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# **CSOF MEDICAL MONOGRAPHS**

**TEACHING CREATIVE-THINKING SKILLS IN A CONFUCIST CONTEXT**

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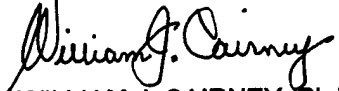
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**Creative thinking skills are crucial for the execution of many work responsibilities, especially so in medical work. The traditional approach to education in China has been teacher-centered, lecture-based and test-oriented. The result is that while students are able to memorize vast amounts of rote information and reproduce it for an examination, they are poorly prepared to deal with a myriad of challenges which come their way in the work place. In the training of maternal and child workers in rural north China, we have begun using quiz and discussion questions designed precisely to challenge their thought processes, with the desired goal of improving their ability to more creatively and actively deal with problems and questions which come their way in the carrying out of well baby work. Sample questions are provided and discussed.**

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## TEACHING CREATIVE-THINKING SKILLS IN A CONFUCIST CONTEXT

### ABSTRACT:

Creative thinking skills are crucial for the execution of many work responsibilities, especially so in medical work. The traditional approach to education in China has been teacher-centered, lecture-based and test-oriented. The result is that while students are able to memorize vast amounts of rote information and reproduce it for an examination, they are poorly prepared to deal with a myriad of challenges which come their way in the work place. In the training of maternal and child workers in rural north China, we have begun using quiz and discussion questions designed precisely to challenge their thought processes, with the desired goal of improving their ability to more creatively and actively deal with problems and questions which come their way in the carrying out of well baby work. Sample questions are provided and discussed.

### BACKGROUND:

Evergreen is an American Non-governmental Organization (NGO) which provides services and training in Shanxi Province, located in north China. We have been in operation five years, during which we have assembled a team of medical professionals who are providing medical training to working rural health care providers. The Medical Team is made up of four physicians and one program officer (the author), all from North America. We average five years' experience living in China, so culturally and language-wise, we are able to function smoothly here.

### THE LEARNING ENVIRONMENT:

Our focus is on training, and we are trying hard to incorporate principles of adult education in this training. There are three primary contexts in which we train. First, the Cobbler Program -- a three-month upgrade course for young Township Health Centre clinicians. These clinicians have a junior high education, followed by three years of training in basic medicine in the Public Health School. They average 25 years of age and three years of experience working in the clinic. Second is an ongoing program of in-service training for the 79 workers who carry out the Well Baby program which we support. These workers range in age from 25 to 49 (most around 40), and in most cases lack formal medical training. However, most have served as village doctors since in their late teens, so they have extensive clinical experience. Third is teacher training which we hold for the local doctors who teach in the Cobbler Program. In each of these training settings, we strive to offer training which has the following distinctives.

- Clinical
- Problem-based
- Practical
- Hands-on learning
- Community-based
- Dynamic and flexible
- Within the existing Chinese system.
- Critical and committed to effectiveness
- Modeling
- Emphasis on communication success

While these distinctives have helped us conduct successful training in several varied contexts, an enduring source of frustration is that many of these distinctives, and adult education principles in general, are predicated on a degree of self-motivation, creativity, enthusiasm, cooperation and

personal responsibility. At this time in history, China has the unique combination of a Confucist foundation, coupled with fifty years of communism.

While placing a high priority on education, Confucianism (the cultural standard across much of Asia) is limited in its ability to foster an education system which produces individuals who possess useful knowledge, dynamic thinking, and excellent problem-solving abilities.

Confucianism is entirely hierarchical. The teacher is the authority and she or he is always right. The student is meant to pay obeisance to the teacher, keep quiet, and respect and master what the teacher says, even if it is wrong. There is a high priority on rote memorization and test-taking. Creative thinking and problem-solving skills not only go un-rewarded, they may be punished. While westerners have the credo, "The early bird gets the worm," Chinese have the expression, "The bird who sticks his head out first is the one who gets it shot off!" Anyone who has taught in China will agree that Chinese learners are reluctant to take initiative in their learning and must be laboriously trained to participate in discussion- or group-activities.

As John Saari's study<sup>1</sup> of upper-class childhood in the late nineteenth century shows, the training of youth was training in obedience above all and this training philosophy has changed little since then. To determine common Chinese people's attitudes about education, I did a simple exercise. I presented people with a cartoon showing a classroom with a teacher waving a stick in the air, lecturing to a group of students. The teacher was caricatured as one large mouth, and the students caricatured as oversized ears. When I presented the cartoon to people for assessment, I said, "What does this cartoon say about a problem in education?" Many Chinese people immediately replied, "It shows that students should listen better. Their role is to listen and the teacher's role is to lecture." Some people, especially more educated people and teachers, recognized that the cartoon was pointing out the problem of excessive teacher-centered, lecture-based teaching; however, younger people, less educated people and also students consistently found the cartoon to be indicting them for being poor listeners and poor students. This shows how heavily ingrained this teaching approach is in the people's psyche. I do not mean at all to question the intelligence or motivation of Chinese learners. Most Chinese people place a high premium on education and will make any sacrifice to achieve a good education -- more than can be said of many westerners for whom a good education is accessible and affordable. This is most admirable. This is also not to discard the Chinese educational system as a failure. In fact, western schools have much to learn from the Chinese as western educators struggle to educate young people, particularly in math, history and science. However, the Confucist-based Chinese method of education is limited in its ability to produce creative, useful (realistic), flexible young minds. In a highly predictable and structured environment, they can succeed; however, they cannot survive in the rough and tumble real world, with rapid change, and multi-faceted demands coming daily upon them. This is the world which is rapidly encroaching upon them, and which the Chinese themselves welcome, but which they are poorly prepared for.

The second reality in China which has profoundly shaped the thinking of the Chinese people is communism, a system in place for fifty years. While communist leaders in China have established a relatively complete social system with regard to education and health care, communism in China has also promoted several unique concepts -- unrivalled authority (totalitarianism), party propaganda (as opposed to socially agreed-upon truth), strict thought policies (atheism, Marxism, and socialism), the party policy of struggle amongst each other so as to arrive at the truth (as opposed to arriving at the truth by cooperation), and many others. The impact of these concepts on the educational system are obvious. China is lessening the extensive control which they once exerted over people's lives, and is opening up to other influences, but the impact of the first forty years of strict communist rule cannot be overstated, and is only very slowly being reformed.

So you can see, communism on its own terms is rigid enough, but when coupled with the hierarchical Confucist system, the two create a kind of petrified forest. Not only do these systems not promote creativity, problem-solving ability, initiative, self-responsibility and the like, they often punish them. So while the Chinese people we train have good work habits, are disciplined students, know how to study and take tests, seldom cause problems for the teacher and hesitate to miss class, they are severely lacking in some of the most important skills a medical worker can have – creativity, thinking on one's feet, adapting what one knows to a new situation, recognizing a rational process, taking initiative to solve health problems one sees, distinguishing facts from opinions and recognizing rationale for one's activities. It is within this milieu that we carry out our training work.

### **TEACHING CREATIVE THINKING SKILLS:**

Aware of the seriousness of the problem of lack of creativity and problem-solving skills, and at the common request of Chinese medical teachers to help them make their teaching more successful at training students to think creatively and independently, I began a project to specifically teach creative thinking and problem-solving skills. I did this by creating a series of questions for our Well Baby Workers, which would accomplish the multiple purposes of highlighting the core purposes of the Well Baby Program, testing their knowledge and skill level in the areas of concern to us, AND most importantly, forcing them to use creative and independent thinking skills in order to complete the questions. In other words, I didn't tell them that I was now teaching them problem-solving skills or creative thinking, I just did it.

The questions were created under several categories, each category designed to teach one type of problem-solving skill or creative approach to problems. Below are the categories along with sample questions.

#### **Distinguishing facts and opinions**

*In China, the basis of authority is often not expertise so much as position or age. Also, students or patients are not expected to question what their superiors say. Consequently, people in authority can say almost anything they want and it will seldom be questioned. This has created the bad habit of people casually stating opinions with great authority without realizing that what they are saying has no basis in fact. To challenge this habit, the following questions make them aware of the difference between facts and opinions.*

Beside each statement write Fact (F) or Opinion (O)

- Because there are only three babies in that village and it is far away, it is more important to go to the nearby village which has six babies.
- Because the parents have not given the child a residence card, it is not necessary for us to care for the child.
- Baobao's temperature is 39.6 degrees Celsius. He has a fever.
- Children should stay inside until they are 100 days old or they might get sick.
- If a child's diarrhea can be treated without the use of medicines, it should be.

#### **Logic of actions**

*This series of questions are designed to highlight the necessity of acting on the basis of a logical thought-out decision, not by impulse or habit. They also illustrate the importance of thinking*

*through the ultimate consequences of a decision or action, not being absolved of responsibility for the outcome simply once it is said or done. We are responsible for the end result as well.*

1. If a mother is not raising her child in a healthy and successful way, we should support and encourage her because \_\_\_\_\_.
  - A. She can't do any better; the child is most likely going to be unhealthy anyway.
  - B. People are more likely to change their behavior if you gently help them.
  - C. What she is doing is not wrong.
2. Baoling was 2300 gm at birth, and now at 4 days is jaundiced, so we should \_\_\_\_\_.
  - A. Explain to the parents how to treat jaundice.
  - B. Write Baoling's name in our at-risk children notebook.
3. Oral rehydration therapy is the best for children with diarrhea because \_\_\_\_\_.
  - A. It is cheaper than an injection.
  - B. It prevents dehydration while providing some nutrition.
  - C. It is easy to prepare.

### Recognizing a rational process

*These questions challenge the thinking process which goes into a decision. It isn't enough to act correctly, one must also act correctly for the right reasons or it will be difficult to do the right thing in a consistent manner. Most of these questions have more than one answer. The important thing is whether the students can adequately explain their answer. This also shows that with many things in life, there is more than one way of doing things. What is important is that one do things in a consistently rational manner. For example, in question 2 below, most students complete it "...the child is healed." When I ask why, they answer, "Because we told the mother how to care for the child." "But what if the mother didn't obey your orders?", I challenge them. Consistently, they all go "Ahhh," for the first time thinking about the possibility that a patient might not do what they say. Then we talk about how to maximize the likelihood that the mother will obey: she needs to understand the problem, she needs to know how to deal with it, etc. On question 5, many students are inclined to answer D. This reflects China's history of a centralized socialist government, where people are expected to wait around for the government to give orders and then carry them out. But in this way the work is only done to please the government, and when they are not looking the system will break down. This is exactly what is happening in rural health care in China in the 1990's. The correct answer should be C, but few students are initially able to provide this answer on their own. It shows how little thought they put into understanding the real purpose for their work.*

1. When you do a home visit for Well Baby work, what order do you do each of the various parts in? Order the following from first to last.  
Parent education          Weigh the child  
Physical exam
2. You find a child with rickets. You tell the mother the child should take 1 gm calcium and 2 drops of vitamin A, D every day. You return in two months to find . . .
3. [On the growth chart, show the child to be healthy up to age 4 months.]  
This is a girl's growth chart to age 18 months, complete the chart based on the following information.



CHILD'S AGE	EVENT
6 months	Child's mother is hospitalized for two weeks with pneumonia
8 months	Child catches mild cold
9 months	Chinese New Year is celebrated
13 months	Family begins raising chickens in the yard. Chickens lay eggs. Child comes down with diarrhea.
14 months	Child is weaned
16 months	Child weighs 8.4 kg and stands 74 cm tall

4. Order the following from first to last.
- (a) Child loses weight.    Doctor visits child's home.  
       Parents feed their child good food.                                  Father loses his job.
- (b) Child is not exposed to the sun.                                  Child's bones cannot absorb calcium  
       Child is born.    Child's leg bones become bent
- (c) Child's weight is fine but has rickets.  
       Doctor sells mother calcium, and vitamin A,D supplements and tells her how to use it.  
       Mother tries to give calcium and vitamin A,D to child but child won't take it.  
       Child is healthy and happy.
5. In the Well Baby Program we focus more attention on the at-risk children than on the healthy children because \_\_\_\_\_.
- a) Healthy children don't need our attention.  
 b) At-risk children are more important than healthy children.  
 c) The overall benefits to the population will be greater if energy is expended helping at-risk children than if the same energy was expended helping healthy children.  
 d) The government is responsible for caring for at-risk children.

#### What will happen next?

*These questions emphasize cause and effect. Things happen because of a cause, not because of fate or bad luck. Likewise, we have the power to control to some extent what the effect will be by thinking carefully about the cause or the factors which we can now influence. This is to promote an active, positive approach to life and to situations one faces.*

1. Mother has a bad cold. When her child finishes eating, she takes out her own handkerchief and wipes the child's mouth. What will happen next?
2. The family buys two small pigs. In the evenings, the pigs are allowed to run free in the courtyard. In the morning their 3 year old child eats breakfast in the courtyard. What will happen next?
- a) The pigs will have enough food to eat because the child drops some.  
 b) The child will develop diarrhea.  
 c) The pigs will become good pets for the child.  
 d) One of the pigs will bite the child in the leg and harm her.

## Abstract versus concrete thinking

*The health workers we work with often speak to patients and parents in abstract statements. Consequently, it is difficult for the patient to understand what has been said, and even more difficult for the patient to take appropriate action to deal with the problem. Having not been told clearly and concretely what to do, they feel frustrated. Often they feel they don't understand because they are too stupid, not realizing that the speaker never spoke to them in concrete enough terms to be of benefit to them. I believe the health workers speak in abstractions in part because they lack the confidence and skill to say exactly what the problem is and what needs to be done. Regardless, they are responsible to speak to the patient in terms which are understandable and beneficial. For example, telling the mother, "Your child is not healthy," is of limited value to the mother. She needs to know what health problems her child has and what can be done to address them. These questions are designed to address this problem.*

Which of the following statements are concrete and which are abstract?

- Your child needs to eat better.
- 17% of our children have one or more at-risk factors, and each of these children has had at least one follow-up exam.
- Your child is not healthy.
- You should feed your child soft foods like noodles, apples etc. beginning at age 5 months.
- From birth, you should wash your child every day or every other day.
- This child is filthy. He shouldn't be so dirty.

## Inferring

*Information is not always offered to us in clear and concrete form. We are often expected to infer what the situation is based on partial information,. This is especially so in clinical medicine where doctors seldom have complete and irrefutable information. These questions challenge the students to consider the fundamental problem in a given situation based on incomplete information.*

3. Write Yes if it is true, and No if it is not necessarily true.

- Testing hemoglobin on children is good for their health.
- Children who are not exposed to sunlight in infancy may develop rickets.
- Recording an at-risk child's name in the at-risk notebook will make his health improve.

4. The pregnant mother doesn't eat eggs, meat or vegetables. They are a poor family. Her child is 2 kg at birth. She has no breast milk for the child. At age 1 and a half months, the child weighs 2.5 kb. At the same time the mother has sores in her mouth. What is the problem here?

- The family is too poor.
- The mother is not intelligent enough.
- The mother doesn't have the nutrition to support the child
- This family has poor genetics.

## Science and traditional customs

*Many customs have a rational basis and should be respected, but many other customs have no scientific basis and in fact are harmful to good health. It is especially important for health workers to distinguish which customs or traditions have a basis in scientific fact, and which have no scientific basis and in fact are harmful to health. The questions below are designed to challenge students' thinking about which traditions are in the best interest of good health, and which are harmful; furthermore, they are to decide for themselves what the people in their community are to do about the customs which have no scientific basis. When I teach this information in lecture format, the students feel attacked and are not open to accepting it. When done in this quiz and discussion format, they are not only open, but actively discuss what would be the scientifically correct thing to do.*

Below are listed some traditional ideas about health and disease. Write out the scientific concept related to it.

### Tradition or custom

### Science and modern medicine

- Children with diarrhea should be put on IV antibiotics.
- Drinking lots of water is good for your health.
- Injected antibiotics are better than oral because they work faster and better.
- New mothers and their infants should not bathe for 100 days.
- New mothers should only drink millet soup and not eat vegetables, fruit or meat.
- Before 3 months of age, don't allow the infant to roll around and play freely, keep them lying straight in bed

### RESULTS:

In using these questions in training, I have found them to stimulate discussion like nothing I have done before. The way the questions are asked and the process required to answer them stimulates the students to active mental activity. Because many of the questions leave open the possibility of several answers, students are forced to explain and justify the thinking process they used to arrive at their conclusions. This demonstrates that behind behavior and ideas are rational processes that determine them. If you can learn to think rationally, systematically, and creatively, and not just intuitively, or habitually, then you have the basic skills you need to deal with any problem you meet -- precisely the goal of this exercise.

Dr. Peng is a 56 year old pediatrician who has been the Chinese director for our Well Baby program for over a year. I have discussed parent education with him at length, but I had never felt we were in complete agreement about how to best do it. Only after doing these quiz questions the first time did he really understand our rationale regarding parent education. The Chinese usually think of parent education as a propaganda session where our purpose is to tell the parents some new stock piece of information or promote some new government policy. I have argued all along that what we tell the parents depends on what we observe when we see their child, what the needs of the parents are, and what the parents' level of comprehension is. When the issue was presented in terms of a quiz question for discussion (see above, Rational process, question 1), the

rationale for our style of parent education became crystal clear to Dr. Peng. Now when we do these quiz questions with Well Baby workers, he waits anxiously for that question to come around so he can explain to our workers why we do parent education last. He has been transformed!

As Fairbank has pointed out, it is very difficult to transition from the Confucian world view to a western educational system<sup>2</sup> so we do not impose this approach upon the students without consideration of their psychological preparedness and willingness to receive it, but rather as a component of our overall strategy to train up creative, skillful rural health care practitioners, we see this training as indispensable. It is still too early to assess whether this activity ultimately translates into more creative, more successful work in the clinical setting. But from what we observe and from what students say, at a Minimum it is cutting lose their minds, to some degree, to be open to many different possibilities, and to feel motivated to think about what they do and why they do it. I intend to continue to use these questions for the next year and a half as our Well Baby Program continues. Hopefully I will see a change in the way well baby care is carried out. Most likely, it will take years before profound change can be seen, especially among the younger ones who have the most potential for change.

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**Correct Answers:**

Facts and Opinions 1. O, O, F, O, F

Logic of actions 1. B, 2. A, 3. B

Rational process 1. 3-1-2  
6. If she took your advice the child will be health. If not, the child's condition will not have changed.  
7. Answers vary  
8. (1) 2-3-4-1 (answer top left to right, bottom left to right)  
(2) 2-3-1-4  
(3) 4-2-3-1  
9. C

Happen next 1. The child will catch cold.  
2. B

Abstract vs. Conc. 1. A,C,A,C,C,A

Inferring 1. N,Y,N  
2. C

Science vs tradition Only the second item is true as is. The others all have scientifically correct answers.

**ENDNOTES:**

Jon Saari, Legacies of Childhood: Growing up Chinese in a Time of Crisis, 1890-1920 (Council on East Asian Studies, Harvard, U., 1990)

John King Fairbank, China: A New History (The Belknap Press of Harvard University Press, Cambridge, MAss., 1992), p. 264