRUCTURED INSTRUCTIONAL MATERIALS (SIMs)

In the case of SIMs, continuous assessment is embedded within a highly scripted instructional program specifically designed for non-professional teachers in the rural areas of Namibia (Snyder, 1998). The Structured Instructional Materials (SIMs) process aims to build competence in the learner to perform the academic skills and demonstrate ability in the standard knowledge areas prescribed in the curriculum. The structure of SIMs is the key to its design, and the emphasis is on *direct instruction*.⁴ SIMs goal is to establish a steady progression of competence in each child in the class through a system of regular, incremental steps that recognizes that not all children accomplish learning at the same speed but all need the same skills. SIMs procedures offer a dual approach: children who master a skill move steadily through the lesson of the day and eventually the entire curriculum, while unsuccessful children are neither abandoned nor forced to proceed at the pace of those who initially master the skill, but are given new opportunities to learn, be evaluated, and ultimately accomplish the skill. SIMs attempts to achieve this by prescribing for teachers, teachers who are often undereducated, poorly trained or inexperienced, each day's lesson using prepared SIMs *Teacher's Guides* and SIMs teaching materials. Lessons in the *Teacher's Guides* specify, in step-by-step directives for each lesson, explicit teaching activities and methods that are devised by SIMs developers to accomplish the objectives of the lesson. Lessons in each SIMs *Teacher's Guide* are structured in five key sections, the lesson's *Objective*, *Strategies*, *Assessment*, *Remediation*, and *Enrichment*, presenting the teacher with the same, familiar, unvarying format for each day's instruction. Within the guidelines for each lesson are precise directions for the teacher: what materials are needed, what to do, what to hold up, what to point to, what to say, what to ask, and what responses are correct. Each SIMs lesson, regardless of the specific learning objective or mode, regardless of subject area or of the teacher's instructional competence, endeavors to assure learning is accomplished *in each child*,

³ This reduction does not refer to the quantitative value of the criteria but to the dimensionality and meaning of the goal(s).

⁴ Under more tightly defined conditions, SIMs is based on the methodology used in "programmed teaching." Every move is specified in the teacher instructions. SIMs was less structured than this but did provide very complete instructions to the teacher about the content and actions required in each lesson, along with associated continuous assessment materials.

each day, for each lesson objective by using this fixed and prescriptive design to teach, practice, evaluate, remediate, and enrich.

The most important feature for progression in the SIMs model is its appraisal component, continuous assessment materials (CAMs), the core dynamic that drives each day's lesson. Ideally, according to the SIMs design, a child receives, through continuous assessment, a daily evaluation by the teacher of his or her accomplishment of the specific skill or item of knowledge taught by that day's lesson. The CAMs assessment event is intentional and not incidental; it is a pivotal moment part way through the lesson that ascertains the success of the teaching/learning experience for each child. Then, after appraisal and during that same class hour, according to the model, each child, based on his or her individual success with the skill or knowledge domain, is assigned to a separate proficiency group where activities provide either enrichment or remediation. An additional assessment is provided for those not mastering the material the first time to assure the lesson's objective⁵ is accomplished by all children. Teachers, and just as importantly children themselves, have knowledge of each child's competence on a daily basis. Continuous assessment therefore presents a mechanism for a teacher to determine a child's progress toward achieving a specific instructional objective. It emphasizes that good presentation techniques and opportunities to practice skills are not alone sufficient for learning, that some kind of turning point must occur that appraises the change in skill or knowledge so that teacher and learner become cognizant of how successful or unsuccessful the learning experience has been and can take action to assure success for all.

Assessment in the SIMs classroom, however, not only is an ascertainment of attainment, it also carries diverging outcomes for different children, offering relearning to those who have not accomplished the objective, and pursuit of enhancements for those who have achieved the basic level. The pivotal CAMs judgment also sets in motion a classroom division, an observable differentiation among children. Children's successes or failures are known not only to themselves but also to their peers, casting a child's abilities into a distinction visible to all classmates. First, during the assessment procedure, the success of children attempting the skill becomes known to them, if SIMs is carried out properly, and is also visible to the whole class since demonstrating the skill is usually a public performance. Then, according to the SIMs model, children are separated from other children during the remaining class session. Children are physically divided into two or more groups each with different, at times incompatible, modes of learning. The teacher's focus becomes divided as well, making full and equal attention to both groups impossible and requiring different, even conflicting teaching responsibilities, strategies, and roles. Yet within these smaller groups, highly intensive and successful teaching-learning processes can and do occur. Thus, in addition to simply monitoring academic progress, continuous assessment is the occasion for both potentially supportive and possibly troublesome consequences for children. It is a process that leads not merely to the evaluation of specific skills but can cast judgment on a child's general competence as well. The dynamics initiated by SIMs create an environment of communicative messages and meanings that can lead to children's understanding of themselves as learners, to either grow or decline in self-efficacy.

While the range of pedagogical methods and instructional interchanges occurring within the SIMs classroom offers rich data for analyses and many of the observed lessons were reasonable traditional instructional episodes, it is the purpose of this study to examine only the transactions that occur during assessment procedures and their subsequent activities. This study will analyze the junctures in the lesson when a child is asked to respond with or perform the specific skill or learning component of the lesson and then is judged as having achieved or not achieved it, plus classroom actions that ensue from that judgment, including enrichment, remediation, and reassessment of children in remediation if these occurred. Already the assessment has been reduced to minimal categorizations to hold complications in check for minimally competent teachers. An attempt is made to capture the actual classroom transactions that occurred, based on elaborate notes taken in the field while observing lesson sessions. In addition, these actions will be examined for patterns, relationships, and implications they may reveal for a broader understanding of how SIMs shaped and influenced the ways teachers taught and children learned. Unfortunately, the children are too young to reflect on their work, and the teachers are unpracticed and linguistically limited in their

⁵ The objective is a translation of the larger curricular goal into instructional objectives that comprise the elements of the goal. This is a specification process to reduce the complexity of the target.

reflective descriptions. This work is based on observations, influences, and exchanges within the classroom.⁶ The diminished reflections are part of the findings in the consideration of strange loops.

LESSONS OBSERVED

Table 1 summarizes the sources of data used in this study. Three school districts in rural northern Namibia were visited, Ondangwa West, Ondangwa East, and Rundu. Within these districts, 21 schools were visited and a total of 33 lessons were observed in mathematics (13), environmental studies (10), mixed grade level material (5), and local language instruction (2). However, of the 33 observed lessons, three teachers were not trained in SIMs and their lessons are not included here. Among the 30 lessons by SIMs-trained teachers, some teachers were observed teaching two or more lessons, reducing the total number of observed SIMs-trained teachers to 21, with nine of these teaching two or more lessons.

Table 1 summarizes the use of the SIMs model for handling assessment in these lessons. We have categorized lessons into four Groups, using the degree of thoroughness of assessing all children and completeness of incorporation of the SIMs model as the main criteria.

Group A: Lessons closely following the prescribed SIMs model of assessing every child during the lesson, plus incorporating some form of enrichment and/or remediation. (4 lessons; 3 teachers)

Group B: Lessons departing from the strict SIMs model by making inventive use of it or improvising, but still assuring that each child was assessed and had some opportunity to be enriched or relearn during the lesson. (5 lessons; 5 teachers)

Group C: Lessons attempting to follow SIMs, but making uneven use of the model, resulting in irregular assessment of children. (7 lessons; 6 teachers)

Group D: Lessons making little or no use of the SIMs model, resulting in no assessment of children. (14 lessons; 12 teachers).

Group D includes lessons (14) that utilized SIMs teaching initiatives but no assessment. This is a large proportion of teachers who opt out of diagnosis with any discernible formality. Since the process of assessment was handled in different ways by different teachers, it is valuable to examine a range of classroom interactions drawn from the 16 lessons which were taught by teachers attempting some form of assessment to understand how the continuous assessment process actually takes place in real school settings. Of the 30 lessons which were taught by SIMs-trained teachers, most incorporated at least some of the teaching approaches from the SIMs *Teacher's Guide* or SIMs materials, sometimes with elaborate and interesting activities. Close use of the SIMs-recommended assessment routine was infrequent (4 lessons of the 30; Group A), while uneven use of the routine was made in seven additional lessons (Group C). Five other lessons used general precepts from the SIMs model, including assessing all children during the day of the lesson, but the teachers were inventive and adapted the system to their own teaching design or circumstances, departing, with some innovation, from the strict SIMs routine (Group B). Because the lessons of five of the nine teachers who taught two or more lessons were categorized in two different Groups, individual teachers sometimes appear in more than one Group, making the number of teachers represented in various groups total 27, although only 21 different SIMs-trained teachers were observed.

While there is often cross-over among the categories, an attempt is made below to shape the analysis according to the three phases in the SIMs assessment process, the SIMs lesson sections, *Assessment, Enrichment, and Remediation*, with discussion of component parts within sections and of the merging of sections where appropriate. Actual classroom observations of assessment initiatives that represent Groups A, B, and C will be examined, highlighting those of most salience to the discussion.

⁶ A communication analysis should have as many voices as possible. Our monological presentation poses its own strange loops threat.

Table 1. Use of CAMs in Namibian First Grade Classrooms

| CODE | SUBJECT | GRADES | Group A Close Use of CAMs | Group B Inventive Use of CAMs | Group C Uneven Use of CAMs | Group D Little or No Use of CAMs |
|------|----------|---------------------|------------------------------------|-------------------------------------|----------------------------------|---|
| 1. | 1-1-1-1 | Environmental | 1 | yes | | |
| 2. | 1-1-1-2 | Mathematics | 1 | yes | | |
| 3. | 1-2-1-1 | Environmental | 1 | | yes | |
| 4. | 1-2-1-2 | Mathematics | 1 | | yes | |
| 5. | 1-3-1-2 | Mathematics | 1 | | | yes |
| 6. | 1-3-2-1 | Environmental | 1 | yes | | |
| 7. | 1-4-1-1 | Environmental | 1 | | | yes |
| 8. | 1-4-1-2 | Mathematics | 1 | yes | | |
| 9. | 1-5-1-1 | Environmental | 1 | | | yes |
| 10. | 1-5-1-2 | Mathematics | 1 | | yes | |
| 11. | 2-1-1-1 | Environmental | 1 | | | yes |
| 12. | 2-1-1-2 | Mathematics | 1 | | yes | |
| 13. | 2-2-1-2 | Mathematics | 1 | yes | | |
| 14. | 2-3-1-2 | Mathematics | 1 | | | yes |
| 15. | 2-4-1-1 | Environmental | 1 | | yes | |
| 16. | 2-5-1-2 | Mathematics | 1 | yes | | |
| 17. | 2-6-1-1 | Environmental | 1 | | yes | |
| 18. | 2-6-2-2 | Mathematics | 1 NonSIMs | | | |
| 19. | 3-1-1-2 | Mathematics | 1 | | yes | |
| 20. | 3-2-1-2 | Mathematics | 1 NonSIMs | | | |
| 21. | 3-2-1--- | English | 1 NonSIMs | | | |
| 22. | 3-3-1-2 | Mixed (Mathematics) | 1 (& 2) | yes | | |
| 23. | 3-3-1-3 | Mixed | 1 (& 2) | | | yes |
| 24. | 3-4-1-2 | Mixed | 1 (& 2) | yes | | |
| 25. | 3-5-1-2 | Mixed | 1 (& 2) | | | yes |
| 26. | 3-6-1-1 | Environmental | 1 | | | yes |
| 27. | 3-6-1-2 | Mathematics | 1 | | | yes |
| 28. | 3-7-1 | Mixed | 1 (& 2) | | | yes |
| 29. | 3-8-1-1 | Environmental | 1 | | | yes |
| 30. | 3-8-1-2 | Mathematics | 1 | | yes | |
| 31. | 3-8-1-3 | Literacy | 1 | | | yes |
| 32. | 3-9-1-2 | Mathematics | 1 | | | yes |
| 33. | 3-10-1-2 | Mathematics | 1 | | | yes |

NOTES

| | | | | | | |
|-----------------|---------------------|---------------|-------------|----------|----------|----------|
| Codes identify: | 30 Lessons in SIMs- | 25 Grade One- | 4 | 5 | 7 | 14 |
| District (3) | based Classrooms: | only SIMs | Group A | Group B | Group C | Group D |
| School (21) | 10 Environ Studies | lessons | lessons | lessons | lessons | lessons |
| Teacher Using | 13 Math | | | | | |
| SIMs (21) | 2 Local Language | 5 Grade One | 3 | 5 | 6 | 12 |
| Non-SIMs (2) | 5 Mixed | and Two | Group A* | Group B* | Group C* | Group D* |
| Subject | | combined | teachers | teachers | Teachers | teachers |
| 1. Environ | 3 Non-SIMs | SIMs | | | | |
| 2. Math | Lessons | lessons | *Some | | | |
| 3. Local Lang | | | teachers in | | | |
| | | | two groups | | | |

ASSESSMENT PHASE: QUESTIONING LEARNERS

Group A: Lessons That Made Close Use of the SIMs Model

Four lessons closely followed the key elements in the prescribed sequence of the SIMs CAMs model of teaching strategies, assessment of individual children, and use of remediation and enrichment groups. Teacher 1-1-1, for example, tried to follow CAMs as precisely as possible in accordance with the SIMs *Teacher's Guide* formula. In the two lessons that she taught, she conducted assessment in a highly methodical manner, remaining at the front of the classroom, calling on each child, row by row, to stand and answer the same assessment question. In the

Environmental Studies lesson, she first called on the front left child, then the next children in sequence in the front row, then child after child across each succeeding row until the child in the opposite back corner was assessed. In the Mathematics lesson, she began at the back and progressed in a frontward direction, just as systematically. During this quizzing, the teacher raised her hand in the SIMs-recommended fashion while stating the question, waited for a show of hands from all children, then swept her hand horizontally and down, always pointing to the next child in sequence. Each child was selected by the teacher; each stood up and responded to questions identical to those of other learners such as counting to 20 by fives or about handling an injury. While the teacher directed each question to each individual child with fixed eye contact, she provided minimal feedback to successful children, only making an unenthusiastically low, guttural “um-hm” or soft “correct,” and then lowering her eyes to the SIMs book to go on with the next question.

Surely, given the regularity and predictability of this ritualistic questioning, each child knew exactly when he or she would be called upon. Yet children appeared to want to answer each time, even out of turn. When the teacher asked for an answer, a majority of children threw their arms enthusiastically in the air, eager to be called upon, even though it was apparent that this teacher was not going to break her strict sequence of who would be called on next. It was not clear whether children thought she might actually call on them out of sequence, or if they simply knew the answer and wanted to demonstrate for the teacher, and perhaps for other children or even themselves, their ability and readiness. There was evidence that the ritual of answering itself had great importance in this classroom. By raising her hand in the SIMs hand signal, the teacher created a focus upon herself and the question. Yet by feigning an interest in having any child respond, this teacher nonverbally indicated to each child that he or she should mentally generate and rehearse an answer, a challenge that proved fruitful in engaging all children during the assessment process, even though the procedure was a highly individualized examination of an individual child’s ability. By her methodical and linear process, this teacher, more than any others observed, assured at the outset that each child would be assessed that day and none would be missed. Following this systematic procedure, children were assigned to distinct remediation and enrichment groups based on their success with the task, the activities of which will be discussed below.

Other teachers, while less linear, nevertheless accomplished thorough assessment followed by remediation and enrichment of all children. Teacher 1-3-2, for example, integrated assessment into the process of presenting the lesson’s information, questioning children as part of that process yet calling upon children in a random manner. At the beginning of the lesson, this teacher chose to bring all children, chairs included, to the front of the room in a tightly packed, intimate group for teaching/assessment activities, thus heightening the importance of the lesson about “the weather” that was to take place. By the end of the teaching/assessment part of the lesson, each child had been called up individually to the chalkboard and used the pointer to name types of weather, trying out his or her own knowledge of weather, and also performing that knowledge for the other children who remained attentive and involved in their chairs. Without seeming to be examined, each had performed a response to the teacher’s evaluation question and therefore had unknowingly been assessed on the lesson’s objective. In this integrated manner, the teacher determined the knowledge of each child. He was thorough in his assessment, writing notes on each child’s performance into his grade book as the lesson progressed. In this teacher’s style, children were not subjected to a make-or-break quizzing, but were evaluated as part of a natural continuum of being presented with content, learning that content through various activities, and then actively performing a use of the content in the context of the learning flow.

Teacher 2-2-1 had yet a different style, moving during the assessment phase from her teaching location at the front of the room out into the children’s area among the rough benches which served as desks. Here she proceeded from child to child, talking closely to each one, looking at the entries children had made in their exercise books, and asking each child singly to respond to one or more questions pertaining to the math lesson. Questioning was individual, intimate, and thorough. It also included both written and oral performances. As she progressed, this teacher slowly identified 8 to 10 children who apparently did not demonstrate successful learning and moved each of those children, one by one, to the front to join the growing remediation group sitting on the floor. Enrichment children remained at their desks and received a separate assignment.

Thus these three teachers conscientiously undertook to assess all children. The assessment verifies that the skill was learned, using different methods and approaches: questioning of all children publicly in a linear, row by row fashion; taking notes while each child performed an assessment-related task before other children; and elaborate questioning plus review of written exercises, singly and almost privately with each child. What distinguishes Group A lessons are

the thoroughness and care with which all children in each class were assessed and the distinct consequences for children which ensued depending on that assessment.

Group B: Lessons That Made Inventive Use of the SIMs Model

Five lessons used the SIMs continuous assessment model inventively, shaping classroom space and time in ways that did not literally follow the SIMs *Teacher's Guide* but nevertheless accomplished assessment of all children in the class that day. These sessions achieved the lesson's objective, all children were evaluated, and children enjoyed or became intensely involved in learning, opportunities for remediation, and enrichment occurred, yet there was significant deviation from the standard SIMs format. These teachers therefore have been placed in Group B for special review in this study.

Teacher 2-5-1, for example, elected to make assessment a dynamic, experiential activity that marked each child's achievement of learning with the child's physical relocation in a dramatic manner in the classroom and his or her participating in activities that were a recognition for accomplishment. The teacher's lesson design blended assessment, remediation, and enrichment into a progressive continuum of related activities through which children moved physically as they demonstrated competence. Her classroom had a busy, non-authoritative appearance, with a teacher's desk at the side of the room and walls, the dominant feature, completely covered with colorful children's drawings, hand-written exercises (usually signed with the child's name), commercial illustrations, and SIMs posters. Children sat at small groups of desks which did not face frontward but instead faced each other. The style of assessment used by this teacher continued this non-authoritative child-centered theme. After active and varied learning exercises, the teacher asked all children to arrange their desks into three large groups near the chalkboard. She had blended varied teaching activities with subtle questioning of children to distinguish nine children who apparently successfully accomplished the lesson's objective early in the class session. These nine children were asked to sit at one of the three desk areas at the front where they were given small cardboard cards with equations written on them (like those used in the teaching activities), plus plain cardboard sheets, scissors, and colored pens. They were told to make additional equation cards to use in the lesson. As they did so, the teacher called the remaining 20 learners to a nearby desk area and continued to simultaneously teach and assess, quizzing both the whole group and each child individually.

The most significant dynamic of the remediation activity was that, as each child demonstrated the lesson's skill, he or she was moved horizontally across the room to the third, initially empty, desk area and, like the enrichment group, was given scissors, cardboard, pens, and pencils for making equation cards. The success of an assessed child was acknowledged by the teacher's smile, a loud "Yah!" and the physical movement by the child, with his or her chair held high in the air, across the room to the new area (an action sometimes noisy, and always visible to other children). These forms of recognition not only affirmed his or her success to the child personally, but because of the public display, gained the attention and recognition by all classmates. The transition of children from the remediation group to the enrichment group continued until most (but not all) children achieved the skill and were moved. Thus this teacher went beyond the SIMs prescriptive lesson plan and incorporated directly into the lesson meaningful, lesson-related, visible rewards for accomplishing the skill. In so doing, she molded classroom space, lesson time, and children's actions to signify the accomplishment, a dual use of resources at both literal and symbolic levels.

Group B teacher 1-4-1 also chose to use the space of the classroom to reflect the lesson's process, but in a manner that used a complex tandem learning and assessment design. Instead of moving children individually in the classroom, the teacher first divided children into three groups, two at the front to whom she taught the day's lesson and then assessed in a close, intimate manner, and the other at the back who were given workbooks in which to practice yesterday's skills while she concentrated on the front group. Thus a large class was divided, not into enrichment and remediation, but into smaller groups which could be more effectively taught and managed. After teaching and assessing each child in the two front groups, the teacher reversed the location of the groups and proceeded to teach an almost identical lesson to the new front group which had formerly been at the back. The main difference between groups during the second half of the class session was that the new back group, now having learned the skill of the day's lesson, became engaged in practicing that skill, not the previous day's skill. Thus each group was refreshed on the skill most recently learned and assessed, while the teacher moved on with the next lesson and assessment. While her design of classroom space and time meant that this teacher had to repeat the entire lesson and assessment process twice, it apparently was preferable to losing immediacy with children massed together in a large class.

Teacher 3-4-1 presented a highly creative approach to both teaching and assessment. Like the other Group B teachers, this teacher took seriously the precepts of SIMs to teach, assess, remediate, and enrich, but rather than follow the prescribed SIMs guidelines, he designed the classroom space, time, and activity as a dramatic, interactive environment, one of high activity, histrionics, energy, visuals, and participation. Assessment of each learner was an apparent priority, but one that became immersed within learners' participatory learning, responding to challenges, performing, joking, and contributing to exciting visual and dramatic representations of math, language, and health. After whole-class learning activities, children were broken into smaller groups, but groups that did not represent achievement of a skill or lack of it. Instead, the small groups were opportunities for children to learn together and to teach and quiz each other. The teacher then circulated from small group to small group, often bending down to be at eye-level as he did so, creating great fun among the children, but also quizzing each child individually and determining the ability of each with the lesson's skills. Children's enthusiasm to participate was indicated by their urgent climbing up or squatting on desktops and leaning over other children to become part of these groups. Remediation and enrichment activities were not handled separately, but were integrated into the teeming dynamics that prevailed throughout the lesson. In addition to Grade One learners, this classroom also housed Grade Two, which may account for some of the deviation from strictly SIMs methodology. Whatever departure there was from the standard SIMs assessment format was more than compensated for by the creation in children during that session of joy in learning, an awareness of their own skills and belief in themselves as learners.

Environmental studies teacher 2-4-1 represents another way in which assessment was handled in a moderately inventive way which in the end communicated to each child his or her fulfillment of the lesson's objective, although some liberty was taken with the recommended format in the SIMs *Teacher's Guide*. After an opening instructional discourse about Namibian national holidays, the whole class was asked questions about specific holidays. Randomly calling upon different children, the teacher required those responding incorrectly to remain standing. As other children were called on and answered correctly, they were observed by the incorrect children in a peer modeling arrangement. The standing children were then given additional opportunities to answer correctly, which all finally did. Thus children were provided remediation not from additional instruction from the teacher but from learning from their more skilled peers. When any child, either initially or during a succeeding effort, gave a correct answer, the teacher clapped, said "Ooooh!" and made positive hand gestures, all very demonstrative of the child's success. Thus all received clear messages about their accomplishment. Although departing from the instructions in the SIMs *Teacher's Guide*, all children became engaged in enrichment activities at the end of the lesson, since all had finally demonstrated competence with holidays of Namibia. Thus, through questions and answers which linked teacher to child, and child to child, a progressively widening knowledge chain was created of teacher's questions, children's answers, peer modeling and support, cumulative feedback for each, additive success for all, and a final joint celebration by the entire class who had, through cooperative interaction, accomplished the goals of the lesson. It was perhaps a particularly fitting format for a lesson on national holidays which represents not so much a set of singular skills as the participation in a common vision that held an added dimension of meaning for all.

While the four lessons described above were conducted in resource-rich classrooms, it is significant that one Group B lesson, conducted by teacher 3-3-1, occurred in one of the poorest schools visited. The environment for this classroom was a stick classroom, perhaps 12 feet by 12 feet, without true walls or floors, without desks or chairs for children, but having only fixed heavy logs closely aligned on sand for sitting, writing, reading, and interaction. This classroom also combined Grades One and Two. Yet even in this setting, the teacher managed to assure that the SIMs concept of assessing each Grade One child took place. After conducting teaching activities at the make-shift chalkboard propped against the front stick wall which served both Grade One and Grade Two lessons, the teacher asked Grade One children to do exercises in their workbooks. These were done with the books held in their laps, on knees, or against their other hand to stabilize the soft paper for writing. Children were observed to have difficulty writing and erasing in these conditions. After telling the Grade Two learners to work on their own exercise books, the teacher then circulated among Grade One learners, moving among the logs and between rows of children's legs and feet. She stopped where each child was, leaned over at very close range to the child, and reviewed the child's workbook, going over exercises in detail, moving and guiding the child's hand as needed. When she discovered a child who had a wrong answer, she held his hand in her own and assisted him in counting with his fingers, and eventually in entering the correct answer in his book. While space and resources were extremely limited, this activity proved to be one of the most personalized interactions between the teacher and each child, an assessment process that gave both information to the child about the math skill and understanding to the teacher about each child's status in learning the skill. Given no space for grouping children in this tiny classroom, the teacher managed to draw upon the most fundamental and ancient of teaching, enrichment, and remediation resources—the power of using children's

own bodies, of one-on-one interaction, and proximate, even physical contact with the teacher to determine skills and then to correct or improve them.

Of these five models of inventiveness, three were driven in part by necessity or difficulties: physical circumstances, limited resources, overly large class sizes, or having two different grades in the same classroom. All five Group B teachers, however, brought their own inherent teaching sense and creativity to designing the teaching space, time, and dynamics, in ways that enhanced rather than departed from the basic goals of SIMs principles. It is apparent that much of the invisible machinery underlying the dynamics of these lessons was based on SIMs precepts, that these teachers had been educated in the philosophy and application of SIMs and had retained respect for that training. Yet it seemed that they also felt the need to diverge from strict use of the step-by-step lesson guidelines in the *Teacher's Guides*, electing to devise their own way of effecting the same precepts. Compared to Groups A, the resulting lessons shaped space, time and activity into learning environments and dynamics that were at once more nonlinear, interactive, and energetic, yet also more personal, intimate, and child-centered.

Group C: Lessons That Made Uneven Use of the SIMs Model

Many teachers attempted to conform to the SIMs model, but due to time, circumstances, lack of teaching skill, or perhaps not fully understanding what the continuous assessment concept really intended, were unable to accomplish this goal. These teachers did not fail utterly; in fact, many aspects of their lessons had ingredients of good teaching, productivity, and satisfaction to children. Yet they fell short of the SIMs standard that each child should be assessed in the skills of the day's lesson, with remediation or enrichment as the meaningful consequence. These lessons made some use of SIMs but that use was fragmented. It is worthwhile to examine the lessons of such teachers to gain insight into why teachers, including some good teachers with an inclination for handling certain parts of lessons well, nevertheless missed the mark. Two patterns of failure to achieve the SIMs model occurred: teachers who expended energy, and time on elaborate teaching strategies, sometimes with SIMs-recommended enrichment/remediation activities, but mismanaged the assessment process; and teachers who included some sort of assessment of all children but provided minimal feedback or no further consequences that were meaningful for them.

Mismanaged Assessment. While some Group C teachers presented the subject matter with good style, making the time of the lesson interesting and enjoyable for children, they nevertheless did not adequately complete assessment. In some lessons, after presentations to teach skills or information, the changeover to remediation and enrichment occurred abruptly, without assessment processes to justify the transition. Such regrouping depended not upon empirical evidence from an assessment occurring during that day's lesson, but seemingly upon impressions formed by the teacher about children's general abilities, possibly developed from previous experiences with the child or from other assumptions or biases. Teacher 1-2-1, for example, elected to call children in the Environmental lesson, one by one, up to the front of the room to hold up sheets of colored paper and state what a "robot" light (traffic light) of that color meant. Going to the front of the room became a coveted performance, and children showed their eagerness to participate. Then, part way through the lesson, the teacher moved some children to the desks at the front of the room and passed out sheets of paper and crayons to children at the remaining desks. The class apparently had been divided into remediation (front) and enrichment (rear), but without assessment of each child. Perhaps some children had been assessed by the teacher, but certainly not the majority. It seemed she had selected the two groups based on some prior knowledge or general belief about their ability, not on that day's performance of the skill. Further confirmation that this teacher worked from previously formed attitudes occurred in the remediation activities that ensued. While remediation and enrichment activities were provided for all learners, the individualized teaching that occurred for a small number within the remediation group, though excellent for those few, was not provided to all children in the group, presumably because the teacher had already formed conclusions about specific learners and their needs.

Similarly, teacher 2-1-1 emphasized teaching strategies above all else, creating excellent models for learning math equations. Yet assessment of each child did not occur. When children were regrouped part way through the lesson, they found themselves in remediation and enrichment activities without apparent relationship to any show of skill that had stemmed from that day's lesson. Like teacher 1-2-1, teacher 2-1-1 appeared to have a prior expectation of each child, an assumption which cast the child in a previously determined category, regardless of how well or poorly that child might have performed on that day. Some of these teachers created excellent learning environments. The mathematics classroom of teacher 3-8-1, for example, was notable in its climate of spontaneity and unrehearsed responsiveness. More than other classrooms, children here took more responsibility for their own learning, jumping

from their seats eagerly to contribute answers to a math game, making impromptu comments, enjoying the activity immensely. Yet without any kind of individual assessment, children were divided by the teacher into smaller groups to further learn and practice the math lesson's skills. Perhaps indications of ability were derived from the game, but children were not given a clear sense of their skill attainment in relation to that day's lesson objective.

It would seem that these teachers had allowed their own adeptness at orchestrating the teaching process, at creating learning environments, and presenting information and skills, to surpass an obligation to assess. They seemed to draw their inner rewards from their strength as deliverers and facilitators of information and skills, not as evaluators. The latter tendency was noted in other teachers as well, teachers who did not necessarily divide children at all nor provide any enrichment or remediation, but merely "taught." Some of these appear in Group D which are not examined here since they included no assessment at all.

Assessment Without Meaningful Consequence. For other lessons, some form of assessment occurred, but this was followed by either minimal feedback to the child about the assessment results or sometimes by failure to group or divide children by abilities as a natural outcome. Teacher 3-1-1, for example, after elaborate activities to teach children concepts of the numbers seven and eight, assigned all children to draw seven objects inside circles in their exercise books to demonstrate their grasp of the notion of "seven." She then circulated from desk to desk around the large classroom, giving very close attention to each child, reviewing that child's assignment, and assisting as needed. She became very engrossed with each child she came to, drilling and repeating the teaching process exclusively with that child, tutoring in a one-on-one focused manner. However, enriching or remediating activities were not provided, either singly or in groups. While each child had the intense experience of the teacher visiting his or her own desk, this private lesson stopped as soon as the teacher concluded the skill had been achieved. Then that child, like all remaining children in the class who were not directly involved with the teacher, became disengaged, bored, and noisy. There was no sense of accomplishment beyond the momentary attention of the teacher, and the boredom which followed counteracted any gain in personal satisfaction.

The methods of teacher 1-5-1 offer another example of superficial assessment which held no meaning for children. After a flurry of teaching techniques, all children received their SIMs workbooks and were told to complete an exercise in them. Children completed their exercises quickly and one by one, brought their open workbooks to teacher 1-5-1 at the front of the room. The teacher then went over each of these, making check marks on correct answers, writing the number of correct answers on the page, closing the book, and taking the book from the child. The teacher worked quickly, looking only at the pages, and giving no eye contact to the child. Nor was there any verbal feedback to the child about his or her success in achieving correct answers. The child may not even have seen the results. The teacher did return one or two books to individual children who apparently had incorrect answers. During this protracted marking procedure, children became bored with their completed assignments, then noisy and playful, some crawling on the floor or laughing, some throwing crayons. Yet the teacher concentrated only on marking books, apparently oblivious to the growing disorder. Thus, though all children were assessed, they received only minimal input concerning correctness and no feedback related to the significance or value of their work.

In summary, in Group C classrooms, the critical moment of assessment either did not occur or was insufficiently carried out. And since, in the SIMs model, assessment is the pivotal element of the lesson, teachers' purpose for many Group C lessons was not to build learning activities until mastery or enhancement of skills occurred, but rather to fill time, occupy children, entertain them, engage them in repetitive ritual, or perhaps enable them to just practice skills, until the time allotted to the lesson simply ran out. Or conversely, the aim was to teach and then assess each child primarily because SIMs stipulated this (or perhaps because classroom observers were present!). Yet such teachers omitted the next critical steps, those of providing children with a clear understanding of whether or not they had succeeded in attaining the skill, plus furnishing remediation or enrichment activities as a signifier of that outcome.

Both kinds of teachers, probably unwittingly, demonstrated a significantly different philosophy of teaching and definition of a lesson than that of the SIMs-based lesson. The contrast between teachers who used SIMs successfully and those who tried but did not succeed clarifies and focuses what is critical to the SIMs approach—the high value, even the requirement, placed on assessment with meaningful follow-up during each day's lesson. Lessons where these occurred provided a fulfillment of the teaching/learning pact, a meaningful transference of "common knowledge" (Edwards and Westgate, 1987) where education is seen as a cycle of communicative transactions which result in teachers sharing their knowledge with learners and learners acquiring the knowledge of their teachers, each building new learning on the other's base of understanding. Without the elements of assessment, feedback, and

meaningful consequences, children have no way of knowing if they have attained the teacher's knowledge and teachers have not completed the part of the knowledge transfer to the learner whereby the learner *knows* he knows. Lessons where assessment and follow-up did not occur may have been engaging, entertaining or otherwise satisfying for children, but did not result in the complete cycle of knowledge. They trailed off, dissipated, and left questions about specific skill accomplishment open to conjecture or even to teachers' biases and did not inform children about their accomplishment of the skill. They communicated to children that school is a flurry of activities, perhaps fun and engaging, perhaps "important" given the time and energy a society allots to it, but not a ladder of expanding personal accomplishment within which one has a role and a purpose.

REMEDICATION AND ENRICHMENT PHASES

While some discussion of the remediation and enrichment phases has been included above, particularly in lessons that inextricably merged these phases with the primary teaching or assessment phases, a separate examination of the processes is appropriate. Remediation, in the prescribed SIMS-CA model, occurs for a special group of children who are drawn out from the entire class after assessment, children who have failed to demonstrate the given skill and who therefore are regarded by the teacher as needing additional instruction. Remediation recommendations in the SIMs *Teacher's Guides* usually ask for some sort of repetition of the initial lesson, more practice, and sometimes a different kind of instruction, in order for children to attain the skill during the day's lesson. Enrichment, on the other hand, is for children who initially demonstrate mastery of the skill, and is designed to enable them to gain advanced levels of the skill or practice and apply it to tasks where more personal responsibility, inventiveness, and maturity are expected. Typically enrichment activities in the SIMs *Teacher's Guide* recommend that learners draw, write or perform some version of the lesson's skill with more independence, leadership or creativity, then take some public action—place the picture where others can see it, read one's writing aloud to classmates or lead them in an oral exercise that uses the skill. In theory, both remediation and enrichment groups have equal importance for the specific children involved, each functioning at the level most appropriate for the individual child.

While some of the distinctions among teachers that differentiated them into the four groupings described in the assessment phase (above) continued to affect their handling of the remediation and enrichment phases, it is more valuable to review the practices that were follow-up to assessment among all lessons using three additional categories of observed activities: (1) assumptions and approaches to how children learn in remedial and enrichment situations; (2) classroom consequences of those assumptions; and (3) whether the follow-up practices provided for the completion of the learning cycle, that is whether children came to "know that they know." Each of these categories offers variation, not only among teachers, lessons, and subjects, but often between the treatment of enrichment and remediation groups in the same lesson. Such comparisons and contrasts reveal interesting dual conceptions in the SIMS-CA classroom of how learning occurs and how it should be facilitated, one for the more capable children, another for less able children.

Two considerations need to be stated. First, it is not always clear whether the observed approach was based on the SIMs *Teacher's Guide*, or techniques taught in teacher training workshops, or teachers' personal beliefs. What actually happened in classrooms is usually taken here to be equivalent to a teacher's pedagogical belief, though of course some teachers may actually have performed in ways contrary to their own convictions. The reports given here cite what was observed and assume the method of teaching speaks for the teacher (and the SIMs approach). Second, these categories do not exhaust all that occurred in classrooms after assessment by any means. Nor is an attempt made here to rate these by tabulating how many lessons demonstrate specific characteristics. However, by looking for trends and groupings, even while citing single examples, one can begin to understand existing practice. We are in fact building our own analogies.

Assumptions About How Children Learn in Remediation and Enrichment Situations

Two categories of such teaching assumptions are highlighted here: expectations for learners' autonomy, and assumptions about appropriate skill applications for learners.

Expectations for Learners' Autonomy. Certain teachers' treatment of enrichment and remediation learners after assessment suggests that their perspective on the degree of autonomy learners were expected to possess was dependent upon which group the children were assigned to. Two quite distinct approaches toward learners occurred (partially fostered by directions in the SIMs *Teacher's Guides*). Enrichment children, as seen in the activities given to the enrichment groups, were believed to be capable of learning and practicing skills independently, with little or no

supervision by the teacher, while remediation children were seen to require intensive, small group, and individual attention to learn. For example, after assessment, the teacher who taught lessons 1-1-1-1 and 1-1-1-2 assembled the remediation children in a small group at the side of the room. She then gave the enrichment group instructions—in the mathematics lesson, to go to the front of the room, one by one, to count by fives before the other enrichment learners, and in environmental studies, to role play, in pairs in front of the others, an enactment of being injured by a knife. She stayed with the enrichment group only briefly during that part of the lesson, giving no further instructions, although she did remain to observe the first pair of learners perform in the knife injury dramatization. In both cases, she then concentrated entirely on the remediation group for the rest of the class session, to the exclusion of giving attention to the enrichment children. She had provided no instruction about skillful acting to the environmental group, nor any encouragement for the enrichment "audience" in either math or environmental lessons to behave with attention to their peers who were performing. Enrichment children were simply on their own to make productive use of their assignment if they could.

Similarly, teacher 1-2-1-2 passed out paper and pencils to learners in the enrichment group, wrote four equations on the chalkboard, gave brief directions to the enrichment group to write these on their papers, and then concentrated on the remediation group. In another example, teacher 1-3-2-1, after assessing learners in an environmental studies lesson, sent enrichment children back to their original desks. There they took out exercise books while the teacher passed out crayons and paper and read the enrichment assignment directly from the SIMs *Teacher's Guide*, instructing them to draw pictures of weather. He answered a few questions of these children, and then left them on their own to draw while he worked closely with the remediation group. The presumption of independence in enrichment learners by teacher 2-2-1-2 was even stronger. She only told them to study the written exercises they had just completed for the assessment process, and then left them alone with no specific instructions about how they might study, while she attended to the remediation children.

In each instance, the teachers acted as though they presumed that since enrichment learners had learned adequately through the initial all-class group instruction and chalkboard work and performed the core skill of the lesson successfully in an oral mode during the assessment phase, they were therefore competent to act in skits, perform in front of peers, listen, and watch as an audience, write out whole equations on paper at their desks, create their own drawings, and organize time and activities for themselves and their classmates in a reliable manner. More importantly, it was assumed that they were mature enough to monitor their own behavior and that they were capable of handling these activities independently and responsibly. While brief instructions by the teachers initiated the projects with enrichment children, little continuing contact with them followed during the remainder of the class session. By and large, the teachers left the enrichment children to fend for themselves while they worked with remediation learners. The repercussions of such assumptions are described in *Classroom Consequences of Teaching Assumptions* below.

The corresponding expectation of such teachers of remediation learners was that they were not autonomous at all but were in need of considerable attention and control by the teacher and a style of teaching that was highly nurturing, individualized, and interactive with the teacher. Learning in these remediation sessions often became dyadic, physical, and intimate bringing the learners in close contact with the teacher or each other as a method to assure that skills would be accomplished. For example, the teacher of lessons 1-1-1-1 and 1-1-1-2, cited above for taking autonomy for granted in enrichment learners, used quite the opposite approach with remediation learners. In the mathematics lesson she drew the small remediation group around a set of desks which formed a single table surface at the side. She then verbally assigned a drawing task using the same concept of "5" as the earlier whole-class lesson had presented, but using one-on-one and small group techniques. To assure that learning would occur, however, she bent over and into the group, highly involved with each learner, gazing directly and intensively at each child's face, one by one. When children in this group appeared not to learn, the teacher tried new methods of teaching, methods specific to each child, to meet the child's individual need. When one child was not participating, she picked up his hand and, holding his finger, made him point with his finger to the paper and each circle of objects which he had drawn. Another time, the teacher assisted a child who was having difficulty by showing him how to count his own five fingers and then transfer his fingers to the paper. Such interpersonal warmth, physical proximity, and uninterrupted eye contact with remediation children were surprising to witness in a teacher who had remained rigidly at the front of the room during the whole-class instruction and linear assessment processes, who showed little apparent enthusiasm for correct answers, and who distanced herself from the enrichment children's activities.

Similarly, teacher 1-2-1-2 in the mathematics lesson cited above worked one on one with remediation children, leaning over the table nearly in physical contact, interacting pleasantly using steadfast, direct eye contact with each

child. She also directed children's hands as they used colored balls to learn subtraction, making encouraging remarks such as "ohhh" to give positive feedback when they were successful. The teacher of lesson 1-3-1-2 also treated remediation children with high intimacy and interaction, directing his gaze at each child and giving each the opportunity, in turn, to use the pointer at the chalkboard, while the enrichment children were left to draw independently at their desks. Teacher 2-2-1-2, who had told the enrichment children merely to study their written equations at their desks, conducted an intensive reteaching of the lesson for the remediation children whom she had seated on the floor at the front by the chalkboard. Here she worked closely and interactively with them, both as a group and as individuals, having them recite aloud the math equations on the chalkboard and copy them onto large sheets of paper which she provided. Her eyes and attention were directed only downward toward the remediation children on the lower level where they sat on the floor, to the exclusion of the enrichment learners who were sitting or standing up at their desks in the regular space of the classroom sharing a single pencil, paper of paper or workbook among three or four children. In this resource-limited classroom, it was the remediation children who were given the best materials and the teacher's exclusive attention.

Each of these teachers apparently did not expect the remediation children to learn the lesson's skill independently, but assumed they needed added attention, new methods, and close interpersonal contact to guarantee success. Again, consequences of these assumptions are discussed below.

Assumptions about Appropriate Skill Applications for Learners. Partly in response to recommendations in the SIMs *Teacher's Guides*, teachers used a variety of forms of having children apply the lesson's key skill to some tangible operation as a learning strategy after the assessment phase. Again, there were significantly different forms for enrichment and remediation learners, with applications for enrichment children being more open-ended and learner-defined, while applications for remediation learners were more teacher-defined, with predetermined outcomes.

In classes where the enrichment phase was distinct and focused, skill application for enrichment learners was an opportunity to use the lesson's key skill within a different but associated context or to link it to new skills that were quite distinct from the original context itself. In SIMs enrichment groups, skill application usually occurred in conjunction with two additional capacities: creativity and leadership. Assignments were built upon a belief that enrichment children could learn productively from activities linked to inventiveness or self-expression (creativity), or to making presentations before other children or tutoring them (leadership). Examples of creativity included making and using relevant objects such as drawings and cards that were related to the lesson's central skill, and dramatizing the topic of the lesson before other children. For example, in a few classes enrichment children were given paper and crayons or pencils to make drawings associated with the original lesson. Teacher 2-6-1-1, for instance, distributed paper and crayons to enrichment children, gave them the task of drawing a "robot" (traffic) light, then left them on their own, turned to the small remediation group and proceeded to reteach the robot light lesson in ways that did not involve drawing. As noted before, in lesson 1-3-2-1, enrichment children were asked to draw pictures of weather, pictures which were not restricted by copying the teacher's drawing or coloring in a commercially drawn outline, but instead allowed children the liberty to create their own designs. remediation children were retaught the lesson with strategies which did not incorporate drawing or any kind of independent creativity, however.

Lesson 2-5-1-2 offered creativity for both enrichment learners and for those remediation learners who mastered the lesson's skill during remediation exercises. After assessment, the teacher passed out crayons, scissors and cardboard to enrichment children and asked them to make cardboard flashcards. Since this teacher's unique method of classroom management also rewarded remediation children who successfully relearned the skill with the opportunity to join the enrichment activity of creating flashcards, all children who passed the basic skill hurdle (and therefore became successful learners of that skill), and not merely the original enrichment children who first demonstrated the skill, were presumed, in this teacher's view of learning, to be capable of additional learning through creativity and applications. However, creativity was not used as an approach to accomplishing the basic skill itself. Teacher 1-1-1-2 did have remediation children draw circles on paper and then draw five objects within these as a strategy for learning the core skill, but such drawings were more an opportunity for conceptualizing than for true creativity. For most teachers, drawing and art were a way of keeping enrichment learners busy and quiet, to fill their time so that teachers could concentrate freely on remediation children using noncreative methods. Or art was seen as an activity that would develop and enhance the already accomplished basic level skill of the lesson for enrichment children, but apparently not a strategy for reteaching the basic skill to remediation children.

Roles of leadership and being a presenter in front of the class before other children were also largely reserved for enrichment learners. The teacher of lesson 1-1-1-2, for example, told enrichment children to go before the group, one

by one, and count out by five's to the others in the group. Teacher 2-5-1-2, as noted above, engaged the enrichment learners in creating flash cards and using them with each other. After a while, as the initial enrichment group completed their card-making, she called on two or three children to stand at the front of the room and read their cards to their peers. As individuals in the remediation group were rewarded for mastering the lesson's skill by moving to the enrichment space, the teacher drew a child from the enrichment group over to the dwindling remediation group to quiz the remaining children there in a leadership capacity. Acting out miniature skits of injury and treatment was the learning activity given to enrichment children in Lesson 1-1-1-1, an activity which theoretically would enable learners to advance their grasp of the original lesson's knowledge goal through personal role-playing and personification of the skill before their peers. Again, such activities involving leadership and self-expression through performance before others were provided to enrichment children. Remediation children, if involved at all, were usually on the receiving end of these and were not expected to learn the lesson's core skill themselves from performing leadership or acting activities.

Two forms of performance-related learning which border on leadership and self-expression are collaborative learning initiatives among children and the two complementary functions of role-modeling for peers and imitation by peers. While these strategies were sometimes seen in the instructional phases of SIMs-CAMs lessons, a few lessons used them in enrichment and remediation as well. The enrichment children in lesson 2-5-1-2 described above, for example, who were given the task of making flash cards with scissors and crayons, shared and helped each other. Talking was not only allowed but encouraged, with the children becoming noisy but on task as they worked together. Teacher 2-4-1-1, described above for conducting a "knowledge chain" assessment process, required unsuccessful children to remain standing until successful children had given correct answers about the Namibian national holidays, answers which the unsuccessful children could then copy in their own performance. While this teacher did not break the class into remediation and enrichment groups, she did accomplish learning of the lesson's core knowledge among all children through peer role modeling. Even in these examples of peer to peer performances, the shared task of making flash cards and the knowledge chain, it was the enrichment learners who were asked to initiate the learning process, to demonstrate for each other or for the remediation learners. There was a presumption that remediation learners could not learn from their own leadership activities or from sharing skills with others.

Application of skills was used with remediation children in distinctly different ways. In several lessons, remediation children were expected to benefit from relearning the original lesson through hands-on manipulation of objects, drawings, fingers, and hands or even whole bodies to symbolically represent the lesson's core concepts. Applications were orchestrated by the teacher, with distinct expectations for correct demonstration of specific skills by children; they were not open-ended nor could skills be tried out in new contexts without restrictions on outcomes. While these activities were sometimes a repetition of the learning processes used in the earlier instructional phase for the whole class, in some lessons they introduced new teaching techniques to children, bringing additional instructional modes into the array of attempts to have children achieve successful skill performance.

For example, as noted earlier, the teacher of lesson 1-1-1-2 passed out pencils and paper to remediation children, then asked them, by steps, to draw a circle with five objects inside it, then a second circle also with five objects inside, then count by fives using the circles as units. When some children performed poorly, the teacher found five bottle caps and placed them on the table where they could touch them and count them. The children pointed to them and touched them with their pencils, and then drew them in the circles on their papers. The teacher had the remediation group recite numbers 1 through 5 in unison while they pointed to the objects they had drawn. Then each child was asked to count his or her own 5 objects separately. To correct one child when he had drawn too many objects in his circle, the teacher had him count aloud. He then discovered his error and erased the extra object. Another time when a child had too many objects, the teacher first had him count out loud, then reached over the table with her pencil, counted off the objects on his paper and crossed off the extra one herself. The child was then asked to draw another large circle with five objects in it. As described in the Autonomy section above, this teacher was particularly interactive with remediation children, using intense interchange of facial expressions and eye contact with each child, occasionally holding a child's fingers and directing them to his or her drawing to attain a physical as well as mental understanding of the mathematical concept. Thus this teacher interwove applications of the lesson's core skill to develop the basic concept by using tangible representations that were handled by each child together with personally gratifying experiences for the child, connecting the physical senses, emotions, and intellect in a single but complex set of learning activities.

In another example of using manipulation of objects in conjunction with personal interaction in the remediation group, teacher 1-2-1-2 took the colored balls with which she had initially demonstrated subtraction to the whole class

during the instruction phase. This time, however, she used them individually with each remediation child, directing the child's hands as the child handled the balls to understand subtraction through the direct experience of fingers and palms. The teacher said "ohhh" to encourage the child as she did so. Another teacher in lesson 1-3-2-1 had each remediation child stand up in turn from the small circle of chairs at the front of the room, go to the chalkboard, use the pointer to identify different weather patterns and speak about them. A final example of the use of direct skill applications in a personal way with remediation children was teacher 2-6-1-1 who retaught the lesson in a lowvoiced manner, looking closely at each learner, calling on each individually, moving her attention back and forth around the small circle of children. Then she paired the children off, moved colored circles of paper on her simulated "robot light," and asked them to practice crossing an imaginary street by moving together physically in the room. She also removed the SIMs robot light poster from the chalkboard where it had served the entire class earlier, laid it on the table before the remediation learners, and proceeded to teach the concepts in a more direct manner which enabled children to see the poster close up and touch it while she talked.

Classroom Consequences of Teaching Assumptions

The teaching philosophies selected for examination here, regarding children's autonomy and the use of applications of learning, particularly in the ways they affected enrichment and remediation learners differently, produced significant consequences for the classroom dynamics for whole groups of learners and also for the learning experiences of children as individuals. Children who were at the center of the teacher's attention usually participated in teacher-learner interactions in which they were stimulated and involved. However, children who were given an independent assignment and were removed from the teacher's immediate interest sometimes performed on task initially, but often could not sustain focus on their work and became bored, disengaged or sometimes disruptive and chaotic. Since they apparently had not been taught collateral skills such as acting, presenting before a group, or being an attentive audience, nor had they, as Grade One learners, the maturity apparently needed for autonomy, nor was the teacher present to supervise the practice of these activities, performances, and participation were unskilled and unfocused.

For example, in lesson 1-1-1-1, the skits were very short, children often self-conscious, and voices non-existent or too weak to be heard. Children often turned their backs to the class or their role-playing did not appear to portray the bandaging of an injury, making their actions either out of the line of vision or opaque in terms of meaningfulness to other children. Enrichment children who were not personally acting in the skits became bored, either because they had completed the assignment and had nothing else to do, or because they were not engaged by their peers' performances. They became noisy and finally disruptive to each other. At one point, the teacher, sensing the disruption, called over from the remediation group, "Why aren't you doing what I told you to do?" Similar disruption occurred in this teacher's mathematics class (1-1-1-2) when the enrichment children became rowdy, partly from lack of supervision, but just as much from lack of challenge in their assignment which was merely to stand before their peers and count out by fives. Children played and threw objects; one child became slightly hurt and cried. Yet the teacher did not notice this, such was the noise, general disorder, and her concentration on the remediation group. In class 2-1-1-2, another teacher whose enrichment group developed similar behavior problems when left alone first yelled out, "be quiet!" and then left the remediation learners and went over to the group to belatedly give instructions about how to work the equations cards and stones she had earlier given them without directions for use.

In class 1-2-1-1, similar disruption occurred among enrichment children, but this teacher's solutions were more effective. The enrichment children were given instructions to draw robot lights, which engaged them for a while until they had completed the task and then became bored and noisy (though not disruptive). To handle the situation, the teacher first stood up from her work with the remediation children, raised her hand in the SIMs signal for attention, and called to the enrichment group. Then, she left the remediation group and circulated around the room, interacting with most children and making positive comments, as if to reassure them that she cared in a positive way about their involvement and behavior, rather than to show a punitive or angry reaction. It seemed to calm those who tended to become rowdy.

It should be noted that some enrichment groups did remain on task, even when teachers focused on the remediation learners. As has been cited earlier, drawing and art assignments usually were productive in maintaining enrichment learners' attention throughout the class time when teachers split their attention, particularly when these allowed for complex tasks such as using scissors, cardboard and crayons to make flashcards or creating unrestricted products

such as drawings of any kind of weather (rather than, for example, the more limited assignment of drawing a robot light merely duplicating the one shown by the teacher).

Meanwhile, children in the remediation groups who were the beneficiaries of these same teachers' focus and personalized reteaching of the lesson flourished. All remained on task when the teacher's attention was on them as individuals. Even when the teacher moved on to the next child in a remediation group, most of the remaining children watched quietly or became occupied with continuing the work the teacher had just initiated with them. For example, remediation learners in lessons 1-1-1-1 and 1-1-1-2 responded in kind by returning the teacher's eye contact, even while their enrichment peers became highly disruptive (described above). In lesson 1-2-1-1, the teacher's act of bending over each child's desk area, showing each the colored paper representing robot lights, asking each about the colors and meanings of colors, and giving direct eye contact to each, elicited reciprocal eye contact and close engagement from the child. About 75% of the children in this remediation group who were not occupied in their own individual learning interaction with the teacher, nevertheless paid attention. The remaining 25% who did not attend directly to the lesson nevertheless talked to each other quietly and were not undisciplined. In each class where teachers conducted the remediation activities in an intimate, interpersonal manner that concentrated on children as individuals, remediation learners responded with mutual engagement, giving back eye contact, smiles, and making progress in the accomplishment of the lesson's skill.

It was apparent that SIMs teachers were attempting to manage a highly difficult, contradictory situation, that of concentrating on one group of learners which, in these teachers' understanding of good teaching practice, required their complete attention and individualized interaction if they were to accomplish the skill that day, while leaving another group of learners to accomplish their own learning processes. Such division, in addition to splitting the teacher's attention, simultaneously required two incompatible teaching roles, on the one hand, that of a hands-off facilitator with little involvement yet with responsibility for disruptive behavior, and, on the other, that of an implementer of interpersonal learning where intensive teacher control was required. Teachers caught in this dilemma of trying to manage both groups effectively sometimes displayed their stress by remaining in the remediation group but raising their voice to carry across the room over to the enrichment group. Some remained where they were but raised their hand in the SIMs-CAMs gesture for attention and quiet. Most, however, resolved the quandary by concentrating only on the remediation children, ignoring the growing boredom or disorder of the enrichment children, seeming to not recognize the discrepancies between learning activities that were occurring.

The assumption of the SIMs lesson design that enrichment children had the maturity and skills to handle independent small group learning tasks was erroneous. Grade One children, especially when structure, order, and behavioral expectations of the academic classroom may be significantly different from home life, are unlikely to handle all the skills expected of them as autonomous learners. Since the independent assignments usually were designed for enrichment learners, it is ironic that boredom and disruption were the outcomes, since these effects were antithetical to the enrichment phase's purpose of enhancing competence and developing children in areas beyond the basic skill of the lesson.

The opposite assumption, by which remediation learners needed considerable attention, individualization, and nurturing to succeed appeared to have more validity. In each of these remediation episodes, the combination of hands-on activity and emotionally satisfying teacher interaction appeared to result in children absorbing the skill and benefiting from the close attention, judging by their involvement. Whatever they may have lost in not having open-ended learning exercises leading to leadership or creativity, they gained in enjoying the direct interaction with the teacher and their peers. The remediation process fulfilled the SIMs pedagogical requirement that children who had failed to learn the first time be given a second chance through additional, sometimes different methods of teaching. But how it did so is most significant. By providing remediation learners with an experience of learning that had personalization to the point of intimacy, interactivity with the teacher and peers, corporeal encounter with the skill, closure, and easily identifiable fulfillment of goals, it created intrinsic and immediate rewards that not only taught the skill but gave assurance to the remediation learner that the learning process itself was satisfying and worth pursuing. This effect is discussed in the *Completion of the Spiral of Learning* section below.

It is worth recalling briefly those lessons where assessment occurred but did not result in two distinct groups, lessons where brighter children remained with those who did not achieve the lesson's skill in an integrated form of the enrichment/remediation dichotomy. As described earlier, these were often inventive departures from the literal SIMs recommendations. Included were placing children in groups consisting of deliberately mixed abilities, using the grouping strategy not to differentiate competence but to create smaller, more manageable groups in order to teach,

assess, and remediate in the same intimate style to all children. The more able learners often lent their expertise to the less able learners in these groups, thus fulfilling a modified leadership development function of enrichment activities (truly open-ended, creative activities were not a component, however). Another strategy was to keep all children in the class together by building the "knowledge chain" described earlier which empowered the more able learners to demonstrate their skill and provide correction, and therefore be role models for those who were slower to answer correctly. In each case, these combined enrichment/remediation lessons had the effect of maintaining order among all learners, provided the more able learners with limited enrichment opportunities, and created for all children a moderate degree of the intimacy which was reserved for remediation children in classes where grouping was by ability. The combined groups tended to dilute the intensity of interaction that remediation children experienced when placed alone in homogeneous groups with the entire focus of the teacher to themselves, however.

COMPLETION OF THE LEARNING SPIRAL

One way to characterize a lesson in a formal education system is to suggest it serves a four-fold purpose: to mold a finite period of time with strategies and activities to enable a child to accomplish a specified skill or mastery of some knowledge domain (usually drawn from a wider curriculum); to ascertain that such skills and knowledge have been achieved; to provide meaningful outcomes for achievement or lack of achievement; and to acknowledge, document, and position that achievement. Serving both the child and the education system with information to situate the learner for the next learning episode, lessons and the syllabus are often modeled in spiral patterns which cycle back and revisit previous learning content and processes in order to build the next higher level (Brewer and Kallick 1996, for example). In the preceding discussion, the SIMs model of continuous assessment has been examined in light of the second and third lesson goals. To examine the fourth purpose, acknowledgement, documentation, and positioning of the lesson's skill or knowledge, it is valuable to take a wider stance, to explore the single lesson as a component of an aggregate of learning experiences which shape, not just the particular skill of that lesson, but the emerging awareness by the child that he or she is a functioning learner within an evolving system or "spiral" of learning. This inquiry will continue to use direct observations of the SIMs classroom, but will also draw upon communication theory to provide a dimension for the discussion.

Communication and Education

Communicative actions are essential to teaching and learning. Education is grounded in them; indeed they are the medium, vehicle, and lifeblood of educational processes. Yet they are nearly invisible to the casual observer, and so deserve special notice if one is to understand the education transaction. Most persons, if asked about the relation between education and communication, would name such things as conscious and planned communication pedagogy (language and vocabulary growth, grammar and spelling training, speech and writing development); or instructional organization, methodologies, and materials (curriculum, objectives, lectures, textbooks, note-taking, team projects, group discussion, instructional media); or possibly public affirmations of learning (report cards, parent-teacher conferences, the honor roll, the diploma). Such functions are, of course, the most observable communication components of education. However, it is the intrinsic forms of communication that are of interest here, qualities which are embedded in every experience that the child as a learner in a classroom undergoes, yet which would seem to be peripheral to or beyond the scope of the fundamental teaching/learning function of education.

Models of communication are helpful here. Interpersonal (dyadic) communication models, often using engineering and cybernetic systems language, range from the simplistic Sender-Message-Receiver model; to encoder-decoder descriptions which acknowledge the filters, restrictions, gateways, and screenings which must be surmounted in communication transactions; to more complex multi-channeled models which distinguish several avenues and levels of simultaneous transmission; to feedback models that recognize the significant reciprocal roles played by both participants in not only sending out and taking in messages, but in contributing to the shape and nature of the total communicative transaction (Schramm 1973). Communication among aggregates of people is studied using dimensions such as small groups, networks, climate, systems, organizations, and mass communication (Farace, Monge and Russell 1977). A richer framework for understanding communication is the concept of communicative "culture" where interchange among people is represented as "shared meanings" and "symbolic discourse" (Smircich 1983; Smircich and Calas 1987). Similar concepts have been appropriated by education theorists as "culturalism" (Bruner 1996), "common knowledge" (Edwards and Mercer 1987) and "triadic dialogue" (Scudder and Mickunas 1985), each envisioning a milieu of continuous interactions and interpretations of those actions as part of the world in which individuals exist, work, conduct the business of their daily lives, and, among other things, become educated.

Such theorists suggest that the world is interpreted through the perceptions and actions of persons living in it, and, depending on the theorist, is modeled by, is inseparable from, or is constantly recreated by its participants through symbols, signs, dialogue, and symbolic interaction.

Education is a specialized kind of communication process that has its own rules and particularities. For one thing, education, at least formal education which is the subject of this discussion, is highly purposive communication, unlike informal communication which may or may not be purposive but certainly is more open to the whims and daily circumstances of those who are interacting. Education is an intentional transaction with an end goal, not random or undirected activities such as greetings, chatter, or impromptu conversation. It is initiated by a combination of social establishments (family, community, church, government, etc.) and, because these seek determined social goals, educational purpose for both the child and the education institution is not ambiguous or capricious, but has articulated outcomes of both practicality and idealism. Children should be educated for employment, for community citizenship, for leadership, for spiritual goals, for parenting, for the nation, for "life," etc. While some may espouse loftier educational goals that focus on the inner person's development (for example, Scudder and Mickunas 1985), curricula, in reality, are primarily selected by social institutions which have a vested interest in their outcomes. These institutions sculpt the landscape of knowledge and skills into structures, patterns, and hierarchies appropriate for their own goals. Purporting to know "what is best" for the child, most curricula move in directional sequences from simple to complex; from concrete to abstract; from the familiar, personal, and close-by to the extrinsic, unknown, and exotic; from easily grasped levels of learning to those that are difficult or highly challenging. Curricula involve systematized standards and criteria for performance of skills and knowledge which children must attain if they are to "pass" and achieve the goals of the social institution. The socially defined outcomes of curricula also prescribe the kinds of formal communicative processes that occur, the "lesson" being the most recognizable unit of formal education communication. Within the lesson, a variety of more minute communicative interactions can and do occur, depending on the teacher, the social group, and the children: questions and answers, memorization and recitation, drill and practice, problem-solving, written and oral exercises, quizzes and tests, etc. These, then, are the formal, purposive aspects of educational communication.

But beyond the intentional and didactic levels, there is an underlying system of messages and meanings which children experience in the classroom. In their classic discussion of communication, *Pragmatics of Human Communication*, Watzlawick, Beavin and Jackson (1973, p. 37) describe a "metacommunicational axiom of the pragmatics of communication:"

No matter how one may try, one cannot *not* communicate. Activity or inactivity, words or silence all have message value: They influence others and these others, in turn, cannot not respond to these communications and are thus themselves communicating. It should be clearly understood that the mere absence of talking or of taking notice of each other is no exception to what has just been asserted.

Neither can we say that "communication" only takes place when it is intentional, conscious, or successful, that is, when mutual understanding occurs.

Condon (1973, p. 60) characterizes metacommunication as:

...cues that indicate to the person how the spoken words are to be interpreted...These may be vocal inflections...or nonverbal indicators, such as gestures and expressions (pounding the table or frowning). Even clothing and the distance between speakers may provide clues for interpreting the message correctly....

...These cues may reinforce the meaning of words, may sometimes distract from the words spoken, or may even contradict what the words seem to mean. When the cues are different from the words, a listener has difficulty in accepting the spoken message.

Condon identifies feedback as an additional function served by metacommunication. He writes, "as with all metacommunication cues, those associated with feedback may conflict or be confusing" (p. 61). While not using the term "metacommunication," Edwards and Mercer (1987, p. 47) identify aspects of classroom talk that suggest the metacommunicative level which they call the "ground-rules of education":

[R]ules of classroom talk...rules of interpretation, rules that have to be understood and acted on by participants, rather than simply characteristics of recorded talk. And they are implicit rather than

explicit....[T]hey are not rules that the participants will necessarily be aware of knowing....These rules of classroom talk are part of a more general set of unwritten rules of interpretation which underlie successful participation in educational discourse.

This subtext of communication, both planned and unconscious, permeates the classroom experience of children and at times even competes with formal, intentional educational functions. It gives subtle, yet consequential, messages to children about who they are and how effective they are as participants in an education system, and as learners in their own right.

What is of interest to this discussion is how children, by participating on a daily basis in brief but organized experiences of "lessons" which have been defined by the social institutions beyond them, come to understand themselves as learners, possibly effective learners, with a role in the school and eventually a function in those social institutions. Namibian children, coming from traditional life styles and values into the myriad of schools with modern orientations, organizational structures, and curricula which now pepper Owamboland and Kavangoland in northern Namibia, are making a transition in their lives which is unimaginable to most Westerners. How does the classroom assist the child in forming an identity and an efficacy in the wider systems of the modern society to which schools are the main bridge?

One place to look is the communicative feedback processes and symbolic events within the lesson. These are the pivotal points in the lesson's interactions that constitute critical junctures in the spiral of learning (critical in the sense they are both judgmental and consequential). They are culmination moments when a child comes to know whether or not he or she has succeeded in accomplishing the skill of the lesson. While the continuous assessment model generally emphasizes an overall formative pedagogical approach, it is helpful to use the distinction typically made between formative and summative assessment (Harris and Bell 1990) for these critical junctures. Within the framework of a single lesson, feedback processes can be viewed as fulfilling a formative purpose, giving the child mid-lesson transitional information about the skill he or she is performing, hopefully to facilitate or redirect the learning process while it is still occurring. Symbolic events, on the other hand, may be thought to offer a summative function, providing a final verdict to the learning success for that lesson. Because both junctures occur in the SIMS instructional system which is built primarily upon correct responses, they also carry metacommunicative overtones. It is these points of feedback and symbol, more than other moments of the lesson, which have potential to communicate directly to the child, not only about achievement of the lesson's skill, but, more importantly, about his or her identity as a learner. They come to signify for the child a judgment of the lesson's skill and indirectly of the self, and therefore imply approbation and esteem, or neutrality, or possibly failure and disappointment. While a single moment in a lesson does not change a child's life, the additive effect of sequences of lessons with similar communicative events over a period of time will certainly shape the child's sense of his ability and worth as a learner. An examination of these critical junctures in the microcosm of single lessons offers a glimpse into the world of the young child and the emerging identity of the child as a learner.

Feedback Processes and Symbolic Events

"Feedback," in keeping with standard terminology of communication theory, is taken here to represent the returning communicative response of the teacher reacting to the child's answer (a departure from in the Grade Two SIMS *Teacher's Guide* where the term is used to list the child's correct responses to teachers' questions). Feedback in this use is defined as "communicating back to the other...how our messages are being interpreted" (Schramm 1973, p. 34); as "signals sent from the listener [i.e., listening teacher] to the speaker [responding child] in order to tell the speaker how he is being understood" (Condon 1973, p. 61); and as "a relationship between the behavior of the speaker [child], the response of the listener [teacher], and the effect of that response on the further behavior of the speaker" (Clevenger and Matthews 1973, p.154). The latter "relationship" concept is significant in all these definitions which recognize the mutual influence and reciprocity of feedback which creates "modification" (Schramm) or "alteration" (Condon) in subsequent message sequences to and from both parties. By creating the potential for such change, feedback serves a formative function in assessment. The hope, of course in this situation, is that the feedback will modify the instructional process created by the teacher and inform the learner about progress and better, type of error and its correction.

Symbolic events are understood here to be those occasions in the lesson, planned by the teacher or otherwise, which signify a final judgement or appraisal. They designate a closure of opportunity to continue learning practices during the lesson (even if new options to learn will occur tomorrow) and as such have a permanency about them. They give

retrospective value to the learning effort that has led up to them. They also may mark the child with a label, identification or location in the continuum of learning, and therefore suggest a value for the child's prospective learning endeavors and indirectly for the child as well. As such, they perform a summative assessment role.

Feedback and Symbolic Events in SIMs Classrooms

Let us look again at processes observed in SIMs lessons, this time to pinpoint how critical junctures—feedback episodes and symbolic events—functioned to communicate formative and summative appraisal to children about their success with the lesson's skill and about their role as learners. First, the splitting of children into enrichment and remediation groups in many classes operated as both a system of feedback and a symbolic marker. Both children who were successful and those who were not received public confirmation of their status by moving to a separate group in the classroom or remaining where they were, amidst peers with like status. For lessons where this move was physical or involved separate locations, the symbolic value was public and overt; for lessons where differentiation was primarily related to activities, the value was more private, yet nevertheless carried a subtle symbolism for each child.

As previously noted, lessons where a second teaching occurred in small remediation groups included highly intense interaction with the teacher. Whether seen as the "I-Thou" core of education dialogue as interpreted by phenomenology (Scudder and Mickunas 1985), or as a sensible, nuts-and-bolts interpersonal technique recommended for teachers to use for student success (Purkey 1978), such interaction provided one of the most concentrated learning opportunities available to children. In response to children's attempts (and failure) to understand math concepts, SIMs teachers leaned into the desk space of children in the remediation group and spoke individually with each child. Looking directly at children with one-on-one eye contact, teachers touched their fingers and hands to correct the manipulation of stones and bottlecaps and patiently repeated teaching strategies until each child performed the skill correctly. In an unparalleled example of the "relationship" aspect of feedback (Clevenger and Matthews 1973), teachers adjusted, changed, or modified their techniques to what specific learners needed, while learners altered their responses to please the teacher. Children learned the specific math skill, but just as importantly, came to understand themselves as successful learners, as active participants in a pleasurable relationship that was built upon teacher approval and even affection.

As discussed earlier, some in enrichment groups received inventive assignments that complemented their early success with absorbing class work (often art or exercise book activities) which reflected the initial skill back to them in a more creative or complex form. Thus both the symbolic event of moving to a separate group of successful peers and the reinforcing follow-up activities communicated positively to them about their success. Those in enrichment groups where performance was expected did not fare as well, however. As described earlier, monotony and even disorder resulted when enrichment assignments were either insufficiently challenging, too difficult, or lacked teacher involvement. Unfortunately, in some classes the enrichment goal to build creativity and leadership backfired. Messages received by these learners were contradictory and metacommunicative. On the one hand, they had been placed among other successful learners, a public symbol of their ability. On the other, not only were they left without the higher level skills that were intended for them as able learners, the negative experiences of unfulfilling group work, boredom, and disorganization provided feedback that may have fostered misconception and disappointment about the rewards of being a bright learner. Being clever in school work or successful in lessons might not have seemed as advantageous as enjoying the affectionate interaction and intense attention from the teacher which remediation children were receiving across the room. Some learners, despite their ability to excel in academic subjects, lacked the maturity to learn independently, either by themselves or in a group. Perhaps they still desired nurturing and attention from their teacher. For some, the message extracted from the enrichment environment might be that being less bright had better rewards, that acting in an undisciplined manner (or possibly not demonstrating competence with the lesson's skills) would gain them the coveted attention from the teacher which the less advanced learners received.

Another form of formative follow-up to assessment given by teachers to incorrect learners was to require that they remain standing after their initial attempt, observe other learners in the class perform the skill correctly, and then perform it correctly themselves. The acts of remaining standing when unsuccessful and sitting down upon success became symbolic events, visible markers designating the status of the child, to the child himself and to fellow classmates. Feedback in this instance was also derived from the lack of permission by the teacher to sit down (which was not punitive, however), from remaining observably incorrect before one's peers while one stood, and from the

role-model performances of peers. While the two-way reciprocity between participants noted above in small remediation groups did not occur between children in that successful learners did not seem to modify their behavior in response to their unsuccessful peers, the feedback received by unsuccessful children from their successful peers' performances certainly supported their eventual achievement. Nor did the intense teacher-child interaction of the small remediation groups occur in this model of correcting learners. Nevertheless, some teachers marked the final success of a child with a loud "Oooh!" and signaled the entire class to applaud in response to the correct response of the child, additional symbolic events that designated the child as finally successful. Enrichment children who demonstrated their skills before their peers, however, did benefit from the symbolic event of functioning as a role model, an activity that communicated their success a second time to themselves and their peers.

Some teachers provided feedback and symbolic events that were counterproductive to learning. For example in lesson 1-5-1-2, children brought their completed exercises to the teacher at her desk. The teacher reviewed each child's book, made check marks on correct answers, wrote the number of correct answers on the same page, closed the book, and took it away from the child, actions serving as symbols, however scant, of the child's success. She worked quickly, looking only at the books, giving no eye contact to the children. Nor was there any verbal feedback to children about either success or incorrectness. From where they stood at the side of the desk, children may not even have seen the check marks or summary numbers that she wrote in their books. Books were returned to one or two individual children who apparently had incorrect answers, also without comment or eye contact from the teacher. While these children attempted to correct their errors back at their desks, there was no final review of their work by the teacher. Nor were successful learners given enrichment activities. After their books were taken by the teacher, they had little to do and became bored and disorderly. If "one cannot not communicate" as Watzlawick, Beavin, and Jackson suggest (1973, p. 37), then this teacher did provide ample feedback to children by offering neutral and negative reactions to their responses (their exercises). Her lack of comment or eye contact communicated aversion to the learning process which children had just gone through. While her removal of the successful children's books was a signal of sorts of their success, her lack of meaningful additional activities for them gave them no opportunity for satisfaction from the success. Similarly, remediation was without meaning, since there was no closure to their revision. This lesson exemplifies a multi-channeled communication model that results in conflicting metacommunicative messages. While conducting the standard assessment, correcting exercise books, in an apparently accurate fashion (her primary activity), she simultaneously communicated, through the secondary channels of nonverbal behavior and failure to carry out meaningful follow-up learning processes, a disinterest, disrespect, even disdain, for the learning process. Children logically inferred that her interest and respect for them was similarly negative, indicated by the boredom and disorder apparent in the successful children.

Potentially, a form of summative appraisal for remediation learners would be to assure a second assessment of their relearned skill and to mark that success with some sort of symbolic activity. If remediation children finally achieved the skill, the acknowledgement of success could constitute an important symbolic event for them, one not available to them earlier in the lesson. Some teachers carried out this final act. For example, after reteaching and reassessing remediation children in a special group at the front of the room, both teacher 2-6-1-1 and 1-2-1-2 had them return to their original desk spaces in the classroom where enrichment children had remained, an action which, however subtle, nevertheless was a public rejoining with the community of their class peers. Teacher 2-4-1-1, described before in the "knowledge chain" she set in motion, cried "Oooh!" and clapped her hands in a very responsive manner to children who finally answered correctly. Teacher 2-2-1-2 had remediation children copy equations from the chalkboard onto sheets of paper and when they were through, hold them up for all to see and rejoin the enrichment group at their original desks. As noted earlier, the most celebratory event of this kind was the movement of remediation children in class 2-5-1-2 when they performed satisfactorily from that group to the enrichment group. This very public event was conducted child by child, chairs held high over their heads amidst their peers' applause. Unfortunately not all teachers completed a second assessment nor did they give children some final indication of achievement, missing an important opportunity to institute a sense of success and create a closure to the learning process for children who had missed the experience of success the first time.

For enrichment children, in classes where their assessment follow-up activities were confirming and productive, two key types of events which completed the learning process with symbolic markers occurred: having their enrichment work publicly recognized and serving as a peer role model or class leader. Lesson 2-5-1-2 (which enabled remediation children to move across the room holding up their chairs upon their success) also enabled a small number of enrichment children to stand at the front of the room and read to all children the flashcards they had just created. One enrichment child who completed his card-making was asked by the teacher to move to the remediation

group to quiz those children. Enrichment children in 1-3-2-1 who had completed a drawing assignment about the weather were called upon by the teacher to come to the front of the entire class, hang their drawings on the chalkboard, and, using a pointer, explain aloud for both enrichment and remediation children what their drawings were about. In each of these examples, enrichment children were given the opportunity, through symbolic events, to receive recognition, not just for originally demonstrating ability, but also for their additional learning enhancement. Unlike enrichment children in other classes whose enrichment experiences tapered off into a mere "busy-work" activity, their additional learning was marked with significance, value, and stature.

Positioning the Learner for New Learning Episodes

If a child's learning accomplishment is to be carried over to the next lesson and into future learning efforts, the seeds of that future should exist at the culmination of the current lesson. Teachers have need to identify the status of the child with regard to the lesson's objective in some way that will assist them in facilitating the next learning step within the series of lessons, curriculum or whatever long-term organization of learning is used. Children's needs are the primary concern in this process. Harris and Bell (1990, p. 95) suggest that for teachers, "results of assessing, whether they be marks in a mark book, informal impressions or detailed comments arrived at during collaborative assessing are there to be used to help the learners, not just to be kept in a file." More importantly, children begin, even in Grade One, to build a sense of personal standing in that system of learning. Not only the gain at the moment of learning, but its significance to others, its recall at a later time, and the ability to use it in new contexts and locations, begin to develop a connection in the child between learning in the classroom, the external world, and a sense of personal effectiveness. The small skill or morsel of knowledge gained in a single lesson, while seemingly negligible, is a component of a continuum that eventually gives the child an awareness of his or her competence as a learner and as a person.

Writers from various perspectives have characterized the link between increments of learning, the child's developing responsibility for his or her own learning, and the relationship of these to the world outside the classroom. Jerome Bruner (1996, p. 36), for example, writes of the "self" as a combination of agency and evaluation. Self is "the construction of a conceptual system that organizes, as it were, a 'record' of agentive encounters with the world, a record that is related to the past...but that is also extrapolated into the future—self with history and possibility. It is a 'possible' self that regulates aspiration, confidence, optimism and their opposites." He explains agency as the "sense that one can initiate and carry out activities on one's own" which results in "skill or know-how. Success and failure are principal nutrients in the development of selfhood. Yet we may not be the final arbiters of success and failure which are often defined from 'outside' according to culturally specified criteria" (p. 6). Regarding the other component of self, "evaluation," Bruner writes, "not only do we experience the self as agentive, we evaluate our efficacy in bringing off what we hoped for or were asked to do," with the self taking on the "flavor" of such evaluations (p. 37). Such evaluative experiences to Bruner result in self-esteem, a combination of self-belief in one's capabilities and fear of what is beyond one's abilities. School, he suggests, "is where the child first encounters such criteria—often as if applied arbitrarily. School judges a child's performance, and the child responds by evaluating himself or herself in turn" (p. 36-7). He continues, "...if agency and esteem are central to the construction of Self, then ordinary practices of school need to be examined with a view to what contribution they make to these two crucial ingredients" (p. 38).

From a different perspective, using a phenomenological understanding to link education and the world, Scudder and Mickunas (1985, p. 43) write, "the goal of education...is to transfer authority from the teacher to the student. For this to happen a student must learn to direct his own learning." They later write, "enculturation is not primarily a process of learning how to react to a given environment or objects and things. Rather, it is an opening of the world to the child in which both the child and the things belong" (p. 67). Perkins (1992, p. 122) writes of teaching for "transfer," the application of something learned in one situation to a significantly different context. He suggests that "students can transfer knowledge and skills from subject matter to subject matter and to a variety of out-of-school contexts, provided that instruction sets up the conditions for transfer" (p. 126). Two methods for aiding transfer are "bridging," getting students to make outreaching connections to other areas, and "hugging," keeping instruction close to the performances one wants to cultivate through techniques such as direct practice and problem-based learning. Harris and Bell (1990, p. 135) hold that learners should be involved in taking on increasing responsibility for their learning and even argue for students handling more of their own record-keeping as a way to build such responsibility. Thus from different outlooks, the purpose of classroom learning is seen not to be an end in itself, but a

bridge to using the acquired skills in new contexts, through a growing proficiency and personal responsibility for one's own learning.

Evidence of continuity bridges at the ends of lessons—links from the current lesson to coming lessons, the external world, and the child's development—is difficult to document. One frame to examine is connections in time, both forward and backward, references between past, present, and future learning. There were indicators in some SIMs lessons that such links were occurring. A few teachers were observed recording results of the day in their record books, a SIMs expectation for continuous assessment if it is to be functional and not just a concept, thus performing a mechanical bridge that was both symbolic and utilitarian. In an effort to provide external context and relevance to a lesson about Namibia's patriotic holidays, teacher 2-4-1-1 asked all children to complete the SIMs lesson's enrichment activity of going home and asking their parents about their recollections of the Independence war and the meaning of the holidays. This teacher also quickly reviewed the subject of the previous lesson (months of the year) and had children briefly practice skills (recitation of names of months) as an introduction to the current day's new lesson. In a different vein, two kinds of extension of children's identity beyond the hour of the lesson were observed. Several classrooms had posters on the walls with paper pockets with the names of each child in the class written on the outside. Inside the pockets were small cards, each with a child's name, apparently ready to use in writing exercises. These container-like posters, beyond their utilitarian value, also served as public record and recognition to all children, affirming each day that they were participants in an ongoing system of learning. In a few classes, a child printing his or her own name on art or exercises occurred, an indication that teachers wanted children to identify with their work. The walls of the classroom of teacher 2-5-1-2 were completely covered with colorful drawings and other papers of children with their names—visible results celebrating former lessons that served as a retrospective context for new learning.

Such representations were few, however. Lessons usually ended without a sense of closure or continuity. Most learning observed in SIMs lessons was given no formal significance beyond the lesson at hand. In the spiral of learning, the next day's lesson would come, possibly as an appropriate sequel to today's skills, but without any overt linking mechanism. Returning to the Watzlawick, Beavin, and Jackson's (1973, p. 37) maxim, "no matter how one may try, one cannot not communicate," the ends of lessons, planned or not as linkages, will nevertheless generate some kind of metacommunicative message about the relevance of learning and value to the child. It is regrettable that teachers did not proactively use the opportunity to make such links, to augment the immediate lesson with some small piece of further communication in ways that would position the learners for new lessons and for personal growth.

Teachers can benefit from an understanding of the communicative aspects of classroom teaching. This understanding should include an awareness of communication at three levels: the primary didactic level which is largely overt, purposive, direct, and often verbal or presentational—what SIMs materials cover in considerable detail the nonverbal level which includes "body language," feedback, and other interpersonal patterns that offer communication channels that are secondary and parallel to the primary level; and the symbolic level in which events, actions, and objects take on a signification within a wider system of meaning, a "culture" of education which is built up over time by successive lessons, curriculum, school, and the social structure within which the school operates. If they address any of these levels at all, teachers and teacher training programs typically focus on the first level where communication skills are cultivated to assure that the "content" of the lesson is adequately "delivered" to the learner. Attention should be given to encouraging teachers to understand the communicative aspects of this first level, to elicit an awareness about how their intended instructional activities actually translate to learners. Currently SIMs materials do an excellent job of specifying for teachers the didactic factors of each lesson. Teachers could benefit, however, from a fuller knowledge of how such lesson elements have been derived by those preparing SIMs materials, why certain elements have been included, and how they can be presented to classes using sound communicative tools such as clarity of objectives, presentation techniques, variety in modes of learning, opportunities to practice, timing, and the like. Improving teachers' accuracy and thoroughness in conveying curricular "content" is the key goal for enriching teachers with this understanding of communication, yet the potential for collateral benefits is also present for classroom management practices such as grouping of students, expectations for enrichment and remediation learners, completion of learning sequences, and recording of progress.

The case for developing teacher awareness of the second and third levels, the nonverbal and symbolic, derives from the hidden significance of these in classroom activities and therefore in the entire education process. Each of these functions on the metacommunicative level, where secondary meanings can carry a weight for children that goes well

beyond the import of the lesson's content. As noted above, these functions play key roles in modeling both formative and summative assessment processes, giving children substantial information about their achievement of the lesson's skill. More importantly, such functions give children important messages about their status and identity as learners within the system of learning. Teachers are often only peripherally aware of how their actions, the environment of their classroom, and the dynamics of their lessons can influence children, since many of these actions are unintended and therefore invisible to the teacher, are considered unimportant, or are assumed by teachers to carry one kind of meaning when they actually communicate another. While attention should be given to developing the communication components of didactic instruction, teacher training programs should also emphasize both understanding and cultivation of actual teacher technique related to nonverbal classroom features (see Neill and Caswell, 1993, for example), as well as awareness of the wider symbolic significance of classroom actions and events and how to implement them appropriately. They should become aware of the implications these have for both the immediate learning success and the longer range development of the child. SIMs materials give teachers the framework for accomplishing the first level of communication, although teacher understanding of communication processes is implied and not explicit. However, little, if any, attention is given to the nonverbal and symbolic levels of communication. If there is one criticism consistently leveled at SIMs and similar materials, it is that teachers are "spoon-fed," that a dependency upon the materials is developed which leaves teachers ineffective in "listening" to and acting on their own sensitivities and skills as professional teachers. Communication training would not only advance the processes of the lessons themselves, it would also give teachers, by attuning them to observing and acting on the communicative processes they generate, greater facility with developing their own repertoire of competence to teach, structure learning environments, and eventually create their own teaching materials. Teachers need meta-skills for reflection. SIMs focuses on the presentation of each lesson. Effective teaching requires a vision of the process that extends beyond a single lesson and links particular lesson activities to the broader educational goal(s).

Strange Loops in Assessment

Strange loops are inevitable consequences of bounded intellect in complex contexts (Snyder, 1999). The teacher, and the learner if possible, need to have the larger vision of intents and hopes in mind in order to continually interpret the "messages" of the classroom. Otherwise, the target shifts, even imperceptibly, from the grander intents of schooling to a diminished version fashioned around some more operationally convenient objective. This equates to the reduction of dimensionality in an Escher representation. As we strive to meet the conditions of the new target, which is simpler and immediate, the real intent(s) is lost and the potential for strange loops is increased. A strange loop emerges when the new target significantly diminishes the intent of the communicants so that accomplishment or progress offers little hope of really contributing to the original goal but does in fact, lessen the likelihood of proceeding usefully. Then progress is illusory.

If teachers fully understood the nature of loops and their profile, then they could avoid the most virulent influences and work to keep on a more useful path in the instructional program. The situation is inherently complex of course and frequently the incentives and influences are stacked against a better way. Each learner may have an individually defined optimal path. In mass instruction, such individualization is neither possible nor optimal for the class. In fact, one problem in SIMs is that while the teacher attends to an individual, other "individuals" are ignored. The important features are the flow of classroom events that assure seamless continuity and shared benefit from diagnostics for individuals. Teachers must identify modal prototypes to illustrate instructional points in remediation. Chances are that even correct responders/performers can benefit from explanations and elaborations. However, even this approach is fraught with difficulties, and approaches like SIMs/CAMs are embedded in traditions of teacher centeredness. The answer must lie in new structural arrangements for instruction rather than reworked old models. SIMs takes the design responsibilities of classroom management from the teacher and programs and focuses it through the eyes of an instructional designer. CAMs enables some child-centeredness, but there is a certain contradiction. SIMs assumes the teacher is unwilling or incapable of arranging a good learning environment, whereas CAMs presumes considerable wisdom by the teacher to react to complex information in real-time to vary individual environments. There is a conceptual flaw here, and it shows in the observations. The teachers use SIMs but most do not or cannot use CAMs. Those who use SIMs/CAMs well were good teachers without both. This does not preclude the usefulness of SIMs/CAMs within limited parameters but it does restrain our enthusiasm and dull the prospects.

Band-aids for classroom ills are unlikely to appreciably improve education in the mass schooling environment. We need a new model of education that meets modern standards. We experienced a change from early religious-oriented

classrooms to the industrial, secular mass education classrooms of today. We need another transition to a more creative environment that more fully utilizes the resources of the information age. Howard Gardner (1999) references the superb instructional environment found in the Reggio classrooms of Italy, shaped by decades of an enriched environment, and honed by dedicated community and school members. He hastens to add that there are no panaceas or guidebooks on how to achieve excellence in schooling. But he begins to frame the dimensions of importance around truth, beauty, and ethics that guide the thoughts and behaviors of the community.

...Reggio encourages the cultivation and elaboration of multiple representations, multiple intelligences—and, in so doing, it furnishes a powerful set of entry points to the community's cherished truths, sense of beauty, and ethical standards. The Reggio approach invites children to explore, in multiple, comfortable ways, the physical world, the biological world, and the social world; it furnishes evocative materials with which to capture one's impressions; it shares the insights with the rest of the community; and it models a set of respectful human relations that should extend throughout the life cycle (p. 91).

The Reggio model has an entirely different approach to continuous assessment, and collective reflection features as a core element of the approach. The entire flow of events is guided by past events and their perceived implications.

The educators of Reggio Emilia have developed and continuously improved a set of techniques for taking the ideas and actions of young children seriously. Much thought is devoted to the opening exposure to experiences that might constitute themes to be developed in the coming weeks. But it is not possible to plan such a curriculum in advance. Rather, the particular reactions of particular children to particular experiences become the bedrock, the driving force of the "curriculum." The activities of next week (sometimes even the next day) grow out of the results, problems, and puzzles of the week; the cycle is repeated so long as it proves fruitful. Children and teachers are continually reflecting on the meaning of any activity, which issues it raises, how its depths and range can be productively probed (p. 88).

The recording of events is not prescribed by fixed assessment categories and structured reactions. The documentation of progress is a side effect of the process of inquiry and engagement.

Teachers develop elaborate systems for recording just what has happened, with sufficient clarity so that anyone interested in the children's individual and collective progress can interpret the record later. The documenters frequently use audiotapes, videotapes, and still photographs in addition to paper and pen (p. 89).

SIMs/CAMs presents a dramatic contrast to this "model." Reggio is creative and emergent in approach; SIMs is prescribed and highly structured. The assessment in Reggio is varied, contextual, on-going, comprehensive, and exhaustive but not highly structured around some idealized form of student. It emphasizes the processes of education, rather than the status of individual minds and practices. In remediation and enrichment, SIMs utilizes branching of fixed prescriptions based on limited samples of individual accomplishment. In this comparison, SIMs sounds static, bleak, and empty, and Reggio sounds dynamic, exciting, and motivating. In the larger world, this may be accurate but in the classrooms of northern Namibia, the structure of SIMs enables the educational "conversation" to begin. Reggio does have structure: it's embedded in the context, the tradition, and in the flow of events, but that structure is provided by the cultural context and not easily or necessarily transferable. SIMs creates experiences that are new to this culture and its hope is that adaptation and emergence will occur in time.

SIMs is very much a mimetic program to develop basic skills. Gardner likens this kind of approach to the Confucian model, where the child is efficiently led to mastery through time-tested and entrenched practices. The mimetic approach does "produce" skilled students, as evidenced in the many schooling systems that take this stance and in the limited context of training programs. In the Namibian context, with teachers who see themselves as civil servants and have few pedagogical talents, the highly structured "training" approach seems reasonable and yet, so unsatisfying. The Namibian culture lacks many features of the Chinese model and doesn't at all fit the Reggio paradigm. Sadly, Namibia is not seeking new models based on its cultural context, but like so many other places, chooses to mimic a mimetic approach! The result is a breeding ground for strange loops. The model of practice is a diminished representation of a mimetic approach that is only superficially embedded in the culture of everyday experience and cherished community values.

The primary influence of strange loops is to decouple the communication process from the ultimate goals of education. The teacher and student lose focus on intended outcomes and get caught up in the details of the moment, frequently working on things not very important or missing the intents entirely. It's not totally due to the low intellectual levels of impoverished schools either. In one country, we observed classrooms of all teachers, including many from other countries who were well-trained in pedagogy and modern theory of education. On the observation profiles, it was impossible to distinguish among the teachers, regardless of background. The school environment had shaped everyone to a diminished view of mass education. All the teachers were emphasizing rote learning and using predominantly teacher-centered instructional strategies. When questioned, the foreigners said that they wanted to "fit in," and that the view of *education* in the community entailed completion of an overly ambitious syllabus, practice in examinations, and recitation of facts and words. These economically impoverished communities held a diminished view of education. As John Meyer (1999) points out, this isn't unusual. In decoupled systems, institutional myths and symbols prevail because other linkages are uncertain and ambiguous. The strange attractors of such systems seem to be rote learning and teacher-centered instruction, regardless of intents. Other countries are seen as prospering using these weak, convenient approaches in their history of development, and so they are copied for their implied promise of success.

As depicted in the figure below, poor conceptualization leads to diminished understanding of the intents and actions, and this in turn leads to strange loops within the teacher (e.g., teacher-centered strategies) and student (e.g., rote learning emphasis) spheres, fragmentation of efforts and knowledge, and decoupling of essential links between what happens in the classroom and what was intended or should have been intended. The strange loops exacerbate the impoverished situation. It means that perfectly good efforts are going into wasteful activities. The progress made on these efforts is irrelevant or not directly relevant to the real intents. SIMs, and materials that are highly structured, take the conceptualization out of the hands of the teacher and setup conditions that are believed to be relevant and appropriate. The problem for SIMs is that it is, itself, a diminished view of learning, based on out-moded behavioral principles. So here we have a situation where the students might perform very well within the circumscribed perspective, thus providing no performance clues about the design problems, but not well on grander intentions. Only analyses of the materials in terms of the broader intents of education and modern cognitive theory rescue us from weak strategies like this. But the structure remains important, both as a mechanism to enable higher capacity and as a potential source of new strange loops, due to the diminished view implicit in a highly structured instructional approach. Like most aspects of complexly organized systems, such as education, they must be managed and cannot be "solved." There are no guaranteed approaches to strange loops, except those that increase understanding. They emerge from *reductionism*, an inevitable and sometimes useful way of dealing with complexity, but the understanding gained from the reductionistic act must be viewed from outside the system that has been reduced. We need to step back, continually, to check on where we are and where we are going.⁷

⁷ This can be done by an "insider" or an "outsider" to the system. Clearly, this paper is written from the outsider's perspective. The problem with strange loops is that insiders are focused on the "goodness" of the intervention and sometimes fail to step back, with any objectivity, to see if the good intervention actually serves the intended purposes in this particular context. In the development context, there has been extensive use of outsiders; that trend is turning. A balance, with better research skills on both sides, is what is needed, and the need accompanies continual development.

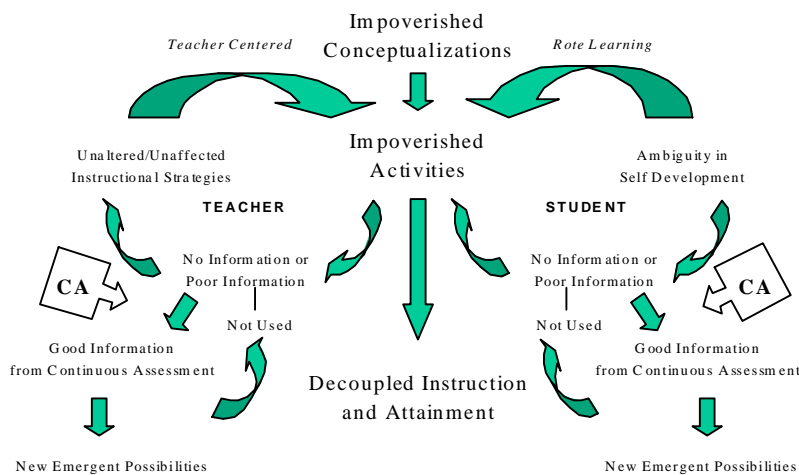


Figure 1. Continuous assessment (CA) provides information about the student and for the student that can potentially assist in the amelioration of the teacher and student strange loops. CA presents emergent possibilities by providing useful information but does not assure good outcomes.

Impoverished conceptualizations lead to impoverished activities that then lead to decoupled instruction and attainment. Continuous assessment is one of the mechanisms that can break the loop, if practiced at the appropriate level and depth. Continuous assessment depends on effective communication, both of the assessment information to the teacher and student, and then between the teacher and student in using that information to guide and adjust next moves for more effective learning. We can investigate the descriptive outcomes of the classrooms in this study by comparing those lessons that used continuous assessment creatively with those that followed CAMs more closely, with those that had uneven use of CAMs, and with those who did not use or little used CAMs. On 23 classroom observation scales reflecting clarity, thoughtful practice, motivation, and feedback, 10 of these “smart classroom” scales were highly related to the degree of appropriate use of continuous assessment in these lesson sessions.⁸ The higher the use of continuous assessment: the more the elaboration and use of examples, the more knowledge of content displayed by the teacher, the more coherence and content flow in the lesson, the smoother the process and events flow of the class, the more opportunities for practice, the higher the cognitive level of learning, the more the teacher demonstrated preparedness and organization in the lesson, the more questioning used by the teacher, the more complexity and interrelatedness displayed in the links within and between lessons, and the more information feedback given. This demonstrates the positive aspects of continuous assessment in contributing to an overall more effective classroom lesson and the success of CAMs in some of these lessons.

As we pointed out earlier, communication occurs in various dimensions, including didactic, nonverbal, and symbolic. When both teachers and students are aware of these links, reflecting on communication in the classroom and its relationship to the overall hopes and intentions for schooling, the addition of appropriate continuous assessment adds to the understanding of individual status (either teacher or student) so that the process never or at least rarely degenerates into a strange loop.

⁸ For descriptive purposes, the categories of (1) little or no use, (2) uneven use, (3) close use, and (4) inventive use serve as scale values of increasingly appropriate use to undercut strange loops. The scales for the classroom observation scales are on an eight-point scale (1-8, where 1 is low and 8 is high).

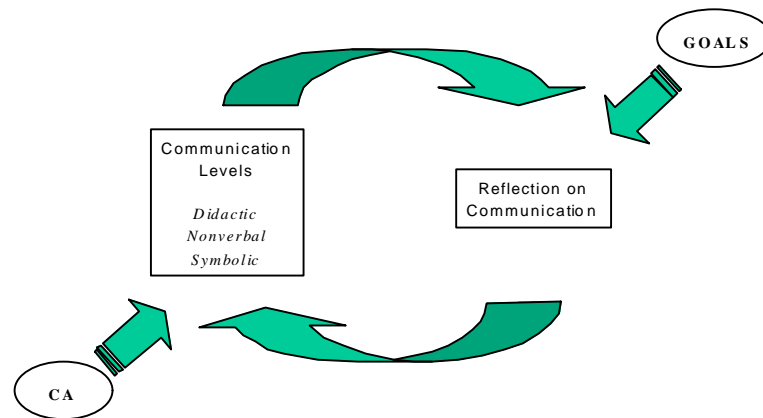


Figure 2. Good instructional programs follow from continuous reflection by teachers and students that incorporates system goals and uses continuous assessment to celebrate the communication of educational intents at all levels.

The problem we face is the rarity of good continuous assessment in these cases and in others we know of. As a concept, continuous assessment has many positive features, but in practice, well, it is not practiced or certainly not practiced well! In most cases, in fact, it may contribute to the creation of more strange loops than eliminate them. This is a perennial problem with good-intentioned interventions. They can exacerbate the very problems they are intended to address. As pointed out by Snyder and Prince et al. (1997), single focused problem solutions ignore the complexity of the system at their peril. They frequently create deleterious side effects, feed the development of strange loops, and fail to address the problem for which they were initiated. In the area of assessment, the trade-offs appear to be between communication of serious challenges and confusion or fear. We want the teachers and students to have high standards, be rewarded for attempts and successes in the instructional process, and provide feedback to guide and direct next steps. But, we do not want to scare students, bewilder them with meaningless information, or simply leave them with no feedback at all, confused about their progress and the next steps. And we do not want to waste the teacher's time, create additional work that leads nowhere, or provide them with useless information that they can't use. In Namibia, there are two sides to the story: the good practices appear to be contributing to the effectiveness (of the instructional process) of the lessons; the lesser practices appear to be creating problems and contributing to the ineffectiveness of most lessons.

How to decide policy is a difficult matter. Education presents many competing outcomes from particular inputs; the input and outcome are not strongly coupled. This is one of the most perplexing problems in education: the ambiguity of technology to create certain accomplishments. The situation is more fluid and creative, and education rarely yields to a strictly technical palliative. The complexity of the context demands an evolutionary perspective, one not catered for in highly structured instructional programs like SIMs/CAMs. At the macro level, how can we create the capacity to deal with mass education in a creative, evolutionary fashion. The advice of visionaries like Gardner and Perkins notwithstanding, most educational programs appear incapable of implementing an idealized instructional process. The argument presented in this paper is that there are good ideas, like continuous assessment, but they won't work unless everyone, teacher and student, understands why they do them and reflects on how well they are working for

them in their particular context. This “reflective practitioner” approach seems to elude development contexts, and there is little optimism that more emergent strategies can be enacted by their teaching cadres.⁹

Deleterious effects, inefficiencies, and deluding strange loops are all addressed by better information, deeper understanding of the complexities and uncertainties, and higher intellectual capacity. Gardner (1999, pp. 97-99) has suggested some psychological frames that highlight the importance of culture as well:

- Learning is *situated*, occurring in specific contexts and tied to those features and concepts in the context.
- Knowledge is *distributed*, emerging jointly from information shared.
- Enticements are necessary to *legitimate peripheral participation*, motivating individuals outside the action to engage and become part of it for the future.
- *Milieu*, environment, or habitus deepens the experience arising from personal time spent in a particular context.

As it is for the student understanding, so it is for the teachers. Classroom learning is situated (and unfortunately, far removed from the target context), knowledge about learning in the school is distributed and must be shared among the teaching and student community, classes have to evolve to modern forms through enticements to new methodologies, and modernity must grow from the personal experiences of the participants. Continuous assessment has to fit into these fluid, personalized, unique instructional processes and provide meaningful information to under-educated and undertrained participants in the mass schooling enterprise. Continuous assessment cannot be isolated from the context of application. It must be conceived, constituted, and tweaked within the classroom, and teachers and students will require more training, more experience, and a supportive environment and community. We need to satisfactorily answer the questions—continuous assessment for what, for whom, and at what costs and implications? And these questions need to be asked in each context and continuously. There are no final answers in a complex, evolutionary environment. There are many possibilities, some good, some not so good. Strange loops are avoided by management of the flow of events, actions and attitudes, maximizing the good possibilities.

⁹ Ken Zeichner and Bob Tabachnick are notable exceptions, particularly in Namibia. They are actively trying to introduce the notions of action research in the teacher training institutions through a Swedish Tertiary Education Reform Project (TERP).

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