

The Stanford University Years (1983 - 1987)

Preparing for study in the USA

I had decided round about 1980, that is after about three years at the university, that I should really get a doctorate. There was a choice of a Doctor of Education (Ed.D.) degree which probably would not have required a dissertation, or a Doctor of Philosophy (Ph.D.) which did. As I regarded the former as an inferior degree, it had to be a Ph.D.

The next decision was which university? I could have enrolled at Hong Kong University (as other people at the university have done) or enrol at an overseas university but do the study in Hong Kong (as still others have done). These options I also regarded as inferior. I wanted a worthwhile degree at a reputable university so that meant spending time overseas and I only seriously considered US institutions.

I eventually applied to three universities: The University of Michigan (at Ann Arbor), Stanford University and UC Berkeley. The first two, of course, are private and so more expensive. I got three glowing references, one from To Cho-yee, one from a chap from UC Davis who was spending time at CUHK and one from the principal of the TTC.

GRE

But entry requirements to US universities meant that I had to do the GRE. These could be sat in Hong Kong but were a pain as it occupied a lot of time studying test procedure. As I wanted to major in Education Psychology, I also had to do the Psychology examination. For this, I bought a book on psychology and spent a lot of time studying it. I remember - I don't know why - that I sometimes used to study it while sitting on the rear staircase of our residence! The results of the GRE are shown below. The verbal reasoning result is not bad (just in the top 30%), the quantitative/mathematical reasoning result is better (only 15% better than me), but the analytical reasoning result is terrible. This latter test was only new and was experimental (which is why there are no norms for it), and later I found out that Stanford was ignoring it. The Psychology test result is not bad considering I had never formally studied it before.

GENERAL (APTITUDE) TEST						SUBJECT (ADVANCED) TEST								
TEST DATE		VERBAL	%	QUANTI-TATIVE	%	ANALYTICAL	TEST DATE		CODE	TOTAL SCORE	%	SUBSCORES		
MO.	YR.						MO.	YR.				SS1	SS2	SS3
10	82	550	70	670	84	340	10	82	81	560	58	59	50	
BATCH = 11190085						BATCH = 11190108								



REPORT OF SCORES
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Acceptance

I was eventually accepted by all three universities. But not before some hiccups. There were

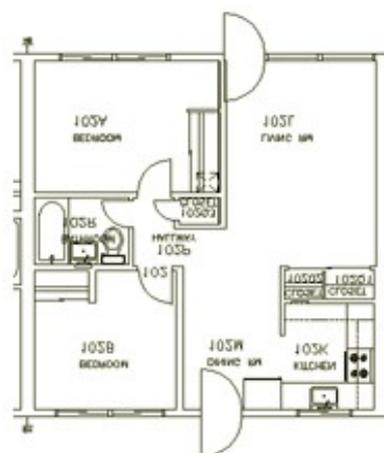
accounts that the Berkeley School of Education was to close down, reinforced by the fact that I was not receiving any replies from them. I wrote to ask what was happening, and eventually got a very late reply accepting me, but it was too late as by then as I had accepted Stanford's offer. A primary reason for Stanford over Michigan - apart from the weather - was that most of Vanessa's family lived in nearby San Francisco.

Student visa

As a student, I had to get a student visa prior to leaving Hong Kong. This I did at the US Consulate in Hong Kong. As a foreign student, I also had to have health insurance. This was provided by Blue Cross who had a branch at the Stanford Medical Center.

Stanford housing

All the paper work for Stanford went smoothly. (No e-mails in those days remember!) We applied for and got a two-bedroom family apartment at Escondido Village. There was a choice of the (older) single-storey apartments and the (newer) two-storey ones. We chose the former as we thought it would be safer not to have two young children needing to use the stairs. The photograph below, left shows what the apartment looked like. (This was taken in 2007 at Leonie's wedding. It is not the actual apartment - I got the number wrong! - but it is absolutely identical to this.) There were four apartments in each block. The other picture shows the plan of the residence. (Note that I had to flip the plan vertically so that it shows the layout of the apartment we had.) The entrance behind me in the photo corresponds to that at the *bottom* of the plan.



Paying for it

The plan was to be at Stanford for just two years to do the necessary coursework then return to Hong Kong to do the work for my dissertation and return briefly to defend it. To pay for the two years, I had accumulated the maximum of paid leave of one year. I also applied through CUHK for a “Harvard-Yenching” scholarship which would have paid all fees and provided a housing allowance. It turned out that CU blundered in this in that only HK passport holders were eligible. It was late in the day when I found out so then applied for a

CU grant but by then most of the money had gone! I did get HK\$20 000 which required returning for three years or more (no problem). This amount lasted all of three or four weeks at Stanford!

Dip Ed credit: Stanford, like many universities, can accept previous academic work for (1) academic credit (i.e. previous courses can count towards the new degree), and (2) tuition credit (i.e. a reduction in the amount of fees to be paid). Such credit is usually applied to *degrees* no older than about 10 years. I was proposing to get credit for both for my Diploma in Education work (not a degree!) from nearly 20 years before!! I thought my chances would be slim. But then, I had the most amazing luck. The lady in the Stanford administration who was dealing with my case had just returned from a sabbatical at the School of Education at the University of Canterbury in Christchurch, from where I had obtained my diploma. Furthermore, she knew many of my lecturers very well. Consequently, she gave me both the maximum academic credit (36 units out of 108, I think) and of much more importance, maximum fee reduction (I can't remember how much). As it turned out, I still did at least 108 units of course work, but by a judicious allocation of courses across the eight quarters (Stanford has a quarter system), I managed not to have to pay any more than the reduced amount of fees. One way to do this was to take more than the maximum paid load of 11 credits for some quarters, as the fee for 11 or more credits a quarter is the same.

RA and TA: My academic supervisor was Robert (Bob) Calfee. He ensured that I got a 1/4-time research assistant post (RA) working under him. A 1/4-time post provided payment towards fees plus a living allowance. It is supposed to involve 10 hours of work a week. However, I did less than this, and sometime much less, as his research interests involved reading and discourse analysis and I had no interest at all in this. This did not go unnoticed of course, though nothing was ever said directly to me. Instead, at the end of the third quarter, Bob got a TA (Teaching Assistant) post with STEP (Stanford Teacher Education Program), that is, the training of teachers, just as my teaching in Hong Kong entailed. This pleased me - and them! The student-teachers did course work and obtained an MA in Education. They also did the teacher-training part in their major subject, which is where I came in. The only disadvantage was that I had to train Biology majors and the Chemistry post was already occupied. The STEP programme had just *one* faculty advisor; the rest was organised and run by Ph.D. student supervisors such as myself. This arrangement did not go down well with many students. STEP was supposed to be a top teacher training programme in the US and at one of the final group sessions of the year, one female student, expressing the views of others, commented that if this was the best, then God help all the others! I tended to agree with her.

So, for the next four quarters, starting in the summer of 1984, this is what I did. In the very last quarter (summer, 1985), I had finished my course work and was involved full-time writing my dissertation, so the fees were very much reduced.

Vanessa's work: Vanessa also did some work to help with expenses. She was involved with two wheelchair bound young women, one off campus and the other a law student in an adjacent block at Escondido Village (see photograph; I think her name was Laura). I believe this work was illegal as she did not have a work permit but no-one ever complained about it, least of all the two girls who knew Vanessa did a super job helping them, with the off-campus one recommending her to Laura. It only became difficult when she was pregnant with Nadine.



So, as a result of all these devices, we managed financially.

Getting to Stanford

After leaving Hong Kong, we travelled to Christchurch before heading to the US. It seems that Vanessa and the children must have left Hong Kong before me. Before arriving in Christchurch, they would have met Anne and Winnie in Auckland then travelled down to Hamilton to stay with Mutoh's, who had left CUHK to go to Waikato University there. They then travelled to Christchurch where I must have flown directly. The photograph shows Vanessa and the children with Nancy Mutoh and her (now) three children.



Some highlights of the Christchurch visit:

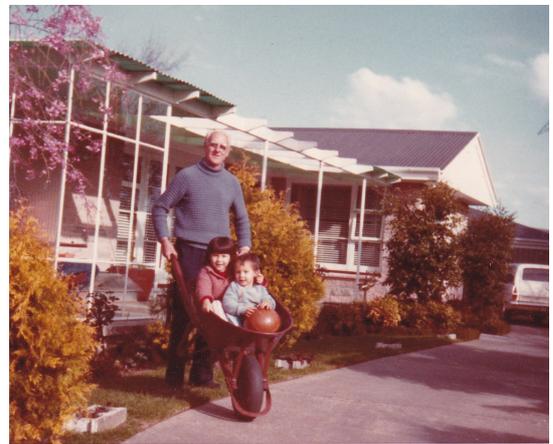
- A visit to Ferrymead park which has historical relics related to Christchurch.
- Visit to see and feed animals at Orana Park.
- On the flying fox at Spencer Park.



- Visit to Bill Ellwood's bach at Bealey, near Arthur's Pass. There was heavy snow at the time. The photographs show inside the bach (in front of a roaring fire!) and Leonie and Gavin outside in the snow. I note that Anne and Winnie are there too.



- Playing in Granddad's wheelbarrow.
- A visit to Mt Hutt ski field. I spent the day skiing, while the others spent it playing in the snow.
- Would Leonie have been four while we were in New Zealand? I do not have any photographs of a birthday party. Perhaps we were already at Stanford by then.



Arriving in the United States

We flew on an Air New Zealand DC-10 from Auckland to Los Angeles non-stop (I think!). On board the plane was the then NZ Prime Minister David Lange (pronounced 'Long-e'). After landing, the plane first parked on the tarmac for the PM to get off before the rest of us. In Los Angeles, we must have stayed with Vanessa's sister and her husband (though they probably had no children at that time). In Los Angeles, we went to Disneyland for a day (the second visit for Leonie who had been there earlier when she was one-year old).



From Los Angeles, we flew to San Francisco. A representative from Escondido Village was there to meet us and take us down to the campus. Vanessa's brother and sister in law were also there to meet us, but as we had previously arranged for Stanford to meet us, we thought it might not be a good idea for them to find out others were also there (who could also have taken us to the campus).

37C, Escondido Village

On arriving at Escondido Village, our apartment was Block 37, Apartment C. I thought we had been given the wrong apartment as it looked rather grotty and we had to start living in it immediately! It turned out to be correct. It was just older than I had expected but turned out to be fine. The apartment had basic furniture such as a sofa and beds as well as a fridge and a washing machine(?) in the kitchen. The photograph shows the lounge; the furniture and carpet came with the apartment.



Neighbours: These blocks consisted of four apartments. We became friendly with three of the neighbours. Next to us at one end of the block, were the Baldizons, the father Salvador, the mother Kathy, and two boys ??? and Benjamin. The father was from Guatemala(?). At the other end was a family from Brazil. Next to us, on the inside, was a couple with a young daughter, though we didn't know them very well. Then, across the courtyard in the adjacent block was a couple from Arizona with a toddler, Erin. We were friendly with them too; the mother used to work part-time in the Escondido Village office.

Our stuff arrives: The things we had sent by sea freight from Hong Kong did not arrive until November. There was a lot of skulduggery behind this by the company concerned. The stuff had arrived at the port of San Francisco much earlier but the company (at the US end) kept making excuses for not delivering it. The freight contract was for free delivery within a 30-mile radius of San Francisco, which just included Stanford. They just did not want to deliver it that far away and it was only when I threatened action that they finally delivered it.

Getting around

Getting around campus was primarily by walking, even though the campus is large. There is a free shuttle bus service



(the “Marguerite”) but not necessarily when one needs it. And being America, a car is necessary for getting around off-campus. For the first month or so, we used James' (Vanessa's brother in San Francisco) car. We then purchased a reduced-price but new Chevrolet 'Cavalier' (photograph, but *not* in our allotted parking space.). We also had to do written and practical tests to get a driving license. Each apartment had an uncovered parking place.

Schooling: Leonie

Friends Nursery School: Leonie was four years old when we arrived and spent the first year there at the “Friends” (Quaker) nursery school. It was a good school with friendly teachers and I think Leonie enjoyed it. Occasionally, Vanessa or I would go along to help with activities.



Escondido Elementary School: In the second year, Leonie began public school at the Escondido Elementary School, a public school close to our apartment. Her kindergarten teacher was Kate Hoover Calfee, who was also the wife of my academic advisor (shown in the photo below left, though I think this picture was taken in 1988 when we visited Stanford). Leonie was terrified of her! So were others; in fact, the Brazilian boy in our block was in the same class but was moved to one with another teacher. Still, it gave Leonie a good start to her formal education. Later in the second year, she was also enrolled in the adjacent “Bing School” though why I am not sure. But I believe she did not like it very much. I remember one occasion when they had an overnight sleepover at the school.



Schooling: Gavin

Gavin was just two years old when we arrived and so too young to get into “Friends”. For a while, he went to a day-care(?) centre, which was not that good. The last straw was when we went to pick him up one day but he was not there and the staff had no idea where he was. A walk around the grounds found him sitting in a large concrete pipe. We took him out of that school. In the second year, he also attended “Friends” which was a much better environment.

Churches

Memorial church: At first, we started going to the Memorial Church at Stanford. Very stiff and formal and not enjoyable. On the foundation stone (see right), note the relative sizes of “to the glory of God ..” and “Jane Lathrop Stanford” and her husband. Seems they have got these sizes the wrong way around. This was commented on in a first quarter class by a (somewhat irreverent) teacher originally from Australia. The last straw came one Sunday morning about October of the first quarter when I was there with Gavin. I remember it very well. For the children, there was a talk on “Suffer the little children to come unto me”. The sermon was based on the old testament prophet Micah and the meanings of the names of his three sons (the third, in English, means “Not mine!”) So far, so good. But then a small baby in the congregation started to cry. The minister stopped speaking and stared at the 'offending' family until they got up and took out the baby. I was horrified. At the end of the service, when people were shaking hands with the minister outside, I asked him about the incident. He replied that the board required that services be conducted without such 'disturbances'. I then commented, based on his sermon and the names of Micah's sons, that Gavin might be named “Not welcome!” We never went back again.



MPPC: Shortly after, we started going to the Menlo Park Presbyterian Church (MPPC) where the atmosphere was very good. Leonie and Gavin went to the Sunday School there. Leonie, I know, liked it a lot. Once, she was even dressed up in a choir gown when a children's choir gave a performance. I also remember that the minister used to get around in an old and



rather beat-up Volkswagen 'bug' car. On the way home, we would often stop by a pastry and bread shop called “La Petite Boulangerie” for French bread. This shop advertised on TV and had a little jingle that used to make us, and particularly Leonie, laugh: “Ooh. la petite boulangerie, da, da, da ...”

Exercise

Due to the pressure of work, it was not easy to fit in as much exercise as would have liked. Most of the exercise was through swimming, in the university pool and I would swim up to one mile. (The main pool then was 50 m in length and 25 yards wide; the width was often used for late afternoon swims and the length for lunchtime swims.) I



would often have a swim on the way home. (The photo shows the pools as they were then; they have since added another two pools.) Occasionally, at weekends in the summer, the whole family would go to the pool for a swim (no charge for students and family on campus).

Towards the end of the time there, I also did a little running around a dirt track on campus (now sealed and upgraded, I believe). I remember that at that time, the *Gatorade* sports drink manufacturer was starting out and they would provide dispensers (not bottles) with free drink for runners to consume.

Super Bowl

The 1985 Super Bowl was held in the Stanford Stadium between the “San Francisco 49s” and the “Miami Dolphins”, the former winning by 38 to 16 in front of nearly 85 000 spectators. The Stanford stadium was open, without a roof, which was all right, as it seldom rained in this slightly inland area. At that time, Y. P. Chung from CUHK and his family were in their first year at Stanford.



Although we did not see the game, all of us went along to the stadium to “soak up the atmosphere”. (The photograph here is of that Super Bowl game.)

Life at Escondido Village

Life at the village was very, very good for families. It was a large grassy environment, though you had to be careful, especially in the summer, as the grass contained many prickles, and was dry for most of the year due to low rainfall in that area. There were playgrounds for children. Each pair of the low-rise residential blocks formed a unit, with a courtyard between them and fences at each end with latches so that children could not get out (see picnic photograph below). The village was car-free, with car parks provided but roads on the outer perimeter only. Occasionally, parties were organised for residents. We had to travel to nearby Palo Alto centre for supermarkets and other facilities.

Social activities: These were held frequently, sometimes arranged just by families in our block and sometimes by the Escondido Village office. The photograph here shows a picnic on the grassy area just outside our compound. Our block is the one on the left. The lady on the left of the picture is Kathy Baldizon.



Birthday parties: These were also celebrated, not only for Leonie and Gavin, but for other children as well. The picture (below, left) is of Gavin's fourth birthday (May, 1985), in the courtyard of our compound. That on the right will be of Leonie's fifth birthday in August, 1984. (Or could it be Christmas, as I see a stocking hanging on the door?)



Christmas: We spent two Christmases at Stanford. We bought a tree for each (I think they were real and not plastic!). The photograph here would be of the 1983 Christmas, I guess. Notice the tooth fairy bag on the tree; at that time, Leonie was losing teeth - and getting money! I guess we bought it there. At the time of writing, I still have that bag hanging on a cupboard door!



Rent protest: In the second year, the university decided to increase the rents at Escondido Village. This produced howls of protest and even protests. In one such protest march, Leonie took part and along with placards, joined in with the rest shouting “No Kennedy we won't pay!”. (Donald Kennedy was the name of the then university president.)

Breaks away from campus

San Francisco: There were the regular short trips to San Francisco. We would travel along the scenic Interstate Highway 280, also known as the Junipero Serra Highway, after an early catholic missionary who established missions in California. About halfway, there was a lookout and toilets with a large statue of Junipero Serra pointing. I kidded Leonie that he was pointing to the toilets, which she believed for a long time!



Lake Tahoe: At the end of the third quarter, I think it was, we went with James and his family to Lake Tahoe for a few days. We rented a house there (photograph).



Summer of 1984: Although I did the summer quarter, we found time at the end to spend about a week up at Chico, a small town north of Sacramento. We stayed with people we knew who had been at Chung Chi College; I have forgotten their family name but the daughter was named Karen. They lived on a small farm and had horses which we rode on.

Los Angeles: At the end of the second winter quarter in 1985 (about the end of March), we decided to head down the California coast and end up in Los Angeles, where Vanessa's sister lived. We made it as far as Santa Barbara when, because of my asthma, decided to turn back. We never made it! (For more on this saga, refer to the account under 'Asthma' below.)

The Academic Side

We arrived at Stanford a few weeks before the first term began in order to settle in and for me to attend the several welcoming parties that were put on for us. The university also has a centre for foreign students that we would visit from time to time.

I had just two years leave from the Chinese University and so had to complete all my course work in that time. On returning to Hong Kong, I did my dissertation research and wrote it up then returned for a couple of weeks in early 1988 to defend my thesis.

PSE: At the School of Education, I was in the Psychology Studies in Education (PSE) section. There were just five of us, three women and two men. Of the five, I would be the first one to graduate. We did not actually meet that much. We had some common courses and tutorials of course and would meet at the occasional party.

The School also had a number of other sections that students could choose to major in. I remember there was a chap I knew (from England) who taught at the School of Education at Hong Kong University and who was in his second year in the Statistics in Education section. Like us, he and his family lived in the village. When he graduated, he did not return to Hong Kong but went to the Harvard School of Education.

Degrees: My main goal was to get a Ph.D. in Educational Psychology. However, a minor subject was needed which, by doing a few more courses could become a Masters degree. My choices were between Computer Science and Statistics. I would have preferred the former, but as it required more courses and may have required a third year, I chose Statistics.

Courses: Courses came from other university departments as well as the from the School of Education. For me, these were the Psychology, Computer Science, Statistics and Mathematics departments (with the last being for just one course). Many of the Education courses were cross-linked with those of other departments, so when I enrolled each term, I would list these courses with the non-education code. The reason was that I thought my transcript would look better if the courses shown were not education courses, even though it was only the department code for the courses that differed. A bit silly I suppose, but that was my thinking. (In my mind I 'graded' departments; those such as Computer Science I rated more highly than Education.) However, I never actually picked up a copy of my final transcript nor I did I ever need to use it as I just returning to my existing job in Hong Kong.

I had to choose subjects carefully especially required subjects that were only offered once every two years to ensure that I was able to do them in the two years I was there and did not need a third year.

Number of courses each term: This varied. I was also supposed to do fewer in order to have time to do my RA work. However, I did not always consider this. As mentioned earlier, I also considered the tuition fees I would need to pay (these were high!). These fees were in

proportion to the number of courses/units taken up to a maximum when after that, the fees did not increase. So when I did a quarter with the maximum tuition fee, I would always do additional courses so did not have to pay any more fees. In this way, my total tuition fees did not exceed the reduced total I got as a result of fee credit from previous work.

Writing assignments: In those days, personal computers were just making their way into the university. I remember one day when Bob Calfee set up a personal IBM computer (like that shown on the right) and we all gathered around to inspect it. Assignments were not written using a word processor but by typewriter - some of you may never have seen these let alone used such things! We bought a second hand IBM electric typewriter (like that in the photograph) and Vanessa would type up most of my assignments. One had to be careful not to make typos. These would have to be covered with white ink and then typed over, or in serious cases, such as missing out a line, the whole page would have to be re-typed!



Calfee parties: From time to time, Bob Calfee and some of his RA students (most lived in the Silicon Valley area) would hold parties in their homes. Vanessa and I would occasionally attend these. I, not being a party type, never put any on, though in a small Escondido apartment, it would not have been very practical anyway.

I will now go through the two academic years quarter by quarter and comment. Each regular quarter was 10 weeks plus a week (usually) for examinations. The summer quarter was more intensive and was for eight weeks (excluding examinations).

First year: 1983 - 1984

Autumn quarter: (late September 1983 to December 1983). In my first quarter. I think I took slightly less than the full tuition load. I enjoyed this term and the courses were not too demanding. One tutorial, arranged for we PSE students, involved different professors coming along and talking about their research interests. From one of these, I started to get an idea for my dissertation which, interestingly, was related to work I had done in one of my Dip. Ed. courses many years earlier. Most courses ended with a student assessment of the teacher's performance. Partly because Stanford is a private university with high fees, I felt that frank assessments were in order. Some of these were very tough on my teachers. For the first required PSE course, the (lady) teacher was appalling so I was very critical of her in my assessment. Although the assessments are done anonymously, with our small PSE group it would not have been too difficult to have worked out who wrote it!

During this first quarter, I also liked to think of myself as a 'mature student' (which is a term universities use for slightly older students). I would therefore liked to have chosen just

Pass/Fail for courses that allowed this rather than grades. However, at the end of this quarter, I was brought down to earth and told that 'mature student' or not, I would have to 'prove myself', which means that I would have to get a certain number of 'A' grades in order to graduate. I was never informed of any specific GPA for Education that had to be obtained, though to get my MS in Statistics, that department required a minimum GPA (I can't remember what this was). So the academic 'honeymoon' ended with this first quarter!

In this first quarter, I took Mandarin. This involved not only speaking the language but also reading and writing (simplified) characters. It involved a lot of work. But it involved almost half the units for that quarter and I had to give it up as I had to 'prove' myself in more relevant courses. Still, as a result of this course, I was able to write to simple letter/note to Vanessa's parents using Chinese characters.

Winter quarter: (early January 1984 to the end of March 1984). I did more courses than the number for full tuition fee. I also started to do statistics courses this quarter. I did two and only got a 'C' and a 'D' grade in these. Not a good start to 'proving' myself or getting the required GPA in Statistics.

I also did a computer science course studying the computer language LISP (which contributed to the statistics degree and which happened to be created by the teacher of one of the two statistics courses I did this term). I found LISP extremely hard going as the form of the language was quite different from other 'structured' programming languages I had learnt. The university had a large area set up for computer subjects such as this, with about 50 monitors, so I would go along to type up and test my programs for class assignments to see if they would work. I was afraid that I might even fail it. I went to see the teacher a number of times to get help with the work. (He was a young Australian guy married to a Thai woman, and is now at MIT where he is a world expert in robotics.) But I eventually got a 'B' grade for this course with a little 'help'. Some courses at Stanford do not have formal examinations but have take-home examinations or final assignments. Because of this, the university has an honour system that students will not cheat. I must confess I broke that code - though just a little, and only this time! My final assignment, a print-out of a computer program using LISP, along with those of other students, were just deposited into a large box in the Computer Science department. So I had a quick look at another assignment in the box and got a few hints on how to improve mine. So I went back and modified my program. This ensured I got the 'B' and on picking up the marked assignment later, the teacher had commented that I had definitely improved! Still, even with a 'B', my GPA was not increasing much, so the pressure was to be on me for the rest of the first year.

Because of the intense work this quarter, my RA work was very lackadaisical and this did not go unnoticed! I was told that in the third quarter I should do fewer courses so that I could contribute more to the RA work.

Spring quarter: (early April 1984 to the end of June 1984) Courses this quarter included a Mathematics course, a Psychology course and other computer programming course with the Pascal computer language. This is a 'structured' language and I did not find it difficult at all with the result that I got an 'A' (or was it an 'A+?') grade. Again, it was necessary to go to the computer room to type in and test the programs I had written. I remember that I would sometimes be there at 6 am, and even at that early hour, there were many students at work. And yes, I did do more of the research required of me as an RA.

Summer quarter: (July and August of 1984) This was an intense quarter with five courses, four of which were in statistics. A Canadian, who regularly took Stanford classes in the summer, took two of these courses. I remember that his lectures, and test questions, would often be laced with esoteric examples to illustrate statistical ideas, such as people on other planets or people in exotic locales. Also, his take-home examinations tended to be similar each year and copies of these past papers were available in the library. This, plus what I think was generous marking enabled me to get 'A' grades in both courses. One of the other statistics courses, one was taken by a visiting teacher from South Africa and one by a South Korean post-graduate student at Stanford. For each of these courses, there were only a handful of students, so we got to know the teachers well. I also got an 'A' for each of them. The fifth course was a research methods course taken by Bob Calfee. I was expecting him to be a good teacher, but was disappointed and this was reflected in the course assessment I gave him. Also, I got only a 'B+' grade for this course.

Anyway, with all the good grades for these summer courses, my GPA for statistics was now well above what was required, so even if I got poor grades in the remaining statistics courses in the second year, I would still qualify for the MS.

There was an interesting incident one day in the class with the South Korean. A portable stereo system in the room started to crackle and smoke. We evacuated the room in case it exploded, but then I crawled back in along the floor and pulled out the electrical cord from the socket. It was all right after that.

During this quarter, I was switched from being an RA to being a TA in STEP. There was not much work to do in the summer quarter, just meeting the new students and introductory things.

Second year: 1984 - 1985

The second year was not as bad as the first. I had 'proved myself' and the intense pressure was off though there was still a lot of work to be done. I remember that the previous three terms when I had to 'prove' myself had turned me into a 'student' again, that is, one very concerned with grades. In this second year I could afford to choose some courses for Pass/Fail only. I remember on at least one occasion getting an 'A' for a course but the transcript would only

show 'Pass' and kicking myself for not choosing the grade option! The 'student' in me coming out again!

Autumn quarter: This included the first of two stochastics courses in statistics. The teacher for these was the chairman of the Statistics Department, a guy by the name of Siegmund. His wife Sandy, worked in the Escondido Village office and Vanessa had become friendly with her, and later in our time there, we all got to know the family and even went to their home (on campus) a couple of times (but after my courses with him had finished). He was a terrible teacher, and in an in-class test in this first quarter, most students failed! And this included some very bright students! He could not believe this and actually asked us in class why we had done so badly. He went over some of the ideas again and gave us another, slightly easier test, in which we performed a little better.

STEP now included Friday visits to local schools to observe my Biology students in action and to discuss their performances. To assess their lessons, I used an assessment form I had devised for us with my Hong Kong students in Chemistry, which was all right as the teaching of the two subjects is similar, just the content differs.

A variety of schools were used for teaching practice from those in 'good' districts with more able students to those in 'bad' districts with problem students. Overall, I was impressed with the performance of my student-teachers as even without difficulty, they would use the very important 'Question and Answer' approach, probably because they had met this approach when they themselves were students in school. (In Hong Kong, by contrast, student-teachers were not familiar with this approach, and it required a lot of very specific training and practice to get them to use it effectively.)

Winter quarter: This included the second of the two stochastics courses. For the two stochastics courses I got 'B' grades (I think) which had little effect on my statistics GPA. I also remember an Education course in which the teacher - Nathaniel Gage - gave us extreme loads of what I regarded as pointless readings instead of choosing representative samples for us to read. He and I crossed swords over this (something that was to happen again in the summer quarter - see below). Needless to say, I refused to read them all! Also, in the final course take-home exam/project, I used research data I had collected in Hong Kong but which had never been published; he did not like this either but had to accept it. Still I got an 'A' for the course (I think).

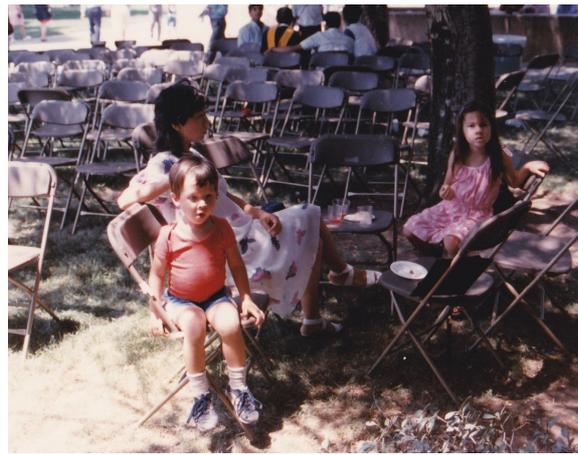
It was during the break at the end of this quarter that I got the asthma that nearly finished me off - also see below.

By the end of this term, I believed I had done sufficient courses to qualify for the MS in statistics. So I went to my second course adviser in the School of Education (who was a mathematics/statistics guy) to get him to sign off on this. He would not do so, and suggested

another course that I should do. I was not about to take 'No' for an answer, so went straight across to the Statistics Department to the guy there who was also the link between Statistics and Education. He immediately signed off and commented that in addition to the required courses, I had a good selection of other courses. This meant I would be able to graduate MS at the end of the spring term.

Spring quarter: This was my last quarter for course work. The guy I mentioned in the very first quarter who had given me ideas for my dissertation, had in the meantime become my dissertation adviser. However, because Stanford would not give him tenure, he resigned and would return to the UK at the end of the year, from where he had originally come. His interests were in education (particularly mathematics) and artificial intelligence and was a good match for what I wanted to do. There was no-one else in the School of Education to take his place so I never had a specialist dissertation adviser. Instead, Bob Calfee offered to be my primary - and in practice only - dissertation adviser. His area of expertise was in reading and not chemistry or artificial intelligence which is what I needed, so he could not offer me any help there. However, he was an excellent advisor in terms of how to actually structure and write a dissertation and ensure that come the defence, I would prevail.

My MS graduation ceremony was held at the end of this term. It was held in the open outside the main university buildings. As well as statistics, MS in other subjects such as computer science and mathematics were awarded. For this ceremony, I hired a cap, hood and gown. I remember that Leonie and Gavin liked putting these on and being photographed, though I cannot seem to find these photographs. (See separate file for an image of the diploma.) The ceremony was held early in June. Vanessa was heavily pregnant with Nadine and gave birth a few days later (June 12th), several weeks premature.



Summer quarter: No more course work. No TA for STEP either. The whole time was spent writing up a proposal for my dissertation work. For this, I needed to form a small committee to assess the proposal. It was not so easy as many people would be away during the summer. I approached Gage (mentioned about in the Winter quarter) who not only was unwilling, but suggested that to form a committee, I should come back in the third year! I was not amused,

and walked out of his office! I then approached others who were happy to oblige. So I eventually got my proposal approved in time to return to Hong Kong.

In July, we had a dinner party at a restaurant in San Francisco for our wedding anniversary. The Siegmunds also attended. I think it was there, when talking to the father - my Stochastics teacher - that he thought I was very brave to attempt such courses!

My life as a car thief pays off

In the third quarter of the first year, as part of one of Calfee's research projects, I and others had to go to the San Francisco airport airline section to interview United Airlines crews and others about how they interacted with each other in the cockpit. (I did enjoy this part actually.) Anyway, one of our team had inadvertently locked her car keys inside her car and could not get in. I told her not to worry as I might be able to open the door. I asked for a longish piece of wire and pliers. I then bent one end into a hook, slid it down into the door panel between the window and the outer panel, moved it around feeling for the lock mechanism and then with a pull, up popped the lock on the door and the door was open! All in less than a minute! They were most impressed with this feat! Of course I was not actually a car thief; I had learnt many years earlier in New Zealand how to use this method to get into my own car.

Brush with death!

In the second academic year I started to have trouble with asthma. It was getting worse but I kept thinking it would get better. At the end of the winter quarter (end of March, 1984) we set off on the trip down the California coast, with me driving and Vanessa pregnant, intending to end up in Los Angeles. Unfortunately, my asthma was still getting worse. We stayed overnight at a motel in Santa Barbara but by then the asthma was so bad, we decided to return to Stanford immediately the next morning. We never made it! The date was March 27th (the day after my birthday). It was a Wednesday.

On the freeway north, I couldn't continue driving and was starting to black out at times. So I pulled over to the side of the road and parked, with Leonie and Gavin in the back seat, while Vanessa frantically tried to wave someone down to seek help. I remember that I was losing consciousness but felt very peaceful; there was no pain any more from the difficulty in breathing and in my eyes there was a calm sunny appearance (the kind you get if you look towards the Sun with your eyes closed). Eventually, a young guy stopped and told Vanessa to follow him. So she took over driving and we followed this guy to a private hospital not too far further north in St Luis Obispo



called Sierra Vista Hospital (photograph, as it looks now). Remarkably, I recall staggering out of the car and leaning over a shelf I must have come-to for a brief time. Meanwhile the guy who helped, and as a consequence saved my life, unfortunately, drove off.

I was rushed in for blood tests for oxygen level then treatment but I what I did not know was that the hospital wanted to know from Vanessa if I had medical insurance or not! The next I remember was waking up in a bed in a room. I remained there for two nights while the others stayed in a nearby motel. I was discharged, in a weak state, on March 29th, two days later (Friday). We then returned to Stanford, with Vanessa driving, I think.

I made a claim with Blue Cross, through their campus office. They were very good about it and after the deductible (about \$300?), paid the rest. But it was the doctor who treated me who was a real pain. He kept sending bills, which I took to Blue Cross, who told me there was nothing more to be paid. Eventually these bills stopped, but it was troublesome. With the US medical system, sometimes it seems that dying is the least troublesome option!



Follow up treatment and observation were given at the Palo Alto clinic.

Birth of Nadine

Vanessa must have become pregnant with Nadine in late 1984. It was not a planned pregnancy and when it was clear that she was indeed present, it caused a bit of concern as to whether we would be able to cope or not. Kathy, our neighbour, was a good counsellor and said that while it may be very difficult now, we will look back later and see that it was indeed something to cherish. And how right she was; yes, it was tough for a while, but to get a girl such as Nadine was indeed a blessing and could not have been bettered!

We had to consider how to pay for the birth and where to have the delivery. Stanford University Hospital was the obvious place as it was right there, but it was just too expensive. Eventually we got a package at UCSF (University of California San Francisco) which was much less expensive. To qualify for this, our US assets were not able to exceed a certain limit so we spent money on some things and paid off the loan of the car in order to get below the limit. Pre-natal tests involved having to travel all the way to San Francisco.



Somewhere along the way, there was the consideration of Nadine being born premature, though why this cropped up early, I don't know. Anyway, we were told

that such premature babies can have difficulty starting to breathe because the surface of their lungs collapses but that UCSF was doing experiments with a new powder surfactant which would be sprayed into the lungs if necessary, and would we agree to this. We did!



Nadine was indeed born a few weeks premature and was on the borderline as to whether this powder treatment would be needed or not. So when labour began, we rushed to UCSF for the delivery where Nadine was born just after 10 pm on June 12th (I only know the time as it is given on her birth certificate, though surprisingly, it does not record her weight at birth). I was present at the birth and managed to take some photographs. Because Nadine was so small, the birth was quite easy (unlike for Leonie and Gavin, both of whom needed assistance to get them out). But there was no time to savour the birth as she was quickly passed through a panel in the wall into another room, a scene I remember very well. In this other room (pictured above left). Nadine started breathing normally, so the experimental treatment was not needed. When we first saw Nadine, she had been hooked up in an incubator (pictured above right). She was in the neo-natal ward for several weeks. To feed Nadine, Vanessa would express her breast milk which she then took to the hospital each day where it was given to Nadine via a small syringe.

Nadine then came home to Stanford. But things were not yet normal. She had to be connected to an apnoea alarm machine as there was the danger that she could stop breathing, in which case the alarm would sound. Unfortunately, there were many false positives, day and night, which was exhausting on us. But slowly she gained weight and was eventually taken off this machine. I can say that it was indeed fortunate that I did not have any course work to do, which meant I could stay at home and work while monitoring Nadine at the same time when Vanessa was not there.

We leave Stanford

Leonie, Gavin and myself returned to Hong Kong at the end of August. Because Nadine was so small and fragile, she and Vanessa remained in the US, staying in San Francisco at her

brother's place. They came to Hong Kong in November.

Before leaving, I had to get a school place for Leonie in Primary 2. I wrote to the ESF Beacon Hill Primary School and she was accepted without any problem. (There was no Shatin Junior School then and wouldn't be until Leonie was in Primary 6.) Gavin was still only 4 years old and so too young for school. Upon return, he would do a year in the Chung Chi nursery.

We also had to apply for a new flat at the university. By this time, Residences 12 to 15 had been completed. I wrote and applied for a flat. There were a number still vacant but I didn't know which one to take. So, we got Daniel Law to have a look at a couple and suggest which he thought was better. This became Flat 5B in Residence 12, where we were to remain until I retired in 2000.

Leonie, Gavin and I returned to Hong Kong on China Airlines from San Francisco via transit at Taipei airport. At there airport, there was an interesting mix-up. We heard an announcement for what we thought was our flight to Hong Kong and went to the boarding gate where they let us board so we took our seats. Then, just before the plane was about to leave, the pilot's voice came over the intercom welcoming everyone on this flight to Amsterdam! *Amsterdam?* Clearly we were on the wrong plane! I rushed to the cabin crew and pointed out that we were heading for Hong Kong and not Amsterdam! Fortunately, they were still able to let us off the plane and we eventually got on the correct plane and returned to Hong Kong without further incident. Had the pilot's welcome occurred when we were airborne, it would have been a different story. I guess this happened (a) because the cabin crew did not check out boarding passes carefully and (b) there just happened to be no-one else booked in the seats we had.

As mentioned, Vanessa returned with Nadine in November. There was debate as to whether it was wise for Nadine to travel at that stage or not, but the hospital gave approval provided there was oxygen available on the flight. They were travelling with Singapore Airlines and the airline confirmed that oxygen for a baby would be available on board. On checking in however, they told Vanessa that this was not the case!! She was not happy, as could be imagined. They asked if she wanted to cancel her flight; this was not possible as the ticket was non-refundable. It was not the fault of the cabin crew of course, who did their best to ensure that a regular oxygen cylinder could be used if necessary. As it turned out, it wasn't needed. Still, a black mark for SIA.

When the Chinese University School of Education became a Faculty of Education in 1991 with its own departments, I was in the Department of Educational Psychology and taught educational psychology courses as a result of my Ph.D. work rather than the Department of Curriculum Studies, but because I still continued to teach the teaching of Chemistry, I had a foot in both departments.

First to finish: Of the five of us who began our PSE studies in the same year, I was the first to finish.

The Dissertation Work

For the next few years after returning to CUHK, besides my teaching, all my time was spent on the dissertation, both the research itself and the writing up as well as background reading though a lot of this reading had been done while still at Stanford.

Here I will just give a summary of the dissertation work not go into details. For that you will have to read the dissertation itself - all 500+ pages of it! (It is certainly much longer than the 47 pages of my M.Sc. Chemistry thesis).

Title: *Mental representation of knowledge for a topic in high school chemistry*

Summary: For my summary published online, you can go to the following:

<http://catalogue.nla.gov.au/Record/3282881?lookfor=author:%22Heyworth,%20Rex%20Malcolm%22&offset=1&max=1>

- The research involved secondary-school age students knowledge of the Chemistry topic of Volumetric Analysis, both their conceptual knowledge (i.e. understanding of the concepts involved) and their procedural knowledge (i.e. ability to solve numerical problems as well as understanding what they are doing).
- I worked with Form 4 students at a secondary school in Shatin. (The then principal had been a former student of mine at CU so it was not difficult to get permission) and the students volunteered readily as they saw it as an opportunity to improve their knowledge and understanding. But even then there was a lot of official paper work involved to satisfy the Stanford ethics committee.
- I started by giving the students a detailed conventional paper-and-pencil test in Volumetric Analysis to assess their conceptual understanding and ability to solve problems. I then divided the students into two groups; the 'experts' (those who got all the questions correct or nearly so) and the 'novices' (those who performed very poorly). There was a group in the middle and although I had to continue with them, their results were not included (I think!) so that I could have a clear distinction between the experts and novices.
- I then probed deeper into the student's conceptual understanding using further tests and through getting them to think aloud while answering questions. From tape recordings of these sessions, I tried to infer what mental models the students had for the knowledge, that is, how all the concepts might be linked in their minds. This could not be inferred in one go and I would have to go back and repeat the process several times until I was sure I had worked out accurate mental models. Very time consuming! I then compared the mental models for the students in the expert and novice groups.

- I then used a similar method for numerical problem solving. I first tried to identify all possible errors that could be made (excluding arithmetic errors). I would then get the students to think aloud while solving the problems. This led me to discover that the experts used quite different strategies to solving the problems than did the novices. These findings were important as they confirmed what other researchers had found, namely, that experts and novices do not solve problems in the same way.
- I then prepared a simple 'expert system' that, when given a student's answer to a problem, it could (a) simulate the steps the student took while solving the problem, and (b) lead to the same error the student made from which it was possible to identify how the error occurred. This 'expert system' was essentially a computer programme but was done only on paper. It was almost 100% accurate, though while it did not work if a student had made an arithmetic error, it would suggest this to be a possible cause for the error. (Later, I intended to convert this from paper to a computer 'expert system'. This was not part of the dissertation and I never did get round to it as I would have to have learnt a new programming language.)
- Armed with a clear understanding of the differences between experts and novices, I now tried to devise instructional/teaching methods that could change the novices into experts and at the same time provide teaching methods that would be useful for teachers when teaching the topic of Volumetric Analysis. This part only involved the novices. I then tested them after the teaching to see whether or not they had improved, that is, whether my instruction methods were any good in doing this!
- The dissertation also included a section that that my original adviser (before he left and Calfee took over) wanted which wouldn't have been included otherwise but which had to be in my proposal. By the time I finished the work, he had left Stanford.
- At the same time as doing all the research, I was also busy writing up the dissertation, initially dealing with just the background to the study. As each batch was completed, I would mail it across to Calfee (no e-mail then!) and several weeks later would get feedback and make changes. There were many such batches.

Defence: The whole work took longer than I had expected - nearly 2 ½ years. Calfee wanted to make sure there would be no problems when I came over to defend my thesis and that there were no errors and so no need to make changes after the defence. I flew over in February 1988 for the defence and was there for about 12 days. I stayed in San Francisco with James, Vanessa's brother, and family.

The defence began at 8 am! There were four examiners, three from the School of Education and one from another department - young guy from the Physics department who was very interested into the topic. (All Stanford faculty are required to sit on such committees in areas outside their own speciality.) I gave a presentation and answered a few questions. (But sometimes, people are reluctant to ask questions; after all, at this level, you are more expert in

the topic than they are!) There were also a few students present but they remained silent. I then waited outside the room while the committee deliberated but I passed without a problem. I remember Bob Calfee coming out and saying “Congratulations, *Dr Heyworth!*” Quite a relief after all the effort. One of the committee actually said that it was the best dissertation involving Science that he had come across. This led to the possibility of me getting an award for the dissertation though it never eventuated.

Printing: As no changes were required, I was able to get duplicated the four copies that Stanford required. They later bound them and sent me two copies while one went into a university library. What happened to the fourth copy I don't know. Because of the size of the work, it had to be published in two volumes! Stanford sent my two copies of the dissertation to James' house and not to me. I got them in June when Lisa visited Hong Kong and brought them.

Remaining time: The evening of the defence, I had a pizza dinner at Calfee's place and the next day had an evening dinner with Siegmunds at a Palo Alto restaurant. A few days later, I visited Kate [Hoover Calfee's] class at Escondido Elementary School (see photograph - Kate just to the left of centre. I have used this picture before!).



Typing of dissertation

There was no personal computer for word processing. I did not type the work. Instead I wrote it all by hand and gave it to the School director's secretary who typed it (in her own time) on the largish office 'Wang' computer (similar to that shown in the photograph). This cost me HK\$5500. I drew the diagrams in the dissertation as these could not be done on



the computer. The printers in those days were of the 'daisy wheel' type (same as our IBM electric typewriter) so were not that fast and were limited to the characters on the daily wheel.

Impact of dissertation

Did the dissertation have an impact? To some extent, yes! It was cited in a number of publications. Also, at least one person actually made a copy of it; I know this because I received a cheque for the copyright fee.

Worth it?

If I had known before I started what would be involved and how long it would take, I don't think I would have attempted it. I certainly underestimated the amount of work and the time involved as well as the pressure I would be under and having two, then three children.

Another two years at Stanford would have been helpful. But once under way, I was not about to give up, even if it did almost cost me my life! I gained a lot of knowledge as a result and it was nice to be called 'Dr' instead of 'Mr' (vanity?). But I never got a promotion as a result of the work. Still, this was compensated for with the work I was still to do on writing textbooks.