How Do We Learn?

"Is anybody else as bewildered as I am?" asked Greg Fouts as the staff gathered for coffee during the break. "Here we are having another seminar on how our students learn. This time we are hearing that Gardner says they have different intelligences and we must keep that in mind as we teach. Last year we had someone come and tell us about cooperative learning. The year before we talked about their different learning styles."

"Don't forget the session we had about five years ago concerning right-brained and left-brained students," Margie Phipps joined in. "I was quite excited about that for a while because it fit so well with what I saw happening to students. But I haven't heard much about it lately. Some of these new ideas seem nothing more than passing fads. Others are important insights and should remain with us. But I, for one, have no way of knowing which is which. And what is equally frustrating is that I just can't get a handle on which ones match our Christian school philosophy."

"I don't know about all these new ideas about learning," Pearl Stock said. "We never talked about things like this twenty-five years ago when I began teaching and we did just fine. The kids learned what we told them to learn and it wasn't all such a hassle. Back then we knew exactly what to do when we taught."

The older faculty smiled and nodded, Geoff Schmidt said, "I'm a little embarrassed by how much I want to agree with you, Pearl. It certainly used to be easier but I'm not at all sure it was better. I know they say that ignorance is bliss but I don't know how blissful it was for the students who needed help and understanding that simply wasn't provided for them."

"But you can't do everything, can you?" asked Greg. "I spend a great deal of time talking with kids, but I really don't know how to teach in ways that take into account their individual learning styles and individual intelligences. Most of the people who come here to lead our in-service sessions tell us that we must teach in those ways and tell us that we must use interactive learning strategies so that the students will be involved in learning. But rarely do they show us how to do it. And when they do lead us through a workshop in how to teach that way, it is only a one-time session. Teaching is such a daily task. You always have to be ready with interesting material and with exciting ways of teaching that material. If teaching and learning are ever going to change and reflect the new research concerning how students learn, we teachers will need much more intensive and extensive training."

Learning Is Active Responding

Many parents and teachers think that students learn best by acquiring factual knowledge, bit by bit. Paulo Freire (1972) refers to this as the "banking model of education" in which teachers "deposit" information in the heads of passive students. The thesis of this book, that Christian schooling should be responsive discipleship, demands far more than such banking of information. Students as image-bearing subjects are called to respond actively to God's will for their lives. They actively unwrap their gifts, share their joys and their burdens, and nurture shalom wherever they are able to do so. A biblical view of knowing implies a many-sided engagement with creation. God taught his people in a variety of ways and Scripture emphasizes active response to these teachings. Jesus also called his hearers to act on what he taught. All this implies that learning is always dynamic rather than passive in character.

We teach so that our students will be able to live as responsive disciples with wisdom and insight to have wisdom means much more than simply knowing things in the abstract. To be wise means to know how to act rightly in specific situations. To act rightly means to respond obediently, to act in conformity with God's will.

To be wise also means knowing why we believe some things are important and how this understanding can help us live (Nozick 1989). Wisdom finds its meaning and coherence in Christ, in whom are hid all its treasures. If we are truly wise, we have the insight to see all things in terms of their relation to Christ and his service. Then we are able to place things in their
proper perspective, to understand what is of lesser and greater importance. Setting our minds on things that are above transforms how we, view all things. Wisdom is thus rooted in faith and leads to a walk of faithfulness. With wisdom comes a passion to know more, to understand more, and to be able to do more, in a world we recognize as an abundantly rich home for God's people.

Wisdom brings insight, the ability to see into the real meaning of things. While facts and skills are facets of learning, with insight comes a sense of joyful discovery, of challenge for future learning and willingness to be absorbed in activities that promote learning. Memorization does not ensure insight. Rather, it ordinarily carries with it only relief that the task has been completed. Learning a new skill does not in itself ensure insight. It is possible to learn to read without appreciating the riches of reading, to learn to sing in key without experiencing the joys of music.

**Teacher:** The thing that bothers me so much about schools these days is that there is far too much emphasis on "meaning" and on "critical thinking." I have always believed that if students have enough facts at their fingertips then meaning and understanding will follow.

**Interviewer:** On what do you base that belief?

**Teacher:** It seems to have worked that way in my own life. My own schooling included a great deal of memorizing of facts. This idea that facts aren't important is the downfall of our education system.

Facts, of course, are important -- but only because of their place in a larger framework of understanding. During the last twenty years research conclusions about how students learn, while sometimes tentative, indicate that narrow "banking" education is generally unproductive. Rather, effective learning requires the active and dynamic involvement of the learner. Middle schools and, even more so, high schools have lagged behind elementary ones in improving teaching in light of this understanding of how students learn.

God has created us so that we long to find meaning in the experiences of life, to see how things relate to each other and how things hang together. This is because the meaning-full creation speaks of him and is designed to bring us into and deepen our personal relationship with him. God invites us through creation to respond. Learning therefore always involves relating things to God -- or if not to him, then to an idol. Today, we have supporting research conclusions about this need to see things in relation to one another. This research concerns how students think about what they have read or heard, the process they go through when they relate new experience to prior knowledge, how students break down new information into its constituent parts and then put it back together again into a new pattern, and how they use abstractions and ideas in particular situations.

Brain research confirms this need to search for how things make sense. For the individual, the recognition of relationships is experienced as an act of invention. It is indeed a creative response to the structure of creation, a personal response that however always occurs within a communal context, as when a child learns to speak a word within an English-speaking culture. But the validity of our "inventions" depends on their faithfulness to the order of God's world.

Learning that has long-term benefit can be thought of as a threefold rhythm of immersion, withdrawal, and return (explored in greater depth in chapter 7). We immerse ourselves in experiencing an aspect of Gods world, then withdraw by standing back to focus on a problem and draw connections, and return by encountering creation with deepened insight. Each phase helps to enrich and extend the connections that students gradually make as one phase builds on the previous.

For example, children build a rich experience of shapes and figures through their daily interaction with the world. Much of this knowledge is implicit or tacit. At some point they meet the notion of "triangle," a figure with three sides. This relatively simple concept poses a problem for them. They now face the world with a new challenge, that of deciding what is a triangle and what is not. Very often, when children learn new words, they enthusiastically seek to label everything in sight that appears to fit their understanding of the term. They test the concept, using it to guide their exploration of the world. Having learned that all triangles are alike with respect to their number of sides, they see triangles on a sheet of paper or on the side of a huge building or as a piece of metal that makes an interesting sound. Adults may tell children all kinds of information about the characteristics of triangles but it is not until children effectively reintegrate this information with their everyday experience, so that it is informed and deepened by the concept, that meaningful learning will have taken place. This may come as a flash of insight or as a gradual process of recognition: what is significant is that it is what the child does that counts for learning. It is the moments of "Aha! I understand that triangles are alike in this way, even though they differ in other ways!"
This is true of learning at any level. All learners try to make sense by looking for patterns and relationships. Helping students respond to the relationships that God has created and that humans have creatively shaped is an important goal of effective schooling. A teacher may insist that students memorize the causes of different wars and the students may do so but this does not mean that learning (properly defined) has taken place. Even if it is a common strategy, memorizing lists or definitions without reflection on the connections between the items and without connection to the students own experience will not only impede understanding but may well lead to rejection of the information that has been delivered and then stored only for its utility in passing a test (McNeil 1986).

Teaching that leads to understanding enables students to make appropriate connections and recognize patterns. Students often find it difficult to take new information and then see how it fits with the relationships that have already been established, or to rethink old ways of knowing to accommodate new experience. Scientific explanations, for instance, may conflict with the intuitive way students feel that things happen or work. Students need to predict, to test, to witness the evidence before they will resolve their misconceptions. Similarly, teachers need to help young and poor readers make connections between new and prior knowledge and to provide the opportunity for lively discussion and interactive processing (Bennett 1986, 22-23).

Only when students have had significant experiences allowing them to make connections between various situations -- say, between the causes of World War II and the probability of military conflict ensuing from the collapse of the U.S.S.R.-- does real learning occur. At that point the student has "experienced" the causes in several contexts, analyzed them and focused on their consequences, and projected and tested a pattern for relationships in human behavior. Note that in this way theoretical or abstract concepts are rooted in concrete experience and, after more distanced focusing, once again lead to concrete understanding. Such particular understanding is not restricted to the senses but will also include social, ethical, aesthetic, and spiritual insights.

Active processing and integration of old and new understanding is enriched through "metacognition," the process of thinking about thinking. Students with strong metacognitive abilities can explain not only what they have learned but how they have come to learn it. They are conscious of what they are doing while they are learning. They are able to describe the assumptions they once made and how they differ from the assumptions they make now, as well as explain the steps they went through in changing their assumptions. Students develop this ability to reflect on their thinking by speaking, listening, reading, writing, viewing, and acting under the direction of teachers who know how to help them to ask reflective questions and who will also model this process for them. Through such activities and by such questioning, students rethink and rearrange old categories in ways that allow the learner to make new meanings.

Some of the information we need for our daily lives, once acquired, needs to be consolidated through practice and rehearsal. The more seemingly random and pattern less this knowledge is, the more this repetition is required. We need to memorize telephone numbers if we wish to remember them, although even here the continual use of them in actually making phone calls will be more efficient: either way, we establish a pattern of behavior. And if we can invent some meaningful relationships between the numbers, our task is all the easier. All knowledge is stored with less effort if it is perceived as meaningful, if there is a context for learning or if the person understands the need for it.

Unfortunately, far too often teachers act as though most learning in school is disconnected from personal meaning, context, or intrinsic motivation. They promote the idea that learning itself is not inherently meaningful, and that it takes practice, drill, threats, and rewards to get students to memorize information. The student's need for information is then satisfied by performance on tests, at which point the information is released from memory. Such teaching tends to burden students' memories with unorganized facts that are rather easily forgotten. Facts and skills are important, but mainly if they are available in a meaningful context to deepen insight or enable more informed thinking and acting.

Parent: We really don't seem to benefit very much from simply memorizing information, do we? It's all connected, but when we are kids we can't see the connection. For example, I remember being held on my German grandmother's lap while she sang songs of her country. And standing on a chair in the kitchen watching while she made wonderful desserts, both of us singing, "Gott ist der liebe." I remember fearing for the life of my uncle who had been sent overseas to fight the Germans. And watching the children of German parents being excluded from games on my school playground during World War II. Some very conflicting emotions resulted from all of that. Yet, when it came time for me to study German history in high school, I thought of it as facts that must be memorized. I was much older before I made the connection between the happenings in my childhood and the happenings in modern German history.
Most teachers recognize that relationships in experience cut across the knowledge from several disciplines. The disciplines focus on particular kinds of relationships abstracted from everyday experience. When we teach primarily within subject boundaries students have difficulty recognizing the relationships that cut across the disciplines and internalizing them in a personally meaningful way. Using integral units to organize a large proportion of school learning is necessary to help students grasp the interconnected patterns that help us understand and respond to life's complex situations. This, of course, will require rethinking many aspects of the structures of schools.

**Providing for Diversity: Unwrapping Different Ways of Knowing**

Treating students as if they are identical promotes conformity and flies in the face of the richness of individuality that they are called to contribute to the body of Christ. Students differ from one another, for instance, in personality traits and learning styles as well as in the degree to which they possess certain gifts. If we are to help students to develop their various talents and abilities, we must be alert to these differences. At the same time, to assume that all differences are relevant to learning promotes discriminatory practices, which once again will stifle individuality and the unwrapping of gifts. In the next sections we deal with the implications of current research for these concerns.

For a long time teachers have known a great deal about the physical development of children and young people. They know that students go through the stages of physical development at differing rates. They are aware that certain types of behavior such as restlessness and inattentiveness occur more often in some stages than in others. Elementary-level teachers who spend the whole day with a group of children tend to teach in ways that are in keeping with these physical characteristics, allowing more movement for restless children and providing concrete learning experiences for inattentive ones. Sensitive teachers cannot help but be aware of physical differences among their children and teach accordingly.

Teachers, however, find it more difficult to observe intellectual characteristics. Even defining what we mean by "intelligence" is difficult. Is it an ability to understand things, to solve problems, and to figure things out cognitively? Or is this too limiting since it focuses only on logical mathematical and verbal intelligence? Does intelligence also include the ability to withstand distraction, to be socially competent, to have an interest in learning, and to be motivated toward academic performance (Snyderman and Rothman 1987)?

These definitions, however, are narrow in that they reflect only the types of learning generally emphasized in schools. We use tests to measure such learnings, and assume that the resulting test scores indicate some inborn characteristics. That assumption is not warranted. We harm students by equating scores on "intelligence" tests with a student's innate ability. An "I.Q." score depends significantly on the learning experiences a student has had at home and at school. Thus, an intelligence test is in part an achievement test, one that is limited in scope. Its score has some meaning but not necessarily the meaning the teacher or parent assumes.

Another problem with this view of intelligence is that the different ways in which people know are far more delightfully complicated than these general descriptions and measurements would lead us to believe. Howard Gardner (1983) has given us a more helpful description of the wonderful array of ways of knowing or intelligences. Gardner suggests that we can identify at least seven different ways of knowing that we all possess to some degree, and that these are only slightly interdependent. The linguistic way of knowing involves, for instance, using vocabulary, playing with words, and applying metaphors. The logico-mathematical way of knowing allows people to manipulate numbers and symbols. The musical makes it possible to enjoy and make music, while the spatial enables persons to perceive and reproduce the visual world. The bodily-kinesthetic way of knowing leads to an awareness and control of one's body. Finally, the intrapersonal and interpersonal ways of knowing involve, respectively, self-knowledge allowing access to one's own feeling life, and "people skills" such as the ability to make accurate assessments of other people based on subtle clues.

It is likely that more ways of knowing exist than those Gardner describes. We should probably recognize aesthetic and spiritual modes, for example (Eisner 1985), as well as ethical, technical, and economic insight (Blomberg 1980a). However many there are, each person uniquely combines varying degrees of each. In order for their multifaceted abilities to develop as richly as possible, students need mentors, including teachers, who value their particular constellation of intelligence gifts-and an environment that encourages such development. If a particular way of knowing is considered important in the culture of the child, if considerable resources (time, thoughtfulness, and money) are devoted to it, if the child is willing to develop in that area, and if proper means for learning are available, nearly all normal individuals can attain impressive competence in that area.
At present, most schools encourage especially linguistic and logical mathematical ways of knowing. We do not do a very good job with musical, aesthetic, spatial, or intrapersonal ways. The value of Gardner’s work is that it encourages us to recognize that students have a variety of gifts and must be helped to capitalize on their particular strengths in the ways of knowing and learning. But teachers and parents who fail to understand the complexity of the combinations of intelligences may well thwart students in their unwrapping of the gifts of responsive discipleship. Christian schools do not need to ascertain that each student reaches some particular level or standard in any particular intelligence. Rather, our task is to provide an environment in which every way of knowing is valued, and to help students nurture and unfold the potential in themselves, in others, and in God’s creation.

Providing for Diversity: Affirming Learning Styles

Ever since 1968, when Sperry and his colleagues studied the perceptions of patients who had had the connections between the two hemispheres of their brains severed, a flurry of articles and workshops has advised teachers how to teach for both sides of the brain. Persons with left-hemisphere dominance were verbal, rational, and sequential learners; those with right-hemisphere dominance, intuitive, holistic, and sensory ones (Caine and Caine 1991,33-34). Today, many educational psychologists agree that while there is something to these distinctions, both hemispheres are involved in all activities to such an extent that simplistic explanations of the activity of each has not been helpful (Levy 1985). We are marvelously complicated beings.

What is important for teachers to know is that students are capable of thinking intuitively, synthesizing, and learning through guided imagery. Teachers also need to recognize that those same students are capable of logical and critical thinking, verbal articulation, and written expression. In order to teach well, teachers do not need to understand how or where these functions occur in the brain. The classroom must be a place where instruction is arranged so that opportunity and guidance is provided to develop all abilities and where the development of each ability is recognized and appreciated as a valuable part of learning.

Perhaps the most important implication of split-brain research has been the interest educators finally began to take in the relationship between the brain and ways of classroom instruction. For a long time sensitive teachers have recognized that students respond to instructional environments and activities in unique ways that have little to do with their intelligence. Research concerning learning and perceptual styles (McCarthy 1981) as well as reading styles (Carbo, Dunn, and Dunn 1986) has done a great deal to show that students respond differently to dissimilar kinds of instruction. Learning style preferences have been described as principally visual (reading), aural (listening), or physical (activity). Rosenberg (1968) labeled learning patterns as rigid-inhibited, undisciplined, acceptance-anxious, and creative. Other researchers presented alternate categorizations. Van Brummelen (1988,46-60) provides a helpful description of how information concerning learning styles and phases can help Christian teachers develop a model for meaningful learning.

People come to know in diverse ways. For example, many people are unable to arrive at carefully thought-out conclusions about issues until they have developed an argument in writing. They outline the issue at hand, present the arguments concerning different aspects of the issue, gather new information and evidence to help them with the arguments, present their reasons for valuing the evidence which they do, and finally state the position they have decided upon. In the writing, discarding, and rewriting they arrive at what it is that they know. Others find it more profitable to read, reflect, discard some of their earlier ideas, and discuss their way toward the resolution. The discussion in turn leads them into further reading and reflection. Still others learn better by observing, interacting with many different concrete examples, reflecting on that interaction, and going back to observing.

Teacher: My eleventh-grade class was studying U.S. history and for one of their assignments I asked them to make twenty-five sketches of buildings or bridges in our city. There was a great deal of moaning, of course, particularly from the students who are the best at writing and discussion.

Interviewer: What exactly did you want them to learn from that assignment?

Teacher: Our city is quite old and the construction is from different periods. In the sketching, I expected students to notice details that appear in construction of the same period. In the discussion that followed the completion of the assignment they became aware that the way people think and the values they have influence many areas of their lives.
Interviewer: Would you consider allowing students to choose whether they will sketch, or write, or produce some other evidence of learning?

Teacher: No. I do encourage that in some other assignments, of course. But I also want students to be forced to struggle with the unwrapping of gifts that aren't their strongest. In doing so they gain appreciation for gifts that others have, compassion for those who struggle with tasks that are traditionally part of school learning, and an understanding of new ways of learning. I continue to think this is a worthwhile activity.

Caine and Caine (1991) warn that no teacher can adequately deal with all the variations in learning style and that we shouldn't attempt to customize our teaching methods for the needs of each child. Instead, they affirm that teachers must have a thorough knowledge of content, a variety of ways of teaching, and a strong spark of creativity in order to provide a school environment that is supportive of meaningful, challenging, relevant, and, above all, different types of learning. Once again, purposely providing a rhythm of immersion, withdrawal, and return will animate a variety of learning activities so that each learner has opportunities to feel comfortable and shine.

Imaging God as Males and Females

Schools must respect the similarities and the differences between female and male students in ways that affirm that together they are made in the image of God. What has become glaringly clear during the last two decades, however, is that our stereotypical image of how boys and girls differ in the way they learn has little support in our knowledge of innate ability. Differences in the ways males and females learn as groups are slight compared with individual differences within each group. Furthermore, in interpreting any differences we find between the learning of males and females, we rarely can separate genetic influences from environmental ones on the behavior of each group. We simply do not know what each gender would be like if there were no cultural conditioning.

Where gender differences in learning occur they are slight. For example, in mathematical, science, and verbal abilities, only 1 percent of the variation that exists in students can be attributed to gender a slight difference, indeed (Hyde 1981). An inappropriate and unwarranted emphasis on the differences between males and females in verbal and mathematical skills is likely to lead teachers to lowered expectations of one group or the other, expectations that may strongly influence student performance (Rosenthal 1974).

While the gender differences in cognitive abilities are slight, if they exist at all, there are differences in personality variables that we must take into consideration. Males tend to be more aggressive than females in all ages and in most cultures; females and males react differently when it comes to conditions concerning conformity, achievement, and how emotional problems are manifested. We cannot examine all of these variables here but for a biblically based approach Mary Stewart Van Leeuwen's *Gender and Grace* (1990) is a helpful starting point for faculty discussion.

What does this mean for classroom teachers? The current debate about schools in North America would lead one to believe that the experience girls and boys have in school is virtually the same. However, a recent report commissioned by the American Association of University Women Educational Foundation (1991) challenges that assumption. This report, which synthesizes the research on the subject of girls in school, presents compelling evidence that girls are not receiving the same quality or quantity of education as boys.

According to the research, teachers give more classroom attention and more esteem-building encouragement to boys than to girls. Often, when boys call out answers to questions, teachers listen and encourage. When girls call out they are told to "raise your hand if you want to speak." Teachers tend to choose classroom activities that appeal to boys' interests and present material in ways that appeal to boys. Teaching methods that foster competition continue to be used, although research indicates that girls learn much better when cooperative activities are used.

In many schools the curriculum and textbooks often ignore females or reinforce stereotypes. Differences between the achievement of girls and boys in mathematics and science are small and declining. Yet in high school, girls are less likely than boys to take advanced courses in those areas. Even girls who are highly competent in math and science are much less likely than boys to pursue careers in those areas. In part this is because of lack of encouragement to make decisions that are not in keeping with the stereotypes and in part it is because the manner of instruction in math and science courses is often oriented more to boys than girls (Stronks 1984).
Are Christian schools different? Do teachers in Christian schools encourage boys and girls equally in the unwrapping of gifts in every area? There is no evidence to reassure us that they do. Inappropriate interpretations of biblical norms for family living as well as cultural traditions have regrettably restricted the unwrapping and employment of women's gifts. In fact, a recent survey of male seminarians has shown a high correlation between sexist attitudes toward women and strength of theological convictions about male headship (Dorner 1990). Schools may not use differences between boys and girls as a basis for discriminatory behavior. In terms of the school's task to promote learning systematically, the differences are so slight as to be insignificant. Thus, rather than emphasizing presumed differences, schools and teachers must take steps to overcome the effects of discriminatory practices and structures as these have affected the children we now teach in their earlier experiences and as these continue to be reflected in our current procedures.

Grouping for a Responsive Discipleship Community

"Ability grouping" is the practice of placing students in low, middle, or high groups for specific subjects such as math or reading, and then instructing in ways presumed to be more in keeping with their ability. It is planned by a school and therefore differs from either the self-selected tracking that occurs when students choose specialized studies such as advanced business or calculus, or from flexible groups that are formed temporarily for instruction in a specific skill.

One of the problems with ability grouping is that teachers tend to have inappropriately low expectations of students in the low ability groups (Good 1982). Students in the lower groups fall increasingly behind students of equal ability who were placed in higher groups.

A related problem is that plans for instruction are more often based on the presumed instructional needs of children at that level rather than on actual needs. As a result, lower-level reading groups receive much more instruction in decoding and comprehension skills whether or not a careful diagnosis has determined they need such instruction, and they are instructed in less stimulating ways than children in other groups (Shavelson and Stern 1981). A much less adequate literacy results, one that stresses narrow skills but not meaningful engagement with and response to content and ideas.

Students' perceptions of themselves and the perception that others have of them are affected by such practices. Teachers and students view students in higher ability groups more positively than students in lower groups, regardless of academic achievement. Students in low groups as a result of the teachers' judgment of their current ability as well as their self-perception, usually begin to behave according to those expectations (Oakes 1991).

In spite of the disadvantages, ability grouping might still be defended if it resulted in increased academic achievement by most students. However, research does not support such a defense. When achievement is compared, students of high ability benefit but students of lower ability suffer; furthermore, the gain by students in the high ability groups is much less than the loss experienced by students in the low groups (Kulik and Kulik 1984).

Christian schools should give special honor to the weak and the needy and should organize instruction to their advantage. Furthermore, students who are living and learning to live as responsive disciples need opportunities for helping each other with difficulties and for celebrating each other's gifts. Ability grouping neither allows such opportunities nor enhances the learning environment of those of "lower ability." As Paul put it, we have been given different gifts, according to the grace given us, but we must give greater honor to those parts of the body that lack it, so that all may contribute according to their particular talents (Rom. 12; 1 Cor. 12).

At the same time, our discussion of different ways of knowing should remind us that "ability" is a function of the kinds of ability we choose to acknowledge. Our schools should be organized in such ways that excellence in many different kinds of intelligences and ways of knowing are encouraged. Above all, this implies the recognition that the "excellence" that ought to pervade all that happens in the school, and without which even being able to fathom all mysteries and all knowledge is nothing, is the excellence of love.

School board member: I visited the high school recently and saw that the social studies teacher had his class working in groups. I know group work is more the thing to do these days but how can you tell whether the kids are really learning? Is group work always productive?

Rather than grouping students according to their ability, many teachers have discovered that teaching students of different abilities to work in collaboration can create a productive learning climate. Collaborative learning is known by many names: cooperative learning, peer tutoring, group learning, or mentoring. Research has shown that students' work
tends to improve when they get help from peers. Not only that, but the peers offering the help learn from the students they are helping and from the activity of helping itself. The reason this is true is that the act of telling information to another, or explaining a concept, or describing the steps of a procedure to another reinforces and extends the learning of the one who is speaking. Teachers know that the best way to learn something is to try to teach it!

Collaborative learning is an important element in a classroom where students are expected to learn responsive discipleship. Its importance lies not only in the fact that learning is strongly reinforced through collaboration but also because through working together students learn to take responsibility for each other's learning and understanding, rather than simply being concerned with their own.

Some collaborative or group activities are designed to provide appropriate interactions that will lead to metacognitive and reflective abilities. These are the activities that must be part of teaching and learning in a classroom. Other group activities are designed simply to encourage social interaction. These activities are at times appropriate for a classroom but may also be a waste of time. A teacher needs to know which kind of group activity is appropriate for a specific purpose. For a teacher, principal, or workshop leader to talk about "cooperative" or "collaborative" learning activities is not helpful unless the purpose of each activity is clearly kept in mind. Both the teacher and the students must understand at all times why they are using particular teaching and learning strategies.

**Growing in Faith**

Saving faith is a gift of the Holy Spirit. The gift of faith is a mystery that we receive in gratitude and work out with fear and trembling. In school, faith is at work in all areas of the curriculum just as it is in all areas of life. In Christian school circles, it has become common for teachers to participate in meetings and convention sessions on the topic of "integrating faith and learning." But such deliberations are often restricted to integrating God's revelation once delivered in Christ and Scripture with various facets of curriculum perspective and content.

Several questions arise at this point. Isn't the phrase "integrating faith and learning" misleading in that, rather than bringing together two distinct things, everything we do in life and in school is based on our ultimate faith commitment? Further, in all the attention we give to such integration in the curriculum, do we pay enough attention to what faith itself involves, and to how faith grows and develops? To what extent and in what ways can the mystery of faith and faith development be analyzed to help us in the classroom?

Growth in faith is difficult to explain. Understanding certain patterns of a life of faith to the extent that that is possible, however, will enhance the possibility of teaching in ways that broaden and deepen students' response of faith. Students have different kinds of questions and concerns about their beliefs at different ages. Knowing the typical characteristics of students' journeys of faith will help to inform our curriculum planning. We cannot describe in any depth the journey people make in coming to a mature faith. Rather, our intention here is to explain some of the kinds of questions and concerns students have about their beliefs at different ages that should inform curriculum planning.

**Preschool**

**Beth:** If God made everything, did God make the wheels on our car?

**Elise:** When I pray I always think that God wears a white shirt and grey pants. But why does Jesus always wear a dress?

**Todd:** If God is really good why did he let my pet rabbit die?

**Monique:** Well, where is God now?

**Mother:** God is in your heart, darling.

**Monique:** Oh, then is God in your tummy with the new baby?
During the preschool and kindergarten years, children tend to think of God in literal terms. They will look for pictures of dignified or awe inspiring people and ask, "Is this God?" or draw God with a white robe and a long beard. We should not be disturbed by this very literal level of understanding nor by the matter-of-fact questions children ask and the categorical statements they make. Rather, we need to keep in mind that these children grow spiritually when they have affirmative experiences that help them form positive attitudes about God, the Bible, and worship.

In school, teachers need to remember that children at this age can learn to love Jesus, but not as much through words they hear spoken as through the experiences they have (Westerhoff 1976). They can easily learn to pray and sing songs of faith, and enjoy participating. The physical ritual elements such as folding hands and bowing heads and holding hands with each other in prayer and action involvement while singing are important for them. Similarly, sitting in a close circle while listening to a Bible story or praying or singing is significant for them. Children at this age grow in faith and the understanding of its implications as they hear concrete stories, particularly Bible stories with a clear theme. Visual aids that can be touched and manipulated will also reinforce words and ideas about faith.

**Elementary Level**

**Michael:** Did Aunt Mary go to see Jesus right the very second she died or did she have to wait a while?

**Patty:** I am so worried about Suzy's family. I'm pretty sure they aren't Christians because they don't go to church. But I saw angels on their Christmas tree so maybe they are, after all. It's so hard to know.

**Billy:** That man is painting his house on Sunday. Is he going to go to hell?

**Valerie:** If you don't close your eyes when you pray will God still listen?

**Jim:** Do dogs go to heaven when they die? Will there be any animals in heaven?

**Michael:** I don't understand about this thing they call the Trinity. How can something be three things and one thing at the same time? It isn't possible.

As children enter the early years of elementary school, they have a great desire to learn about God and heaven, and their questions and comments reflect their interest in thinking about a power that is greater than themselves or their parents and teachers. Rules become important in their faith life, just as they do in games (Shelly 1982). With this early understanding of rules, conscience begins to mature. Children compare the actions of their friends and family with some standard they have learned. While children often sound disturbingly rigid and judgmental, in reality they may be worrying and trying to sort things out for themselves. They no longer take for granted that everyone is a believer and they want to know what people believe if they don't confess that Jesus is Lord. What is particularly important at this age is that teachers answer their questions and concerns as seriously and as straightforwardly as possible.

Younger elementary school children also continue to appreciate recurring rituals like standard prayers at standard times and may feel uncomfortable if they are omitted. Teachers should encourage the willingness of children during these years to speak openly and freely about God and their faith, and support their desire to approach God with more personal prayers that will often contain requests for specific things and thanks for specific people and things they like very much.

**Middle School**

**Joe:** Well, I worry that Jesus isn't real and that some weirdo wrote the Bible. He just made it up or something, I have so many doubts and it worries me that I won't go to heaven or something.

**Mark:** One thing I wonder is this. If others believe so strongly in things like Buddhism and they believe as strongly as we do then can't we be just another group of believers with a God that really doesn't exist, like Buddhists?
Nathan: I worry if my faith is strong enough. How strong is the faith of all those who went to heaven and how weak was the faith of those who went to hell? And where do I fit in?

Bill: I am worried that my faith should be better. Since I believe in God I shouldn't do bad things. But I might sin over the limit and won't be forgiven any more. Is there a limit?

Students in middle school remember that when they were younger their faith was simple. Their faith was the faith of the family and church and it provided clear-cut answers to life's questions. But now they are beginning to think in more complex ways. If they don't come to see how their faith in Jesus Christ relates to the problems of the world around then they are in danger of discarding the simple faith of their early childhood years. Their new ways of thinking and questioning tend to encourage them to discredit anything that doesn't make sense to them (Stronks 1991).

Students at this age are very idealistic and are to some extent willing to talk about what they believe but they are not very good at connecting what they believe with what they do. David Elkind (1983) calls this inability to carry out actions that follow from professed goals an "apparent hypocrisy." It is not a real hypocrisy because young adolescents have not yet completely developed the ability to relate their walk with their talk. They will express extremely strong views about injustice and unfairness on the part of teachers or politicians but have a very low standard for just and fair behavior for themselves. Many of them recognize this lack of consistency in their thinking.

It is part of the paradox of these years that students know what to do but have great difficulty doing it. They still believe that good Christians do not sin much but they are mature enough to know that their own lives now are filled with sin. They want to change that and don't know how. They want their lives to count and have a strong desire to be committed to their beliefs. That is why it is so important that schools plan and give them many opportunities to serve others. If their idealism and eagerness to commit to a worthwhile cause do not find expression during these years it is likely to diminish as they get older. They need to know that they have a task in God's kingdom right now.

During the middle school years teachers need to recognize that students may experience some skepticism. That doesn't mean that they must work toward answering every question they have or eliminating all doubt. Teachers can help by showing them that their doubts and questions are normal and that God is leading them through new ways of thinking and wondering. Because of students' concern that their family's beliefs may reflect no more, truth than any other belief system, it is appropriate for them to learn about the beliefs of other Christians and other groups of people. They can begin to understand different world views and the implications they have for the way people live and make decisions.

Emotions during this period fluctuate and students are able to recognize that while faith can make one feel confident or euphoric, it is not dependent on feelings. However, it helps if teachers discuss those emotions with them in class in an environment of trust so that they will learn that others have the same kinds of thoughts and feelings about faith.

In their search for living according to their ideals, students need to have models of the Christian faith to help them see ways they can live their own lives. That is why they seem to be hero-worshipers, giving their allegiance to singers and actors, who are of course marketed for this very purpose. Because of their need for models, it is extremely important for them to have teachers who live exemplary, healthy Christian lives and who are willing to share their lives with their students. These teachers will not be perfect but they will be watched by students who are quick to see contradictions between what they profess and the way they live. Most importantly, teachers can model a willingness to ask for forgiveness and to forgive, an attitude that authority is to be used in humble service, and a respect for all individuals, and adolescents especially, as persons made in the image of God.

High School
(college students reflecting on their high-school experiences)

Sarah: What bothered me so much during my high school years was all the bickering and infighting there seemed to be in my church community. It was as though each group was trying to prove it was just a little more correct and a little more Christian than the other group. With all the problems in the world, you'd think they could have concentrated on solving some of them. It all seemed so petty and my faith was really shaken.
Mark: I know what you mean. That happened in my community, too. And what really got to me was there were complaints that our high school youth group was too emotional in the songs we liked to sing and the things we liked to do. Talk about emotion! The church people were terribly emotional in the way they dealt with their conflict. It was the high school group that really carried me through.

John: There was this one teacher who talked so openly about his own struggles with faith. The way he described them helped me see that other people had gone through what I was going through. You know, recognizing that my parents and the other church people were wrong about a lot of things but they were right about some other things, too. It made me see that probably our children will think the same things about us when their time comes.

Sarah: I had a teacher like that, too, who really tried to be honest. But she scared me a little because it was clear that she was still in pretty much of a struggle. And I wondered whether my own struggle would ever end. Maybe on this earth it won't and shouldn't completely end but we will want to be sure to provide some comfort for our own students that the struggle between one's walk and one's talk doesn't always hurt so much and that there is help from other Christians.

The faith of the older high school student may include aspects of what has been called “searching faith” (Westerhoff 1976). For many students this is the beginning of a time of doubt and critical judgment. The faith they acquired earlier as part of the family and the community of believers is examined in terms of its personal meaning. They critically examine the beliefs and actions of their families and communities. If they discover that persons around them lead lives consistent with their faith, then they will develop a deeper, more mature personal faith. Sometimes, however, students discover an enormous gap between their own professed views and everyday actions. If they perceive a similar clash between the views and actions of the surrounding community of believers, their faith may be shaken and perhaps discarded.

Young people at this age have an ever-growing realization that in one sense they stand alone before God, no longer buffered by family and community. They feel strongly about many things, including major life decisions such as how they will find intimacy, how they will take responsibility for their own lives, what kind of work they will do, what kind of social interactions they will have as school friends separate. In high school, students need help recognizing and answering these questions.

High school students often do not even verbalize their deep questions about faith: What is truth? How can God be loving and yet allow so much evil and sadness on earth? Who am I and what is my place in the total scheme of things? What causes are important enough to fight or die for and what should that fight be like? How does a Christian know what needs to be changed if we are to live as the salt of the earth? How does a Christian confront what needs to be changed and still remain a loving person? Even when they do not doubt the basic tenets of the Christian faith, students do question the meaning of that faith for life.

The school should be a supportive environment that encourages students to express their questions and search for answers to them as they struggle to find personal meaning and direction for life. The curriculum at this level of schooling should provide a context in which students may explore these questions, not as issues separate from the main curriculum, but as central to it. The Christian school curriculum and ethos will present a continuing challenge to acknowledge the lordship of Christ over the whole of life.

A sensitive teacher can become one of the most important supports for helping the young person come through this period of questioning with a strong, mature faith. Especially those students who struggle with school need to feel free to talk with a teacher about their boredom and loneliness in the school and church communities. Students who feel unimportant in school and church may come to recognize their importance and individuality before God by experiencing what it is to share the burdens of someone else. Students who do not take academic work seriously nevertheless may think seriously about other important issues of life! The assumption that they do not ignores the need for direction on the part of these students.

Christian schools must take with utmost seriousness their students' search for what it means to walk in whole-hearted commitment to Jesus, for it is this that gives life to all else that a school attempts. Faith leads and motivates human life, providing its direction and its coherence. We were made to be in relationship with God but if we are not, we will place our faith in a substitute. Trust in a source of order and meaning is the dynamic that drives us whether we are young or we are old. A school that ignores this dynamic, this active responding of students to the world, will be a poor place indeed.
Growing as Responsive Disciples of Christ

What we have learned about learning during the last two decades underscores that how people learn is a far more complex and wondrous phenomenon than we once realized. It was not surprising that, in the vignette that introduced this chapter, Greg Fouts expresses some frustration about implementing all the strategies that he has heard about during the past five years.

Greg and his colleagues, nevertheless, will improve their students' learning when they take into account, for instance, the various considerations we have discussed thus far in this chapter. We suggested that teachers help students relate concepts and ideas to each other so that the learners form patterns of meaning. Teachers should encourage the development of different ways of knowing and provide learning experiences that reflect a spectrum of learning styles. Moreover, they enhance learning when they avoid gender stereotyping or labeling students through forced ability grouping. Finally, they support students on their journey of faith when the pertinent learning experiences take into account levels of faith development.

In this concluding section, we will elaborate on how students learn differently as they mature. As we have already indicated, the reaction of students to issues involving faith is distinct for learners of different ages. But such reactions -- and therefore the types of learning experiences that are suitable -- vary not only for faith as it unfolds, but for all matters that students explore in their learning. Piaget and his followers have made it abundantly clear that we cannot afford to neglect developmental levels in our teaching. They have been less helpful, however, in providing guidelines for planning teaching and learning. For one, it is unlikely that students pass through Piaget's stages as neatly and sequentially as his followers claim (as is the case for Kohlberg's stages of moral reasoning and Fowler's stages of faith development). More seriously, Piaget's focus is narrowly rational/cognitive, neglecting most of the ways of knowing that Gardner and Eisner, for instance, have shown to be important in school learning.

The work of Kieran Egan (1986; 1988; 1990; 1992) is more helpful for classroom teachers. Egan defines three broad "layers" of understanding in school-age students. Unlike Piaget, he does not claim that these are clearly distinct, but believes that students move from one to the next gradually, with the next level incorporating the former in a richer, more complex way. We will briefly consider each of these layers with some implications for the classroom.

Sarah (age 6): I liked the story about Robin Hood. The sheriff was so mean and I'm glad that Robin Hood helped the poor.

In the primary layer of understanding (ages five to nine), children discover themselves, Egan believes, by focusing outward on the world and on others. They can confront the mysteries of life and learn a great deal about abstract "binary opposites" such as good and evil or courage and fear as long as these are embedded in concrete story settings that provide a sense of adventure and wonder. For children, the story form is fundamental to their understanding, and imagination supports their rational development. The curriculum, therefore, should consist of a set of great stories to be told, fictional ones as well as the great true stories of the Bible, history, science, and mathematics.

That does not mean that teachers just tell a large number of stories in class. Rather, Egan continues, it means that teachers plan their units in story form. They identify the importance of a topic; they find binary opposites that express the importance of the topic in a way that is accessible to children; they articulate the topic into a developing story form; and they structure the unit so that it leads towards resolving the dramatic conflict inherent in the binary opposites. In this way topics of keen interest may be explored in meaningful ways by children. In grade one, Egan points out, children are far more interested in themes with clear conflicts, even when foreign to their experience, than they are in "helpers" in their local community (e.g., survival/destruction of North American native peoples).

Jonathan (age 11): I read about how they built medieval cathedrals. Were they ever huge! My church would fit into some of them about twenty times! Some took more than one hundred years to build. And then one of them wasn't built properly. When there was a big storm the part between the church and the tower collapsed. They never built it again, and today you can still climb the tower -- it's the tallest tower in Holland.
The next layer, which Egan calls the romantic one (ages eight to fifteen), does not leave the previous one behind but adds a new level of understanding while incorporating the primary one in a re-formed way students are still interested in stories, but now units in story form can involve more theory. At the same time, nonnarrative sense-making techniques that deal with reality become increasingly important for students. They often have an intense drive to understand something in detail, and want to explore the limits of reality -- the exotic, strange, and mysterious. Egan chooses the term romantic because learning at this age has powerful emotional components even as the rational grasp of particulars and the growth of self-consciousness continues. Students often display a flexible, vivid, and energetic capacity in the various ways of knowing; that is, they want to use their imagination to the fullest (Egan 1992,65). For effective learning during this broad age group, Egan therefore continues, learning must provide opportunities for detailed study, focusing on the extremes of the real world and the limits of human experience. This should be done in a context where students consider human motives and transcendent qualities such as faith, hope, compassion, justice, courage, beauty, and self-sacrifice. Such content must also affect the emotional, intrapersonal life of students, and stimulate awe and wonder. Thus the science curriculum, for instance, should emphasize making the familiar strange and wonderful, with theories and experiments being introduced "through the lives, hopes, and intentions of those who first designed and constructed them" (Egan 1990,233). A key point that Egan makes is that while education is crucially tied up with knowledge, we focus too much on knowledge content itself. Especially for this layer our emphasis should be imaginative learning that affectively engages the learner (Egan 1992,53).

Donna (age 16): I wonder about the way the church and the nobility in the feudal age built themselves cathedrals and castles. I suspect it was done at the expense of the common people, They probably became even poorer because of the grand dreams of the elite. Why is it that the rich and powerful seem to have so little regard for the struggles of the poor?

In Egan's third layer of understanding, the philosophic one (approximately from ages fifteen to nineteen), students use the patterns and associations they have formed in the romantic layer to develop causal chains and networks. They begin to redirect their intellectual attention from romantic fascinations and associations to the laws and general patterns whereby the world works, whether that be for history, human behavior, or the natural world (Egan 1990,177). Students now turn to surveying and analyzing what their romantic patterns of meaning were all about. They do not discard the understandings of particulars of the romantic layer, for example, but use them to provide a basis for a much more general, philosophic understanding of life. In this layer, the meaning of specific concepts is "most commonly derived primarily from its place within some general scheme" (Egan 1990,179). The curriculum now puts much more emphasis on general principles that guide and direct our lives.

Egan's scheme is not the only valid way of categorizing developmental layers. The point of considering it as we plan learning, however, is that it helps us enable students to be responsive learners at their own level of development. Therefore we capitalize on the particular types of learning that stimulate them at certain ages. We cannot expect six-year-olds to discuss the principles of justice that should be embedded in a constitution, but we can have them respond to what is just or unjust in fictional and real-life stories. We cannot expect eleven-year-olds to be interested in a detached, abstract study of European geography, but we can expect them to respond enthusiastically and imaginatively to investigating the geographical challenges that David faced as he travelled from southern Yugoslavia to Denmark in Anne Holm's book, I Am David. And for sixteen-year-olds the study of a particular technological development related solely to human motives and ingenuity will often be insufficient; they will also want to consider how this relates to more general scientific principles as well as to the general impact of the innovation on human life.

In short, learning needs to be planned so that students can respond meaningfully. To do so, we have to take into account factors such as the diverse ways of knowing, learning styles, layers of understanding, and how we group students. If we fail to do so, then the learning in our classroom will unwrap our students’ gifts inadequately: learning, for many of them, will become a burden rather than a joy. And that would undermine the habitat of shalom that God intended students and teachers to experience as they learn about him and his world.

Questions for Discussion

1. Do you think Christian education ought to be about nurturing or ought it to be about letting go of old attitudes? Do these two purposes work against each other?
2. To what extent should students learn in our schools that to be a Christian is to be countercultural? Is there a danger in teaching for that kind of understanding?

3. What patterns and relationships shared by different disciplines have you recognized in your curriculum? How can you as a staff discover where others occur?

4. What examples can you give to show evidence that you as a staff recognize and celebrate different ways of knowing? Which of the ways of knowing need more attention in your school?

5. The home, church, and school all have a role to play in the faith development of students. What should be the focus of each agency? To what extent should the school deal openly and explicitly with the growth of faith in students? Which activities in the school can and should foster such growth?

6. Consider a topic that could be taught to students at different age levels. In terms of Egan's view of layers of development, how would you design the unit to suit learners in each of the three layers of development?

**Recommended Reading**

   The implications of information processing research for instruction in reading, mathematics, second language learning, social studies, art, and music.

   Describes the instructional need for a better match between the learner's cognitive level and the material to be learned.

   An excellent analysis of gender differences from a Christian, psychological perspective.

   Provides information From research on girls' experiences in schools.

   Discusses faith development in children.

   Describes the way middle school students think about their faith and their relationships with the church and school.

   Suggests ways in which teachers can be involved in classroom research.

   These two books give Egan's most practical advice for teachers.