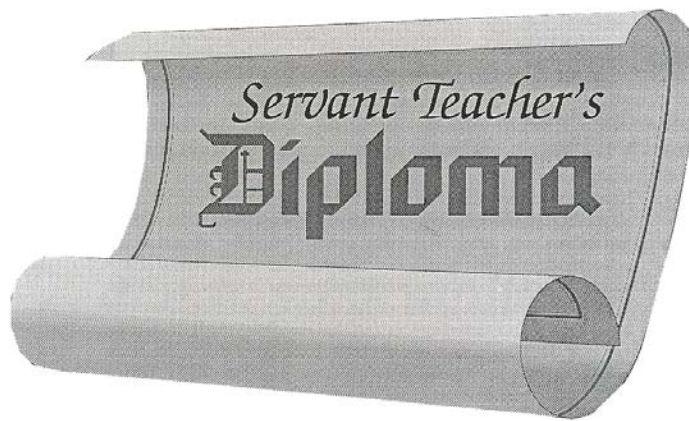


Thinking Well

Getting Beyond the Mundane



A Trainer's Toolbox for
Encouraging Deeper Thinking

Rosalie A. Pedder

This booklet is dedicated to Tom Bloomer, who has regularly stirred my thinking enough to change my practices. Thanks, Tom.

Also by Rosalie A. Pedder:

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Thinking Well

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Many educators and their teachings, both published and unpublished have influenced my thinking for this booklet, especially the works and practices of Howard Gardner, Thomas Armstrong, David Lazear, Stephanie Burns, Robin Fogarty, Edward de Bono, Tony Buzan, Julia Harper and many others. My own classroom experiences with both high school and university students over more than 30 years have convinced me that we need to give deliberate training to develop the kind of thinkers needed to not merely reproduce but to develop what we teach.

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Introduction

This fourth title in the Well series aims to offer you resources and understanding that you can draw from for your own classes to enhance your teaching. None of the Well booklets sets out to be a comprehensive coverage of its topic, but to provide the necessary basic information to help course and group leaders expand their range of teaching and learning strategies.

Thinking Well gives you a smorgasbord of activities and some teaching to promote a greater range of thinking skills in your students through varied question types, understanding the levels of thinking, and knowing some of the language of critical and creative thinking.

There is also a step-by-step explanation of an objective type of assessment for activities and assignments. There are many styles of assessment but this one will at least get you going. You'll find too how these thinking skills are interwoven into the learning issues covered in the other three booklets. Look for the interesting section on developing Deeper Discussions - these questions are great for small groups, or lunch-time conversations, or for mentoring warm-ups. Several of the learning issues and thinking skills have been applied to our foundational values to give you ideas for applying this material to other topics.

For courses beyond the first post-DTS level, there are more complex thinking issues that must be addressed, and to ensure students are ready for those, we all need to be aware of how we are preparing or hindering them. I trust that at all levels, including those beyond the scope of this booklet, course leaders are actively teaching required thinking skills to their students before asking them to produce assignments using those skills! Of course you are! (Right?)

As with ***Teaching Well, Learning Well, and Starting Well, Thinking Well*** attempts to respond to school leaders' and teachers' most frequently asked questions. May you draw successfully from this Well and feel more confident and more competent as you continue to train an effective army of world changers.

Rosalie Pedder
Auckland
New Zealand
2000

Thinking Well – A First Step

For many of our students, thinking is fraught with problems that have no basis in terms of the students' intelligence. If we teach our students the skill and value of METACOGNITION (thinking about our own thinking), we can watch with delight as they make their way through the quick sands of their thinking history. Metacognition allows us to work out why we think as we do and the results are often surprising.

In my own experience, brought up to think I was stupid, I truly believed I could not think about anything abstract, especially politics. I refused to open a Time or Newsweek magazine, or to listen to any political broadcast, or to take part in any discussion of politics and so show the world my ignorance and lack of intelligence. When I realized I wasn't completely dumb, I secretly decided to understand the US election process through TV (I'm a visual learner). I tracked it from the mere suggestion of likely candidates, through the primaries and all the way to the election itself. The only part I couldn't understand was about the functioning of the Electoral College, so as the elections were almost on us, I asked three colleagues in Kona how it worked, and to my amazement none had any idea, and knew less about the whole process than I did! Maybe I wasn't so dumb!

In 1991, I was teaching in Germany and had run out of English material to read. The next day the hospitality coordinator left an English magazine at my door - the latest Newsweek. No use to me, I thought. So I threw it aside and tried to find some English radio instead. Finally, in desperation, and having prayed for understanding of the text, I opened the magazine to read a post-election story. "At least I should understand that," I thought. Fearfully, I read beyond the election article and to my absolute amazement, the whole thing appeared to be written for 11-year-olds!

Who had lied to me? Why was I so sure I wouldn't understand? As I thought about it, I realized I had listened to others lie to me, I had lied to myself, and I had not thought through the fact that I am an intelligent person and therefore should understand anything I could ask others to help me understand.

In another illustration, I asked myself why I thought skiing would be unpleasant and painful to my ankles. I discovered it was because as a child I found ice skating painful. Because it is a painful sport? No - because we used to hire old skates and boots there were ill-fitting. I applied that experience to skiing, but as I look at today's boots, I realize that poorly supported ankles would not be a problem. But until I thought about my own thinking, I was convinced I could not learn to ski.

When students believe they cannot understand biblical worldview, or cannot have faith, or will fail in a test, encourage them to explore why they think that way. If it's a lie, challenge them to explore the truth. If it's a matter of missing skills, provide that training. This is not introspection, but productive analysis of the dead-ends of our thinking. Metacognition is liberating!

Critical and Creative Thinking

While the educated scream that today's children are not thinkers, the same is true for adults. Many who are 35 and under have never been taught good thinking skills and many of those older than that learned only a few critical thinking skills. Many of those who yell loudest have the narrowest range of skills.

It is essential that we teach thinking skills in every course, and even more important that we learn them ourselves. I'm convinced that many of those who feel or seem disabled in their thinking are actually unequipped - there is no way I could program a computer though I can use one very efficiently. I am not technologically-challenged, nor technologically-deficient, but I am definitely technologically-ill-equipped. That means that with good instruction from someone else or from a book or video, I could program a computer. Too many students have been written off because they do not have the thinking skills that lead to sound thinking.

Thinking can and should be taught. Certainly some "bright" adult students have picked up thinking strategies from their parents and teachers without defining the skills they are using. Others, like me, had no idea what was happening or what skills others were using. And I am bright. But I was completely under-equipped, ill-equipped, un-equipped, and ignorant. With the right tools, my thinking has been expanded amazingly. The improvement has come through several things:

- a) understanding that I am not stupid
- b) understanding the influence of home
- c) ministry of Jesus and the Holy Spirit
- d) deliberate pursuit of those skills
- e) going back to basics
- f) widening the range of skills pursued

When we do think about developing thinking, we tend to begin with college level material for students who have not learned grade level skills. You'll find some questioning strategies in another part of this booklet - based on a nursery rhyme! Always make people familiar with a new skill using familiar material, and then apply the now-familiar skill to the new material. You won't go wrong that way!

Don't be afraid to introduce activities that have no deep educational content but which give opportunity for students to practice thinking skills they will need to complete assignments successfully. It's dangerous to assume all your students have come to you equipped with all the thinking skills they need. To help you, there are many books available about thinking, from the purely theoretical to the many books of systems, strategies and activities. Try your local library!

Thinking For Beginners

Thinking is the ability to choose the appropriate skills for a particular intellectual task from a wide array of different skills. Good thinking is not something we are born with, but the result of good training and practice. I believe it is part of our role as trainers to continue each student's thinking training. In my experience, as teachers of adults we often provide the first deliberate training in thinking!

Just for fun, try these old thinking traps yourself! (Answers below).
(Source unknown)

1. A woman gave money to a beggar. She was the beggar's sister, but the beggar wasn't her brother. Why?
2. Two sisters born to the same parents on the same day and who looked alike said they were not twins. Why?
3. How many animals of each kind did Moses take into the ark with him?
4. If a plane carrying U. S. citizens crashed in Mexico, where would the survivors be buried?
5. Seventeen students took a test and all but nine failed. How many passed?
6. An archaeologist found two coins dated 39 B.C. How did he know they were fakes?
7. If you had only one match and entered a dark room to start up a kerosene lamp, an oil heater, and a wood stove, which would you light first?
8. If a roof runs north to south and a rooster on a peak faces east, which way will the egg roll?
9. Two men played checkers. They played three games and each man won two. How?
10. Tom is twice as old as Mary but he is two years younger than Jim. What is Mary's age if Jill will be twenty years old in two years time?

Do not use these as a trap for your students!

1. She was her sister. 2. They were triplets. 3. None. 4. Nowhere—they are alive.
5. Nine—all failed EXCEPT nine. 6. No one knew it was BC! 7. Match. 8. Roosters
don't lay eggs. 9. They played other people. 10. 8 years old.

Improving Thinking

Expect your students to improve in their thinking when you offer them such opportunities for practice. Look for them to become more willing to entertain others' ideas, to pursue research, to think about their own thinking processes, to learn and use accurately the vocabulary of your subject. Watch for them to try out other ways of learning or expressing themselves, to have a greater facility with the creative analogies offered in the next section, to decide what they want to learn or discover before wasting time on too broad an approach, to enjoy and create humor, and to appreciate the contributions of others to their conclusions.

A good thinker knows that the exercise of deliberate thinking is valuable and is willing to challenge conventional thinking, to search for possibilities and even to try to look for evidence against his own preferred views.

It is very easy in our courses to fall into the habit of using the same old question styles we had thrown at us in school:

What?
Who?
When?
Where?
When?
Discuss...
Account for....

While still enabling teachers to check our students' understanding, the following activities will help students to be more fully involved in the learning process. There is a wide range of thinking skills which can be employed, and for the most part I find neither students nor teachers are very familiar with the names and range of these skills. Obviously there are many more than can be offered here, but these will provide some flair for your classroom.

For the purposes of showing you what you could do with them, I've related each skill to one of our missions' foundational values (below), but you could apply them to many topics.

We (YWAM) are committed to doing, then teaching, according to Jesus' example. We affirm the importance of living a concept, theory or belief in personal experience as essential to passing it on to others. We believe that godly character and the fruit of the Spirit are more important than an individual's gifts, abilities and expertise.

Critical Thinking Skills

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Reasoning – drawing conclusions from known or assumed facts

Under what conditions could it be beneficial for us to allow someone to teach in one of our courses who had NOT yet proved they live or can DO what they TEACH?

Prediction – saying in advance what will happen

What would be the likely outcome for your organization if there could never be an exception to this value? If we lived more by the exception than the rule?

Projection - prediction based on observation

Suppose every teacher in our courses had to provide testimonials from others to prove they live what they teach - how could this be made practicable, especially for those who teach internationally, perhaps in a different country each week?

Planning – to devise a scheme for doing, making or arranging

Create one form that would make it easy for someone to provide a reference for a teacher to prove that he lives out his teaching, whether it is about holiness or building, about bible study or art, about prayer or foreign language, or any other teaching topic.

Forecasting - estimating or calculating in advance

If a course leader were more interested in his/her own agenda in running a course than in passing on the organization's values, how many "generations" (or subsequent courses run by the graduates of that first class) do you think it would take before the values were effectively lost? Explain.

Prevention - acting in anticipation, making impossible by prior action

How might the organization make provision to ensure that the weakness of one leader is not allowed to weaken the entire organization or any branch of it? (see previous exercise).

Compare - to show the likenesses between things

Compare the similarities you have seen in two or three of your YWAM teachers.

(Con't...)

Critical Thinking Skills... *Con't*

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Analysis- examination of the parts that form a whole to find their nature, function and inter-relationship

What elements would be lacking in the teaching of a person who does not actively live out what he teaches, or who merely teaches as his own something he heard from another teacher, or read in a book?

Attribute- listing- separating the qualities or characteristics of an idea or object

List all the attributes you would expect to find in someone who passes the test of this value. Explain why you would expect to find them.

Evaluation- to judge or determine the worth or quality of something

Based on the probable long term effect on the organization, how important do you believe this value is? (Use a 5 point scale you can explain.) Which of our other values might you consider more important in maintaining the integrity of the organization? Why?

Ranking- to assign a relative position, grade or degree

Put the full set of 21 values in order from most to least as you feel each contributes to maintaining the integrity of the original vision and the character of the organization worldwide.

Debate- to offer arguments for both sides

With a partner (who takes the opposite point of view), debate the proposition that character *is* a more significant element of effective teaching in this organization than expertise. (It is not necessary for you to truly believe the point of view you are arguing).

Contrast- show the differences between things

Contrast your classroom experience where the teacher's character is more important than his/her expertise, with a classroom experience where expertise was considered more important.

Creative Thinking Skills

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Curiosity - seeking out information, inquisitiveness, asking questions

Why is this important? How is it implemented? When does character pass the test? What constitutes "living a concept?"

Originality - thinking in unusual ways, breaking out of the box

What could be a whole new way to determine someone's readiness to teach?

Fluency- coming up with a multitude of ideas

List all the possible uses of YWAM's list of foundational values.

Flexibility - finding a variety of approaches to a problem; seeing things from new perspectives

List all the different ways we could assess the fruit of the Spirit in someone's life? Find all the arguments you can to support expertise over character.

Complexity - bringing order out of chaos, seeing gaps in information

What Gospel accounts would make a sound basis for the phrase "according to Jesus' example"? Who in your own leadership clearly demonstrates "living a theory" that they teach? What constitutes "passing it on?"

Elaboration - adding to an idea to make it more interesting

How could we change the DTS to ensure every student is able to discern each teacher's demonstration of this value? How could we check that the speakers we don't know well fulfill this value?

Imagination - building images beyond the boundaries of time, place or reality

You hear the organization's president has created a new foundational value by taking words out of all the others and putting them together. Create the new value.

Risk Taking - sharing ideas that could expose one to criticism or failure

Discuss the idea that this mission will not keep up with modern needs if we continue to live by this value.

(Con't...)

Creative Thinking Skills... *con't*

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Analogies- creating comparisons to bring deeper understanding

How is an expert without comparable character like a train? How is someone who does meet the requirements of this value like a dolphin? (There is no right answer except that the similarities must be described clearly).

Forced Relationships- creating a new idea, or unusual uses for things, or combining unrelated ideas for a new idea

Without explaining why, have students jot down two random items each. Then invent a way to use both items together to teach this value to new students.

Modifying- changing some attribute(s) to create a better product

How could you alter the wording of the value to that it could be included in a letter to parents of the University of the Nations students to reassure them that our students' teachers have both character AND expertise?

Checkerboard- from a grid of attributes create a new combination

Put all the attributes of an "expert" along the top of your grid, and the attributes of "character" down the side. Select any attribute from the top and one from the side. Where they meet, write the name of a person (biblical, historical or contemporary) who clearly exhibits both attributes.

Divergence- finding several answers to a problem

Design different advertising strategies to communicate this value to
a) pastors sending young people to DTS b) prospective university students
c) long-term staff who have perhaps forgotten it d) base leaders anxious to assign leadership to people perhaps not ready in character e) other organizations from which we are hoping to recruit key teachers.

Personal involvement- imagining yourself in a role you haven't actually experienced

Imagine that despite your obvious expertise you have been refused the freedom to teach in your field on the grounds of some character flaws. How might you respond?

Critical Thinking - Thinking-Creative

- REARRANGING
- analysis
- justification
- hypothesis
- decision-making
- magnification
- complexity
- adapting
- synectics
- forecasting
- comprehension
- Forced relationships
- evaluation
- debate
- exploring
- fluency
- curiosity
- ranking
- originality
- risk-taking
- substitution
- convergent/divergent
- elaboration
- projecting
- imaging
- knowledge
- predicting
- checkerboard technique
- application
- reasoning
- attribute-listing
- speculation
- brainstorming
- brainstorming

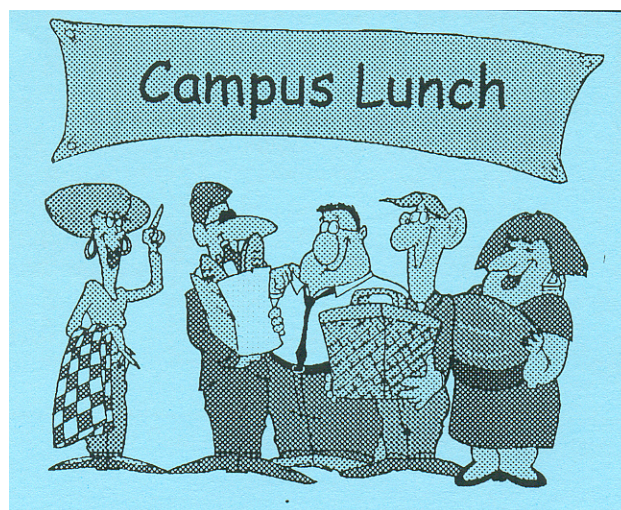
Which of these skills are in YOUR school curriculum?

Developing Deeper Discussion

The “LUNCH” Questions

When I lived in Kona, we ate our lunch outside at tables that sat about nine people. A group of us decided to make our lunch times more interesting than the conversations we so often fell into when new people joined the table: “Where are you from? Which department do you work with? Where did you do your DTS?” With over 500 at each meal and the personnel changing every three months, it was easy to meet someone new every day. I began to develop a series of questions that went deeper and produced some amazing times of true fellowship and understanding. Some people avoided our table and others made a beeline for it!

You can use these questions over meals, in small groups, staff meetings, ladies or men’s groups, or a class starter. You could even use them to kick off some prayer or meditation.



“Lunch” Questions...

If you met a reasonably close acquaintance (a workmate, perhaps) whom you haven't seen in 10 years, in what 3 character issues would they notice the greatest growth? How about some one from 20 years ago? 5? Last year?

*

When you have up to \$5 to spend on yourself that you don't have to account for, what do you spend it on?

*

It is said that after food, shelter and clothing, our greatest needs are love, wisdom, power and worship. How well do you think these needs are being met for you?

*

With what person you knew personally and who is already dead would you have liked a different relationship? How? Why?

*

What was the greatest disappointment and the greatest pleasure of the year you were 13?

*

“Real-TV” is currently both popular and negative, focusing on failings, accidents, disasters, revenge and conflict. What *positive* Real-TV series would you like to see screened?

*

Which historical era (other than this one) do you think you would have enjoyed living in? Why?

*

What is one decision you made in your life that you now wish you had made differently? What might have happened if you had decided differently?

*

For married couples: If you had remained single, what 3 character qualities would probably not have been developed in you, and what two key experiences (other than childbirth/child-rearing) would most likely not have happened?

*

The boss or leader has declared that there is to be a war in your department or base or church on one particular sin or fault each quarter, and has asked you to choose the 4 issues for this year for your group. What do you choose? Why?

*

(Con't...)

“Lunch” Questions...con’t

If you found you had to spend 5 years alone in a house with just one person (who does not really exist and with whom you have no romantic ties), what are the qualities you would want him/her to have?

*

What character quality do you find in each of your siblings that you would like more of yourself? (Or that you especially admire?)

*

If this could happen tomorrow, who would you like to affirm you? For what? In front of whom?

*

The sudden death today of which person would affect you most? How? Why?

*

Suppose the government decreed each Christian could have in their possession only one book of the bible for the rest of their lives. Which would you choose? Why?

*

Suppose the government has decreed all churches may have no more than 150 adult members, and that there may not be any churches headed by a single pastor. Instead, the only church leadership permitted is a 3-person leadership team. Which 3 ministry gifts (Eph 4:11), which 3 manifestation gifts (1 Cor 12 and 14), and which 3 personality or character traits would you want represented in this team?

*

The leadership of your church, or base or other group has identified a particular fairly serious character defect in your life of which you seem completely unaware, and they have decided it is time to address it. Who do you want to bring the correction and how? (You may suggest a real person, but if he/she is unknown to the group, describe the role and qualities the person has that are important to you.)

*

Your boss/spiritual leader has left town for a week and has left a command that during the week each person give an honest account of their past year in terms of character, spiritual growth or professional performance (both strengths and weaknesses) to one of the other leaders. Who would you choose to go to and why?

*

(Con’t...)

“Lunch” Questions...con’t

What good characteristics do you see in yourself that are quite clearly like something in your father? mother?

*

What weaknesses in your father and mother do you see repeated in yourself?

*

What characteristics do you see in yourself that are clearly attributable to one of the national groups in your bloodline?

*

What piece of jewelry do you own that has some particular sentimental significance? Why is it important to you?

*

What were 2 or 3 of the defining moments for you that helped you know you are good at your job, or that you have a particular skill or gift?

*

Which person had the most influence on your belief system about your job or your passion? How?

*

When you get to heaven, what do you want to hear the Lord commend you for?

*

Which speaker/teacher has had the most profound influence on your life (apart from your pastor/ teacher in your first years as a Christian?)

*

What qualities or characteristics in someone you currently work with or fellowship with do you admire?

*

What question about your life would you like to ask of the Lord, beginning: “Lord, what would have happened if.../if...not...”

*

What would you do if you won a million dollars, supposing you had to spend at least three quarters of it on yourself?

*

If all other things were already as you would want them, where would you like to live? Why?

*

(Con’t...)

“Lunch” Questions...con’t

What one skill would you like to learn this year?

*

If you had to re-live one year of your life so far (with both its good and bad), Which one would you choose? Why?

*

Which 2 authors would you most like to be able to talk with? (dead or alive!) Why?

*

Which biblical character would you most like to talk to? Why?

*

You open a letter to find you have been invited to travel for two weeks with a particular person who has agreed to let his/her life be an open book. You can ask any questions you like, observe their manner of life at close quarters, and generally have some of what you admire in them rub off on you. No one else will have access to their time for the two weeks. Who wrote the letter? Why are you so pleased about it?

*

There’s an area of weakness in your life that you have been working on all year. What comment from a new friend (or an old!) would let you know that you’ve conquered it?

*

There’s a new speaker/pastor/boss being introduced to your group. What features in the introduction would lower your defenses or calm your fears?

*

Imagine one of these people were to ask the following question, “If I could help YOU, how would you serve ME?” Spouse, boss, friend, sibling, pastor, stranger. How would you answer?

*

If the Lord asked you this year to give more than ever before, but not to give money, how would you carry out His command if no more than half your giving was allowed to be in material things?

*

For singles: If you could send to the Lord for a mail-order spouse, what 3 character qualities would you order, and what two key items of personal history would you want him/her to have?

(Con’t...)

“Lunch” Questions...*con’t*

Think about your own life - what practice is a part of it that although perfectly acceptable between you and the Lord, could be a stumbling block to someone else? How do you handle this?

*

For you, what personal disciplines indicate your life is in control?

*

What is the downside of each of your two greatest strengths?

*

If you were called on today to publicly affirm your boss, leader, closest colleague, or spouse (choose one), what 3 specific things would you comment on? At least one of them must be current, rather than overall strengths observed over a long period or a long time ago!

*

It's a sad day - your leader/boss/pastor spoke with you a month ago about a fairly important character flaw or unacceptable behavior, and has twice since then had to remark on it again. Today, the third recurrence has driven him/her to discipline you, not for vindictiveness or punishment but because he/she genuinely wishes the best for you. You've been here before, but last time (it was over a different issue and with someone else) the discipline just made you bitter and resentful. This time it will provoke genuine change. What happened each time? What discipline is salutary/ detrimental for you?

*

What 5 things make you really mad? (for longer than a morning)

*

What 5 things make you really happy? (for longer than a morning)

*

What sorts of gift do you really like/ hate to receive?

*

If someone else were describing you, what would he/she say was your strength, your weakness, and your necessity? (e.g. You're very generous, you seek too much affirmation, and you need a year off)

*

“I'm really proud of you!” Who could say this and make your day? What do they say it about? (choose a living person!)

*

(Con't...)

“Lunch” Questions...*con't*

What positive family value do you think you have successfully passed on to your children, or was successfully passed to you by your parents, or you have successfully passed on to those under your leadership?

*

What is God dealing with in your character or behavior currently and who is He using to model the higher standard?

*

If you could design a new mandatory 2-12 week course all people in your field must take, what would you put in it?

*

Which of our mission values is the greatest challenge for you to live out? Why?

*

What is the aspect of YWAM (or other organization/profession) That makes you proudest to be a part of it? Why? And which one makes you cringe? Why?

*

Ps 84:5 says, Blessed is the man whose strength is in You, in whose heart are the highways to Zion. What highways to Zion are in your heart that others can walk on and make progress?

*

What are you most looking forward to about heaven?

*

To what part of the body could you - seriously - best liken your call/ motivation/ role? Why?

*

When people talk about you (positively!) what do you a) think b) hope they are saying about your life?

*

Who has had the greatest life-changing impact on your life? How?

*

If you could eliminate one thing from the world as though it never existed that affects or wrongly attracts young people, what would it be? (Be specific- “sin” or “sex” is too broad).

*

If there was one thing about your life or your history before you were 25 that you could have changed, what would it be?

*

Knowledge
(That's easy!)

Comprehension
(I understand that!)

Application
(Watch me do it!)

**Understanding
Thinking Levels**

Analysis
(Now what's that?)

Synthesis
(Huh??)

Evaluation
(Am I doing well?)

Mental Aerobics

For several decades, thousands of children in the nation's classrooms have been robbed of an important skill - the ability to think effectively at levels beyond those of knowledge, comprehension and application. A Barbara Walter's Special called *Teaching American Kids to Think* offered the frightening statistic that in U.S. high schools over 85% of all classroom teaching is by the lecture method. Multiple-choice tests, fill-in-the-blank assignments, and regurgitation of notes have made the need to think practically obsolete in our classrooms since children no longer need to grapple with problems or to process information.

Because they have not been faced with the need to exercise their thinking skills, students now at university have seemingly lost the art of thinking at higher levels (analysis, synthesis and evaluation). Of course, to give students opportunity to develop those thinking levels means harder work for teachers and students alike. Questions and activities are more time-consuming to design, answer and mark, but we cannot afford not to exercise both ourselves and our students in these thinking skills if we are to produce adults who will not be swept away by the voice of the majority, especially when that voice is speaking either dangerously or illogically.

Interestingly, a preschooler can easily operate in all the same levels of thinking that our college students are struggling with. It's not a matter of intellect or age, but of exposure and practice. Both at school and at home, children should be exercised in these skills from an early age as a matter of course. Such skills should be practiced especially when those same children who had no trouble with those skills at preschool level encounter a grade school program which relies heavily on workbooks, lecture-method teaching, and other easily graded short answer assignments. In November 1990, a revision to the American SAT tests was publicized - problem-solving and essay questions were incorporated in an effort to redeem the appalling losses of our young people's critical thinking skills. In 2000, we're still waiting for the major improvement!

Just as a man cannot run a marathon without regular practice which builds his stamina, neither can a student be expected at high school or college level to be able to think abstractly, to problem solve, or to experiment with higher-order ideas unless he has been training all along. Given that many of our students have not had that practice, we must take the opportunity to fill as many gaps for them as we can. The following pages will show you how to recognize and use the various thinking levels, and to ensure your classes enjoy thinking experience beyond knowledge, comprehension and application.

Using Thinking Levels

Many educators have attempted to define the levels at which we think and to map how we move from one to the other. The various theories become fairly complicated! However, Benjamin Bloom's way of showing it is really helpful and is quite user friendly for your courses. From this chart, you can see the different types of activity each thinking level produces.

LEVEL	MEANING	EXAMPLE #1	EXAMPLE #2
KNOWLEDGE	<i>Recalling facts and information</i>	How many YWAM Foundational Values are there?	What is the GENESIS ministry?
COMPREHENSION	<i>Understanding how ideas relate together</i>	What is a value?	How does GENESIS work?
APPLICATION	<i>Using what you've learnt in a new situation</i>	Tell about something that is a high value in your family	What would you like to communicate to a base in another country via GENESIS?
ANALYSIS	<i>Looking at information and separating it into components</i>	Which of YWAM's values are already a strong part of your own life?	What problems could a teacher avoid by being well prepared before using GENESIS?
SYNTHESIS	<i>Taking ideas and creating something new with them</i>	Invent a topical 21-word sentence, whose initial letters refer to the main word in each value	Create 2 checklists to help students and teachers both prepare and evaluate a GENESIS teaching session
EVALUATION	<i>Measuring the value or worth of something, basing decisions on pre-determined criteria</i>	On a scale of 1-10, rate each value according to how clearly it is demonstrated on this base	What would be the best way to prepare a class to learn through GENESIS?

Using Thinking Levels

We (YWAM) are committed to doing, then teaching, according to Jesus' example. We affirm the importance of living a concept, theory or belief in personal experience as essential to passing it on to others. We believe that godly character and the fruit of the Spirit are more important than an individual's gifts, abilities and expertise.

Knowledge:

*What document is this statement taken from? *Write from memory the value that explains why a man coming to YWAM with 25 years of publishing experience might find himself working under a younger, less-experienced leader when he is accepted to the publishing department.

Comprehension:

*Define *expertise*. *What does it mean to "live a concept?"

Application:

*Explain how the family you grew up in "lived a concept" that was important to that family. *How could your base more clearly "live a concept" that it holds dear?

Analysis:

*What long-term effects of "living a concept" in your family have been positive, and which have been more negative? *If you were to be assessed for your fitness to speak at a DTS, what would you offer as proof that you qualify in terms of this value?

Synthesis:

*Create a poster for the back of the guest room's door that will appropriately but clearly remind a teacher that we value his character over his knowledge or skill.

Evaluation:

*Based on student feedback, assess the overall effectiveness of a truly godly expert whose teaching style is at odds with that of his audience (This could perhaps happen when the GENESIS audiences are quite different at different locations).

Thinking Levels for Teaching-Topics

Father Heart of God	Spiritual Warfare
<p>Knowledge: What are 5 other names of God besides "Father?"</p> <p>Comprehension: What is meant by God's Father-heart?</p> <p>Application: How could you demonstrate God's Father-heart to a personal friend?</p> <p>Analysis: When someone has been a Christian for at least a year, what aspects of God's Father-heart would you expect he has already grasped and which ones would you expect him to be confronted by in the second year?</p> <p>Synthesis: Create a board-game that highlights the characteristics of the Father-heart of God.</p> <p>Evaluation: Based on this week's teaching, how well do you see the Father-heart of God demonstrated through your leader?</p>	<p>Knowledge: Who is the enemy in spiritual warfare?</p> <p>Comprehension: Why is a clean conscience important during spiritual warfare?</p> <p>Application: How would you use the "belt of truth" as a tool in spiritual warfare?</p> <p>Analysis: During spiritual warfare, what things contribute to a successful breakthrough? In your last corporate spiritual warfare time, which parts of the armor of God were most obviously being used?</p> <p>Synthesis: Create an interactive format for corporate spiritual warfare on behalf of street kids in your city, where your time is spent more in action than in words.</p> <p>Evaluation: Based on the guidelines for intercession, how personally prepared were you for your last time of spiritual warfare?</p>

Assignments based on Thinking Levels

Knowledge:

List the main points. Retell the events in order. Recite the passage memorized. Identify the key people or events. Create a chart showing the facts. Turn the information into a song to a familiar melody. Make a list of the main events of the topic. Make a timeline of events. Make a facts chart.

Comprehension:

Explain why... Describe how... Predict what will happen (based on your knowledge). Put into your own words. Write an explanation. Write an email to a friend describing what you learned today. Use pictures to show an event. Make a cartoon strip showing sequence. Write a play based on the topic. Illustrate some aspect of the topic. Write a summary. Prepare a sequence flow-chart.

Application:

How could you use today's information to improve tomorrow? How have you seen this concept at work in your field? What are 5 steps to reproduce this project at another place? How will your actions change when you apply this teaching? Construct a model to demonstrate how it will work. Take a collection of photographs to demonstrate a particular point. Make up a puzzle or game using ideas from the area of study. Design a market strategy for your product using a known strategy as a model. Write a text-book or manual about the topic.

Analysis:

Which parts of this teaching are new to you? Which elements of the teaching could be discarded? Design a questionnaire about the information. Write a commercial to sell a related product. Make a flow chart to show critical stages. Construct a graph to display separate stages. Write a report about the topic.

Synthesis:

Create a 3-D model to explain the heart of this topic. Choose 12 scripture verses to head a related monthly calendar. Redesign this teaching so that its basic message can be understood by 14-year olds. Use an item in the classroom to summarise the topic. Invent a machine to do a task. Create a related product, then invent a name and plan a marketing campaign. Write about your feelings in relations to ... Sell an idea. Devise a way to...

Evaluation:

Based on its life changing nature, decide which of the topics in your course was most valuable. Debate the topic: *That this week's subject matter would be better presented in a later course.* Prepare a list of criteria for a related example and indicate ratings. Write a letter to... advising changes needed. Write a half-yearly report. Prepare a case to give your view about some aspect of the topic.

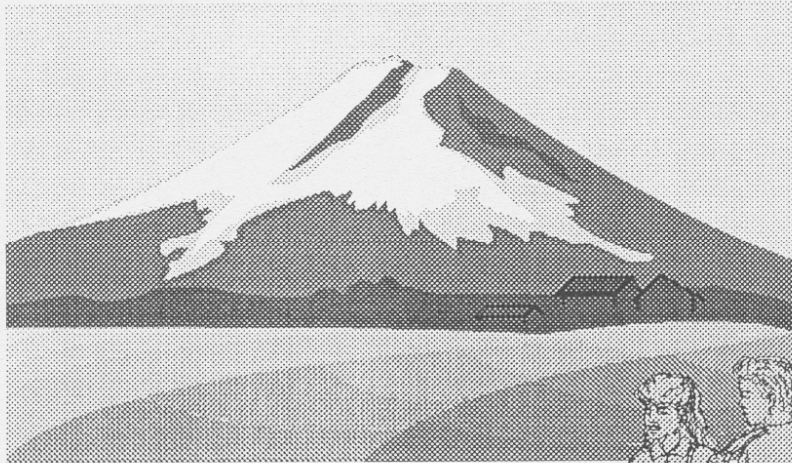
Helping Students Listen

When you see how knowing the thinking levels can help you ask good questions and create challenging assignments, you can also apply them to listening. Tell your students what kind of listening they need to employ for different situations and teaching sessions. Without clear direction for our listening, research shows we retain only about 20% of what we hear. Let students know which level(s) they need to apply in each session. If you don't know, it's probably because you're not clear about your purposes in teaching the material.

- 1. KNOWLEDGE:**
To remember (lists, names, verses, meeting places) and to record (the content, your group, or your work duties).
- 2. COMPREHENSION:**
To understand the main point (of the message or discussion or book or verse).
- 3. APPLICATION:**
To learn what to and how to do it (class lessons, sermons, work duties, assignments, outreaches).
- 4. ANALYSIS:**
To attend and dissect (which parts do I want? which parts answer the question? what is new? what is true?)
- 5. SYNTHESIS:**
To kick-start our own thinking (how would I do it? what else could I do? what options are there?)
- 6. EVALUATION:**
To test what you hear against what you already know/ believe-do you agree? (is this better or worse? will this meet the need? how does this match or differ from what I've heard before?)

- Reasoning -

Using Simple Content
to practise
Adult Skills



Jack and Jill



JACK AND JILL

(A reasoning exercise)

*Jack and Jill went up the hill
To fetch a pail of water
Jack fell down and broke his crown
And Jill came tumbling after*

*Up Jack got and home did trot
As fast as he could caper
He went to bed and mended his head
With vinegar and brown paper*

(English Nursery Rhyme)

Now, here are some questions which stretch the mind a little. Create another of each type of your own. You can apply these question types to your current classroom topic for more variety:

1. **RECALL:** (remembering the facts)
Where did Jack go?
2. **SEQUENCE:** (putting events in order)
What did Jack do next after he fell?
3. **PREDICTION:** (anticipating the outcome)
What do you think the family did about water that day?
4. **INFERENCE:** (what you work out even though it is not stated)
Why do you think Jill was/wasn't hurt as badly as Jack?
5. **IMPLICATION:** (what the speaker expects you to understand without specific reference)
What makes you think Jack's mother wasn't home at the time?

(Con't...)

Reasoning Questions (Con't...)

- 6. DEDUCTION:** (coming to a reasonable conclusion from the facts)
How old do you think Jack might have been? Why?
- 7. INDUCTION:** (reasoning from particular facts and coming to a general conclusion)
Should the children have been sent for the water by themselves?
Explain.
- 8. INTERPRETATION:** (explaining the overall meaning e.g. of a parable)
Applying this story to the Christian walk, how would you assess Jack's behavior?
- 9. FAMILIARITY WITH THE WORLD:**
What sign might have been on or near the well?
- 10. SIZE DISTINCTION:**
Who was probably bigger - Jack or Jill? Why?
- 11. CAUSAL RELATIONSHIPS:**
What happens when you carry things up/down a hill?
Or when you carry water in a bucket
- 12. GRAPHIC REPRESENTATION:**
Draw Jack and Jill before they went up the hill.
Draw Jack and Jill later that night.
- 13. TIME QUESTIONS:**
If Jack really broke his head, how long do you think he would have to stay in bed?
- 14. NO-RIGHT-ANSWER QUESTIONS:**
Did Jack fall before or after he got the water? Defend your view.
- 15. CLASSIFYING:**
What were Jack and Jill?
(Beware - there are several possible answers!)

(Con't...)

Reasoning Questions (Con't...)

16. APPROPRIATENESS:

You are Jill - report the event to your mother.

You're a policeman - report the event to Jack's mother.

17. SYNONYMS:

Give another word for "crown," "caper," and "pail."

18. CAUSE AND EFFECT:

How did Jack get better?

19. PROBABILITY AND POSSIBILITY:

Who would get the water next time?

What made Jack fall

What made Jill fall?

20. CONCEPTS OF ORDER:

a. Who went up the hill first?

b. Put these in order: Jack wrapped his head, Jill went up the hill,
Jack trotted home.

21. ROLE PLAY:

What family conversation probably preceded the trip up the hill?

Elect students for different roles.

22. MAIN IDEA:

What is the main idea of Jack and Jill?

23. RELATIONSHIPS:

What relationship were Jack and Jill to each other?

What else could they have been? (Boy and dog?)

24. SENTENCE STRUCTURE:

Retell the story (or part) beginning with the word then, because,
maybe, unless, if.

(Con't...)

Reasoning Questions (Con't...)

25. PHYSICAL INTERPRETATION:

Mime the story as it's presented. Mime it with interpretive additions.
(Jack hits Jill, Jill carries the bucket home, Jill staggers in with the water, etc.)

26. ELIMINATING THE ODD MAN OUT:

All these are told in this story except:

Jack fell over/ Jack and Jill took a bucket with them/ The water was on higher ground than their house/ Jack was younger than Jill/ Jack hurried home

27. IDIOMS/SLANG:

List as many ways as possible of saying "broke his crown".
(Hurt his head. Pained his brain. Etc.)

28. WRITING APPROPRIATELY:

Write the report of Jack and Jill for

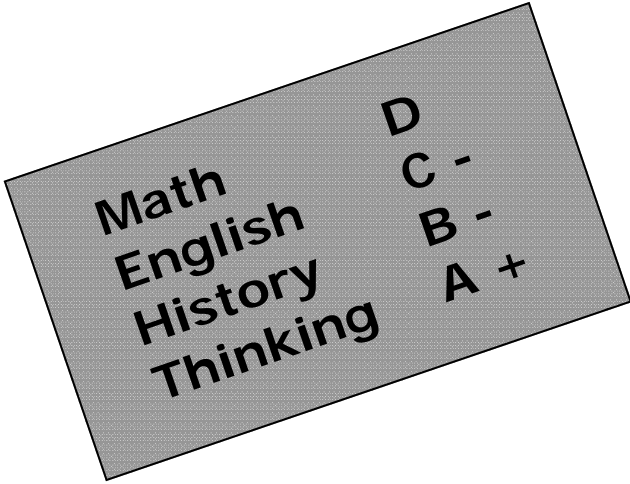
- a. school newspaper
- b. letter to granny
- c. note to leave Mom in the kitchen
- d. town newspaper
- e. note to teacher to explain absence

Assessment:

Blessing

or

Curse?



Math	D
English	C -
History	B -
Thinking	A +

Assessment–Why?

Gather together three or four friends and have a piece of candy ready as a prize for the Best Dressed Award. Don't tell them what you are looking for though. Now let them score themselves on these things:

- *wearing lace-up shoes
- * wearing a ring on right hand
- *wearing something with red in outside clothing
- *wearing a watch with a white face
- * wearing some clothing with a zip

Now give the prize to whoever had the highest score. Ask for the group's comments about the process. Obviously, it is quite unjust to award a prize when the criteria are not known.

Why is it unfair? If we knew the criteria by which we are being assessed, we too could score 5 out of 5, and more than one of us could get that candy. Good assessment practices result in more people achieving the goal - so buy more candy! Telling students what we are looking for is not intellectual softness, but a roadmap for their journey. Knowing the criteria tells them what we want but doesn't provide the answers. When a student presents his work for assessment, it is extremely unjust if we fail to give marks for something we deem to be "missing" even though we didn't clearly state that it was an expectation.

I have often asked a teacher what it means if their student receives 13 out of 20 – what was missing? What would a 14 out of 20 assignment look like? Where is the assessment key the student worked from? It has horrified me that so many teachers have no idea what an assessment key is, and are marking a student's assignment more on the basis of how recently they had a good meal and a cup of coffee, than on the basis of an unchangeable set of criteria.

This is an issue of justice we need to address. Many of our students have come from educational systems that are unjust. We must be different, and providing students with a clear set of expectations is a demonstration of justice. As students mature, the guidelines can become more headlines than details, leaving room for personal interpretation and expression that a student can be expected to defend.

Much of a poor assessment practice can be attributed to the fact that the teacher often doesn't really know what he wants as he sets the assignment and can fall into the trap of letting the most interesting or visually attractive answer set the standard. This is completely unjust to everyone else. Everyone needs to know and be able to reach the unchanging target. Knowing what you want from an assignment is easier to talk about than analyse! Here are some simple keys:

Assessment Keys: How?

Suppose you asked your class to do this:

**“Design a tract based on Isaiah 42 that would bless
Aborigines.”**

How would you mark this? Suppose Joe hands in a hand-made tract that has a lot of exposition of the chapter with a bold heading and few graphics. And suppose Sue handed in a tract that highlighted a single phrase from the chapter and included wonderful clip-art graphics on a backdrop of Australian Outback scenes. Now suppose Gary’s tract took a two-verse portion of the chapter and with a good mix of graphics and text, asked questions about the aboriginal family system. Cheryl, a graphics graduate, produces a stunning computer-generated 3-fold tract with a cut-out segment that silhouettes an Aboriginal hunter. Which one would get the highest mark? Why? How did you decide? Did you want mostly text? Mostly graphics? Was the exercise one in tract-design, or text application? Was it about Aborigines or Isaiah 42? Would you dismiss Gary’s tract because the focus seems unrelated? What if Gary is an Aborigine? Huh?

Here’s a more useful way of asking the question:

Read Isaiah 42 and show with 4 different cultural examples to which you apply particular verses how its message is still appropriate for Aborigines. Set it out in a format suitable for a folded A4/or letter-sized tract. You need not provide illustrations, but show how you would lay it out by shading in areas where your graphics would be placed.

As you read the assessment key, you should be able to see the importance of each aspect by the number of allocated marks. You can see that a student who spends most of his time on the graphic design has not grasped the point of the question. Of course it is **imperative** that the student has this key **before** he tackles the assignment.

Layout/Presentation	1	_____
Instructions followed	1	_____
Tract design demonstrated	1	_____
4 examples given @ 1 ea.	4	_____
Scrip. application		
appropriate @ 1 ea.	4	_____
clearly expressed @ 1 ea.	4	_____
TOTAL	15	_____

Creating Assessment Keys

When I create an assessment key, I keep a few things in mind:

Layout: Presentation is important to me and becomes a requirement of every assignment. However, this is not something I grade in terms of details since some students are graphically gifted while others (like me) are somewhat challenged! This issue is not so much how wonderful an assignment looks, but whether or not the student made the same effort to bless me as I mark it, as I exert to bless him as I teach. Therefore, I allow only 1 point for layout/presentation. That way, a student who goes well beyond the expected standard of presentation does it for his own pleasure and not for higher marks. His extra effort still earns only 1 point and the fairly pedestrian effort of the graphically challenged can also earn 1 point.

Point Value: I've discovered that where there is room for subjectivity, subjectivity shows up! That means that if an answer is worth 5 points but there is no indication how those 5 points are to be earned, the marker scores it according to how he feels about it. Such subjective scoring can be affected by completely unrelated things such as whether or not our last encounter with the student was positive or negative, whether we are tired or fresh, hungry or satisfied, in a hurry or at ease, or if perhaps we have just marked someone else's work where the response was particularly poor or particularly excellent, making the current example look comparatively better or worse.

To counteract this natural tendency to score according to my mood, I don't use scores larger than 2 points, but I break the response into several small items I'm looking for. So this question: ***Giving at least 3 appropriate reasons, clearly explain why a DTS is a prerequisite for University of the Nations courses*** might have an assessment key like this:

Layout	1	___	
Explanation			
Clearly expressed	1	___	
Reasons			
Separate @ 1pt each	3	___	
Appropriate @1pt each	3	___	

TOTAL	8	___	(These 3-point scores are actually made up of three 1-pt responses)

It is immaterial what point total your key ends up with, so don't bother trying to make it fit some "normal" value like 10 or 25. To arrive at a percentage score, simply divide the score the student earns (e.g. **6.5**) by the possible score (in this case, **8**) giving a final grade of **81%**. If you prefer to work with a score out of 10, this score could be recorded as an **8**, rising to **8.5** for scores of **85%** or more.

(Con't...)

Creating Assessment Keys

(Con't)

Objectivity: One of the greatest benefits of using a clear assessment key as opposed to hit-and miss subjective marking, is that when the students receive their marked assignments, any argument about the marks given is addressed by the key and does not become a personal attack or debate with the marker. Students must always be free to challenge our assessment and without a key, we may well be bamboozled into giving more marks when they are not really justified. The key is both an instrument of justice and a clear guideline to the desired outcome. Often a student will assure us that he has actually included portions of an answer we have recorded as missing. His thinking may well move along different paths from ours and his answer may come shaped in a different order from the way we would respond. Let him show you where he has actually answered the question and be willing to adjust your scoring if necessary. However, if the answers really are not there despite the student's protests, don't give in! If the answer is simply hinted at but not expressed, don't give in!

Success: Another of the benefits of an assessment key is that a student can instantly see where his strengths are. Too often, an assignment that receives simply a B or a C or even an A-, gives no indication of which elements are excellent, which are good, and which are below the necessary standard. A poor score leaves a student feeling his entire work is below par. A score outlined in a good assessment key clearly shows which elements are acceptable and which need work. It focuses on the successes and shows how weak areas can be changed. Here's a student's key for the question on the previous page:

Layout	1	_1_ (<i>work is neat and well presented</i>)
Explanation		
Clearly expressed	1	_1_ (<i>no ambiguity, all ideas complete</i>)
Reasons		
Separate @ 1pt each	3	_2_ (<i>only 2 reasons given</i>)
Appropriate @1pt each	3	_1_ (<i>of 2 reasons, one was irrelevant</i>)
TOTAL	8	5

It is clear where the marks were lost and why, and for the next assignment it is likely that the student will make an effort to address the requirements of the question. My notes are for you - I don't put them on the student's key but on his paper.

For questions which allow for significant extra depth, breadth or quality, I often add a 1 or 2 point WOW! factor to an assessment key after the objective scoring. This is purely subjective, but allows me to honor extra effort or understanding. While 11 out of 10 will give an interesting and encouraging score, the final course score will not show anything higher than 100%. Assessment keys can guide, teach and bless - know what you want, show what you want, accurately assess what you see.

SOME RELEVANT READING

Adventures in Thinking	Joan Dalton	Nelson 1985
The Art of Creative Thinking	Robert Olson	Barnes and Noble 1978
Make the Most of Your Mind	Tony Buzan	Pan, 1977
Buzan's Book of Genius	Tony Buzan/ Raymond Keene	Stanley Paul, 1994
Thinking Visually	Robert H. McKim	Dale Seymour Pub. 1980
REA's Reasoning Builder	Research and Education Association, 1994	
A Whack on the Side of the Head	Roger von Oech	Harper Perennial 1986
A Kick in the Seat of the Pants	Roger von Oech	Warner Books, 1983, 1990
Techniques for Teaching Thinking	Arthur L. Costa/ Lawrence F. Lowrey	Midwest Pub. 1989
Think Like A Genius	Todd Siler	Bantam, 1996
Numerous Titles	Edward de Bono	Various
Many titles from Critical Thinking Press and Software		

Copies of *Teaching Well, Learning Well, Starting Well and Thinking Well* may be ordered from:

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