The Secret to Inspiring
Brain Power in Children

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The Story of a Child Prodigy
in Mental Arithmetic

The Secret to Inspiring Brain Power in Children

Tai Chiang Ching, Chang Kuo Chuan, Chang Chao Ling

Preface 1

Abacus calculation is more than a "tool." It is a "toy!"

With the popularization of calculators in recent years, the "calculating" function of abacuses is no longer of much importance. However, since the discovery of its "educational" function, abacuses have become more than traditional "calculating tools," they have become "teaching tools" and "toys" for children.

Thus, abacus calculation has now been given a new mission—to make our next generation smarter and sharper. In China, Japan and Korea, children have started learning abacus calculation at pre-school ages, and education performance has steadily improved increasingly, expand-

ing to the Americas and South East Asia. According to the latest records published by the Ministry of the Interior of the Republic of China, the number of people who learn abacus and mental calculation rank highest among various talents and skills, evidence that children's abacus and mental arithmetic education is widely accepted in Taiwan.

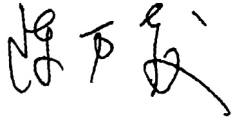
To carry forward the quintessence of Chinese culture, the Association of Children's Abacus Calculation has been actively holding nationwide and local children's abacus and mental arithmetic teachers' seminars over the past six years and commissioning the National Changhua University of Education to conduct academic research on abacus and mental arithmetic education. The association hopes to play its part by hosting meaningful events to contribute to public welfare , as well as pass down the historic inheritance of abacus calculation, which in turn will further increase its

popularity so that learning abacus and mental arithmetic become trends in inspirational education for children of the future. Promoting abacus and mental arithmetic in such ways will do more justice to the historic significance of the abacus.

It is great news that the association's committee member Master Tai Chiang Ching is publishing a book explaining the function of abacus and mental arithmetic in inspiring intelligence in children based on Su Wan Ting's story in learning abacus and mental calculation. This is the first book on the market about a child's learning process in abacus and mental calculation. The contents are vivid and easy to read, making the book worth reading for parents, students and abacus and mental arithmetic teachers. I believe that the publishing of this book will once again push the trend of learning abacus and mental calculation for children.

First Director, Association of Children's
Abacus Calculation in Taiwan

Chen Wan Fa



Preface 2

Abacus calculation inspires intelligence in children Mental calculation stimulates potential in children

I've been teaching abacus and mental arithmetic for nearly 20 years. Many friends, relatives and parents of students have asked me, "What exactly are the benefits of learning abacus and mental arithmetic?" And I have usually replied, "Abacus calculation inspires intelligence in children. Mental calculation stimulates potential in children. Through learning abacus and mental arithmetic your child will be using their hands and brain at the same time and naturally become smarter and more intelligent and a

cut above the rest."

The heroine of the book, Su Wan Ting, is one of my most accomplished students; she is also one of the "experiment seeds" in my first class where students were taught the "Two-handed Method" to manipulate abacus bead, a method which I have been promoting for many years. Her outstanding performance and astonishing accomplishments have not only brought me comfort and joy, but have also proved the unique effectiveness of the "two-handed method." Su Want Ting currently attends Tainan Municipal Dong-guang Elementary School and is in the sixth grade. When she was in the fourth grade, she passed level ten in the abacus and mental calculation exams, and in the fifth grade, she received special honors by passing the level fourteen exam twice, which is not only the highest existing level in Taiwan, but also one that had previously never

been achieved.

Perhaps some wonder whether Su Wan Ting simply excels in certain areas or if she is a born genius, in order to have achieved what she has today. However, that is not the case. Having observed her over the years as her abacus and mental arithmetic teacher, I've noticed neither a difference in Su Wan Ting's intelligence in comparison with other children nor possession of a special gift. Her achievements are mainly due to the influence of exposure to abacus and mental arithmetic, which has given her an exceptional ability Consequently, after reading this book, you will not only learn about Su Wan Ting's journey in learning abacus and mental arithmetic, but also understand my phrase, "Abacus calculation inspires intelligence in children. Mental calculation stimulates potential in children."

It's worth mentioning that besides Su Wan Ting's own

interest in learning, her mother's active assistance and encouragement were also key factors that made Su Wan Ting the top "mental arithmetic child prodigy" in Taiwan. Su's mother, Mrs. Chen Hua Dan, accompanied Su Wan Ting to abacus and mental arithmetic classes from the time Su was in kindergarten. In addition, she practiced with Su for more than an hour everyday at home. Over the years, she has kept it going. Her spirit is worthy of admiration, yet Mrs. Su disapproves, saying "It is my wish and responsibility to keep my child company while she grows and give her all my time and love." Without a doubt, Mrs. Su's patience, care and effort are the biggest contributors to Su Wan Ting's achievements.

Parents expect their children to be successful, but many parents believe that all they have to do is to hand over their children to teachers in talent classes . In reality,

this concept is incorrect because parents also play a critical role in a child's learning process. It is only with your encouragement and assistance that your child will be able to learn faster and better.

By reading this book, I believe more parents will discover the multiple values and functions of abacus and mental arithmetic and in turn attract more children to learn the practical and fun "two-handed method" for manipulating abacus beads, as well as mental arithmetic skills.

Lastly, I hope that Su Wan Ting can surpass herself and take on the challenge to win the world championship and bring honor to Taiwan.

Committee Member, Association of Children's Abacus Calculation in Taiwan

Founder, CMA Mental Arithmetic

Tai Chiang Ching

戴江慶

Preface 3

The people I want to thank Wan Ting's mother—Chen Hua Dan

It has been six years since we hopped on the abacus and mental arithmetic train. I never thought Wan Ting would have the opportunity to be in a book. To be blessed with this honor, I have Wan Ting's teacher Master Tai to thank, and also Nan Ying Vocation High School of Business & Technology's abacus calculation teacher Chen Tsung Ping and my good friend Su Cheng Hui.

On December 29, 1996, they entered Wan Ting in the intercontinental abacus calculation competition hosted by the Chinese Utility Abacus Research Society, giving Wan

Ting the opportunity to compete. With contestants from nearly 10 countries competing against each other, Wan Ting was lucky enough to win the highest honor. The live media report caught the attention of the publishing company, thus enabling Su Wan Ting to become the heroine of this book.

Along the way, I also have to thank Huang Yueh Chu—head teacher at Yonghe City Yongfu Mental and Abacus Arithmetic Cram School. She is just and loyal, and although she is small, she has great ambitions and hosts great competitions; small as the sparrow is, it still possesses all the valuable parts. Her motto is to "be impartial," and she gives less advanced students equal opportunities for participation and learning. Her unique perspective and open mind were evident to all at the Asia-Pacific Cup and Yonghe Mayor Cup. Besides thanking Master Huang for

helping Wan Ting, I also hope that the Asia-Pacific Cup becomes world-renowned.

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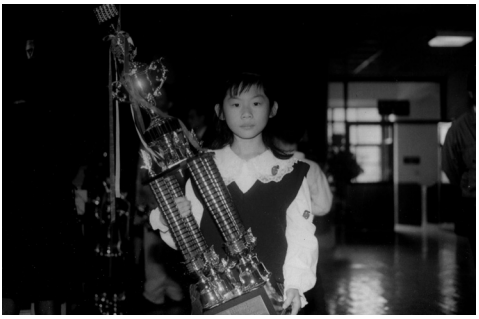
Su Wan Ting Mini Profile

Nationality:
Tainan City, Taiwan
Birthday: August 8, 1986
Astrological sign: Leo
Hobby: reading
Talents:
abacus and mental arithmetic, piano
Favorite subject: math
School: currently enrolled in the sixth grade at Tainan Municipal Dong-guang Elementary School
Awards and accomplishments: passed: passed level 10 in abacus and mental calculation; passed special exam level 14 in mental calculation, the highest record in Taiwan so far.

Master Tai, founder of CMA and the Two-Hand System

Su Wan Ting with Ministry of the Interior Official Wu Wen Liang (second from left), Director of the Association of Children's Abacus Calculation in Taiwan Chen Wan Fa (left), Vice Director Wu Wen Hsiung (right), guidance teacher Tai Chiang Ching (second from right).
(provided by Su Wan Ting)

Su Wan Ting has a houseful of trophies . (provided by Su Wan Ting)



Su Wan Ting's award cups keep getting taller. (provided by Su Wan Ting)

Su Wan Ting passes level 10 in the second grade and receives a bicycle from Master Tai. (provided by Su Wan Ting)

Su Wan Ting and Lin Tzu Yin are Master Tai's constant winners. (provided by Su Wan Ting)

Lin Tzu Yin (right) and Su Wan Ting (left) are Master Tai Chiang Ching's most outstanding pupils.

Master Tai Chiang Ching with Mrs Su, Wan Ting and Hsiang Wen. (photographed by Chang Kuo Chuan)

"We are the world's best mental arithmetic experts!" (photographed by Chang Kuo Chuan)

Teachers attending the training seminar for using the Two-Hand System at CMA (provided by Tai Chiang Ching)

Elementary school is the best time to start learning abacus and mental arithmetic (photographed by Chang Kuo Chuan)

Growing with your kids makes the parent-child relationship more fulfilling. (photographed by Chang Kuo Chuan)

Pupils during meditation training in mental arithmetic class.

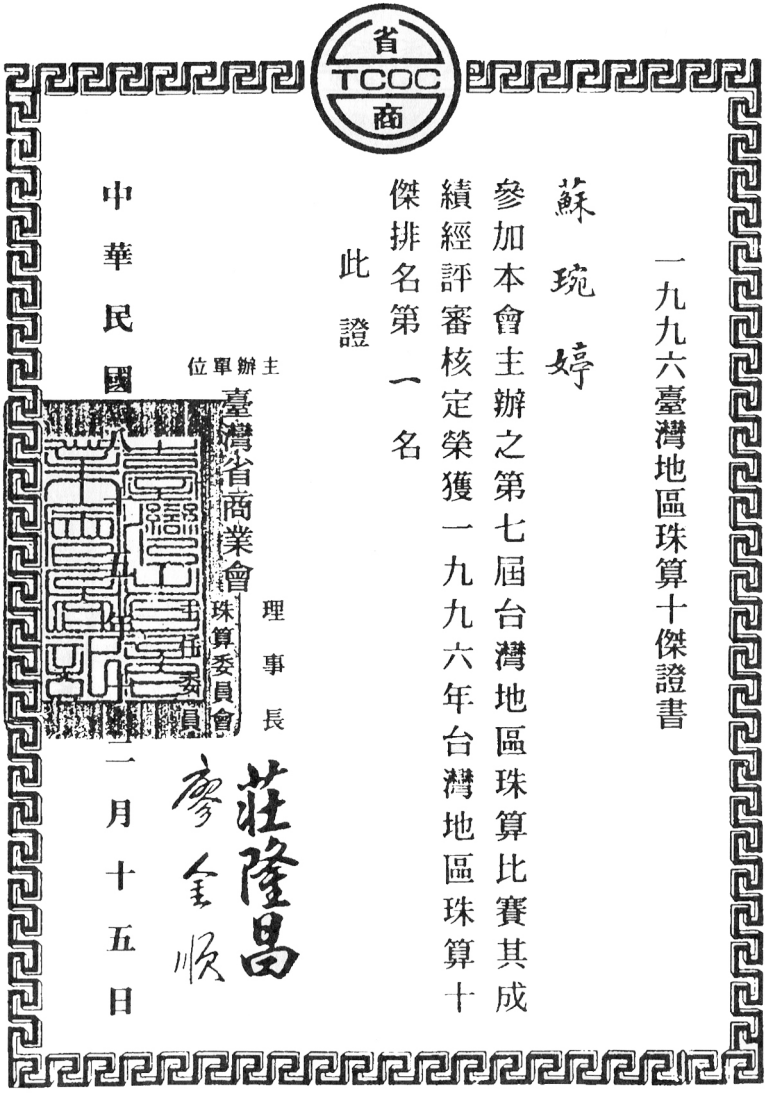
Master Tai has cultivated quite a few outstanding abacus and mental arithmetic individuals. (provided by Tai Chiang Ching)

中華珠算學術研究學會
珠算測驗合格證書

蘇 琬 婷
生於民國75年8月8日
參加
第一屆第三次全國珠算測驗國手級
~~珠算　段合格~~
心算 十四 段合格

理事長 李 錫 津

中華民國八十三年 九月廿八日
證書字第 001011 號



一九九六臺灣地區珠算十傑證書

蘇琬婷

參加本會主辦之第七屆台灣地區珠算比賽其成績經評審核定榮獲一九九六年台灣地區珠算十傑排名第一名

此證

主辦單位 臺灣省商業會 珠算委員會

理事長 莊隆昌

中華民國八十五年一月十五日

台灣省商業會珠算能力證書

查 蘇 琬 婷

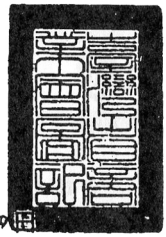
七十五年八月八日生參加本會舉辦之台灣地區商業計算人才能力測試經評定為特等商業計算人才符合國際珠算鑑定標準特發給

珠心算 十十 段能力證書

理 事 長 莊隆昌

珠算委員會主任委員 廖金收

中華民國八十五年 十一 月 二十四日



ABACUS ABILITY CERTIFICATE

THE TAIWAN CHAMBER OF COMMERCE HEREBY CERTIFIES THAT THE ABOVE MENTIONED PERSON HAS SUCCESSFULLY PASSED THE ABACUS TEST AND HAS SATISFIED THE REQUIREMENTS OF THE INTERNATIONAL ABACUS STANDARDS.

Chung Jung Chang
CHAIRMAN

Liao Chin Shou
CHIEF OF ABACUS COMMITTEE

心算特殊段位測驗合格證書

學生 蘇琬婷

民國七十五年八月八日出生參加
本協會主辦第七屆全國心算特殊
段位能力測驗 拾肆 段合格
此證

中華民國兒童珠算協會
理事長 陳萬發

中華民國 十一月 十二日

To: _____ Date of birth: _____

This is to certify that the above-mentioned person has successfully passed the _____ grade in the license examination of mental arithmetic skills which is sponsored by the Children's Abacus Calculation Association of the R.O.C., (CACA), licensed under both the Ministry of Education and the Ministry of the Interior.

President : Chan Wan-fa

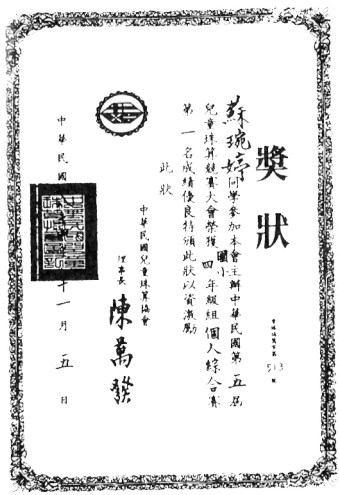

獎狀

蘇琬婷同學參加本會主辦中華民國第四屆兒童珠算競賽大會榮獲三年級組個人綜合賽第一名成績優良特頒此狀以資激勵

此狀

中華民國兒童珠算協會 理事長 陳萬發

中華民國 十一 月 十三 日


獎狀

蘇琬婷同學參加本會主辦中華民國第五屆兒童珠算競賽大會榮獲四年級組個人綜合賽第一名成績優良特頒此狀以資激勵

此狀

中華民國兒童珠算協會 理事長 陳萬發

中華民國 十一 月 五 日

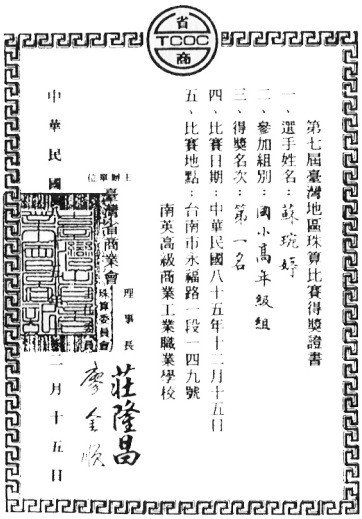

獎狀

蘇琬婷同學參加本會主辦中華民國第六屆兒童珠算競賽大會榮獲國小五年級組綜合賽第壹名成績優良特頒此狀以資激勵

此狀

中華民國兒童珠算協會 理事長 陳萬發

中華民國 十一 月 十二 日


第七屆臺灣地區珠算比賽得獎證書

一、選手姓名：蘇琬婷

二、參加組別：國小高年級組

三、得獎名次：第一名

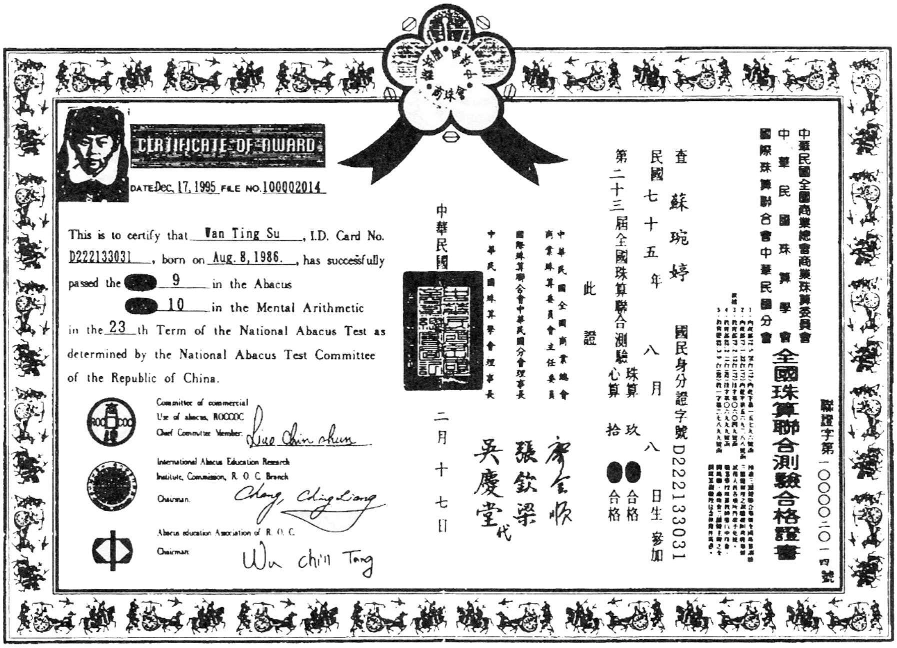
四、比賽日期：中華民國八十五年十二月十五日

五、比賽地點：台南市永福路一段一四九號

南英高級商業工業職業學校

主辦單位 台灣區商業會珠算委員會 理事長 莊隆昌

中華民國 一月 十五 日



CERTIFICATE OF AWARD

DATE Dec. 17, 1995 FILE NO. 100002014

This is to certify that Wan Ting Su, I.D. Card No. D222133031, born on Aug. 8, 1986., has successfully passed the [redacted] 9 in the Abacus [redacted] 10 in the Mental Arithmetic in the 23th Term of the National Abacus Test as determined by the National Abacus Test Committee of the Republic of China.

Committee of commercial Use of abacus, ROCCOC
Chief Committee Member: Liao Chin-shun

International Abacus Education Research Institute, Commission, R. O. C. Branch
Chairman: Chang, Ching-Liang

Abacus education Association of R. O. C.
Chairman: Wu chi'll Tang

全國珠算聯合測驗合格證書

聯證字第一〇〇〇〇二〇一四號

查 蘇琬婷 民國七十五年八月八日生 參加 國民身分證字號D222133031 第二十三屆全國珠算聯合測驗 珠算玖 心算拾 [redacted] 合格 合格

此證

中華民國全國商業總會商業珠算委員會主任委員 廖金順
國際珠算聯合會中華民國分會理事長 張欽梁
中華民國珠算學會理事長 吳慶堂 代

中華民國 二月十七日

合格證書

姓名：蘇琬婷 民國七五年八月八日出生

參加本會第九屆全國珠算能力測驗

珠算 玖段 心算 拾段 合格

特此證明（これを證明す）

社團法人 中華實用珠算研究學會

會長 江義雄

中華民國 五月五日

台南市政府獎狀

一、優勝單位及姓名：東光國小 蘇琬婷
二、活動名稱：八十四學年度台南市國民中、小學學生珠算比賽
三、參加項目：國小組
四、組別：個人綜合賽
經評定成績第一名
合給獎狀以資鼓勵

此狀

市長 施治明

中華民國 五月 日

Su Wan Ting's abacus and mental arithmetic scores from level tests and competitions

Grade	Date			Competition/Test name and grade
Kindergarten	1991	09	20	Started learning abacus and mental arithmetic
First grade	1992	09	20	Passed level two of the third test of mental calculation held by the Association of Children's Abacus Calculation
	1992	12	13	Passed level six of the 17th test of mental calculation held by Three Joint Society
	1993	01	10	Placed second in the third Fu Cheng Cup 531 mental calculation competition (first grader group)
	1993	03	14	Passed level six of the fifth test of mental calculation held by the Association of Children's Abacus Calculation
	1993	04	25	Placed third in the fifth national mental calculation competition held by the Association of Children's Abacus Calculation

First grade	1993	05	02	Passed level nine of the third test of mental calculation held by the Utility Abacus Society
	1993	06	06	Passed level nine of the sixth test of mental calculation held by the Association of Children's Abacus Calculation
Second Grade	1993	09	19	Passed level nine of the seventh test of mental calculation held by the Association of Children's Abacus Calculation
	1993	10	24	Placed first in the fourth Fu Cheng Cup 531 mental calculation competition (first grader group)
	1993	10	25	Placed fourth in the Autumn 1993 national mental calculation competition (first and second grader group)
	1993	11	14	Passed level ten of the grade two mental calculation test held by the Abacus Association of the TCOC
	1993	12	05	Passed level nine of the eighth test of mental calculation held by the Association of Children's Abacus Calculation

Second Grade	1994	02	20	Placed second in the second international competition of mental calculation (wild card group)
	1993	12	12	Passed level nine of the fourth test of mental calculation held by Utility Abacus Society
	1993	12	19	Passed level ten of the nineteenth test of mental calculation held by Three Joint abacus society
	1994	01	09	Placed second in the second Yong He City Mayor Cup mental calculation competition (first and second grader group)
	1994	02	27	Placed first in the Yunchianan Region Children's Cup (second grader group)
	1994	03	20	Passed first level in the ninth test of abacus calculation held by the Association of Children's Abacus Calculation
	1994	03	27	Placed first in the fifth Fu Cheng Cup 531 mental calculation competition (second grader group)

Second Grade	1994	04	17	Placed third in the Spring 1994 national abacus competition (combined competition for individuals)
	1994	05	15	Passed level five in abacus calculation and level ten in mental calculation in the twentieth test held by Three Joint Society
	1994	08	27	Passed level five in abacus calculation and level ten in mental calculation test held by the Abacus Association of the TCOC
Third Grade	1994	02	27	Placed first in the Yunchianan Region Children's Cup (second grader group)
	1994	03	20	Passed first level in the ninth test of abacus calculation held by the Association of Children's Abacus Calculation
	1994	03	27	Placed first in the fifth Fu Cheng Cup 531 mental calculation competition (second grader group)
	1994	04	17	Placed third in the Spring 1994 national abacus competition (combined competition for individuals)

Third Grade	1994	05	15	Passed level five in abacus calculation and level ten in mental calculation in the twentieth test held by Three Joint Society
	1994	08	27	Passed level five in abacus calculation and level ten in mental calculation test held by the Abacus Association of the TCOC
	1994	12	11	Passed level ten in the twelfth test of mental calculation held by the Association of Children's Abacus Calculation
	1994	12	25	Passed level four in abacus calculation and level ten in mental calculation in the twenty-first test held by Three Joint Society
	1995	04	23	Placed first in the sixth Fu Cheng Cup 531 mental calculation competition (third grader group)
	1995	04	30	Placed first in the seventh national children's mental calculation competition (third grader group)

Third Grade	1995	05	07	Passed level eight in abacus calculation and level ten in mental calculation in the seventh test held by the Utility Abacus Society
	1995	05	21	Passed level eight in abacus calculation and level ten in mental calculation in the twenty-second test held by Three Joint Society
	1995	05	28	Placed second in the 1994 abacus competition for junior high and elementary school students (elementary group)
	1995	07	16	Placed first in the first Taiwan Provincial Assembly Cup's test of abacus and mental calculation (third grader group)
	1995	07	30	Placed second in the eleventh Kui Sung Cup national test of abacus and mental calculation
	1995	08	13	Placed third in the regional contest in Taiwan of the fifth junior abacus tournament between China and Taiwan

Fourth Grade	1995	11	05	Passed level thirteen in the fifth national special level test of mental calculation held by the Association of Children's Abacus Calculation
	1995	12	10	Passed level eight in abacus calculation and level ten in mental calculation in the test held by TCOC.
	1995	12	17	Passed level nine in abacus calculation and level ten in mental calculation in the twenty-third test held by Three Joint Society
	1996	03	17	Passed level eight abacus calculation the seventeenth test held by the Association of Children's Abacus Calculation
	1996	04	28	Passed level nine in mental calculation and level ten in mental calculation in the twenty-fourth test held by Three Joint Society
	1996	05	05	Passed level eight in abacus calculation and level ten in mental calculation in the ninth test of abacus calculation held by the Utility Abacus Society

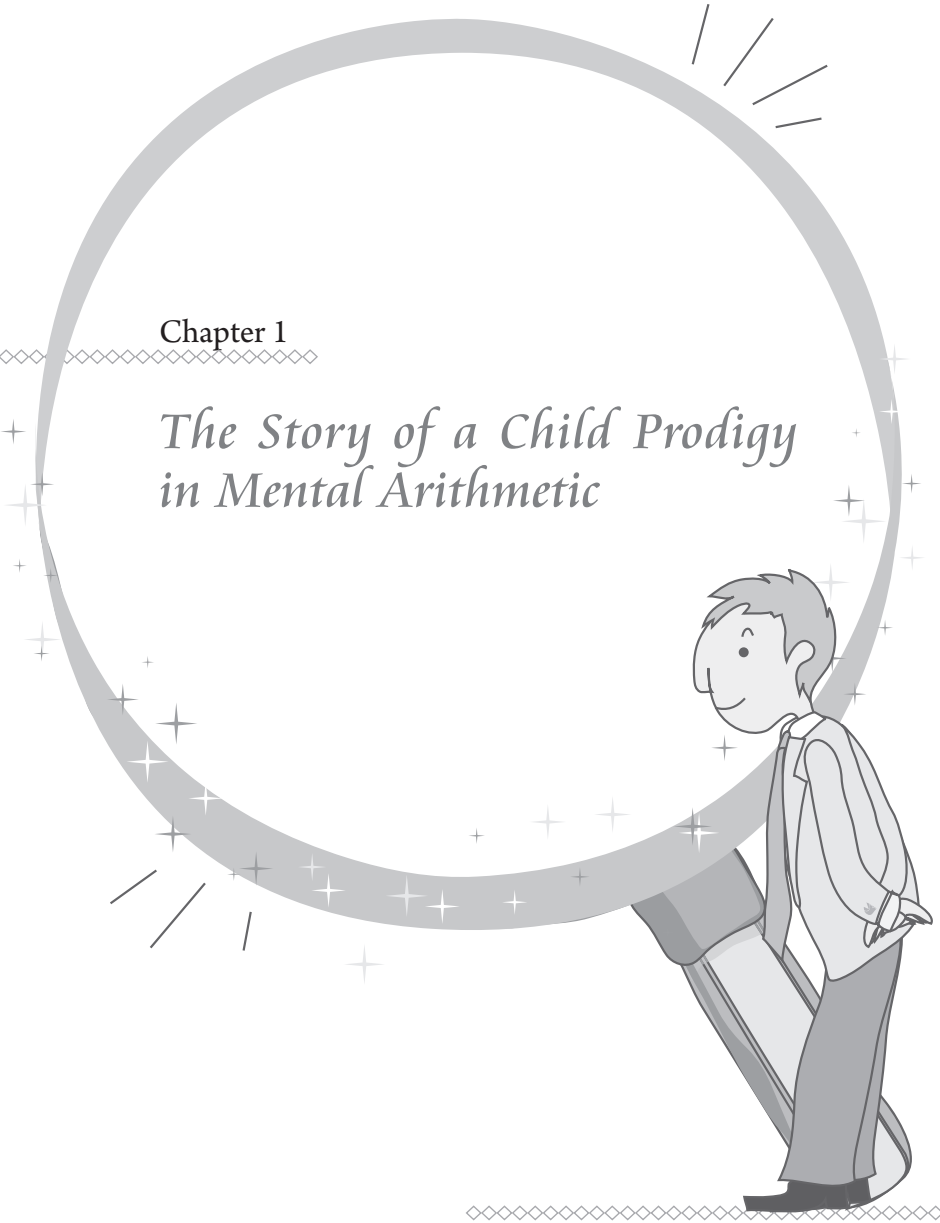
Fourth Grade	1996	08	04	Placed first in the third Taiwan Cup mental calculation competition (skipped grades to junior high group)
Fifth Grade	1996	09	15	Passed level nine in the nineteenth test of abacus calculation held by the Association of Children's Abacus Calculation
	1996	11	12	Passed level fourteen in the seventh national special level test held by the Association of Children's Abacus Calculation
	1996	11	24	Passed level ten abacus calculation and level ten in mental calculation in the test held by TCOC
	1996	12	15	Placed first in the 1996 Taiwan region competition for top ten outstanding individuals in abacus calculation
	1996	12	29	Placed first in the Intercontinental Cup competition (fifth and sixth grader group, with the highest score in the competition)

Sixth Grade	1997	11	16	Placed first in the national children's abacus competition combined contest and reading mental calculation
	1997	11	23	Passed level ten in abacus calculation and level ten in mental calculation in the test held by the Utility Abacus Society

- Taiwan Chamber of Commerce (abbreviation: TCOC)
- Association of Children's Abacus Calculation in Taiwan (abbreviation: Association of Children's Abacus Calculation)
- Chinese Utility Abacus Research Society (abbreviation: Utility Abacus Society)
- Commercial Abacus Committee of the General Chamber of Commerce of the Republic of China, Abacus Calculation Society of the Republic of China, International Abacus Association Taiwan Branch (abbreviation: Three Joint Society)

Chapter 1

The Story of a Child Prodigy in Mental Arithmetic



Not knowing the answer to 7+2

Su Wan Ting's motto:
Yield twice the result with half the effort, and not half the result with twice the effort.
The successful person looks for methods. The unsuccessful person looks for excuses.

"What's 1+1?"

"2!" Kindergarteners screamed.

"What's 2+3?"

This problem may be a little "difficult" for K1 children, but for K2 children, it is easy to get the answer simply by counting fingers.

Of course, you might ask them again, "What's 3+2?" and they might have to count fingers again.

"Three at dawn and four at dusk" and "Four at dawn and three at dusk" is definitely different to children who are just four or five years old.

Quiet and introverted since birth, Su Wan Ting was no different from her classmates at Tainan Jen Her Kids Kindergarten. To count numbers, she simply counted the fingers on her little hands, though at times, little Wan Ting would have a "short circuit," characterized by a sudden "knotting" of the fingers and a "blank" mind; a few tomatoes +several guavas turn into a fruit platter.

One day, bored at home, Wan Ting's grandpa decided to play counting a game with little Wan Ting. If she counted correctly, grandpa would buy her a treat.

"Come. Count from 1 to 10. Start."

This was too easy. He was underestimating his granddaughter. "1, 2, 3, 4, 5, 6, 7, 8,9, 10." Without taking a single breath, Little Wan Ting finished counting from 1 to 10.

"Ok. Next. What's 1+2?"

"3!" Little Wan Ting took a glimpse at her fingers, and answered quickly.

"Not bad. Another one. What's 7+2?" Grandpa was serious this time.

"It's…" Little Wan Ting's hands were twisted in a bundle, with the 7 in her right hand running to her left, and not knowing where to start counting the remaining 2. As her hands tightened, her head drooped lower and her face reddened.

"Aww. I'm sorry. Has Grandpa made the question too hard? Let's try a different one. One that's easier, ok?" Grandpa said, trying to make Wan Ting feel better.

Close by, Wan Ting's father Su Jui Pin, reading the paper and Wan Ting's mother Su Hua Dan, working on her at home job looked at each other and frowned. They did not seem to agree with grandpa! The couple did not say anything in front of the old man and the little girl. As usual, they waited until bedtime to talk about things to prevent putting too much pressure on their child.

That night, Mr. Su wondered why Wan Ting couldn't solve such a simple problem. She was in K2 already and should be doing better than this. Mrs. Su blamed herself and was extremely worried. "Maybe I didn't plan her preschool education well enough. Let's just wait and see."

Perhaps out of oversensitivity, or loving care, Wan Ting's one "abnormal" incident had Mr. and Mrs. Su thinking seriously about her education and growing needs. They didn't want her to fall before she even started running; as

parents, they would be the ones to blame if that were the case.

The neighbor boy inspires

Su Wan Ting's motto:
Laziness is the root of all evil.
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away."

One morning, Mrs. Su went to the market with her neighbor Mrs. Chen. The two mothers chatted about their children along the way. When Mrs. Su mentioned how little Wan Ting was falling behind in counting compared to her classmates, Mrs. Chen said, "Then send her to study mental arithmetic. My K3 son has been going for ten

months, and he just passed level four. No one in our family is faster than him. He's like a computer. If you don't believe me, come and see for yourself after school."

In the afternoon, Mrs. Su half doubtingly rang the Chen's doorbell. Even before Mrs. Su sat down properly, Mrs. Chen was calling out anxiously to her son to come and present himself.

"Wei Wei, come and show Mrs. Su some mental arithmetic. You can do it!" Mrs. Chen picked up a pile of test papers on the desk, taking one from the pile. "Okay. This one is all two-digit. Wei Wei, let's try this. Ready, calculate. 26+31+44+19+33+58+72+39. Okay. What's the answer?"

"Three hundred and twenty-two!" Mrs. Chen had just finished reading the problem when Wei Wei announced the answer. Mrs. Su took the test paper from Mrs. Chen's hands and looked at the answer. 322 indeed! A K3 child

with such strong calculating ability is truly an amazing thing. Mrs. Su was still a little doubtful. "Okay, Wei Wei. Mrs. Su will test you again." She took a piece of paper and wrote down eight sets of two-digit numbers, used a calculator twice to confirm the answer, and started reading the problem.

"55+22+44+39+57+62+77+28, is how much?"

"Three hundred and eighty-four," Wei Wei immediately announced the answer hiding in Mrs. Su's hand. "Too amazing!" Right then, the "special power" of "mental calculation" completely opened Mrs. Su's eyes. Thus, she made up her mind to have Wan Ting and her sister learn mental arithmetic.

When Wan Ting was in K3, Mrs. Su asked around about mental arithmetic classes, and visited almost all the mental arithmetic classes in Tainan City, even sitting in

on classes. After two weeks and a bunch of brochures and application forms, Mrs. Su finally picked CMA, one that wasn't exactly close to home or school.

The founder of CMA Mental Arithmetic was Master Tai Chiang Ching. After listening in on a class and a long talk, Master Tai became the "chosen one," the most suitable mental arithmetic teacher for Wan Ting. However, for the sake of learning effectiveness and to ensure the safety of the little children, Master Tai had requested that Mrs. Su and parents of other K3 students accompany their kids to class.

At that point, Wan Ting and her mother embarked on the difficult but interesting "abacus and mental arithmetic journey." It was September 1991. Wan Ting Was in K3, and her sister Hsiang Wen wasn't even in K1 yet!

First teacher's "genius experimental class"

Su Wan Ting's motto:
Think only of success, not failure.
On any given Sunday, any team can beat any other team.

Like little Wan Ting, every kid who goes to abacus and mental arithmetic class is usually one who loves learning.

Little Wan Ting's classmates included those who did not start learning abacus and mental arithmetic until the first or second grade. Others transferred from other abacus and mental arithmetic classes. Of course, Wan Ting was the youngest in her class--K3.

With a class filled with children who are different in age, level and personality, "CMA Mental Arithmetic" founder Master Tai Chiang Ching has his own delicate and traditional teaching mission, which is to "instruct all and reject none and to teach each student according to his or her aptitude," providing each child with the appropriate training methods and materials based on his or her ability. To Wan Ting who was just in the K3, starting from the most basic, simple and fun children's abacus and mental arithmetic teaching materials were, of course, the best way to start.

Other than "teaching each student according to his or her aptitude," Master Tai Chiang Ching held deep in his heart a "secret weapon experimental plan." He was preparing to make these beginners learning abacus and mental arithmetic his experimental class for the "two-handed"

method. He had been a passionate researcher of this method for years. He hoped to test the revolutionary teaching method, which had never been taught in Taiwan, through these students.

Master Tai Chiang Ching was born in 1961 in Huwei of Yunlin County. In 1984, he founded CMA in Tainan City, and started "Yo Ming Publishing Company" which specializes in the publication of abacus and mental arithmetic teaching materials as well as personal growth manuals, time management related books and audio publications.

Strictly speaking, CMA is a professional children's mental arithmetic educational organization, thus whether in terms of teachers' qualification or teaching materials, everything is designed to suit students' needs to increase learning interest, inspire intelligence and enhance reflex so

that children become livelier and smarter.

In the past ten years, CMA has cultivated numerous outstanding children and abacus and mental arithmetic contestants. From the award cups and banners filling Master Tai Chiang Ching's office walls and shelves, one can see that Master Tai Chiang Ching does in fact have an extraordinary teaching method.

Just 100 meters away from CMA, Tainan Municipal Degao Elementary School owes its many outstanding students of abacus and mental arithmetic to the teaching of Master Tai Chiang Ching. The most well-known example was in 1991 when Lin Tzu Yin, age eleven, a third grader at the school, placed first in the sixth world calculating ability contest in combined categories of first and second grade multiplication, division, addition and subtraction. She was awarded the "world champion" cup, and was honorably re-

ferred to as "Fu Cheng Mental Arithmetic Child Prodigy."

Lin Tzu Yin was the first student in Tai Chiang Ching's class to pass level ten in both abacus and mental calculation tests. She learns fast, has a good memory and is careful and hardworking, which have helped her to improve much faster than others, advancing to a new level in just two weeks, when it normally takes a month for other students.

In 1994, when Lin Tzu Yin was in the sixth grade, she placed first in the national contest for outstanding children in abacus arithmetic, marking it the highest honor as she said "farewell to childhood."

Starting phase: ask only how much we cultivate, not how much we will harvest

Su Wan Ting's motto:
Do not fear going slow, only fear standing still
Good is good, but better carries it.

There is nothing in the world that can be attained without hard work. Hanging in the lobby of CMA Arithmetic is the famous quote by Hu Shih--"You reap what you sow," describing the truth behind success.

After Su Wan Ting started going to abacus and mental

arithmetic classes, life in the Su family changed significantly, influenced by what Master Tai Chiang Ching said-- "If you do something, do it well. Be the best!" Other than accompanying her child to class as Master Tai had requested, Mrs. Su also made sure Wan Ting practiced an hour of abacus and mental calculation before school every day.

Before enjoying breakfast, Wan Ting always sat at the dining table, closed her eyes and told herself, "It's a whole new day. Today I have to be a little better than yesterday." Mrs. Su used supplementary abacus and mental arithmetic teaching materials to help Wan Ting train her listening and reading calculation skills.

In first and second grade, because school ended early, Wan Ting also practiced an hour or so of listening calculation before dinner at home.

If children get up early, they must also go to bed early.

Mrs. Su thinks it's important for kids to be energetic for effective learning. As a result, staying up to practice or do homework never happened at the Su's.

The most time-consuming activities for the average child--playing video games and watching TV--were limited at the Su's. First, there were no video games in the house, eliminating the possibility of playing video games all day. Next, other than "listening" to TV during mealtimes, Su Wan Ting and her sister Hsiang Wen usually only watched Wo Men Yi Jia Dou Shih Ren (literally, "Everyone In My Family Is Human"). Perhaps girls were more docile and obedient than boys ; Wan Ting and her sister never had any objections to the "less TV" rule. Being restricted from all kinds of fun cartoon shows on TV is not especially easy.

For father Su Jui Bin, who manages a parts production factory for scales, the "right to watch TV" was also condi-

tionally restricted. Getting home at 8 or 9 p.m. each day for dinner, he only "watched" TV but did not "listen" to TV so as not to wake the kids from their sleep. Hence, when the children went to bed, the Su house became a "silent place," all to ensure that the children would get a good night of uninterrupted sleep; evidently, the parents gave a lot of thought to the matter.

The process of learning mental arithmetic usually has seven stages: 1. cognition stage; 2. acceptance stage; 3. practice stage; 4. skilled stage; 5. automatic stage; 6. elaboration stage; 7. achievement stage. As it is difficult to see results in the starting phase and the learning process can easily become boring, parents must provide constant support and encouragement. Enthusiastic support minimizes children's sense of frustration from failures and active encouragement stimulates confidence and interest in learn-

ing, providing motives to work hard.

To increase Wan Ting's interest in learning, Mrs. Su often played "number games" with Wan Ting using things from everyday life. For example, memorizing license plate numbers, telephone numbers and calculating purchase totals for mom when out shopping, all of which are vivid and practical ways to learn.

In the beginning phase, Mrs. Su was in no hurry to give tests. She thought that it was more practical for the young children to get the basics right, and so the starting stage lasted diligently for at least half a year.

You reap what you sow indeed

Su Wan Ting's motto:
More haste, less speed.
The smart man borrows from others' experience; the average man struggles and gains experience; the stupid man struggles but forgets the experience.

Normally, an hour of mental arithmetic practice per day would take a beginner to grade two in a year and eight months, grade one in two years, and to the preliminary level (level one) in two years and four months to two and a half years. This generic rule did not apply, however, to Su Wan Ting.

Little Wan Ting not only practiced an hour a day, but practiced "seriously," even "very seriously" for at least an hour every day. What's even more amazing is that Mrs. Su also practiced "very seriously" with Wan Ting every day. The mother and daughter's hard work has indeed paid off with very “awesome" grades.

In class, Mrs. Su was a parent of few words and Su Wan Ting a student of few words. According to Mr. Su, "she looked kind of silly." A student like this obviously gets little attention from classmates and teachers at first, but no one knew the mother/daughter pair was working so hard. Their skills had already surpassed the older girls and boys in the class, and went far beyond Master Tai Chiang Ching's expectations.

Exactly how good was Wan Ting after she graduated from kindergarten, about to attend first grade at Dong

Guang Elementary School with eight months of mental arithmetic study behind her?

On September 20, 1992, Su Wan Ting and a fellow classmate from "CMA Arithmetic" entered the third test held by the Children's Association of Abacus Calculation in Taiwan. Su Wan Ting ended up passing grade two, a whole year ahead of the average student. Mrs. Su was overjoyed, and guidance teacher Tai Chiang Ching was shocked.

The reason that Master Tai Chiang Ching was shocked was due to Su Wan Ting's fast improvement, surpassing others in the class. In addition, he was able to finally see the effectiveness of the "two-handed method."

Su Wan Ting was in Tai Chiang Ching's "two-handed method" experimental class. Master Tai Chiang Ching had been researching the method for years, and had traveled to

China in 1991 to emulate the newly invented "two-handed method." Upon returning to Taiwan, he immediately compiled teaching materials and proceeded with the actual teaching experiment.

Master Tai Chiang Ching says that theoretically, using both hands to move abacus beads and calculating mentally is 30% faster than using one hand. Amazingly, the theory worked with Su Wan Ting, making him very excited, seeing that his persistence was starting to pay off.

Since then, Master Tai Chiang Ching held Su Wan Ting as his "first seed" contestant, and started cultivating her with the plan to train her to be his second student after Lin Tzu Yin to pass level ten in both abacus and mental calculation.

As expected, Su Wan Ting did not fall short of her teacher and parents' expectations. In the first semester of first grade, she took the test held by the Three Joint Society

(formed from three organizations: Commercial Abacus Committee of the General Chamber of Commerce of the Republic of China, Abacus Calculation Society of the Republic of China, and the International Abacus Association Taiwan Branch), and passed level six in mental calculation. It was an amazing achievement.

What was even more impressive was that during the second semester of first grade, Su Wan Ting passed level nine in mental calculation tests held separately by the Children's Association of Abacus Calculation in Taiwan and the Chinese Utility Abacus Research Society.

Merely a first grader, Su Wan Ting achieved grades that take an average person five years to achieve. Though amazing, it was not by chance. Su Wan Ting's achievements were the harvest of the hard work put in by her family, her teacher and herself.

Su's mother, who overcomes adversity

Su Wan Ting's motto:
Yield twice the result with half the effort, and not half the result with twice the effort.
The successful person looks for methods. The unsuccessful person looks for excuses.

"Like father, like son. Like mother, like daughter." When applied to Mrs. Su, it's easy to see why in Wan Ting's genes, there lies such strong determination, strength and potential.

A girl prodigy reaching level nine in mental calculation in the first grade, with parents who are neither math masters nor physics doctors and who haven't even been to

college! Su Wan Ting's father Su Jui Bin graduated from senior vocational industrial high school. Wan Ting's mother Chen Hua Dan received nine years of obligatory education, making her a junior high school graduate. Neither parent is highly educated, but both have high hopes for their daughters.

Mrs. Su Chen Hua Dan has lots of siblings; her parents had four boys and two girls. Her family farmed for a living and they lived in the suburbs of Guanmiao, making it inconvenient to commute to school. To help with the family business, her oldest and second oldest brothers didn't even graduate from elementary school. Later on, the family was doing better financially, so they moved to the city, giving her and her third oldest brother the chance to finish junior high school. However, after that, her father felt girls didn't need so much education, and sent her to work in the fac-

tory to help earn some money for the family. Her third oldest brother, being a boy, had the "privilege" to continue on to high school education.

In a family that lacked financial comfort and held traditional, conservative views, Mrs. Su Chen Hua Dan's growing experience was obviously unsatisfying. Whether in terms of knowledge, culture or art, she had desperate desires that were unfulfilled. Because of the pain she had been through, she was determined not to let her own children follow her path. She had to try her best to give her kids sufficient resources, an open learning environment and a worry-free childhood.

When she worked on the production line in her teenage years, Chen Hua Dan would look at the hot water bottles and rice cookers that were assembled in her hands one after another, and often her heart shed tears when she

thought of the fact that her teenage years were spent in vain, bookless and without specialties or hobbies; it made her bitter. Later on, she decided not to work overtime all the time for just a few more pennies. She asked for permission to work only during daytime so that she could attend cram school for high school at night. Unable to turn down the knowledge-thirsty Chen Hua Dan, her boss finally caved in.

Books in hand again, Chen Hua Dan was filled with excitement. A day of hard work was put behind her by the time class started in the evening; in class, she was attentive and enthusiastic, much like her daughter Wan Ting ten years later.

In her cram school years, the teenage Chen Hua Dan seemed particularly vigorous, giving off an air of intellectuality and youthful female energy. Su Jui Bin, who worked

in the same factory during daytime, was deeply attracted to her. At the time, Su Jui Bin had graduated from senior vocational industrial high school, and completed military service for two or three years. In a gathering held by the factory, Su Jui Bin took the opportunity to officially meet Su Hua Dan, and the two started seeing each other, often spending their holidays together on outings. Their friendship sprouted the seeds of love and the two became closer as the days went by, becoming the most envied couple in the factory.

Su Jui Bin, ten years older than Chen Hua Dan, was under pressure from his parents to get married so they could have grandchildren earlier. Thus, the two got married earlier than planned. Chen Hua Dan had no choice but to stop going to cram school, leaving her highest level education at "junior high school."

Having been married for ten years, her kids are older now and as "the boss's wife," Mrs. Su couldn't simply stay idle at home and besides, she craved to study. Recently, she signed herself up for English class, planning to experiment with "bilingual education" at home in the future. Knowing both the "Two-Handed Method" to manipulate abacus beads and "bilingual education," Mrs. Su is "so super!"

Family involvement for the tiny challenger

Su Wan Ting's motto:
Laziness is the root of all evil.
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away."

"Grow with the kids!" is Mrs. Su's parenting philosophy.

Ever since Wan Ting started standing out in tests and competitions, Mrs. Su has kept her eyes open for tests and competitions held by abacus and mental arithmetic organizations, taking almost every opportunity to sign up. Of course, Wan Ting's guidance teacher Tai Chiang Ching

always made sure his "first seed" contestant was fully prepared.

The second and third grade were the busiest years for Wan Ting, with an average of one test or competition every three weeks. Competitions were always arranged on holidays. Mrs. Su said back then, "I hope Wan Ting can get the honor of full attendance when she graduates from elementary school, so tests and competitions are arranged only on days when there is no school."

For Wan Ting, who had become an experienced competitor, entering competitions was trivial and ordinary. Mr. and Mrs. Su always told her not to take winning too seriously, and to just try her best.

"Mama also said, grades don't mean everything. What's important is to be responsible for the things we do." Little sister Hsiang Wen also knows a thing or two!

With wholesome mental attitudes taught to them by their parents, Wan Ting and Hsiang Wen always faced tests and grades with a laid-back mentality.

When traveling abroad for abacus and mental arithmetic competitions, Wan Ting was always particularly "excited" because the whole family would be able to go together. Due to numerous orders at the factory, Mr. Su often had to fill the role of both boss and employee, getting home at 8 or 9 p.m. every day to eat "leftovers." Even on the weekends, he had to work and had no time to spend with the kids, not to mention taking family trips. However, no matter how busy Mr. Su was or how little time he had, he would always put off his work and take the whole family when his precious daughters Wan Ting and Hsiang Wen had to travel to compete.

"Even though it's a competition, it's more like travel-

ing on vacation." Mr. Su says, "Normally their mother stays home with them. As their father, I feel guilty. It feels great to spend some family time together during the girls' competition trips, and at the same time I'm forcing myself to take a break from work. It's like killing two birds with one stone!"

Additionally, during the trips, Mrs. Su took the opportunity to observe how others teach and gathered related teaching materials and information. Mrs. Su says, "Know thyself, know thy enemy, and thou shalt stand to win hundreds of battles."

Other than buying teaching materials and test problems, Mr. and Mrs. Su also often wrote test problems for Wan Ting and Hsiang Wen to practice, making learning abacus and mental arithmetic a "whole family exercise" at the Su's. Having the whole family engaged not only in-

creases the children's learning interest, it also brings the parents and children closer together. While striving for higher, better grades, unity in the family increases. Perhaps this was the most valuable result for the Su family.

We are friends in this family

Su Wan Ting's motto:
Think only of success, not of failure.
On any given Sunday, any team can beat any other team.

"I have many friends. My best friends are my father, mother and sister." In Su Wan Ting's family, there are four happy members-- father, mother, and the two sisters.

When the young, lively Mrs. Su is with her children, the three have so much fun. Mrs. Su is like an older sister, rarely screaming at the children not to do this or that, or to urge the girls to take baths or do homework. In the eyes of

her daughters, Mrs. Su is reasonable and a good friend.

"When mother had a good opinion, she would share it with us. When I encountered things that I didn't understand, she would take something out of her treasure trove of wisdom. She was never stingy." For Wan Ting, not only is her mother a competent nanny, but also an all-knowing teacher playing the roles of "walking encyclopedia" and "treasure box."

"When I'm in a bad mood, mother is my loyal listener. When I am lost, mother pulls me out. That's why she is my best, best friend." Having a mother with whom Wan Ting can talk makes the home feel like a warm nest with the world's softest and most comfortable arms and hugs. Surrounded by such warmth, the children naturally grow and learn more wholesomely.

"Since we were born, mother has devoted herself to us,

taking care of us without complaints or regrets and never asking for payback. When we're happy, she's happy. When we're angry, she gets sad. That's the reason why as I got older, I never let my mom feel sad. I know how hard she works and how good she is. It is pitiful for a kid to have no mother, so I must cherish mine."

Seeing this in Wan Ting's diary, Mrs. Su was touched. She says, "A filial child is the greatest comfort for parents."

To her younger sister, Wan Ting is very much like an older sister. She says, "My little sister is my little friend. I am her little teacher. In schoolwork, we stimulate each other. Sometimes she says funny things to make me laugh and comes up with riddles for me to guess. She also shares good food with me."

Due to her sister's outstanding performance, Hsiang Wen often looks up to Wan Ting as a role model. Mrs.

Su says, "The little one always wants to do what her older sister does." Wan Ting is the model student in her class, and her little sister Hsiang Wen equally lives up to expectations, striving to be chosen as model student. Once, Hsiang Wen placed first in her class with a high score of 599. With two outstanding daughters, no wonder Mr. and Mrs. Su are always smiling.

Speaking of her father, Wan Ting couldn't wait to reveal her old man's "secret." "Father has an amazing appetite. If he were to enter TV Champion's eating contest, he would definitely win!" Mr. Su is very strong and fit, resembling a Kung Fu master, but he looks honest and polite, and says very little.

Mr. Su often mocks himself, saying he is but a "mechanic," but in Wan Ting's eyes, her father is a "little computer" with a good brain! "Father is a businessman.

Though he's not good with words, he has great reflexes. He's great at calculating prices. When mother has difficulties with math problems, she always asks him for help, and then everything's fine"

Mr. Su says he had good grades back in school, but because he liked to play, he ended up not graduating from junior college. Now he often tells his children to "study hard. Don't be greedy for play, or else it will be too late when you grow up and want to study!" The two sisters will answer in unison, mischievously, "Yes, father!"

If counting numbers were like counting money

Su Wan Ting's motto
Do not fear going slow, only fear standing still.
Good is good, but better carries it.

Wan Ting likes quite a few subjects. Among them, she thinks "mathematics" the most interesting. To an average kid, "mathematics" is usually a synonym for "fear;" seeing math brings on a headache. But for Wan Ting, math is a subject that makes one happy. What is her secret? It's simple. She counts numbers as if she were counting "money;" the more she counts, the more energetic she becomes!

Wan Ting says math is the most realistic and most interesting subject. "Arithmetic problems are easy. Applied problems are a little trickier. If I turn in the right direction, I go forward, but if I turn in the wrong direction, I hit the wall and still have no clue."

"But what's most fun is counting numbers like they were money. The bigger I count, it's like the more money I have. One, ten, hundred...I can keep going for as much as I want. Don't you think that's fun? That's why I think my favorite subject is math! Daydreaming and imagining how much money I have, using my brain, using my hands...it's not bad!"

In addition, Wan Ting feels that math problems are comprehensive, covering figures, areas, applied problems and so on, "Sometimes I think so hard, I think my brain will explode. I'd think over and over again and finally have

an answer. Wow! At that instant, I'd feel smart. On the other hand, when I reach no answer, I feel stupid."

Mrs. Su teaches her kids to "hypothesize bravely but look for proof carefully" when doing math problems, meaning that for any problem, first find its structure, then look for proof step by step. Wan Ting says math is not scary; what's scary is not getting the point.

Of course, getting down the basics of mental arithmetic in kindergarten had made math familiar to Wan Ting, so that she was immune to the "fear of math" common in most students and naturally found it easy to learn math. Mrs. Su also says, due to basics and training in abacus and mental arithmetic, Wan Ting's logic and reasoning skills are stronger than the average kid, and that it was also easier for her to "think attentively," which is helpful when learning math.

As for other subjects, Wan Ting also likes Chinese, Science and Social Studies. Wan Ting finds exploring the secrets of knowledge engrossing. "In Chinese, we can learn the evolution of each character, the art of talking, the meaning and truth behind phrases, the way to treat people and do things."

"In science class, we can learn about insects, living organisms and the magic of mother nature. We can experience things we've never personally experienced, and realize that birth, aging, sickness and death exist in the natural world."

"In Social Studies, we get to know more countries, local customs and religious beliefs, as well as world geography, products, historic sites. East, west, south, north...it's all in the social studies text book."

An exuberant thirst for knowledge and curiosity are

Wan Ting's motives for staying interested throughout her learning process. Mrs. Su, encyclopedia in hand, learning and growing with the children, served as the kids' best studying companion. Studying in enjoyment and growing in familial love--it's no wonder Wan Ting thinks counting numbers is like counting bills.

Never put off until tomorrow what you can do today

Su Wan Ting's motto:
More haste, less speed.
The smart man borrows from others' experience; the average man struggles and gains experience; the stupid man struggles but forgets the experience.

To teachers and parents, a smart child is not necessarily better than as a docile one; a talented child is not necessarily better than a polite one.Being an educated person is an average accomplishment, but sensibility is worthy of praise. Thus, "filial piety" has always been highly praised.

As the saying goes, filial piety is the most important of all virtues.

In Mr. and Mrs. Su's eyes, Wan Ting and Hsiang Wen are a pair of daughters that are a comfort to their parents. Wan Ting says, "I've always been docile and obedient. I rarely make my parents angry and I listened to my teachers in school. I was a good student who follows school rules; I took care of students younger than me and respected my teachers." Wan Ting is a self-conscious, considerate child. These kindhearted qualities make her talent and achievements seem even more valuable.

"My parents don't have to worry about me because I don't need to be urged to do the things I'm supposed to do, and I do them well. Like my teachers and mother would say, 'never put off until tomorrow what you can do today.' When Wan Ting got home from school, the first thing she

did was has a snack. She says one must have a full stomach to have energy for things and to be focused.

"There aren't really many important things to do as a student other than to work hard." After practicing an hour of mental arithmetic at home every day, Wan Ting would then finish her homework, show her mother, and then check her book bag and organize the textbooks and notebooks needed for the next day's classes. Before bed, she reviews the lessons taught that day.

"In school, my classmates would always talk about what they were going to do after school, but my sister and I would just go home. When we got home, we read, then finished our homework. If we still had time, we practiced mental arithmetic together. I wanted to get better at it while I still had time, because in middle school, there wouldn't be much time." Wan Ting would say seriously

back then, "We should work hard now and especially not waste the free time after school."

As the saying goes, "Idle young, needy old." At just over ten years old, Wan Ting already had a good grasp of this concept! "I remember when I was seven and just starting first grade, no one knew each other, except for one or two who went to the same kindergarten. Back then, I was still silly. All I knew was that attending elementary school and kindergarten were different. I knew nothing else."

"One day passed after another. One calendar after another. One monthly account book of mother's after another, my textbooks changing from first grade to fifth grade in a flash. Thinking back, time really flies. What the books say-- "time flies like an arrow" is right. Nevertheless, I feel like I haven't wasted any time, so I think I will continue to do what I've been doing!" In the passing of time, Su Wan

Ting is apparently calm and unhurried.

"I often hear adults say that life is but a few dozen winters and summers, so we must seize our time, whether for study or play. But there are so few people who really know how to seize time. Most people waste their time, and then regret it later. If you had known then what was going to happen, you shouldn't have done as you did." Listening to this little adult talk about the philosophy of "time management" should make adults feel ashamed.

The dilemma over piano and abacus calculation

Su Wan Ting's motto:
Yield twice the result with half the effort, and not half the result with twice the effort.
The successful person looks for methods. The unsuccessful person looks for excuses.

Like most families who hope the best for their children, Su Wan Ting went to talent classes under Mrs. Su's arrangements. In K3, she started learning abacus and mental arithmetic; in first grade, she started taking piano lessons. After class, Wan Ting's little hands were either moving abacus beads or playing the piano, constantly doing

"gymnastics for fingers."

This kind of "dual talent" training didn't intimidate Wan Ting. Both her abacus and piano teachers complimented her on her gift and intelligence, and urged Mrs. Su to cultivate Wan Ting well. By second grade, Wan Ting had reached level five in abacus arithmetic and level ten in mental arithmetic, and she could easily play Mozart's “Turkish March” on the piano. Compared to classmates in her talent class, she was already a "supernormal" child prodigy.

Wan Ting devoted herself to practicing mental arithmetic and piano, but as her "level" increased, the frequency of practicing and competing also increased. In Mrs. Su's eyes, other than Wan Ting's outstanding achievements, she also saw the pressure and painstaking effort that Wan Ting was hiding. She could not bear to see this and started to

worry.

"Children are still children," Mrs. Su said. "We must not push her too hard for fear of her forsaking a happy childhood. Perhaps if we push her, she will be successful and accomplished when she grows up, but such a solemn childhood might have negative effects on her future, turning into regrets for the rest of her life. I think parents need to know when to stop expecting so much of their children." Mrs. Su's heart was filled with confusion, but she knew very well that she was fulfilling her role as mother by loving, caring for, and using her motherly instincts to help her children grow. She definitely had not been using and won't ever use ambition and strict teaching to "produce" a child prodigy.

"Actually, Wan Ting and her sister's achievements have already surpassed my expectations. I cannot be unsatisfied.

If I were them, I probably couldn't even accomplish half of what they've accomplished!" Mrs. Su says, picturing herself in her daughters' shoes.

Throughout second grade, Wan Ting signed up for no less than twenty abacus and mental calculation tests and competitions, averaging two per month. After one test, Mrs. Su asked Wan Ting, "Is it very tiring to learn both abacus and mental arithmetic and piano?" Wan Ting nodded and said, "Yeah, a little, but if I had more time to practice, I know I could do better. Abacus and mental arithmetic and piano are both so fun!"

In fact, if Wan Ting was already feeling as if there was not enough time in the second grade, then with more homework and longer school hours in the future, wouldn't the child suffer from burn-out? Consequently, Mrs. Su decided to let Wan Ting choose just one after school lesson.

But which one? Abacus and mental arithmetic? Or piano?

Abacus and mental arithmetic and piano actually have something in common, especially since Wan Ting had been learning the “two-handed method”, which, like playing the piano, is a skill that requires the use of both hands. Mrs. Su sometimes wondered, "Is Wan Ting good at abacus and mental calculation because she plays the piano well? Or does she play the piano well because she is learning abacus and mental calculation?" After numerous mini family meetings, Mrs. Su told the piano teacher that Wan Ting will temporarily quit piano lessons. The piano teacher looked puzzled and said to Mrs. Su, "You are going to regret this!"

To this day, Mrs. Su still remembers clearly the piano teacher's warning. Although Wan Ting is already at the top in Taiwan's abacus and mental arithmetic industry,

talking about this "painful choice" still makes Mrs. Su feel doubtful. "I don't know if the decision I made was right or wrong," she says.

The bottleneck: level 9

Su Wan Ting's motto:
Laziness is the root of all evil.
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away."

After giving up piano lessons, the time Wan Ting spent on practicing abacus and mental arithmetic increased, and her progress also advanced greatly.

On March 20, 1994, Wan Ting took the test held by the Children's Association of Abacus Calculation, and passed the preliminary level for abacus calculation. It was the second semester of second grade. Two months later, on May 15, Wan Ting took the test held by the Three Joint

Society (formed from three organizations: Commercial Abacus Committee of the General Chamber of Commerce of the Republic of China, Abacus Calculation Society of the Republic of China, and the International Abacus Association Taiwan Branch), and skipped several levels, passing level five in abacus calculation.

In the third grade, less than a month after school started, or on September 18, 1994, Wan Ting took the test held by the Children's Association of Abacus Calculation and passed level seven in abacus calculation. Scores like these at her age had never been seen before by either Master Tai Chiang Ching or Tainan's Fu Cheng district. In the third grade, Wan Ting was heading towards her "call me first place" peak stage. Her name appeared in newspapers, magazines and radio and television shows.

For two entire years from the third semester of third

grade to the second semester of fourth grade, Wan Ting's mental calculation level stayed consistently at level ten, even reaching level thirteen in one special national test during the first semester of fourth grade. However, her abacus calculation level fluctuated; sometimes it was level seven, sometimes it dropped to level six or even five for no apparent reason, though most of the time it stayed at level eight or nine.

As Wan Ting spent two years fluctuating between levels eight and nine in abacus calculation, Mrs. Su's heart also went up and down. She wondered why it was so hard to reach level ten.

Mrs. Su carefully examined Wan Ting's training process and physical and mental health conditions to see if a certain aspect was being overlooked. Mrs. Su also frequently discussed Wan Ting's learning progress with Master Tai

Chiang Ching. Although Master Tai understood Mrs. Su's anxiety and depression, he also knew how difficult it is to reach the highest level. In Taiwan's distorted environment where advancing to a higher school was of utmost importance, devoting oneself to a talent or skill that has nothing to do with advancing to higher education, and getting top achievement in the talent or skill, is like acquiring phoenix feathers and unicorn horns; very few can accomplish this. Master Tai could only offer this consolation to Mrs. Su: "It all depends on effort. If hard work is put in, dreams will come true. Don't hurry. Take it easy." Mrs. Su hid her hopes deep in her heart because she knew what her child needed was encouragement, not pressure.

Once, Mrs. Su was chatting with "Fu Cheng Mental Arithmetic Child Prodigy" Lin Tzu Yin's mother about the children's learning experience. Mrs. Lin gave her a lot of

encouragement and words of comfort, which helped her a great deal in terms of mental attitude. She recalls something Mrs. Lin said. "If you care for the tree trunk well, the branches and leaves will naturally flourish."

Lin Tzu Yin had placed first in the first national contest for outstanding children in abacus calculation. In Master Tai Chiang Ching's abacus and mental arithmetic center, she was the first student to pass level ten in both abacus and mental calculation tests; therefore, listening to Mrs. Lin's experience was rather useful for Mrs. Su.

Feeling more relaxed, Mrs. Su and Wan Ting continued going to lessons and practicing as arranged by the guidance teacher. The two were not discouraged and did not give up, continuing to endure the difficulties the "level nine" bottleneck presented. Heart to heart, the mother-daughter pair kept faith in the unchanging concept of "de-

pending on effort."

Letting kids know where they made mistakes

Su Wan Ting's motto:
Think only of success, not of failure.
On any given Sunday, any team can beat any other team.

The "level nine" bottleneck in which Wan Ting was stuck for two years was also a testing period of Mrs. Su's parenting intelligence and ability. With just a junior high school degree, Mrs. Su has a parenting philosophy worthy of respect and represents a good reference for parents.

Give your child encouragement and not pressure.

Mrs. Su stresses that positive guidance motivates

children to study on their own, increasing their interest in learning. Mrs. Su often tells her children that "If you want, you can do anything!" For instance, it is important to have your children work hard for tests and competitions, but it is equally important that they don't take grades and ranking too seriously. This way, children will perform better and more naturally, and the results of learning will also be more effective.

Letting kids know where they made mistakes

When your child does his or her homework incorrectly or gets wrong answers on tests, you can't just blame him or her for not knowing something so simple. Some parents even call their child "stupid" or call them an "idiot." Mrs. Su feels that it's common for children to make mistakes; in fact, it's perfectly justified, which is exactly why children need the guidance of teachers. Mrs. Su says that when her

children make mistakes on their homework or don't know the answers to test problems, she discusses with them why the mistakes were made-- whether they didn't understand, didn't remember, were careless, incorrectly comprehended the problem. After discovering the reasons for making the mistakes, the children can then immediately correct those mistakes to prevent making the same mistakes next time.

Hold an apple in one hand and a teacher's pointer in the other

"It is important to reward and punish appropriately. When holding an apple in one hand, hold a teacher's pointer in the other. If you hold apples in both hands, you are spoiling your child, which does him or her harm. If you hold teacher's pointers in both hands, that would be undeserved unkindness, which does him or her harm. Mrs. Su does not reject an appropriate level of discipline.

By "appropriate," she means that it is fine to reproach your child, but never nag. Lecture your child, but never beat or use abusive language. It is important to carefully handle the fine line in between. "For example, when Wan Ting made a mistake while practicing mental arithmetic," Mrs. Su says, "I would lightly hit her on the palm to let her know she needed to focus. When Wan Ting and Hsiang Wen did well in tests or competitions, I would take them out shopping and let them buy something small to reward themselves." Mrs. Su stresses the importance of coupling hardness with softness and using both the carrot and the stick for noticeable results in educating children.

Don't embarrass your child

Mrs. Su says as parents and teachers, the biggest taboo is to scold your children in public. This hurts children a great deal. "If you scold your children in front of others,"

she says, “no amount of consolation will necessarily make up for the harm you inflicted upon them." When children don't do so well on tests or competitions, parents should avoid direct scolding, but instead change the subject to decrease the sense of discouragement in children, and wait until everything sinks in, then encourage them by telling them that you hope they do better next time.

Grow close to your children

In elementary school, children desperately need the love and care of their parents. If you don't provide sufficient care for your children during these years, it will be too late when your children are in middle school or high school. As a full time housewife, Mrs. Su devotes herself to her children, keeping them company while they study, do their homework, practice mental arithmetic, play the piano, eat, sleep and watch TV; she also talks and plays chess

and other games with them. Mrs. Su says, "when kids need you, give them more time, even double the time and grow closer to them, because this kind of experience and process happens only once. It's the same for parents and children."

The little girl who is no longer shy

Su Wan Ting's motto:
On any given Sunday, any team can beat any other team.
Do not fear going slow, only fear standing still.

Su Wan Ting isn't the kind of lively girl who grabs people's attention. By glancing at her, it is impossible to tell that she was a national champion in mental arithmetic, a child prodigy. She is neither pretty nor smart. One would even say she looks silly. She doesn't talk much, very quiet and introverted. If no one explained her background to you, you wouldn't even notice her existence.

Mrs. Su thinks it strange too. She says, laughing, that Wan Ting and Hsiang Wen are a pair of smart sisters who look silly. When they were young, the two sisters never smiled for pictures, and always looked silly, which was both frustrating and amusing.

Consequently, Mrs. Su often reminds Wan Ting and Hsiang Wen to act livelier, to smile at teachers in addition to greeting them, and to bond with classmates instead of standing quietly in the corner and staring off into space. Since they were born with these personalities, it's rather difficult to change.

Wan Ting knows how she is, and tries to improve according to her mother's instructions. In her diary, her "criticisms" towards her little sister reveal the two sisters' personalities.

My sister is in the second class of third grade. Her

worst trait is that she doesn't smile. Whether waking up in the morning or not being able to finish homework, she always puts on a poker face and says nothing, making mother angry. Mama often says "Girls don't look good like this, and will be less popular!" Thus, I hope my sister can slowly change this trait of hers, and try to smile more often so people won't feel uncomfortable.

What Wan Ting said about Hsiang Wen, was what Wan Ting used to be like, except that now she knows "smiling all the time" is more loveable. This change in Wan Ting was actually "trained." Mrs. Su says, ever since Wan Ting started going to abacus and mental arithmetic lessons, her personality had become livelier, bubblier and lovelier.

How did this happen? In the mental arithmetic center, Master Tai Chiang Ching is especially good with children; he often asks children to be enthusiastic and lively. When

he asks questions, students are urged to bravely raise their hands to answer; when answering questions, they should be concise but powerful and to speak in a loud voice. In addition, when a classmate answers correctly, they ought to strongly applaud him or her, so as to always cheer for classmates and for themselves. In such an energetic learning environment, Wan Ting has, like her classmates, gradually become more active, energetic and livelier.

Later on, as Wan Ting increasingly exposed herself to small and large events through tests and competitions, she became more courageous and poised. Mrs. Su says, Wan Ting has been on stage countless times and accepted countless awards; despite her innate introverted personality, she is no longer a closed, shy girl, but a poised, modest young adult.

Now, when Wan Ting and Hsiang Wen are in front

of the camera, they flash adorable, confident smiles that reflect the satisfied smiles on their parents' face. How resplendent!

A role model in the eyes of teachers

Su Wan Ting's motto:
On any given Sunday, any team can beat any other team
More haste, less speed.

In Tainan Municipal Dong-guang Elementary School, the name "Su Wan Ting" is well-renowned. Everyone on staff knows this "campus treasure" who has brought glory to the school. In fact, Su Wan Ting is even more well-known than the teachers! But in the eyes of the teachers, Wan Ting does not "swagger" at all but is instead a model student praised by all.

Master Ling Li Jung, Wan Ting's homeroom teacher, says that Wan Ting is the "little teacher" of the class; when classmates encounter problems with school work, they go to Wan Ting for help because she is particularly focused during class; whether in math, science, social studies, music, physical education, or art, she takes a keen interest in learning, grasping a good concept of each subject and often playing the role of teacher's little assistant.

"What is most valuable is that Wan Ting is not arrogant at all. She's very down-to-earth and always helps her classmates wholeheartedly. Hence, many classmates write in their diaries that Wan Ting is his (her) best friend, that she would help him (her) solve any problem." Master Lin Li Jung describes Wan Ting as a model student with "zero flaw."

Master Lin Li Jung also mentions that Wan Ting is a

"thinker," that she knows how to observe calmly and think independently, and has ideas of her own. "Wan Ting was born intelligent, but what's luckiest is that she has a great mother." Master Lin points out that behind every good student, there is a great mother. "Many children go to numerous talent classes just like Wan Ting, but most give up half-way and end up with nothing. This is mainly because parents don't sufficiently cultivate children's interest in learning nor spend enough time with them to help them study, and end up wasting money and time."

As Wan Ting's third and fourth grade homeroom teacher, Hsu Hui Chen was there to observe the effect and changes on Wan Ting since she started learning abacus and mental arithmetic. "The first impression I had of Wan Ting was that she was introverted and shy. She didn't really play with her classmates and often kept quietly to herself. Dur-

ing class, she also listened quietly. When I asked questions, she rarely raised her hand to answer. Only when I asked her specifically would she stand up and answer in a soft voice. Later on, I knew that Wan Ting was doing well in abacus and mental arithmetic, getting quite a few awards. She was a level ten in mental arithmetic at the time, and level eight or level nine in abacus arithmetic. I think perhaps because she's been places and felt 'accomplished,' Wan Ting gradually became livelier, especially during the second semester of fourth grade, when she started to speak up and as she became good at expressing herself."

Master Hsu Hui Chen also says that Wan Ting was very focused in class. "Her little eyes would stare at me, so that I had no choice but to lecture seriously." In addition, Hsu Hui Chen compliments Wan Ting on being mild-tempered, neither proud nor arrogant, a very popular, good

student.

Yuen Pei Chi, Wan Ting's first and second grade homeroom teacher, says that she did not see anything "extraordinary" in Wan Ting when they first met. She says, "Wan Ting had great self-respect and self-discipline, and was very confident and had ideas of her own. She also got along with her classmates. Despite doing so well in abacus and mental arithmetic, you can't see any significant effect on her, though her classmates 'worship' her for receiving recognition from the principle and the dean of academic affairs and for having clippings posted on bulletin boards. Compared to her peers, Wan Ting is without a doubt at the top of the pyramid."

Skipping grades to the junior high school group and taking first place

Su Wan Ting's motto:
The smart man borrows from others' experience; the average man struggles and gains experience; the stupid man struggles but forgets the experience.
Yield twice the result with half the effort, and not half the result with twice the effort.

Su Wan Ting's incredible abacus and mental arithmetic skills are known to everyone in Taiwan's abacus and mental arithmetic industry. Seeing her name in the competition is like seeing the biggest enemy competing for the

championship. As one can see, Wan Ting's capability is astonishing.

Chang Chi Kan, Dean of Academic Affairs at Tainan Municipal Dong-guang Elementary School says that when Wan Ting was in the third and fourth grades, she skipped grades to enter abacus and mental arithmetic competitions at the fifth and sixth grade level and had plenty of experience in competitions in the north and south parts of Taiwan. Due to frequent wins, appearances in newspapers and recognition during her school's weekly assembly, she became a heroine of Dong-guang Elementary School. "Tainan has many famous schools, but with Wan Ting here, Tainan Municipal Dong-guang Elementary School is internationally renowned!" Dean Chang Chi Kan feels deeply honored.

Friends in the abacus and mental arithmetic industry

sometimes can't help "complain" to Wan Ting's guidance teacher Master Tai Chiang Ching. "Your Wan Ting always gets first place. We're all going to be out of jobs soon." Having this outstanding student whom everyone calls "champion," Master Tai behaves modestly on the surface, but is proud and happy deep down. With Lin Tzu Yin earlier, and Su Wan Ting later, the two top students have plated two layers of gold on his "CMA Mental Arithmetic" sign, making it so well-known and filling him with energy while he teaches.

However, to avoid jealousy from those in the same profession and standing in the way of other children's chances of winning, Master Tai occasionally lets Wan Ting enter competitions at "skipped levels." In 1996, when Wan Ting was in the fourth grade, the third Taiwan Cup mental arithmetic contest was held on August 4 at Wan

Ting's school-- Tainan Municipal Dong-guang Elementary School. Over a thousand contestants were gathered in Fu Cheng to test their levels.

As Wan Ting was doing rather well in mental arithmetic at the time, Master Tai and Mrs. Su, after contemplating, decided to have Wan Ting skip three grades and enter the junior high competition. There were ninety-two contestants in the junior high group, and among them, three, including Wan Ting were elementary kids who signed up at skipped levels. Test problems included 90 problems in addition, subtraction, multiplication and division. The first time limit was two minutes, the second and third were one minute each. Ranking was based on number of problems answered correctly.

When the results were announced, Wan Ting did not disappoint; she took first place in the junior high group,

bringing honor to her school, who was hosting, by keeping the champion award cup in Dong-guang Elementary School. The whole school, from teachers to students jumped for joy. Master Tai Chiang Ching, head of the Taiwan Cup mental arithmetic contest committee, was especially overwhelmed with joy because his beloved student had made another win, one that those in the same profession would have nothing about which to complain.

In reality, Master Tai Chiang Ching knew in his heart that Wan Ting would win because at the time, she was already the top abacus and mental arithmetic expert nationally and the only one in Taiwan holding the special level thirteen in mental calculation. Talent like this would qualify for championship even if eight or ten grades were skipped, not to mention three.

Watching the competition in the audience, Mr. Su said

he was happy that Wan Ting placed first in her own school for her own school and he believes that for the school's teachers and parents, it set a certain standard in addition to bringing honor. "Wan Ting, like other students, isn't any smarter, nor has she a higher IQ, but she is active and diligent and tries to better herself. That, along with her mom taking extra good care of her and cheering for her, is how her achievements were attained."

The youngest special level expert

Su Wan Ting's motto:
The successful person looks for methods. The unsuccessful person looks for excuses.
Laziness is the root of all evil.

The highest level in abacus and mental arithmetic is currently "level ten." Once this level has been reached, one is recognized as an expert and qualifies for "graduation." However, abacus and mental arithmetic have become increasingly common among children in the past decade, even appearing on television in the form of challenges in talent shows such as Wu Teng Chiang seven or eight years

ago. Many parents send their children to learn these skills. Consequently, an increasing number of elementary school children are attaining levels; even a level five or six is not surprising.

Due to the transition of abacus and mental arithmetic from a traditional career skill to a unique talent, its learning age has gradually shifted downwards; the majority of students learning abacus and mental arithmetic are elementary school children, who have less pressure from schoolwork, and even many kindergarteners K2 and over or any preschooler who can write 1234 learn these skills.

Although not many children study abacus and mental arithmetic for long periods of time, those who are able to go along with the subjective and objective requirements throughout the learning process make profound progress. Take Wan Ting for instance. She reached level nine in

mental arithmetic by the time she was in the first grade, level ten in the second grade, and had no higher level left for her to pass. Therefore it became evident that the traditional ten-level standard was no longer compatible with the demands of the era.

In order to allow children to "live and learn and better themselves" and to increase their interest in learning, the Children's Abacus Calculation in Taiwan started designing a special level test for high level child geniuses, so that children who had reached level ten could be evaluated by new standards, solving the "not enough levels" problem. This new standard, however, has only been designed to level fifteen.

Staying at level ten for three years, Su Wan Ting took the special test held by the Children's Abacus Calculation during the first semester of fourth grade (November

5, 1995), and passed "level thirteen," setting the highest record nationwide. Her level even surpassed her age-- ten and three months.

A year later, on November 12, 1996, the fifth grader challenged herself to a higher level, signing up for the same special level test held by the Children's Abacus Calculation. This time, Wan Ting aimed to pass the highest level--level fifteen. The most thrilling part of the test on that day was the special level test; all eyes were on Su Wan Ting as she finished answering fifty problems and each one correctly, in two minutes. Just as level fifteen was about to be reached, an incident happened.

The strict and careful judges, who were normally just, ruled Wan Ting's last problem as incorrect. "Weird. All the numbers are right," the crowd was murmuring, as the judges circled the error. As it turned out, the judges felt that on

Wan Ting's last problem, one of the apostrophes was too far away from the number so that it was impossible to identify the location of the apostrophe and thus the problem couldn't be ruled as correct. As a result, Wan Ting failed to pass level fifteen, but still moved to the higher level of level fourteen, still the highest record nationwide.

On the way home from Taipei that day, though Wan Ting was a little depressed and her parents kept praising her on having done a great job, she still had high morale and told her parents in a firm tone, "Next year, I will be more careful and serious, and pass level fifteen as my graduation present so we can all be happy together!"

Future little mayor

Su Wan Ting's motto:
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away."
Think only of success, not of failure.

From K3 to fifth grade, Su Wan Ting took approximately six years what it normally takes others ten or twenty years or even a whole lifetime to accomplish—or possibly never accomplish: incredible mental arithmetic skills of "level ten in abacus calculation and level fourteen in mental calculation." In reality, there is no extraordinary trick or secret. All it takes is perseverance and to consis-

tently strive for improvement.

Houses are constructed with blocks of brick. Step by step. Everyone knows this method, but very few can actually act accordingly. Everyone also knows that without 99% of hard work, there would be no genius. Many people become successful in society, and many students ace tests in school, but there is no need to envy them because you reap what you sow; they are simply harvesting what they worked hard to cultivate. "Those who are willing to do the same will make it too." Like Mrs. Su says, "if you put in hard work, dreams will come true."

For the past five years, Wan Ting has been doing fantastically whether in abacus and mental arithmetic contests or in school due to studying abacus and mental arithmetic. In her bedroom, her sister's awards and her own cover the walls, and these are just the tip of the iceberg. Mrs. Su says

jokingly, "If we were to hang all the awards, we'd have to ask Papa to get a bigger house."

Other than contest awards, plates, cups and certificates from tests, there are also awards and banners from school, such as superior grades, model student, honorable child and even kind helper medals. Wan Ting's "truck-load" of honorable recognitions make a spectacular sight.

Wan Ting's guidance teacher and founder of "CMA Arithmetic" Master Tai Chiang Ching cherishes this outstanding student who has far surpassed his own level. There is no suitable class for her at the center, making her the "loneliest" student. To maintain Wan Ting's skills, Master Tai continues to guide her and help her practice as well as keep an eye out for suitable competitions. However, Master Tai now serves as her obligatory guidance teacher, no longer charging tuition.

"Actually, we offer scholarships to students who perform well as encouragement. Half-tuition is given for passing level ten in mental calculation and full-tuition given for passing level ten in abacus calculation. Wan Ting has far surpassed these qualifications. It is my honor that she is willing to continue receiving guidance from me. I am the one sharing the benefit." Master Tai says modestly.

Despite countless honors, praises and applauses, Wan Ting still has some expectations and goals for herself in her heart. A year until graduation from elementary school, Wan Ting sets three goals for herself.

1.Be a good student and get the "full attendance award"

2.Attain level fifteen in mental arithmetic.

3.Run for the school's "little mayor."

Always working hard, striving for improvement and taking her endeavors seriously in order to do her best, Wan

Ting is a little girl with great ambitions. Her success is just around the corner and her future is limitless.

Sharing the experience of success

Su Wan Ting's motto:
On any given Sunday, any team can beat any other team.
Do not fear going slow, only fear standing still.

After Wan Ting's name had appeared in the newspapers quite a number of times, many students and parents studying abacus and mental arithmetic started going to competitions and tests, taking the opportunity to see the "national champion in mental arithmetic" in person and to ask advice about the secrets of success.

Holding the title of "national champion in mental

arithmetic," Wan Ting displays no air of arrogance. She is still like the average elementary school student and gets along with her classmates. Although, when classmates or parents ask how she did it, she blanks out, not knowing how to answer their questions. "Just practice every day" is pretty much all Wan Ting can say.

"You can be this good just by practicing every day?" Nobody agrees. How can it be so easy? Consequently, Wan Ting's guidance teacher and Mrs. Su have become the subjects of questioning by those seeking advice. To have produced under his teachings one outstanding student after another, Master Tai must have his theories. If you want to know the secret, Master Tai says, "Just come to class and find out!" As expected, the number of enrollments soared, and Master Tai's "CMA Arithmetic" classrooms expanded from one to several.

As for Master Tai's secret to winning? You don't necessarily have to go to his class. You can get a good grasp by reading chapter two of this book.

The other great person behind Wan Ting is Mrs. Su. She also has her own ways, which have been mentioned here and there throughout this chapter, and you probably know them pretty well by know. Mrs. Su has stood at Wan Ting's side while she grew and studied, and has unwittingly become an amazing abacus and mental arithmetic coach.

For instance, Mrs. Su "trained" Wan Ting's little sister Hsiang Wen at the dining table. Mrs. Su took in everything Wan Ting learned in class and experimented teaching them to Hsiang Wen, much like a real teacher. As it turned out, Mrs. Su was indeed like a real teacher. Hsiang Wen, like her sister, has mastered the skill, currently holding level ten in mental arithmetic and numerous grand prizes.

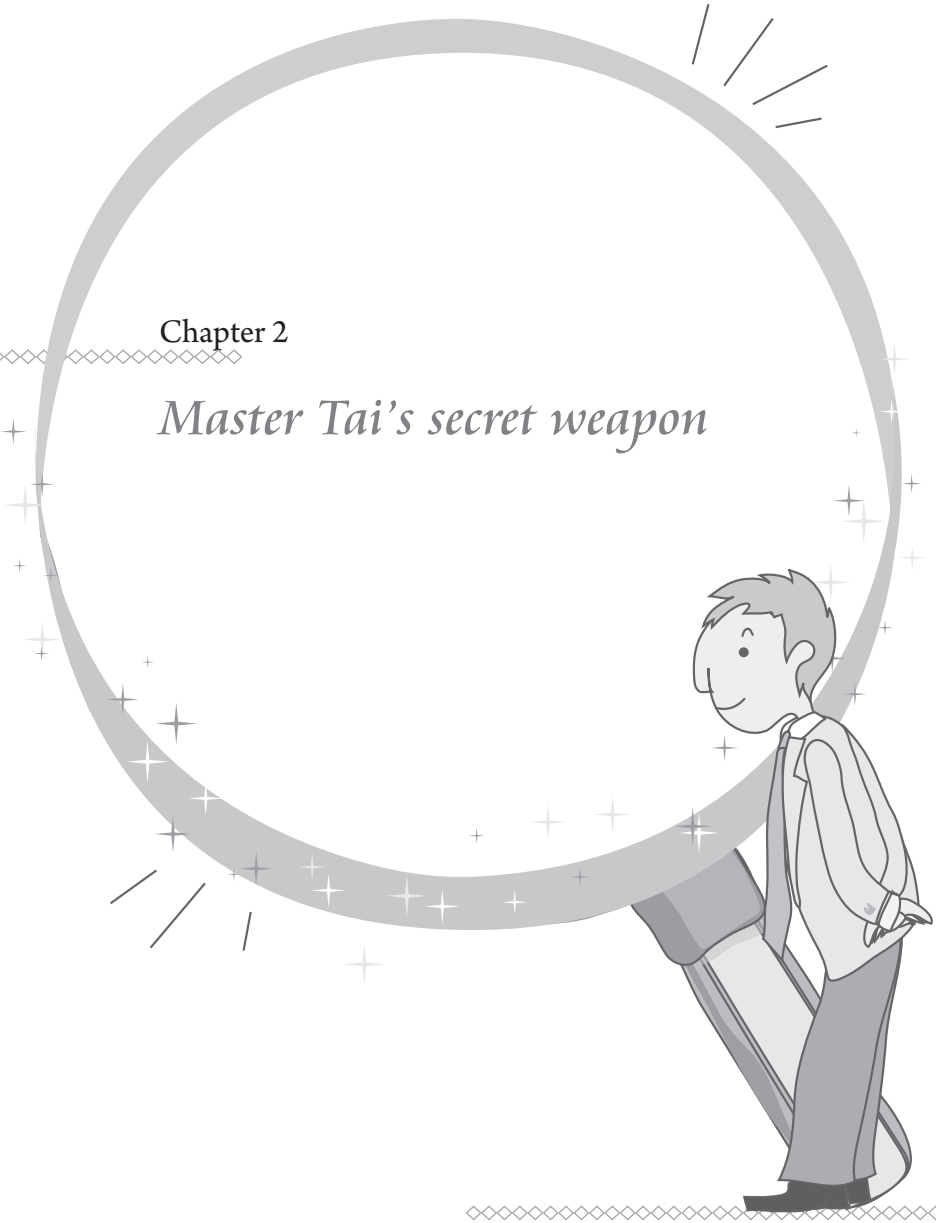
"One person goes to class; three get benefits. One man finds the way, three ascend to heaven." Mrs. Su has learned quite a lot from her two daughters and sums up her thoughts. Ever since Mrs. Su found out the key to success, she has been generous in sharing her knowledge. "Before, when Wan Ting was still trying to find her way, other parents gave us instructions when we needed them. Lin Tzu Yin's mom, for example, gave me tons of encouragement and help. Now, since I have the ability, of course I should help other children and parents so they can learn with a higher sense of accomplishment." Mrs. Su says.

Therefore, whether in school or at the abacus and mental arithmetic center, Mrs. Su, Wan Ting and Hsiang Wen are often seen in class with everyone; they are all the teachers' little assistants as well as classmates' and parents' little teachers. They are always happy to share their expe-

riences in growing and achieving success so that people around them can learn from within. This is also why Su Wan Ting's whole family and Master Tai Chiang Ching are delighted by the publishing of this book.

Chapter 2

Master Tai's secret weapon



Su Wan Ting's motto:
On any given Sunday, any team can beat any other team
More haste, less speed.

"We grow great by dreaming!" This quote deeply moves Master Tai Chiang Ching, founder of the "CMA Arithmetic" educational organization. Master Tai Chiang Ching started his own business when he was twenty-three years old. For the past thirteen years, he has cultivated countless outstanding children and abacus and mental arithmetic contestants, among whom are Lin Tzu Yin and Su Wan Ting, two child prodigies who have reached the tenth level. All of these accomplishments are the result of having a dream once upon a time, which was mocked by his friends as "asking for the moon." Now, Master Tai Chiang Ching has proven himself; his direction and methods

are correct and his dreams will continue to grow.

Born in 1961, Master Tai Chiang Ching is from Hu Wei, Yunlin County. Since childhood, he has been interested in abacus and mental arithmetic, serving on the school's abacus and mental arithmetic team and achieving levels during his school years. Tai Chiang Ching had his mind set on being an educator in the abacus and mental arithmetic field, and as such actively improved his skills. After completing military service, he started CMA Arithmetic. It was 1984 and he was just twenty-three years old.

Tai Chiang Ching is currently a committee member of the Association of Children's Abacus Calculation in Taiwan. He actively promotes children's abacus and mental arithmetic, constantly researching related theories and developing related methods. Currently, there are nearly two hundred books on abacus and mental arithmetic theories

and teaching materials written and compiled by Tai Chiang Ching; one hundred of these books are teaching materials for the "two-handed method", making him one of Taiwan's leading researchers in the "two-handed method".

Tai Chiang Ching began researching the "two-handed method" rather early on. At the time, it was just a sudden thought that popped into his head, "If the piano can be played with both hands, why can't the abacus be manipulated with both hands?" Consequently, Tai Chiang Ching began digging into the possibility of moving abacus beads with both hands, though he still had not finalized every aspect of his theory. Actually, the revolutionary "two-handed method" had been successfully developed in Mainland China in 1983 but Tai Chiang Ching did not find out about this good news until 1990. In the following year, he traveled to Mainland China to study the method, after

which he came back to Taiwan and began teaching the method, making him a pioneer in teaching with “the two-handed method.”

Since its founding, CMA Arithmetic educational organization, founded by Tai Chiang Ching, has professionally maintained high quality education. To accomplish this, Tai Chiang Ching not only consistently improves teaching skills, creates good learning environments and uses vivid, lively and fun teaching materials, he also splurges to have professional teachers on board and compiles high standard teaching materials suitable for children. Master Tai says, "By looking after both teaching skills and teaching materials, students' interest and effectiveness in learning significantly increase. Children also become more intelligent, have better reflexes and become livelier and smarter."

Tai Chiang Ching's CMA has cultivated countless out-

standing children and abacus and mental arithmetic contestants. Not only do they perform outstandingly and rank high in national or regional competitions, some have even stood out by placing first in international competitions.

To carry forward the quintessence of Chinese culture and allow more children to have the opportunity to learn abacus and mental arithmetic, in turn stimulating their brain power, Tai Chiang Ching plans to establish children's abacus and mental arithmetic classrooms all over Taiwan for children from five to fifteen years old. In addition, he plans to recruit motivated young people in becoming educators in the field by training them to become abacus and mental arithmetic teachers.

This chapter illustrates the "Two-Handed Method" and potential development, two main points of Master Tai Chiang Ching's teaching which have made the book's her-

oine Su Wan Ting who she is today. We hope to offer those who love abacus and mental arithmetic and educators of children a good peek behind the scenes.

The Two-Handed Method

Jilin Province's epochal invention

Su Wan Ting's motto:
The smart man borrows from others' experience; the average man struggles and gains experience; the stupid man struggles but forgets the experience.
Yield twice the result with half the effort, and not half the result with twice the effort.

The revolutionary "Two-Handed Method", using both hands to manipulate abacus beads, method was invented in 1983 by Liou Shan Tang, renowned Chinese speed abacus calculation expert and Chief Secretary of Jilin Prov-

ince's abacus association. Since its invention, the method has aroused a great deal of attention in Asia and particularly created big impacts on Japan and Korea's abacus and mental arithmetic industries. In Taiwan, the "Two-Handed Method" is intentionally neglected, so currently its impact is still small, though in the future it is likely to become a trend.

Before 1983, Jilin province had not done well in national abacus competitions and tournaments. In China's four important competitions, Jilin Province's best achievement was a third place for groups and a second place for individuals in a single category. To strive for better rankings, Chief Secretary of Jilin Province's abacus association, Liou Shan Tang, decided to conduct a comprehensive review and come up with remedies.

In Spring 1983, the abacus association of Jilin Province

established the first experimental class in speed abacus calculation in the fourth grade of Zhongnan Elementary School in Bajiazi, Helong, Yanbian Province. Improving the traditional four operations of abacus arithmetic, the new method proved to be effective. Jilin Province won first place five times in a row, from the 1984 national abacus tournament in Guanzhou to the 1993 third national abacus competition in Jinan; and placed first ten times in a row, a new record, in the national minority group abacus competition.

Currently, the speed abacus calculation experiment is performed on over 30,000 students in seven hundred classes in five hundred elementary schools in Jilin Province. During the ten years of experiment, Jilin Province's abacus workers, experts and scholars invented the pioneering "using both hands to stir abacus beads method" and

compiled the Jilin-style "six-step method to speed abacus calculation" educational system under the leadership of Liou Shan Tang. Under this advanced educational system, Jilin Province took just five years to cultivate a massive number of child prodigies in abacus and mental arithmetic. According to professional analysts, the level that Jilin Province attained in five years has surpassed levels which Japan and South Korea's abacus arithmetic industries took a century to attain. One could call this a miracle in the history of Chinese technology.

With the success of the experiments in speed abacus calculation and the "Two-Handed Method", Jilin Province has included speed abacus calculation as one of the elementary school activities since Autumn 1994, and is striving to make it an official elementary school subject as soon as possible so that all students can benefit from the

method and the whole province's calculating ability can be enhanced. Other provinces in China have followed, and it is predicted that the "Jilin experience" will bring forth an abacus arithmetic cultural revolution for the Chinese.

The revolutionary invention of the "Two-Handed Method"

Su Wan Ting's motto:
The successful person looks for methods. The unsuccessful person looks for excuses.

The three exclusively Chinese methods of calculation, namely oral calculation, written calculation, and abacus calculation have been well established in Chinese society; consequently, many children know abacus calculation. However, with advances in technology, calculators have become common, making abacus calculation very much like piano playing, or in other words, more like a special skill. The common skill used by the general public made

its transition into a job skill of the financial and accounting industry, and further minimized its "range of survival" by becoming a "special skill." However, due to the active work of those in the abacus and mental arithmetic industry, abacus and mental arithmetic hold their share among Taiwan's talent classes for children.

What is the “Two-Handed Method”? How is it different from the traditional "One-Handed Mehtod"?

The so-called “Two-Handed Method” is using both hands to perform abacus calculation-- two hands simultaneously moving beads on different rods on the abacus while performing calculations. The pioneer of teaching the “Two-Handed Method” in Taiwan, Tai Chiang Ching says that according to his statistical analysis, using both hands to stir abacus beads and perform mental arithmetic increases accuracy and decreases the number of bead-moving by 30% compared to the traditional “One-Handed

Method"; in abacus and mental competitions where time is paramount, the method can have a critical effect on victory.

For instance, it takes twenty-two moves of beads to add "9" ten times with the "One-Handed Method", and even with the simplified "One-Handed Method", it takes nineteen moves. However, with the "Two-Handed Method", it takes just ten times. Adding from one to one hundred takes four hundred and five moves with the "One-Handed Method" and two hundred ninety-three with the simplified "One-Handed Method", but just one hundred ninety-six with the "Two-Handed Method" and one hundred sixty-five with the simplified "Two-Hand Method". From the comparison above, one can see why in recent years contestants using the "Two-Handed Method" have become frequent winners in competitions.

If the “Two-Handed Method” has such absolute advantages, then why is it still uncommon in Taiwan? Tai Chiang Ching says, one hundred percent of teachers in Taiwan use one hand to manipulate abacus beads. It isn't easy for teachers to spare the time to learn a new teaching method. Furthermore, for children who have been practicing with the “One-Handed Method” for over two years, it is difficult to have them switch to the “Two-Handed Method”.

"In my class, for instance, some students had transferred from other abacus and mental arithmetic classes and just couldn't adjust to the “Two-Handed Method”, so I would switch to the “One-Handed Method”. But in the past two, three years, more and more children have been instructed using the “Two-Handed Method”. Currently, all my students use the “Two-Handed Method” and the learn-

ing effects have been great. Su Wan Ting, for example, was among the first group of students to receive training in the "Two-Handed Method". Her outstanding performances are proof that I'm going in the right direction in terms of promoting the "Two-Handed Method".

The “right brain revolution” of the “Two-Handed Method”

Su Wan Ting's motto:
Laziness is the root of all evil.
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away."

We often say "use your brain and hands together" and "nimble hands, ingenious mind." This shows the intimate relationship between the hands and the brain. Complex activities of the hands train periphery nerves and in turn stimulate brain cells, strengthening the cerebrum and preventing degeneration of brain cells, thereby developing brain power.

On the surface, moving abacus beads with both hands increases the depth of visual knowledge of logarithms and related methods of calculation, which produces a stimulating effect when learning math and other subjects.

Essentially, using both hands coordinates children's senses of sight, hearing, touch and their muscles and develops the left brain's calculating and logical thinking functions. Through the linking of the left and right brains, messages are delivered to coordinate the actions of the two hands, in turn stimulating development of the cerebrum, making students think faster, become more focused and have better memories.

The brain power development technology of the "right brain revolution" which has recently been popular in Taiwan proposed that nowadays, most people use the left brain more and consequently are unable to fully uti-

lize cerebral functions. Research shows that a human's left brain is in charge of language, logic, calculation, memory, sequence, categorization, writing, analysis, etc., or in other words the skills emphasized in the average educational system. On the other hand, the right brain is in charge of instincts, emotions, attitudes, images, colors, spatial feelings, music, tempo, dancing, coordination of bodily movements, integration, creation, etc. An average person's left and right brains do not have frequent communications, and uses mostly the left brain, and rarely the right brain, to think about problems.

In reality, to fully utilize the cerebrum's brain powers, the left and right brains must be trained simultaneously and work together closely. The "Two-Handed Method" utilizes the concept of left and right brains working together to develop brain power in school children.

Speed abacus calculation, or abacus mental calculation refers to the imprinting of the image of an abacus in one's mind and imagining performing calculations on the "invisible" abacus. Generally speaking, the prerequisite to excelling in abacus mental calculation is to master abacus calculation, then go step by step from tangible (abacus) to semi-tangible (chocolate diagrams) to abstract (no tools). Wan Ting also went through these procedures before passing level ten in both abacus and mental arithmetic. She has reached the state of flow in which there is "no abacus in her hands, but in her mind." Like a master of martial arts in martial arts novels, she has perfected the consummate skill of having "no sword in hand, but in mind."

Learning the “Two-Handed Method” and applying it to mental calculation is not bound by time, space, setting, tools or other conditional limits; speed calculation can be

performed spontaneously. The construction and changing of the abacus image in the brain effectively develops the right brain's imagination and creativity functions, helpful in training children's attentiveness, composure and memory, as well as enhancing powers of imagination and creativity. Through repeated basic training in summation and subtraction of fixed numbers, constants and hundreds, etc., it takes just an hour per day for three months to see significant results.

An ex-Russian "human brain research center" found after more than a decade of research that human brains possess massive potential, but the average person uses only less than ten percent of his or her cerebral potential in a lifetime. Through incessant training, unexpected capabilities such as the amazing speed reading and speed calculating can be produced. Practicing speed abacus calculation

by using the "Two-Handed Method" is a good method for stimulating brain power and developing potential.

Frequency of moving abacus beads using one hand vs. using the "Two-Handed Method" to add from 1~9				
Problem (add 10 times)	One hand	Simplified one hand	Two-Handed Method	Simplified Two-Handed Method (cannot simplify)
1	13	11	10	10
2	16	12	10	10
3	19	13	10	10
4	22	14	10	10
5	16	15	10	10
6	25	16	10	10
7	24	17	10	10
8	23	18	10	10
9	22	19	10	10
Total	180	135	90	90

Frequency of moving abacus beads using one hand vs. using the Two-Handed Method to subtract from 1~9				
Problem (add 10 times)	One hand	Simplified one hand	Two-Handed Method	Simplified Two-Handed Method (cannot simplify)
10-1	14	12	11	11
20-2	17	13	11	11
30-3	20	14	11	11
40-4	23	15	11	11
50-5	17	16	11	11
60-6	27	17	11	11
70-7	26	18	11	11
80-8	25	19	11	11
90-9	24	20	11	11
Total	193	144	99	99

Frequency of moving abacus beads using one hand vs. using the "Two-Handed Method" to add from 1~100				
Problem	One hand	Simplified one hand	Two-Handed Method	Simplified Two-Handed Method
1+2… …+10=55	19	14	10	10
55+11+12… …+20=210	33	28	18	12
210+21+22… …+30=465	35	27	16	13
465+31+32… …+40=820	44	31	22	15
820+41+42… …+50=1275	44	30	19	16
1275+51+52… …+60=1830	43	31	21	21
1830+61+62… …+70=2485	44	30	22	20
2485+71+72… …+80=3240	51	37	25	19
3240+81+82… …+90=4095	40	32	23	20
4095+91+92… …+100=5050	52	33	20	20
Total	405	293	196	165

Frequency of moving abacus beads using one hand vs. using the "Two-Handed Method" to subtract from 1~100				
Problem	One hand	Simplified one hand	Two-Handed Method	Simplified Two-Handed Method
55-1-2… …-10=0	19	15	11	11
210-55=-11-12… …-20=0	32	25	18	13
465-210-21-22… …-30=0	38	27	18	16
820-465-31-32… …-40=0	43	25	19	15
1275-820-41-42… …-50=0	42	30	22	20
1830-1275-51-52… …-60=0	45	34	22	20
2485-1830-61-62… …-70=0	46	33	22	21
3240-2485-71-72… …-80=0	43	36	24	22
4095-3240-81-82… …-90=0	45	33	23	23
5050-4095-91-92… …-100=0	43	34	25	23
Total	396	292	204	184

1. Mnemonics for fixed addition 2. Mnemonics for fixed subtraction

1	1+1+… …+10 times = 10 +1=+5-4(combination of 5) +1=-9+10(combination of 10)	1	10-1-1… …-10 times = 0 -1=-10+9(breakdown of 10) -1=+4-5(breakdown of 5)
2	2+2+… +10 times = 20 +2=+5-3(combination of 5) +2=-8+10(combination of 10)	2	20-2-2… …-10 times = 0 -2=-10+8(breakdown of 10) -2=+3-5(breakdown of 5)
3	3+3+… …+10 times = 30 +3=+5-2(combination of 5) +3=-7+10(combination of 10)	3	30-3-3… …-10 times = 0 -3=-10+7(breakdown of 10) -3=+2-5(breakdown of 5)
4	4+4+…..+10 times = 40 +4=+5-1(combination of 5) +4=-6+10(combination of 10)	4	40-4-4… …-10 times = 0 -4=-10+6(breakdown of 10) -4=+1-5(breakdown of 5)
5	5+5+…..+10 times = 50 +5=-5-10(combination of 10)	5	50-5-5…..-10 times = 0 -5=-10-5(breakdown of 10)
6	6+6+… …+10 times = 60 +6=+1-5+10(combination of 6~9) +6=-4+10(combination of 10)	6	60-6-6… …-10 times = 0 -6=-10+4(breakdown of 10) -6=-10+5-1(breakdown of 6~9)
7	7+7+… …+10 times = 70 +7=+2-5+10(combination of 6~9) +7=-3+10(combination of 10)	7	70-7-7… ….-10 times = 0 -7=-10+3(breakdown of 10) -7=-10+5-2(breakdown of 6~9)
8	8+8+…..+10 times = 80 +8=-2+10(combination of 10) +8=+3-5+10(combination of 6~9)	8	80-8-8… …-10 times = 0 -8=-10+2(breakdown of 10) -8=-10+5-3(breakdown of 6~9)
9	9+9+… …+10 times = 90 (+9=-1+10) (combination of 10) (+9=+4-5+10)(combination of 6~9)	9	90-9-9… …-10 times = 0 -9=-10+1(breakdown of 10) -9=-10+5-4(breakdown of 6~9)

3. fixed addition (subtraction) and natural addition (subtraction) reference levels for using the "Two-Handed Method"

Category	1	2	3	4
Mental arithmetic level	Fourteen, thirteen, twelve, eleven, ten, nine, eight, seven	Six, five, four, three, two, one	Preliminary level to level four	Level five and above
Fixed addition (subtraction)	One digit	Two digits	Three digits	Four digits
Natural addition (subtraction)	1~10	1~30	1~50	1~100

4. Frequency of completing fixed addition in 60 seconds using the "Two-Handed Method"

		Answer	Time limit	Fewest number of times of completion
1	1+1+.....+ 10 times	10	60 seconds	14
2	2+2+……+ 10 times	20	60 seconds	12
3	3+3+… …+ 10 times	30	60 seconds	12
4	4+4+… …+ 10 times	40	60 seconds	12
5	5+5+… …+ 10 times	50	60 seconds	12
6	6+6+… …+ 10 times	60	60 seconds	10
7	7+7+… …+ 10 times	70	60 seconds	10
8	8+8+… …+ 10 times	80	60 seconds	10
9	9+9+… …+ 10 times	90	60 seconds	10

5. Frequency of completing fixed subtraction in 60 seconds using the "Two-Handed Method"

		Answer	Time limit	Fewest number of times of completion
1	10-1-1 … … - 10 times	0	60 seconds	14
2	20-2-2 … … - 10 times	0	60 seconds	12
3	30-3-3 … … - 10 times	0	60 seconds	12
4	40-4-4 … … - 10 times	0	60 seconds	12
5	50-5-5 … … - 10 times	0	60 seconds	12
6	60-6-6 … … - 10 times	0	60 seconds	10
7	70-7-7 … … - 10 times	0	60 seconds	10
8	80-8-8 … … - 10 times	0	60 seconds	10
9	90-9-9 … ….- 10 times	0	60 seconds	10

6. Frequency of completing natural addition in 120 seconds

		Answer	Time limit	Fewest number of times of completion
1	1+2+… ….+10	55	120 seconds	20
2	1+2+… …+20	210	120 seconds	14
3	1+2+… …+30	465	120 seconds	8
4	1+2+… …+40	820	120 seconds	3
5	1+2+… …+50	1,275	120 seconds	2
6	1+2+… …+60	1,830	120 seconds	2
7	1+2+… …+70	2,485	120 seconds	2
8	1+2+… …+80	3,240	120 seconds	1
9	1+2+… …+90	4,095	120 seconds	1
10	1+2+… …+100	5,050	120 seconds	1

7. Frequency of completing natural subtraction in 120 seconds

		Answer	Time limit	Fewest number of times of completion
1	55-1-2… … … …..-10	0	120 seconds	20
2	210-1-2… … … …-20	0	120 seconds	14
3	465-1-2… … … …-30	0	120 seconds	8
4	820-1-2… … … …-40	0	120 seconds	3
5	1,275-1-2… ……-50	0	120 seconds	2
6	1,830-1-2… … ….-60	0	120 seconds	2
7	2,485-1-2… … ….-70	0	120 seconds	2
8	3,240-1-2… … ….-80	0	120 seconds	1
9	4,095-1-2… … ….-90	0	120 seconds	1
10	5,050-1-2… … …..-100	0	120 seconds	1

Calculation methods and essentials for calculating two digits or more using the "Two-Handed Method"

① 99 +1 Note: 1. Move 99 using both hands at the same time. 2. (to add 1) Move right hand to the Tens place after subtracting 9, then move left hand to the Hundreds place and subtract 90 with right hand and add 100 with left hand at the same time. 3. Answer: 100	② 88 +22 Note: 1. Move 88 using both hands at the same time. 2. (to add 20) Move left hand to the Hundreds place and add 100; at the same time, move right hand to the Tens place and subtract 80. (Then add 2) move left hand to the Tens place and add 10; at the same time, move right hand to the Ones place and subtract 8. 3. Answer: 110
③ 169 +947 Note: 1. Move 100 with the right hand and 69 with both hands at the same time. 2. (to add 900) Move left hand to the Thousands place and move 1,000; at the same time, subtract 100 with right hand. Next, move left hand to the Hundreds place and move 100; at the same time, move right hand to the Tens place and subtract 6. Move left hand to the Tens place and move 10; at the same time, move right hand to the Ones place and subtract 3 3. Answer: 1,116	④ 81 -29 Note: 1. Move 81 with both hands at the same time. 2. (to subtract 20) Subtract 20 with left hand; (to subtract 9) then subtract 10 and at the same time move 1 with right hand. 3. Answer: 52

⑤ 100 -1 Note: 1. Move 100 with the right hand 2. (to subtract 1) Subtract 100 with left hand, move 90 then 9 with right hand 3. Answer: 99	⑥ 355 -88 Note: 1. Move 300 with right hand and 55 with both hands at the same time. 2. When subtracting 80, subtract 100 with left index finger and add 20 with right hand at the same time. Move left hand to the Tens position and subtract 10; at the same time, move right hand to the Ones position and add 2. 3. Answer: 267
⑦ Sample problems for treating two actions as one 9+1 10-1 8+2 20-8 7+3 30-9 4+1 5-1 4+4 5-2	⑧ Sample problems for treating three actions as one 6+6 50-5 7+6 42-6 45+5 63-7 35+7 56-7 49+7 64-8
⑨ Sample problems for treating four actions as one 45+8 54-6 47+7 53-8 48+6 52-7 45+9 54-9 15+6 54-8	⑩ Adding by moving to the next numerical position and subtracting by moving to the previous numerical position 95+6 101-6 96+7 102-7 97+7 103-7 98+6 104-8 94+6 105-9

The chart above is provided by Master Tai Chiang Ching, founder of CMA

Potential Development

Positive thinking stimulates potential capabilities

Su Wan Ting's motto:
Think only of success, not of failure.
On any given Sunday, any team can beat any other team.

Walk into the first floor lobby of Master Tai Chiang Ching's "CMA Arithmetic" educational organization, and you'll see two rows of words-- "Abacus calculation inspires intelligence. Mental calculation stimulates potential." Along the staircase to the classrooms upstairs, every step is

affixed with the message-- "I like myself! I am full of energy!" so that students can read it with every step they take. The classroom door is affixed with the sign "I'm the best in the world!" and on the wall by the door hangs a noticeable poster featuring Napoleon Hill's "Philosophy of Success."

With inspirational messages hung everywhere, CMA seems more like an aggressive direct marketing company or a consulting company for motivating potential. Upon entering the classroom, students are immediately affected by the environment, becoming energetic and enthusiastic, giving us a slight idea of Master Tai's special potential-developing teaching methods.

Other than being a professional authority in abacus and mental arithmetic, Master Tai also has a keen interest in potential development and self improvement courses. Master Tai says, in the past decade, he has signed up and

attended all types of potential development classes whenever possible, spending over a million dollars in tuition and reaping plenty of harvest in personal growth over the years. After digesting and organizing what he had learned, Tai Chiang Ching felt that if he could apply the teaching skills of potential development to children's education, there was bound to be a certain level of effect.

"Positive thinking" is one of Tai Chiang Ching's special methods of teaching. "In my teaching materials and practice books, inspiration words such as 'I am a very smart student,' 'I can calculate correctly,' 'I am the most outstanding,' etc. can be seen everywhere. Through these methods of positive thinking and self-suggestion, subconscious potentials are effectively stimulated, gradually building self-confidence and increasing students' sense of accomplishment in learning."

Tai Chiang Ching further points out, "On the other end of the spectrum of positive thinking is negative thinking. Negative thinking and attitudes discount our behavior and performance. For example, some parents often criticize their own children in front of others, saying things like 'Why are you so stupid! You idiot!' Consequently, these messages are sent to children's subconscious, making them think they are in fact stupid and useless, and in turn are unable to perform well in classes. In other words, the more you scold your children, the more stupid they become. I often warn parents that they ought to respect and encourage their children. One word of encouragement or comfort beats ten words of taunting or hurling."

"According to many psychological research studies, positive thinking and self-suggestion methods effectively transform an individual. Experts suggest that we repeat

beneficial words in our head or think about our goals whenever our body and mind are relaxed for unexpected benefits to self-confidence, self-image and self-completion. For example, I would teach my students to say loudly, 'I can count correctly!' Students would also learn by analogy and say "I like math. I'm getting better at math' or 'I like English. I can speak fluent English. I know lots of English vocabulary' or 'I like myself. My classmates like me too,' 'My grades are getting better!" and so on. Through repeatedly delivering messages to the subconscious, the ability to turn desires into reality is cultivated and students become proactive, highly motivated achievers."

Tai Chiang Ching thinks positive thinking not only makes learning abacus and mental arithmetic more effective, it also helps students and parents in terms of self-growth and self-realization. To become more developed,

healthier and improved, one must remember to use the positive thinking method frequently.

Philosophy of success: a cut above the rest

Su Wan Ting's motto:
On any given Sunday, any team can beat any other team.
Do not fear going slow, only fear standing still.

If you think you are beaten, you are,
If you think you dare not, you don't
If you like to win, but you think you can't,
It is almost certain you won't.

If you think you'll lose, you're lost
For out of the world we find,
Success begins with a fellow's will-

It's all in the state of mind.
If you think you are outclassed, you are,
You've got to think high to rise,
You've got to be sure of yourself before
You can ever win a prize.

Life's battles don't always go
To the stronger or faster man,
But soon or late the man who wins
Is the man WHO THINKS HE CAN!

This poem, "Philosophy of Success" by renowned motivator Napoleon Hill is a classic poem that inspires individuals to stride toward success. Master Tai Chiang Ching had it made into a poster to put up in the classroom for children to chant or read silently and in turn build proac-

tive, positive perspectives toward life.

Other than asking students to think positive, Tai Chiang Ching also instills in them the value of 'success' and 'improvement.' "I often tell the kids that excellence begins with a little bit of progress every day; being in the lead begins with a bit more innovation every day; success begins with a bit more hard work every day. There are two main points here; one is to do, and the other is to do better. As long as children get a good grasp of this concept, astonishing progress can be expected."

Tai Chiang Ching stresses that the process of learning is just as important as the results. With a good grasp of the correct methods, one naturally learns effectively. "Teaching abacus arithmetic and mental arithmetic is actually not hard, but that doesn't satisfy me. I hope children can learn in my class how to study effectively for any subject,

which you might call a successful philosophy useful for a lifetime."

Tai Chiang Ching often also motivates children. "If you answer incorrectly, it's alright. Calm down and tell yourself, 'Try again. I can do this!' If you fall, get up. It's no big deal." Courage is the most important weapon when we face a challenge; fear, on the other hand, is an obstacle that stands in our way. In the hall hangs a poster of a fist with the caption: I have decided not to regret the past, worry about the present or fear the future.

"However, growth does not mean success. Growth coupled with maturity is real success!" While he teaches, Tai Chiang Ching constantly reminds children to act properly such as being filial, sociable, respectful, etc. Tai Chiang Ching hopes that every child who comes to CMA Arithmetic to learn abacus and mental arithmetic not only

learns a superior talent but also becomes a good child in the eyes of parents and a good student in the eyes of teachers.

Hawaii Five-O raises morale

Su Wan Ting's motto:
Good is good, but better carries it.

The class bell has rung and children have settled in their seats. A sprightly, high-spirited tune from Hawaii Five-O plays through the speaker, making the children focus and ready for "battle." This is one of Master Tai Chiang Ching's magic teaching tools-- music learning.

Tai Chiang Ching says, "The main purpose of playing the music from Hawaii Five-O is to have the children focus and get ready for class. When they get home, I suggest parents play baroque music for their children; it helps to relax the body and soul for a sense of tranquility. Not only

does it help lighten stress from schoolwork, it also helps to slowly release the massive energy hidden in the subconscious."

"However, when studying, I don't suggest listening to music because it tends to distract attention, decreasing the effectiveness of learning. Silence works better in this case." In Tai Chiang Ching's abacus and mental arithmetic class, there is a special "meditation training" which trains students to focus and be attentive in class.

"The frequency of the human brain wave has four types of patterns. When we are fully awake, our brain waves vibrate fourteen to thirty times per second; these are called β(BETA) waves. When we are relaxed, such as when we are about to fall asleep, our brain waves vibrate more slowly, between eight to thirteen times per second; these are called α(ALPHA) waves. In addition, there are two

other slower brain waves, θ(THETA) waves which vibrate five to seven times per second and δ(DELTA) waves which vibrate less than four times per second and occur only during deep sleep. The best state for learning is somewhere between alpha and theta waves."

"Through meditation training, the vibration speed of our brain waves decreases to those of α or even θ waves, in which we are relaxed and focused at the same time and think more clearly, increasing our ability to absorb knowledge and memorize. In addition, the communication between left and right brains becomes more coordinated, enhancing brainpower. Geniuses are the way they are because their left and right brains are often in a state of coordination. When thinking about a problem, they not only use the left brain, but both the left and right brains." Master Tai says, before a test, three minutes of meditation

helps to clarify thinking for better performance.

Master Tai Chiang Ching also points out that other than developing brainpower, meditation also improves self-image, builds self-confidence, decreases anxiety, strengthens time management skills, improves energy level, cures insomnia, stimulates blood circulation, etc.

Well-rounded teaching materials

Su Wan Ting's motto:
Good is good, but better carries it.
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away."

Other than teaching enthusiastically and researching methods of teaching, Master Tai Chiang Ching also compiles teaching materials related to abacus and mental arithmetic, including textbooks, practice books and audiotapes, currently totaling over an impressive number of 200 works.

Master Tai's teaching materials are popularly accepted and acknowledged by students, parents and those in the same industry. They have three main features:

1.teaching material from level fourteen to eleven written especially for kindergarteners:

The starting age for learning abacus and mental arithmetic has increasingly lowered in recent years; many children begin training in abacus and mental arithmetic from K2 or K3 but there is an insufficiency of teaching materials suitable for these young children. Hence, Master Tai has compiled level fourteen to eleven teaching materials suitable for kindergarteners, solving the problem of the insufficiency of teaching materials and at the same time benefiting teachers in the industry. Master Tai's publishing company is like a logistics and supply headquarters for children's abacus and mental arithmetic teachers.

2.many versions for effortlessness in moving to higher levels:

Master Tai's teaching materials not only offer different

levels, but each level also includes many versions of teaching materials as well as corresponding practice books. This not only solves students' demand for a large amount of practice, but also makes advancing to higher levels more effortless.

3.inspirational words enhance learning ability:

It was mentioned earlier that Master Tai is good at using teaching methods that motivate potential to increase students' confidence and learning effectiveness. In practically every page of his teaching materials, one can see inspirational quotes such as "I can do this!" or "I am the best in the world." Reading these messages, children unknowingly give themselves hints and even "self-hypnotize." Consequently, they become subconsciously confident and ambitious, fundamentally increasing their learning ability.

Other than the above, Master Tai also emphasizes the

importance of "aural calculation" because "aural calculation" increases students' ability to focus and think abstractly. Master Tai points out that the effectiveness of practicing aural calculation is three times better than that of "visual calculation," making it worthy of attention.

Master Tai has made many sets of "aural calculation audiotapes," including those suitable for beginners and those for the more advanced. The tracks occasionally include riddles and stories to enhance learning interest in children. Master Tai points out that by practicing aural calculation for half an hour per day, one can expect surprisingly fast growth in children's overall performance.

In addition, to train and cultivate more young people to join the industry, Master Tai regularly holds “Two-Handed Method teacher training seminars. He has also compiled teaching materials that are suitable for use by

teachers, including theories and methods of the “Two-Handed Method”, tricks for motivating potential, key points in educating children, teaching demonstrations, etc.

In training lecturers, Master Tai shares all his knowledge by offering comprehensive and direct training. He has trained over a hundred lecturers, most of which have gone on to establish abacus and mental arithmetic centers under his encouragement and support to continue his dream of promoting children's abacus and mental arithmetic. As the saying goes, "peaches and plums are all over the world" (figuratively, to have pupils everywhere).

Chapter 3

The secret to inspiring brain power with abacus and mental arithmetic

Seizing the critical period of cerebral development

Su Wan Ting's motto:
More haste, less speed.

Human brainpower refers to the psychological functions, including attention, imagination, observation, thinking ability, judgment, sensation, memory and other fundamental elements that form in the process of encountering objective matters. "Brainpower" allows us to know, analyze and determine the time and space we're in, even transcend them. The human brain determines "brainpower," thus "brainpower development" enhances cerebral functions.

According to medical research, an average person's cerebrum is eighty percent grown before the age of six, ninety-five percent by the age of ten and completely mature by the age of twenty. Experts think that between the ages of zero and three, in which the human brain is sixty percent grown, is the period of time in which the ability to absorb knowledge is strongest. By age three through six, the brain structure grows another twenty percent, decreasing the ability to learn and absorb new information, but if fundamentals are strengthened during this time, outstanding performance can be expected later on. By age six through eight, the brain structure grows another ten percent; if one starts learning now, it requires much more time and effort. It may be too late to start studying and receiving education after the age of eight, as one may end up yielding half the result with double the effort.

Therefore, one ought to seize the critical period of enlightenment to train and learn as much as possible, as it determines an individual's brainpower development and learning accomplishments in the future. In the event of missing out, as babies and infants, on the golden period in which the ability to absorb is strongest, it is nearly impossible later on to become geniuses whose "great minds mature slowly."

Experts point out that the brain mass of an average child between ages five to six weighs one thousand and two hundred grams, making up eighty six percent of the one thousand and four hundred gram adult brain. By this time, children's visual sense, aural sense and finger muscles have entered a period of sensitivity, hence if they now begin training in a talent, such as piano, abacus and mental calculation, etc., it would be unexpectedly effective.

The old saying "a child is the father of a man" explains the importance of early childhood enlightenment. Human brain cells last beyond a lifetime, though an average person uses only four or five percent per lifetime. If a person utilizes fifty percent of his or her brain capacity, he or she could at least get ten doctorate degrees and master forty different languages. Psychologist Anokhin calculated that the total number of an average cerebrum's synaptic junctions and message delivery paths is the number 1 followed by 15 million kilometers of "0." This number is many times that of the total number of atoms in the universe. It is no wonder Professor Anokhin says the human brain has unlimited potential!

Suppose a Chinese character takes up the capacity of ten message deliveries. If a person reads ten thousand words a day for eight hours, then the brain's trillion-cell

capacity is sufficient for a person to use for three trillion years! This is ten thousand times the number of books--fifteen trillion in American city libraries!

Modern education trends toward developing children's potential instead of just accumulating knowledge. Learning abacus mental arithmetic is one of the methods to effectively stimulate cerebral functions.

Optimum age: 4-12

Su Wan Ting's motto:
Yield twice the result with half the effort, and not half the result with twice the effort.

From an accumulation of experience and observations in abacus and mental arithmetic education, ages four to twelve are the best time to learn abacus and mental arithmetic.

This period of time is the "enlightenment period" and "best period" for cultivating human brain functions. Children's hand muscles start growing at age five and by eight or nine years old the speed of growth increases; the greater

strength and nimble fingers are perfect for manipulating the abacus, qualifying these children to train their brain-power via this skill which requires the simultaneous use of eyes, ears, hand, mouth, brain and other organs.

In addition, abacus and mental arithmetic belong to the fundamental educational fields of counting and arithmetic. With lighter workloads from school, children at these ages can seize the opportunity to strengthen skills in abacus and mental arithmetic both to avoid having to do so with greater workloads later on and to build a good foundation for learning other subjects in the future.

Some abacus and mental arithmetic teachers think that the effectiveness of teaching five and six year old kindergarteners is better than elementary students. This is because for kindergarteners, math is still a blank piece of paper in their heads. Without the concept of counting, it is

easier to be taught abacus and mental calculation.

Chen Wan Fa, Director of the Association of Children's Abacus Calculation in Taiwan says, "the learning age can be lowered to four years old, but the prerequisite is the ability to write Arabic numerals. Four to five year olds already have the ability to identify changes in quantity and are not under stress from schoolwork. Their ability to absorb is as fast as their language development, making their learning effectiveness as strong as those of first or second graders. It is very common for those who start to learn at age four and learn diligently to reach at least the preliminary level in mental calculation by age six."

National Taichung Institute of Technology professor Yang Chu Hung references the "cognition theory" to explain how an individual's brainpower develops gradually in stages. In other words, children must reach a certain age

to be mentally mature enough to learn a certain subject. At every stage there is an age limit; by learning too early on, it would be like pulling up seedlings to help them grow faster, harmful instead of helpful for children. Therefore, teachers ought to pay attention to the age of pupils, and not use the same standards for the few outstanding students, that is to say those with the brainpower of geniuses, and the average child. In other words, teachers ought to pay attention to individual "differences" and "teach students in accordance with their aptitude."

Overall, the age of learning abacus and mental arithmetic in Taiwan is gradually lowering. This may be due to progress in society and advancements in technology which have helped children to develop faster mentally. The two children of CMA founder Tai Chiang Ching both started learning abacus and mental arithmetic by age four, and

have yielded good results.

For children learning abacus and mental arithmetic, the abacus is a tool for calculation as well as an amazing toy which displays numeral concepts unpredictably. The abacus is clear in image and simple in structure; by producing numbers with the moving of beads, it possesses both abstract and concrete characteristics. It forms tangible numeral concepts, then by moving the beads, the numbers change again, adapting to children's fondness for movement.

As a result, experts think using the abacus as a tool for enlightening children yields twice the result with half the effort, shortening the amount of time required to get a good grasp of numbers. Moreover, the formation and development of the concept of numbers and arithmetic ability are important for the development of children's think-

ing ability. Plenty of evidences suggest that learning abacus and mental arithmetic is effective for enhancing children's thinking ability.

Iconic memory lasts longer during childhood

Su Wan Ting's motto:
The successful person looks for methods. The unsuccessful person looks for excuses.
Laziness is the root of all evil.

"Mind mapping," or in other words iconic memory is an important concept in abacus and mental arithmetic. "Iconic memory" is like taking photographs with sensory organs and mapping them in the brain-- recording abstract matters using the special characteristics of the subjects or objects of the photographs and in turn build a strong memory. Generally speaking, iconic memory lasts longer

during childhood and is rare in adulthood.

According to psychological research, this so-called memory is a person's ability to extract stored knowledge and experience under related circumstances. In other words, a person's ability to form new communication between temporal nerves in the left and right cerebral hemispheres under objective influence and bring about communication activities when stimulated accordingly. From a message theory perspective, the so-called memory is the process of input, processing, storage, and extraction and output of messages when needed.

The human brain is divided into left and right hemispheres; the left brain stores language-related information while the right brain stores pictorial images. Psychologists think that by memorizing information or concepts through language only, a person utilizes only half of his or her brain

capacity. However, if the same information is memorized not just through the left brain's language, but also stored through the right brain's pictorial images, then a strong collocation is formed in the memory, making it easy to extract when needed in the future.

CMA founder Tai Chiang Ching points out every child who learns abacus and mental arithmetic has an abacus in his or her mind. By closing the eyes, the abacus appears. Upon hearing the numbers to be calculated, whether they are to be multiplied or divided, the abacus in the brain starts to calculate with the movement of the hands. From the surface, each child looks much like a little pianist playing an imaginary piano, and not at all like he or she is manipulating the abacus.

The characteristic of iconic memory is that it is abstract and concrete at the same time, visual yet figural.

The formation of clear images in children's brains is beneficial for strengthening memory image, especially since children's brains are like blank sheets of paper, capable of quickly and accurately absorbing new material. With long-term training, images become engraved in the brain to a point where they nearly turn into instinctive "habits." By that time, it is as though the abacus in the brain is portable and hence can be used anytime and anywhere.

According to psychological research, there are three types of memories-- instantaneous memory, short-term memory and long-term memory. For instantaneous memory and short-term memory, neurons are formed in the cerebrum in the course of memorization; in other words, related nerves are stimulated, building temporary connections. For long-term memory, repeated stimulation form secure connections between neurons.

Iconic memory effectively strengthens memory, especially during childhood, thus greatly increasing the brain's potential. Children's abacus and mental arithmetic training has this benefit.

The amazing effect: one specialty and multiple skills

Su Wan Ting's motto:
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away."
Think only of success, not of failure.

Learning abacus and mental arithmetic is beneficial for children in terms of physical and mental development. It is highly praised by the education industry and the psychology industry as a fundamental educational course. Many actual case studies and research have shown that learning abacus and mental arithmetic produces the amazing effect of "one specialty and multiple skills."

Yang Chu Hung, professor at National Taichung Institute of Technology and vice committee head of Taiwan Chamber of Commerce's committee for promoting abacus arithmetic thinks that the functions of abacus education can be divided into two stages, "abacus training" and "abacus application."

I. Educational functions of the abacus training stage:

1. Attentiveness is the basis of studying and task handling; using the hands and the brain simultaneously cultivates stamina.
2. Logic and systematic thinking cultivates the qualification to perform scientific research.
3. The ability to use the abacus as a tool for fast and accurate calculation is a job skill.

II. Educational functions of the abacus application stage:

1. Enhancing visual and aural memorization skills cultivates excellence in studying and task handling.
2. The ability to calculate accurately without the use of a tool is an outstanding qualification for performing scientific research.
3. Fast and accurate reflex toward educational matters positively affects educational pursuit and task handling.
4. Building confidence makes success easier to attain.

Professor Yang Chu Hung points out that according to research, elementary school children who study abacus and mental calculation score higher on IQ tests, subject achievement tests and conduct grades when compared with the average student. Moreover, the higher level in abacus and mental arithmetic, the more apparent the dif-

ference.

Master Tai Chiang Ching simply and clearly states the five benefits and four characteristics of children learning abacus and mental arithmetic.

The five benefits:

1. strengthens calculating skills, memory and attentiveness.
2. strengthens comprehension, power of judgment and reasoning skills
3. strengthens visual, aural and tactile senses.
4. instills confidence, desire to excel, persistence.
5. builds an ambitious personality and a strong career orientation.

The four characteristics:

1. trains pursuit of excellence, speed and accuracy.
2. stimulates potential in children.

3.builds children's learning confidence.

4.serves as the bridge to becoming a smart child.

The Japanese education industry points out that future education should make the transition from dry memorization to fostering in children the important means of living life. Abacus arithmetic lessons benefit children's personality development, whether in terms of personal choices, decisions or growth. We should respect the development of each student's personality so as not to neglect his or her special talent. Whether to fully utilize students' creativity or to increase their energy level, learning abacus and mental arithmetic helps to accomplish these goals by attaining the effect of "one specialty and multiple skills."

Therefore, the abacus arithmetic lessons of the remaining twenty-first century shall, after getting a good grasp of the new concepts in mental arithmetic methods, allow

students to develop their confidence and personality and in turn become proactive, well-rounded and outstanding individuals.

Supernormal intelligence: educating geniuses

Su Wan Ting's motto:
On any given Sunday, any team can beat any other team.
Do not fear going slow, only fear standing still.

For kids to become smarter, you must develop their brainpower; however, each individual's brainpower development is affected both by innate and acquired characteristics as well as his or her own level of effort. Generally speaking, one's brainpower is pretty much determined before ages three to four, but scientific research proves that even someone of medium intelligence has the chance of increasing cerebral performance and becoming "outstand-

ing" through training in brainpower stimulation and improving educational and growing environments.

The psychology and medical industries point out that the so-called "child prodigy" and "advanced student" have all received superior preschool or early childhood education. Their "genius" is not entirely "innate." Researchers found that "child prodigies" or "advanced students" have the following in common:

1.pronounced interest in the pursuit of knowledge.

2.extensive but focused attention and remarkable memory

3.think fast, strong comprehension skills, creative.

4.confident, desire to excel, determined.

5.ambitious personality and strong career orientation.

It just so happens that in the training of abacus and mental arithmetic contestants, it was found that the major-

ity of abacus and mental arithmetic contestants possess, to different extents, qualities that characterize advanced children. These advanced students with supernormal intelligence are not innately so, but instead have acquired these endowments after learning abacus and mental arithmetic.

Pretend the abacus is a toy that arouses learning interest in children and increases their desire to pursue knowledge. When learning mental arithmetic, beads turn into numbers and numbers into beads, increasing children's observational ability and power of judgment. The image of an abacus in the head while performing nimble calculations strengthens children's memory. Another significant characteristic of the abacus is that it's "fast," which cultivates in children the confidence to seek progress. Actual teaching evidence proves that learning abacus and mental arithmetic is a great path for cultivating advanced students

of supernormal intelligence.

National Taichung Institute of Technology professor Yang Chu Hung points out that there are numerous examples of children who learn abacus and mental arithmetic performing outstandingly in terms of brainpower, schoolwork, conduct and more. Professor Yang mentions Fang Hsuan Hua, who skipped grades and graduated last year from Taichung Municipal Chu-jen Junior High School. Fang Hsuan Hua was not in the advanced placement class at her school but had good grades in each subject, placing first whether in the humanities or skills-- a well-rounded student. After finishing seventh grade, she skipped to ninth grade, took the high school entrance exam in July and, with a high score, easily earned admission to her first-choice school, National Taichung Girls' Senior High School.

Fang Hsuan Hua's mother Ms. Lin Hsiu Mei thinks her

daughter's outstanding performance in school has a lot to do with her training in abacus and mental arithmetic since childhood. Mrs. Lin says, Fang Hsuan Hua began studying mental arithmetic in K3 and continued to do so after starting elementary school. Although participation in various competitions and activities has not left much time for practicing abacus and mental calculation, Fang Hua Hsuan was still able to reach level six in mental calculation. Mrs. Lin thinks that due to training in mental arithmetic, Fang Hua Hsuan has better reasoning skills than the average child and especially in math, where she is able to perform quick calculations and think meticulously, revealing the effect of learning migration.

Examples like Fang Hua Hsuan are common in Taiwan and throughout Asia. It is thus evident that under any circumstances, learning abacus and mental arithmetic

inspires intelligence and increases potential in children and is therefore worthy of active promotion in schools and familial education.

Jilin Province and Shijiazhuang's genius experiment

Su Wan Ting's motto:
Good is good, but better carries it.
More haste, less speed.
The smart man borrows from others' experience; the average man struggles and gains experience; the stupid man struggles but forgets the experience.
Yield twice the result with half the effort, and not half the result with twice the effort.

The significant effect of abacus and mental arithmetic in developing children's brainpower and potential has

caught the attention of parents, experts in children's education and the education and science industries. Mainland China's Jilin Province and Shijiazhuang City of Hebei Province both had astonishing experiment results, providing reliable theories and empirical results for the promotion of children's abacus and mental arithmetic and thus grabbing the attention of abacus and mental arithmetic industries in Taiwan, Japan and Korea.

In 1983, to cultivate talents in speed calculation and based on a widespread knowledge in traditional abacus arithmetic., Jilin Province's abacus calculation association began conducting a creative speed abacus calculation experiment in elementary schools in the form of supplementary lessons and hobby groups. In the past fifteen years, over seven hundred classes in five hundred schools participated in the speed abacus and mental arithmetic experi-

ment of the "Two-Handed Method. Over thirty thousand individuals learned the skill, and what's even more astonishing is that not one single case failed during this period.

Students in Jilin Province's experiment classes not only get good grades in math, but also do well in other subjects; therefore, the local educational authority has included abacus and mental arithmetic as part of the activity class in elementary schools so that more children can receive training in abacus and mental arithmetic. A recent sampling survey by Jilin Province's abacus calculation association and the psychological testing team of the Northeast Normal University's School of Education Science found that students in the abacus and mental arithmetic experiment classes have significantly higher language intelligence, operating intelligence, overall intelligence, better memory, ability to focus, willpower, expressiveness, etc. than non-

experiment class students.

Liou Shan Tang, Chief Secretary of Jilin Province's abacus calculation association, sums up nearly fifteen years of empirical results into five intelligence-inducing functions of studying abacus and mental arithmetic:

1.stimulates early development of children's brain-power

Before studying mental arithmetic, Mao Dong Jie from Jingyu County's experimental class ranked eighteenth in her homeroom. After a year of studying abacus and mental arithmetic, she leaped forward to become top of her class. Her father, who teaches junior high school, noticed significant improvements in Mao Dong Jie's memory, attentiveness and analytical ability. This is common among children who study abacus and mental arithmetic.

2.strengthens children's memory

In preparation for entering the knowledge of national conditions contest, an elementary school in Longshan District of Liaoyuan City selected a few students with higher language skills to proceed with training. However, after a long period of time, these students were still unable to memorize the contest problems. With less than a week left until the contest, the school picked five students from the abacus and mental arithmetic experimental class, who quickly memorized the problems, which contained thousands of words and went on to win the contest. The school pointed out that after entering junior high school, students who studied abacus and mental arithmetic not only excelled in math, but also did better at memorizing English vocabulary.

3.makes calculation easier for children

Chiang Liang, who attended the twenty-fifth elemen-

tary school in Jilin City's Changyi District, went back to his old school after entering junior high school and realized that every day his classmates exhausted themselves in the maze of math and physics numeral calculation problems, dazzled by the piles of worksheets. With a background in abacus and mental calculation, he used only ten percent of the time his classmates used to complete complicated calculations easily, and studied foreign language or practice the keyboard in the extra time he had left, thereby achieving outstanding results in many subjects.

4.raises grades in all subjects

In a general exam held by Gongzhuling City's education bureau for the fourteen elementary schools in its twenty subsidiary counties, the fifth grade average score was 81.8 for average classes and 88.6 for abacus and arithmetic classes, a difference of 6.8 points. The percent of

passing grades was 97.3% for the whole city and 100% for students in abacus and arithmetic classes, a 2.7% difference. The percent of outstanding grades was 42.5% for the whole city and 59.7% for abacus and mental arithmetic classes, a 17.2% difference. In addition, in Liaoyuan City's Gongnong Village, four out of the twelve second grade classes in the whole village were abacus and mental arithmetic experiment classes; these four experiment classes took the top four places in the general exam.

5.cultivates supernormal intelligence in children

Most children who study abacus and mental arithmetic possess supernormal intelligence to a certain extent; however, they were not born gifted, but have acquired the effect of "learning migration" in the process of studying abacus and mental arithmetic. Evidence shows studying abacus and mental arithmetic is a great path for cultivating

supernormal intelligence in children.

Many parents desperately hope their children receive more effective education during kindergarten to lay down a good foundation before elementary school. On the other hand, kindergarten teachers are perplexed about "underfed" knowledge education, music and art that "don't quench thirst" and "stereotypical" outdoor activities. For preschoolers, in particular, one can neither move elementary courses to kindergartens nor find effective teaching methods. Thus, abacus and mental arithmetic, which have worked effectively in elementary schools, were implemented in kindergartens and achieved great results.

At the second railway kindergarten in Shijiazhuang City of Hebei Province, a two-year experiment was implemented. After just ten months of training an hour every day, fifty six-year-old children had reached or surpassed

the second grade math level. The whole class was able to add and subtract numbers that are four-digit or more using the "Two-Handed Method". Sixty-nine percent of the class could move the beads blindfolded and mentally add and subtract ten lines of two-digit numbers. Thirty percent could mentally add and subtract ten lines of three-digit numbers and a very small percent could mentally calculate four-digit numbers.

Children in the experiment kindergarten class not only built superior memory, quick reflexes and power of judgment, they also acquired the ability to sit still in class. By continuing to observe these students, teachers found that all the children in the experiment class went on to become well-rounded model students after entering elementary school.

Two years of experimentation in the first and second

railway kindergartens in Shijiazhuang City of Beijing successfully trained two hundred and fifty children. The second kindergarten won first place in Hebei's children's education quality management and was even made into a documentary and broadcast throughout the entire province.

Zhao Hong Sheng who serves in Hebei Province's Shijiazhuang railway bureau points out that the second kindergarten's success was an uplifting experience for local parents and teachers. Railway bureau kindergartens in Shijiazhuang, Handan, Baoding, Yangquan and more all came to learn, pick teachers for training and successively set up abacus and mental arithmetic experiment classes for kindergarteners.

Current situation of children's abacus and mental arithmetic education in Asia

Su Wan Ting's motto:
The successful person looks for methods. The unsuccessful person looks for excuses.

Abacus arithmetic is a treasure in traditional Chinese folk culture. The abacus is the fifth greatest invention in China. Although there have been other styles of abacuses in other countries, they have all successively disappeared; the Chinese abacus is the only one that still exists and continues to prevail.

In the Ming Dynasty, the Chinese abacus spread to Korea, Japan and South East Asia, and began to make its way into the world. The modern abacus has not been abandoned despite the popularity of calculators, but instead continues to flourish by developing into an abacus arithmetic culture suited for modern society.

Nobel Prize winner Dr. Tsung-Dao Lee once said, "China ought to be more advanced than anyone else in terms of calculators. The Chinese abacus is the most ancient calculator." It has been five hundred years since the abacus spread to Japan from China, casting significant influence on Japan's economy. Former Japanese Prime Minister Yasuhiro Nakasone thinks Japan's post-war economic growth was mainly due to its superior calculating ability, in which the abacus played an important role. Japan's Panasonic Corporation, which produces high tech electronic

products, sees abacus calculation as one of the "Panasonic spirits," requesting that its employees know how to use the abacus and holds annual companywide abacus calculation competitions to carry forward the spirit of abacus calculation.

Additionally, in Asia, Taiwan, Korea, Malaysia, Singapore and the Philippines all increasingly value abacus calculation. Japan has started implementing its plan to spread abacus culture to foreign countries, sending scholars to the United States, India, Brazil, Mexico, Canada, New Zealand and other countries to give lectures and propagating through the United States to Europe and the rest of the world. As a product of ancient civilization, abacus calculation continues to flourish in the twentieth century. Formed from human knowledge and intelligence, it is worth learning by everyone in the world to appreciate the fun and mystery within.

Taiwan Region

Su Wan Ting's motto:
Laziness is the root of all evil.

In Taiwan, Children's abacus arithmetic education has been around for approximately twenty years, but it was not on the right track until after 1990. Currently there are seven abacus arithmetic associations holding nearly twenty abacus and mental arithmetic tests per year and attracting at least forty thousand children to participate. There are also frequent teacher seminars, judge workshops and regional abacus arithmetic competitions. On a rough estimate, there are over two thousand educational organiza-

tions which teach abacus and mental arithmetic and eight thousand abacus and mental arithmetic teachers.

In recent years, abacus and mental arithmetic have become popular, particularly among children. Take the tests held by Children's Association of Abacus Calculation for instance. In 1993, there were one hundred twenty-eight thousand children who participated. By 1994, the number grew to one hundred sixty-two thousand. By 1995, it grew to one hundred ninety-two thousand and by 1996, there were more than two hundred twenty-thousand participants. This are just statistics from one abacus arithmetic association. If we take into account tests and competitions held by Taiwan Chamber of Commerce, Three Joint Society and other associations, the numbers would more than double.

Committee Head of Children's Association of Aba-

cus Calculation Chen Wan Fa points out that when the association was established in 1991, it designed a testing method specially tailored to children. Over the course of five years, the number of participants grew from ten thousand to two hundred thousand, becoming one of Taiwan's most influential abacus calculation associations. Due to the implementation of the testing method, four and five-year old children now have the opportunity to participate after just three months of study. This revolutionary innovation on the part of the Children's Association of Abacus Calculation is deeply welcomed by parents and teachers as it had come just in time for Taiwan's increasing standards in abacus and mental arithmetic and the decrease in learning age.

Currently Taiwan's abacus calculation associations include: Central Chamber of Commerce's abacus calcula-

tion committee, Abacus Association, International Abacus Association, Children's Association of Abacus Calculation, Taiwan Chamber of Commerce's committee for promoting abacus arithmetic, Chinese Utility Abacus Research Society, Chinese Abacus Academic Research Society and more. These organizations have contributed greatly to promoting abacus education and increasing skill standards, serving as one of the main motivators for the development of children's abacus and mental arithmetic in Taiwan.

On the other hand, abacus classes are gradually being intentionally neglected in the core educational system. In commercial vocational schools and junior colleges, abacus classes have gone from a twice a week compulsory course to once a week or elective. Abacus classes in elementary schools also face the fate of elimination. Those in the abacus and mental arithmetic industry ought to try and

defend this situation in which the education authority is overlooking the functions and value of abacus and mental arithmetic education.

Mainland China

Su Wan Ting's motto:
Learning is like rowing a boat against the current. If you don't advance yourself, you will be washed away.

Currently, China's core elementary education includes an abacus class in the third grade, and an integration of the three forms of calculation (oral calculation, written calculation, abacus calculation) is being implemented in some schools in the first and second grades as a teaching experiment. Presently, there are more than two million students in forty thousand classes engaged in the experiment. This innovative teaching experiment is sponsored by the United

Nations Educational, Scientific and Cultural Organization (UNESCO). In 1995, the calculation skill has become part of the testing subjects for admission to higher education, and financial-related colleges and vocational high schools have included an abacus calculation class. In terms of teachers, there are over a million individuals who attend various short-term training each year.

Active promotion of children's abacus and mental arithmetic calculation began in 1991. Currently a total of twenty-three million kindergarten and elementary school children attend abacus and mental arithmetic classes, with Jilin Province alone making up fifteen million. There are two kinds of abacus and mental arithmetic classes. The first comes in the form of a second lesson in first and second grade; the second in the form of an afterschool "three-form calculation class" hobby group.

In recent years, over two million individuals per year participated in abacus tests in Mainland China. In 1995, the number exceeded three million, of which one million five hundred thousand passed. In the past decade, more than twenty-five million individuals have been tested; fifteen million passed and ten million were awarded certificates.

In addition, China's abacus calculation association and the Taiwan Chamber of Commerce's committee for promoting abacus arithmetic have been taking turns since 1991 hosting annual abacus arithmetic academic exchange activities between Taiwan and China as well as the junior abacus arithmetic friendship tournament. Since 1992, they began hosting the annual abacus arithmetic correspondence contest between Taiwan and China. The contest is divided into three groups: Society and college group,

junior high group and elementary group. Contestants are tested in groups on the same problems and according to the same grading standards and time (the last Sunday of every May).

Learning abacus calculation prevents aging

Su Wan Ting's motto:
Think only of success, not of failure.
On any given Sunday, any team can beat any other team.

In 1994, Osaka Prefecture University professor Dr. Toshio Hayashi published a research report on "the life-long subject to study--abacus arithmetic." He proposed that abacus arithmetic has significant effects on senior medical treatment and health. Dr. Hayashi's research results received a great deal of attention from the press and the medical industry, causing a wave of research in "right

brain development," "finger gymnastics" and related areas.

Dr. Hayashi has published several research reports related to abacus arithmetic and the elderly, such as "abacus arithmetic and the brain," "the elderly and abacus arithmetic," "anti-aging and abacus arithmetic," etc. Using students in abacus classrooms in Kyoto senior homes as subjects, Dr. Hayashi found that seniors who are diligent in using the abacus have higher energy level and better health conditions than average seniors. He thinks exercising the fingers while using the abacus stimulates the right brain, delaying aging of nerves and stimulating a balanced development of the cerebrum.

Dr. Toshio Hayashi points out that to stimulate revitalization of the brain, seniors may work on three areas at the same time:

1. a balanced life: other than sufficient rest and balance nutrition, exercise is also important, including exercise for the brain and exercise for the body.
2. effective fingertip exercise: fingertip exercises can be divided into simple fingertip exercise (such as massage), high-level fingertip exercise (such as abacus arithmetic) and activity exercises (such as playing games) that achieve goals. By performing abacus arithmetic and other finger exercises that attain goals, brain nerves can be revitalized through coordination of the brain's exercise-linked area and the frontal lobes.
3. train both the left and right brains: performing abacus mental arithmetic and other creative brain exercises help revitalize left and right brain functions.

Dr. Toshio Hayashi thinks that those who learn abacus

arithmetic and mental arithmetic as children are "abacus arithmetic learners." Those who learn as teenagers are "skilled in abacus arithmetic." Those who have started working are "experienced in abacus arithmetic," or "abacus experts." By old age, they are "abacus teachers" and at the same time "healthy abacus people." Therefore, abacus arithmetic is a subject worthy of promotion due to its beneficial qualities throughout a person's lifetime.

Dr. Toshio Hayashi points out that intense exercise should start from the hand muscles, passing to the hand's sensory area then to the brain's exercise-linked area. The hand's muscles and the hand's exercise area also link to the hand's skin sensory area, proof of the intimate relationship between finger exercises and the cerebral cortex. After comparative research, Dr. Hayashi found extremely big differences between seniors who are skilled in abacus

arithmetic and those who don't practice it in terms of the percentage affected by forgetfulness, insomnia, discomfort, arthritis, high blood pressure and heart attack (please see attached chart).

Those who don't practice abacus arithmetic	Those who are skilled in abacus arithmetic	category
26%	13%	forgetfulness
28%	9%	Insomnia
58%	22%	Bodily discomfort
30%	14%	Arthritis
32%	18%	High blood pressure
23%	8%	Heart attack

Abacus arithmetic--a subject that can be studied for a lifetime, is indeed a skill suitable for all ages. If you wish to be smarter and healthier, why not hop on the abacus and mental arithmetic train?

(Appendix)

How to become a professional abacus and mental arithmetic teacher

Founder of CMA/*Tai Chiang Ching*

In each realm of knowledge, some people achieve outstanding success. Of course, some also fail. No matter what, there are reasons behind each success or failure. It is no exception for those who serve as educators in the abacus and mental arithmetic industry.

With my learning experience and interest in abacus and mental arithmetic in school, I hoped to reap harvest in the industry, thus after completing military service, I began teaching abacus and mental arithmetic. It has been more

than thirteen years since then. Although at times I encountered difficulties and setbacks, I was able to overcome them with my passion for and confidence in abacus and mental arithmetic. To allow the quintessence of Chinese culture to continue to prosper and benefit more people, I hope to, based on my past teaching experience and research results, offer my humble opinion as a reference for those who wish to become abacus arithmetic educators.

Generally speaking, to excel as an abacus arithmetic teacher, one not only needs to be passionate about his or her job, but also constantly strive and study intensively. Therefore, I think a successful abacus and mental arithmetic teacher should at least possess the following qualifications:

First, an abundance of professional knowledge

As the old saying goes, "teachers preach, instruct and answer questions." As teachers have the responsibility to pass on knowledge and skills as well as answer students' questions, they should possess an abundance of knowledge in certain areas. Modern citizens, especially educators, who cannot progress with advancements in technology and society by constantly training themselves and absorbing new information, will be incompetent for their job. With the numerous ways in absorbing new information, the best method is by forming the habit of reading.

Other than reading the newspaper every day, an abacus and mental arithmetic educator ought to spare an hour or two reading books that are knowledge-oriented, educational and inspirational, especially professional books related to abacus and mental arithmetic. In addition, he or she should take notes, remember the important points by

heart and continue to do so and in time become an expert or authority in the industry. But which books should be read? I think that anything in the fields of children's psychology, behaviorism, education, business management and even marketing ought to be on the reading list.

Second, uses new teaching materials and methods

Most students of abacus and mental arithmetic are kindergarteners or elementary school children. During this period of time, they are most curious and have the best reflexes and therefore also adapt better to and absorb the most out of their surroundings. However, students in this age range usually have difficulty concentrating; therefore teachers must be particularly loving and patient. Thus, the most important thing about which an abacus and mental arithmetic teacher should be concerned is knowing how to

inspire children's interest in abacus and mental arithmetic so that they can study diligently and obtain good results.

A professional abacus and mental arithmetic teacher should not only possess the ability to identify good teaching materials but also learn and research novel teaching methods. If teachers can carefully observe students' level and learning ability and pick teaching materials accordingly, then pair them with novel teaching methods, such as game activities, while constantly paying attention to the atmosphere of the class, it would help increase students' learning interest and effectiveness. Unfortunately, suitable teaching materials and novel teaching methods aren't easy to obtain, but can only be found through careful searching, observation, research or by asking industry experts.

Third, far-reaching goals and management capabilities

The old saying goes, "think before you act, and have a well-thought out plan." For anything you do, if you have a goal and a plan, you should follow your plans step by step for success. Take a country for example. To become wealthy, a country not only needs a sound political system, but also far-reaching goals and detailed construction plans. Therefore, before the beginning of a new year, every country needs to draw up plans and budgets to be implemented by different departments. When the year ends, it also needs to settle accounts, audit, track and give appraisals to review its gains and losses as a reference for next year's policy administration. Individuals are like countries. To excel in a certain area, one must first have far-reaching goals, then make concrete plans and implement accordingly.

The same reasoning applies in the abacus and mental arithmetic industry. To excel in this field, you must be

able to evaluate your own capability, energy and financial ability and draw up short-, mid- and long- term goals accordingly. After careful evaluation and planning, draw up your future direction of development and time table and constantly review and make improvements while you work hard to reach your ideals. In particular, for someone who is new to the field, setting goals is even more important. In the short-term, you may want to focus on self-training to increase knowledge and teaching experience. In the mid-term, you may want to work on researching teaching materials and teaching methods to become an outstanding teacher. In the long-term, you may want to set the goal of making abacus and mental arithmetic your lifetime career, and use your own experience and marketing opportunities, as well as further research to make a name for yourself. In terms of management capability, you may wish to build

public relationships, know how to manage time, pay attention to methodology and efficiency as well as cost and benefit analysis. In such ways, not only will you yield twice the result with half the effort, you will also reach your goals sooner.

Fourth, uses time wisely to absorb new knowledge

In a society characterized by fast advancements in modern technology and highly developed industry and commerce, competition is becoming increasingly fierce. Anyone who is unable to absorb new knowledge as technology advances not only falls behind but faces the possibility of being forsaken by society.

Not long ago, I read about an automobile worker in Detroit, U.S.A. He has been working in an auto shop since he was 18 years old and has been working there for 35

years. But recently, due to economic downturn in the U.S. and the massive import of Japanese cars, many American car manufacturers were forced to lay off employees or close down. This auto worker's company also closed down, making him unemployed. However, his age and lack of specialized skill made it hard to move to a different industry and to make a living. All of a sudden, his life became difficult. This tragic scene is evidence of the cruelty of "natural selection" in modern society.

Although abacus and mental arithmetic may not be in as much recession or be as competitive as the American auto industry, the incident still serves as a cautionary tale for me. Everyone knows how to strive for improvement and make better use of time, but only a few can actually do it.

Actually, in our daily life, we unknowingly waste much

of our precious time. For example, modern city people spend at least five hundred to a thousand hours per year driving or commuting to and from work. Many people are bored or vexed while they commute, and unknowingly waste time, which is a shame. If we understood the value of time and knew how to make better use of it, then taking some time and effort to plan our time and do something beneficial (such as listening to educational, knowledge-oriented or professional shows or tapes) would make commuting not seem boring or vexing, but instead a great time for absorbing new knowledge.

Fifth, maintains a positive, pro-active spirit

Life isn't a bed of roses. Setbacks and failures in any career you pursue are unavoidable, but there is no need to be afraid. What's important is to learn from your failures

and try over and over again to strive toward success. I think of abacus and mental arithmetic teachers as salespeople because both need to be articulate, amiable and sincere. As for the difference between the two, an abacus and mental arithmetic teacher sells a professional skill to students, parents and their bosses. These three parties greatly affect the future of an abacus and mental arithmetic teacher; therefore, his or her services need to satisfy students, parents and bosses at the same time.

First, he or she needs to show professional skill so that students are willing to be taught. Next, he or she needs to satisfy parents with the teaching results to continue teaching their children. Finally, he or she needs to show the boss his or her capability and loyalty so that the boss can feel confident and secure.

To qualify and become a competent abacus and men-

tal arithmetic teacher, it is also important to constantly be positive and pro-active because only with an optimistic attitude, can one be friendly and amiable with people; and only by being pro-active, can one not fear setbacks and failures but continue to work hard and move forward.

Sixth, exercises regularly to stay healthy

To stay healthy, other than relying on a balanced diet, it is also important to make a habit of exercising. Exercising stimulates metabolism, revitalizes cells, enhances resistance against diseases and decreases the occurrence of illnesses. Without a healthy body, it is hard to have a great career. Even if success does comes, one would not be able to enjoy it without a healthy body. Therefore, other than taking care of your body, as modern people, especially those who live in the city, it is best to also choose at

least one kind of activity, such as jogging, hiking, walking, swimming or ball games, that does your body and soul good, and exercising at least half an hour everyday to build a stronger body as a basis for developing your career.

Perhaps people in Taiwan already know from media reports that President Lee Teng-hui and entrepreneur Wang Yung-ching both have the habit of playing ball or jogging, thus they are particularly healthy and have sufficient strength and energy to attend to numerous affairs every day. This explains the importance of exercise on health.

Abacus and mental arithmetic is a quintessence of Chinese culture. Not only Chinese people learn and study it, even other countries in Asia, such as Korea and Japan, think of it as a skill and actively promote it. Despite advancements in science, abacus and mental arithmetic has not been neglected. Instead, due to its ability to train

students' reflex and help in learning math, it is able to run parallel to other classes, further proof of why abacus and mental arithmetic has lasted so long and is becoming increasingly important.

In wishing the best for their children, parents in modern society all hope their children can receive education as soon as possible, especially in terms of skills. Abacus and mental arithmetic is usually one of the first subjects to be considered. In view of this, I think the market for teaching abacus and mental arithmetic is full of potential. Science and technology continue to advance and humans incessantly pursue knowledge. Similarly, teaching methods in abacus and mental arithmetic continue to update and progress.

Take the abacus for instance. From the earliest two beads on top and five on the bottom, to one bead on top

and five on the bottom, to the modern day one on top and four on the bottom. In mental arithmetic, the method has also evolved from using one hand to using both hands. We can predict continued development and progress which shall create unlimited accomplishments for abacus and mental arithmetic.

If you wish to pursue a career in this field, you should seize the opportunity and actively absorb new information to build professional knowledge, research new methods and teaching materials, set far-reaching goals, strengthen your management capability and plan your abacus and mental arithmetic career as soon as possible. In such ways, success will be just around the corner.

Understanding the basics of abacus and mental arithmetic

Tai Chiang Ching

For someone who is studying abacus and mental arithmetic, a good teacher and learning environment are the basic criteria. A good teacher not only teaches correct information and skills, but can also cultivate outstanding students by teaching according to each student's aptitude and teaching anyone who wishes to learn. On the other hand, a good learning environment is also important. If a quiet, serene, clean environment is provided so that students can concentrate and focus on learning, then it is bound to increase his or her learning interest and results. Therefore,

it is the parents' responsibility to find a good abacus and mental arithmetic teacher and provide a suitable learning environment for their children.

Many parents think that by finding a good teacher and providing a good learning environment, their children will do well in abacus and mental arithmetic. This doesn't seem to be entirely correct. The two criteria only help in the process of learning abacus and mental arithmetic. Without other criteria, it is impossible to attain good learning results. So what are the other criteria? I think these should at least include good supplementary teaching materials, enthusiastic support and encouragement from parents and students' own right concepts of learning and diligence in practicing.

Other than the teaching materials designated by the abacus and mental arithmetic teacher, it would be benefi-

cial to read other supplementary teaching materials, such as those related to oral mental calculation and oral calculation. However, with the abundance of abacus and mental arithmetic teaching materials on the market, one must choose carefully. Choosing supplementary abacus and mental calculation teaching materials is like going to the doctor. If the doctor gives the wrong prescription, then not only will it not cure the patient, but may further damage his or her health. The same applies for choosing supplementary materials. If the wrong materials are chosen, not only is learning progress hindered, learning interest may also be affected. Therefore, it is important to ask for expert advice or teacher's recommendations before choosing supplementary materials. Also, it is important to go from easy to difficult when practicing for best results.

Generally speaking, support and encouragement stim-

ulates diligence. Throughout the course of learning abacus and mental arithmetic, children are bound to encounter obstructions and setbacks that affect their learning results. Therefore, parents ought to offer support and encouragement. Support decreases the sense of failure and encouragement stimulates learning confidence and interest. Both of these motivate hard work in children. It is important as a parent to be aware of how children are doing in class to know whether they have encountered difficulties and in turn help them solve problems.

In addition, a parent ought to spare some time to study with his or her children, both to supervise and to let them know that they place importance on their schoolwork to prevent them from becoming lazy. Smart, careful parents may even use the time before and after school to help their children practice mental calculation with license plate

numbers, signs and phone numbers. This is an economic learning method that makes good use of time.

I'm sure everybody believes that grades have a lot to do with attitude in class. I've never heard of a student who pays no attention in class but does well in schoolwork. Usually, if a student pays attention in class and studies with the teacher, the results are much better than practicing at home alone. In other words, if a student doesn't pay attention in class, and even skips class, then eventually he or she will not be able to follow and will have no idea what the teacher is saying and lose interest in learning. Another type of student pays attention in class, but is shy by nature and afraid to speak or ask questions. This is also a learning disability. For these two types of students, if they cannot change themselves, even the best of teachers won't make a difference. Thus, to learn abacus and mental arithmetic and

reap harvest, one must develop the right learning attitudes, listen attentively in class, not be afraid to ask and answer questions and learn from mistakes.

Due to pressure from tests and exams, most students fear tests and exams. But without tests or exams, how would we know a student's level and progress? Hence, an appropriate amount of tests and exams is the best way to evaluate a student's progress. For someone learning abacus and mental arithmetic, tests are a kind of practice; it is different from the tests for other subjects. Most abacus and mental arithmetic teachers like to use tests to discover and track student progress and review teaching material and methods.

Thus, abacus and mental arithmetic students ought not to reject tests, but instead realize that only through constant testing can fast improvement be attained. Teach-

ers and parents should also encourage students to enter national abacus and mental arithmetic tests or contests so that students can have more opportunities to practice and make significant progress. If in the case that students don't pass a test or rank high in competitions, there is no need to be discouraged; just try persistently and good results are bound to come.

Other than the few people who have a particularly high IQ, most people are unable to learn abacus and mental arithmetic without perseverance and willpower. Besides practicing according to schedule, I'm afraid there are no other routes. Only through an accumulation of efforts, will one reap an abundant harvest. The great inventor Edison once said, "Success is 99% hard work." This explains that to succeed, one cannot be lazy or rely on luck. The saying "there is no free lunch" has the same reasoning.

According to many years of teaching experience and research, I've compiled the following results (please see attached chart). A beginner in abacus and mental arithmetic will need about five years to reach level ten in mental arithmetic by practicing an hour at home per day. By practicing two hours a day, it will take three years. For abacus arithmetic, the time doubles. As you can see, to reach a certain level in abacus and mental arithmetic, one must practice with perseverance and willpower. This is exactly why out of the many people who learn abacus and mental arithmetic, so few reach level standards.

Capability progress for practicing an hour of abacus and mental arithmetic per day (practicing two hours doubles progress)

Mental arithmetic			Abacus arithmetic		
Capability	An hour per day	In terms of years, months, days	Capability	An hour per day	In terms of years, months, days
Grade fourteen	10 days	10 days	Grade fourteen	40 days	1 month and 10 days
Grade thirteen	25days	20 days	Grade thirteen	50days	1 month and 20 days
Grade twelve	30days	30 days	Grade twelve	60days	2 months
Grade eleven	45days	1 month and 15 days	Grade eleven	90days	3 months
Grade ten	60days	2 months	Grade ten	120days	4 months
Grade nine	75days	2 months and 15 days	Grade nine	150days	5 months
Grade eight	90days	3 months	Grade eight	180days	6 months
Grade seven	105days	3 months and 15 days	Grade seven	210days	7 months

Mental arithmetic			Abacus arithmetic		
Grade six	120days	4 months	Grade six	240days	8 months
Grade five	240days	8 months	Grade five	480days	1 year and 4 months
Grade four	360days	12 months	Grade four	720days	2 years
Grade three	480days	1 year and 4 months	Grade three	960days	2 years and 8 months
Grade two	600days	1 year and 8 months	Grade two	1200days	3 years and 4 months
Grade one	720days	2 years	Grade one	1440days	4 years
Preliminary level	840days	2 years and 4 months	Preliminary level	1680days	4 years and 8 months
Level two	960days	2 years and 8 months	Level two	1920days	5 years and 4 months
Level three	1080days	3 years	Level three	2160days	6 years
Level four	1200days	3 years and 4 months	Level four	2400days	6 years and 8 months
Level five	1320days	3 years and 8 months	Level five	2640days	7 years and 4 months
Level six	1440days	4 years	Level six	2880days	8 years
Level seven	1560days	4 years and 4 months	Level seven	3120days	8 years and 8 months
Level eight	1680days	4 years and 8 months	Level eight	3360days	9 years and 4 months
Level nine	1800days	5 years	Level nine	3600days	10 years
Level ten	1921days	5 years and 4 months	Level ten	3840days	10 years and 8 months

*For reference only

Abacus and mental calculation testing method of the

Abacus calculation test: ten-minute time limit for each category

Grade/Level	Multiplication	Division
Levels	Eleven digits of multipliers and multiplicands. Forty problems total.	Ten digits of divisors and quotients. Forty problems total.
Grade one	Eleven digits of multipliers and multiplicands. Twenty problems total.	Ten digits of divisors and quotients. Twenty problems total.
Grade two	Nine digits of multipliers and multiplicands. Twenty problems total.	Eight digits of divisors and quotients. Twenty problems total.
Grade three	Seven digits of multipliers and multiplicands. Twenty problems total.	Six digits of divisors and quotients. Twenty problems total.
Grade four	Seven digits of multipliers and multiplicands. Twenty problems total.	Six digits of divisors and quotients. Twenty problems total.
Grade five	Six digits of multipliers and multiplicands. Twenty problems total.	Five digits of divisors and quotients. Twenty problems total.
Grade six	Five digits of multipliers and multiplicands. Twenty problems total.	Four digits of divisors and quotients. Twenty problems total.
Grade seven		
Grade eight		
Grade nine		
Grade ten		

Association of Children's Abacus Calculation in Taiwan

Addition and Subtraction	Voucher Calculation	Note
Fifteen five to ten digit concrete numbers with a total of one hundred twenty digits. Twenty problems total (two complement calculation problems).	Addition of four to nine-digit concrete numbers with fifteen vouchers per problem and a total of one hundred and ten digits. Twenty problems total.	• Multiplication and division: levels and grades one, two, three contain concrete numbers and whole abstract numbers, decimals and whole numbers with decimals. • Addition and subtraction: Grades eight, nine, ten contain whole abstract numbers. The remaining contain concrete decimals or concrete whole numbers with decimals.
Ten nine to ten digit concrete numbers with a total of ninety-five digits. Ten problems total (one complement calculation problem).	Addition of eight to nine-digit concrete numbers with ten vouchers per problem and a total of eight-five digits. Ten problems total.	
Ten seven to eight digit concrete numbers with a total of seventy-five digits. Ten problems total.	Addition of six to seven-digit concrete numbers with ten vouchers per problem and a total of sixty-five digits. Ten problems total.	
Ten five to six digit concrete numbers with a total of fifty-five digits. Ten problems total.	Addition of four to five-digit concrete numbers with ten vouchers per problem and a total of forty-five digits. Ten problems total.	
Ten four to five digit concrete numbers with a total of forty-five digits. Ten problems total.		
Ten three to four digit concrete numbers with a total of thirty-five digits. Ten problems total.		
Ten two to four digit concrete numbers with a total of thirty digits. Ten problems total.		
Ten two to three digit concrete numbers with a total of twenty-five digits. Ten problems total.		
Ten two-digit whole abstract numbers with a total of twenty digits. Ten problems total.		
Ten one to two-digit whole abstract numbers with a total of fifteen digits. Ten problems total.		
Ten one-digit whole abstract numbers with a total of ten digits. Ten problems total.		

Standards for qualification are as follows: those with scores as listed below or higher are qualified and shall be given a certificate of qualification in abacus calculation.

- ★ Abacus calculation levels: a score of 80 for level 1; a score of 90 for level 2; a score of 100 for level 3; a score of 110 for level 4; a score of 120 for level 5; a score of 130 for level 6; a score of 140 for level 7; a score of 160 for level 8; a score of 180 for level 9; a score of 200 for level 10.
- ★ Abacus calculation grading: a score of 70 for qualification.

Mental calculation test: three-minute time limit

Levels	•Addition and subtraction: ten three to five-digit concrete numbers with forty digits per problem. Ten problems total. •Multiplication: five to six-digit whole abstract numbers of multipliers and multiplicands. Ten problems total. •Division: five to six-digit whole abstract numbers of divisors and quotients. Ten problems total. •A total of thirty problems from the above categories with a three-minute time limit.
Level 1	Three to four-digit addition and subtraction of ten concrete numbers with thirty-five digits per problem. Ten problems total.
Level 2	Two to three-digit addition and subtraction of ten concrete numbers with twenty-five digits per problem. Ten problems total.
Level 3	Two-digit addition and subtraction of ten abstract numbers with twenty digits per problem. Ten problems total.
Level 4	Two-digit addition and subtraction of eight abstract numbers with sixteen digits per problem. Ten problems total.
Level 5	One to two-digit addition and subtraction of abstract numbers (five problems are made up of four two-digit numbers and four one-digit numbers. The other five problems are made up of six two-digit numbers) with twelve digits per problem. Ten problems total.
Level 6	One to two-digit addition of abstract numbers (five problems are made up of eight one-digit numbers. Five are made up of three two-digit numbers and three one-digit numbers) with eight digits per problem. Ten problems total.

Level 7	One to two-digit addition of abstract numbers (five problems are made up of seven one-digit numbers. Five are made up of two two-digit numbers and three one-digit numbers) with seven digits per problem. Ten problems total.
Level 8	One to two-digit addition of abstract numbers (five problems are made up of six one-digit numbers. Five are made up of two two-digit numbers and two one-digit numbers) with six digits per problem. Ten problems total.
Level 9	One to two-digit addition of abstract numbers (five problems are made up of five one-digit numbers. Five are made up of one two-digit number and three one-digit numbers) with five digits per problem. Ten problems total
Level 10	One to two-digit addition of abstract numbers (five problems are made up of four one-digit numbers. Five are made up of one two-digit number and two one-digit numbers) with four digits per problem. Ten problems total
Remarks	Concrete numbers are decimal numbers. Abstract numbers are whole numbers.

Standards for qualification are as follows: those with scores as listed below or higher are qualified and shall be given a certificate of qualification in mental calculation.

Mental calculation levels: a score of 80 for level 1; a score of 90 for level 2; a score of 100 for level 3; a score of 110 for level 4; a score of 120 for level 5; a score of 130 for level 6; a score of 140 for level 7; a score of 160 for level 8; a score of 180 for level 9; a score of 200 for level 10.

Mental calculation grading: a score of 70 for qualification.

The 19th mental calculation test held by the Association of Children's Abacus Calculation in Taiwan

Level test—mental calculation problems

Three-minute time limit

Score			
Preliminary assessment		Reassessment	

Ⅰ. Mental addition and subtraction 10 points per problem

NO	1	2	3	4	5
1	$ 3.08	$ 9.63	$ 27.36	$ 8.24	$ 51.09
2	75.24	35.20	6.90	53.61	307.21
3	501.29	-8.47	52.74	209.97	9.46
4	97.32	60.15	180.38	-1.52	38.58
5	1.68	728.49	1.95	63.07	7.24
6	5.13	61.37	619.23	-409.28	528.67
7	70.46	-509.63	45.47	-51.74	6.41
8	938.28	-71.94	103.84	3.06	60.39
9	64.51	248.05	8.06	841.85	938.24
10	429.70	4.28	52.79	96.37	15.70
Answer	$	$	$	$	$
Preliminary assessment					
Reassessment					

NO	6	7	8	9	10
1	$ 4.17	$ 8.62	$ 16.05	$ 75.20	$ 638.91
2	106.25	612.49	7.42	623.86	45.70
3	38.09	53.74	802.97	-85.03	8.25
4	4.62	409.57	31.61	1.49	10.39
5	86.38	31.06	5.38	607.14	2.74
6	1.20	-7.49	47.90	29.38	85.36
7	59.75	82.50	519.43	-5.71	146.03
8	270.38	6.83	3.87	80.94	28.69
9	493.74	759.18	640.69	3.69	705.14
10	61.59	-30.42	15.82	-527.14	2.79
Answer	$	$	$	$	$
Preliminary assessm ent					
Reassessment					

II. Mental multiplication 5 points per problem

		Preliminary assessment	Reassessment
1	153×42=		
2	638×94=		
3	41×379=		
4	75×186=		
5	327×218=		
6	892×753=		
7	369×807=		
8	910×691=		
9	5,646×75=		
10	24×5,240=		

III. Mental division 5 points per problem

1	47,970÷65=		
2	6,331÷13=		
3	50,310÷78=		
4	8,424÷216=		
5	241,230÷430=		
6	834,392÷904=		
7	157,140÷582=		
8	229,758÷257=		
9	543,078÷89=		
10	60,016÷3,751=		

The 19th abacus calculation test held by the Association of Children's Abacus Calculation in Taiwan

Level test—multiplication problems

Ten-minute time limit

(Note) For concrete numbers, round to the nearest unit. For abstract numbers, round to the fifth decimal place.

		Preliminary assessment	Reassess-ment
1	$172.69×526,040=$		
2	$4,046.93×0.07536=$		
3	$853.20×4,856.75=$		
4	$5,194.08×39,403=$		
5	$93.16×8,328.571=$		

6	69,472×609,197=		
7	381.45×26.8784=		
8	0.206251×7,169.2=		
9	7,463,087×1,839=		
10	0.025134×95,128=		
11	$3,157.50×82,692=$		
12	$531.64×9,480.75=$		
13	$6,812.47×0.39407=$		
14	$89,034.61×2,751=$		
15	$2.58×703.69148=$		
16	0.978625×0.04136=		
17	1,073×4,628,590=		
18	0.04279×63,581.3=		
19	42,938,706×154=		
20	768.2×5,192,309=		

		Preliminary assessment	Reassess-ment
21	$564,910.17×143=$		
22	$253.84×0.037429=$		
23	$817.20×397,185=$		
24	$61.75×578,593.6=$		
25	$3,723.69×4,509.2=$		
26	1,093×6,462,304=		
27	968.438×842.61=		
28	0.05941×281,078=		
29	0.423906×7,065.7=		
30	76,252×958,180=		
31	$80,214.79×82.64=$		
32	$6.97×42,845,807=$		
33	$7,537.25×3,590.8=$		
34	$5,402.91×0.26341=$		
35	$181.30×704,753=$		
36	21,560.8×14,596=		
37	93,682×581,280=		
38	0.07463×0.097512=		
39	3,290,374×6,319=		
40	0.467916×96.385=		

The 19th abacus calculation test held by the Association of Children's Abacus Calculation in Taiwan

Level test—division problems

Ten-minute time limit

(Note) For concrete numbers, round to the nearest unit. For abstract numbers, round to the fifth decimal place.

		Preliminary assessment	Reassessment
1	$22,329,541.70÷9,265,370=$		
2	$3,218,027.38÷405.9=$		
3	$5,540,598.86÷1,538=$		
4	$740,324.39÷7,920.91=$		
5	$15,333.39÷0.873=$		
6	54.7960716÷6.8184=		

7	3,078,303,060÷594,267=		
8	13.99301458÷241.36=		
9	23,703,678÷38.25=		
10	0.324206388÷0.06732=		
11	$9,506,216.41÷19,701=$		
12	$2,861,182.17÷82,573.8=$		
13	$7,650,035.64÷4,903,869=$		
14	$13,207.50÷2.496=$		
15	$4,467,061.71÷65.3=$		
16	6,990,117,300÷96,450=		
17	0.0759301641÷0.079317=		
18	4.76580149÷0.5832=		
19	8,108,924÷3,109.25=		
20	2,543.19932÷70,264=		

		Preliminary assessment	Reassessment
21	$30,374,845.92÷7,248=$		
22	$143,022.56÷3.97=$		
23	$1,404,295.98÷581.5=$		
24	$66.22÷0.964803=$		
25	$68,459,072.20÷852,860=$		
26	23,622,942÷29.72=		
27	0.0109574911÷0.07159=		
28	5,742,901,372÷61,549=		
29	0.1196125097÷4.3631=		
30	9,373.512÷1,630.176=		
31	$14,657,471.88÷16,057=$		
32	$381,284.72÷5,485.03=$		
33	$252,591.16÷7.25=$		
34	$24,417.25÷91,934=$		
35	$20,392,906.07÷3,841=$		
36	16,638.95356÷8.728=		
37	2,000,432,120÷251,690=		
38	359,280,640÷43,417.6=		
39	0.0065837842÷0.08362=		
40	291.6872208÷0.6752019=		

The 19th abacus proficiency test held by the Association of Children's Abacus Calculation in Taiwan

Level test—addition and subtraction problems

Ten-minute time limit

No	1	2	3	4	5
1	$ 7,529,165.60	$ 14,074.15	$ 62,193.53	$ 26,038.17	$ 5,605,987.31
2	29,035,328.13	9,380,625.82	71,097,562.42	2,740,195.63	73,719.01
3	87,014.78	-127,946.28	310,484.06	-495,847.07	315,307.26
4	836,402.51	70,395,173.56	9,872.53	13,084,569.52	794.82
5	7,351.62	640.81	2,142,086.17	51,257.41	74,251,086.93
6	708,249.78	-6,905.27	13,687,158.40	62,943,689.30	982,642.50
7	43,670.69	184,038.36	93,570.15	-58,204.67	2,410,968.69
8	36,127,902.38	-3,095,794.52	508,798.79	412.09	3,750.82
9	64,595.46	63,828.23	49,384.26	409,718.53	70,948,281.64
10	5,490,864.95	26,815,734.09	5,968,706.39	-9,836,846.79	37,154.28
11	214,589.01	974,160.17	432.51	310,972.68	624,082.75
12	170.83	-69,409,724.65	690,781.42	-6,130.52	96,275.13
13	5,469,085.15	-35,813.80	5,324,190.64	1,938,502.17	8,051,343.56
14	20,183,738.27	4,179,501.96	56,203.78	-80,475,874.62	16,198.04
15	71,929.63	82,634.27	80,271,364.95	16,293.53	59,107,364.93
Answer					
Preliminary assessment					
Reassess-ment					

No	6	7	8	9	10
1	$ 407,939.68	$ 964,705.82	$ 36,029.16	$ 87,016.71	$ 21,809,545.49
2	50,617,281.53	8,340,167.37	890,547.51	54,032,198.69	46,276.35
3	419.48	-25,346.20	89,372,172.08	897,365.01	4,361,301.76
4	8,340,946.85	78,609,138.54	2,056,834.61	-6,912.19	28,069.81
5	26,730.51	84,519.23	959.45	3,214,087.65	875,472.30
6	9,207.97	-273,604.91	483,204.26	798,652.40	290.82
7	1,025,718.32	179.18	64,718.70	-32,109,875.67	5,820,757.39
8	36,054.76	-6,170,286.27	4,309,561.31	87,628.08	57,182.05
9	26,814,736.05	96,409.32	75,352.09	-9,454,305.34	90,341,691.86
10	935,152.36	50,745,235.91	16,829,793.48	95,768.21	362,734.95
11	64,979.20	394,568.08	20,196,517.26	-34,519.84	4,687,016.82
12	6,407,282.31	-5,839.43	480,946.51	3,270,634.36	41,970.35
13	182,904.79	7,091,452.68	7,108.47	20,541,329.59	14,092,648.17
14	94,758,456.28	85,023.14	3,748,593.52	105.27	835,769.04
15	35,810.13	-71,656,172.90	72,380.36	-243,640.81	3,192.35
Answer					
Preliminary assessment					
Reassess-ment					

No	11	12	13	14	15
1	$ 4,051,673.82	$ 648.59	$ 89,275.93	$ 215,907.28	$ 5,240,681.67
2	90,184.69	284,012.73	6,157,460.58	41,062,834.69	26,047.42
3	372,052.85	5,160,895.81	261,838.40	-93,519.15	90,314,713.95
4	59,483.64	-13,714.02	26,048,961.37	-6,321,074.83	649,160.28
5	37,261,394.08	73,094,625.95	4,025.83	74,691.06	283.57
6	127,601.95	-6,107,871.63	50,371,391.60	-13,909,372.54	26,015,907.93
7	3,627.10	384,954.90	92,801.95	261.80	74,385.89
8	3,805,495.87	62,701.32	2,503,742.48	6,273,480.75	738,049.35
9	49,720.61	-17,238,459.06	71,627.35	42,906.24	9,583.04
10	61,278,394.53	46,918.74	864,953.14	167,419.58	5,924,126.17
11	9,450,538.16	12,819.06	12,819.06	-5,627.05	316,742.81
12	18,590.21	3,640,747.93	3,640,747.93	2,670,385.37	84,208.63
13	163,745.97	970.45	970.45	81,620.95	87,603,527.91
14	927.42	671,029.58	671,029.58	90,815,374.38	57,615.30
15	60,246,803.78	51,829,372.61	51,829,372.61	-738,549.19	2,895,160.49
Answer					
Preliminary assessment					
Reassess-ment					

No	16	17	18	19	20
1	$ 1,026.14	$ 79,048.35	$ 26,173,581.60	$ 93,841,357.26	$ 3,908,476.21
2	41,062,864.57	50,948,165.94	297,037.49	28,608.94	36,524.03
3	38,597.28	-261,830.72	84,954.86	-1,407,129.73	95,317,089.78
4	3,950,729.39	372.16	3,052,864.41	814,263.60	3,790.25
5	638,410.57	2,710,659.48	37,523.09	395.05	269,187.94
6	14,624.81	-38,230.71	61,820,286.93	-70,759.41	513.80
7	5,948,073.26	19,056,464.59	5,903.74	5,284,267.36	10,857,482.12
8	835.07	493,825.03	389,610.15	17,190.94	48,615.65
9	10,659,271.69	71,068.27	47,257.47	-90,985,431.58	9,710,546.39
10	483,702.95	5,948,372.61	6,209,481.53	461,705.26	369,402.67
11	3,807,316.24	702,615.96	163,940.82	29,063.75	46,328.04
12	59,461.50	-8,372,561.40	527.46	9,671,298.03	971,562.95
13	49,382,938.05	49,384.09	8,210,689.54	-4,812.47	8,032,741.36
14	71,605.27	-94,725,703.18	90,735,274.71	73,062,538.52	41,560.73
15	192,837.46	-6,381.52	58,031.19	-840,951.38	15,728,049.28
Answer					
Preliminary assessment					
Reassessment					

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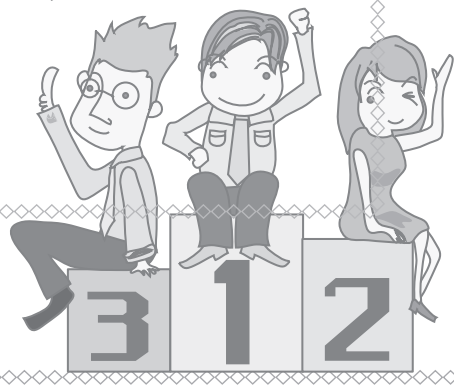

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