Computing Educators Oral History Project
An Interview with *Nell Dale*

Conducted Tuesday, April 18, 2006
In Austin, Texas, USA
Interview conducted by Barbara Boucher Owens

[0:00]

B: This is an interview with Nell Dale from the University of Texas at Austin conducted by Barbara Owens, being recorded on April 18th, 2006, in Austin, Texas. It is part of the Computing Educators Oral History Project. Did we get everything correct?

N: Yes.

B: Good. Let's start way back when. Tell me a little bit about your family and their education and their attitude toward education.

N: Well, my mother was sent away to college several times and found a way to be sent back home again. I think it was measles one time and mumps another. So the family decided that that was a lost cause and they sent her on a trip around the world. And the first time it didn't take. The second time she met my father in Hawaii and they were married. He was an army officer. And so I grew up moving around a great deal. And was born in Savannah, Georgia, where my father was stationed, but never lived there more than a couple of months. But we were always somewhere in the South.

My father had two old maid school teachers who ended up marrying in their sixties.

B: What do you mean "He had old maid teachers"?

N: He had two sisters.

B: Oh, he had two sisters.

N: … who were old maid school teachers, who spent every vacation with us. And one of them was a math teacher. And that's how I got interested in math from an early age. And she made it seem perfectly OK for little girls to like math. So I really I owe a great deal of what I think I later became to that particular aunt.

B: Did your father have a college education?

N: No, my father had none at all. He was enlisted in the Rainbow Division in World War I as a … got a commission. And then eventually stayed in the army all the time between World War I and World War II. And ended up a full colonel and never had any formal education at all, which I think must have been a testament to his intellect and his abilities. He did graduate from the War College, but that of course was a military college, and he had no formal education.

B: Did you have siblings?

N: I had one brother.

B: And what was his educational path?

N: I remember as a child hearing my parents tell my brother, who was eight years older than I, "Why can't you be smart like your little sister?" And I always wondered how he managed not to hate me, growing up with that. He was just not into education. It's interesting. I loved moving around all the time as a child, new schools and new, exciting challenges, and he just hated it. Abd he never really recovered. He did graduate from community college, but was not …

B: You talked about this love of math that you got from this aunt of yours. Were you a good student, then in each of these new schools that you came to?

N: Yes. No, I had no trouble with schools.

B: And did you take lots of courses in math in high school and science?

N: Yes. I went to Lamar High School in Houston. And there were two high schools in Texas in those days – Highland Park in Dallas and Lamar in Houston. And I swear, wherever I've been in the world since then, get a group of 50 people together and I'll find someone that graduated from Lamar High School. Or Highland Park.

But I do remember signing up for physics as a senior. And being told that there were not enough students for two classes and there were too many for one. And Roberta and I had signed up as the only two girls. And they suggested that we not take it. And if we did they guaranteed we wouldn't pass. So I was much more passive in those days. And so I didn't take it. Roberta graduated with all As and one D, in that physics class.

B: You said your aunt was a shaping influence. Were there other people in those early years that — teachers, mentors — that you remember that may have, other than the physics teacher you didn't have…

[5:19]

N: Not really. I've thought about that, because I have thought a lot about mentoring in terms of how it affects women in computer science, and I really didn't have. I had teachers that I liked. I had a civics teacher that I just loved because she let us take over the class and run it. And we thought we were doing it on our own. And, of course, she sat back and let us do it. And I remember thinking, "That was a good teacher." I didn't realize that at the time. So, no, I would say that I really didn't have.

B: Without a strong mentor in terms of your schooling, how did you go about … did you go directly to college? And how did you choose your college?

N: For all the wrong reasons.

B: Tell me more.

N: Well, I applied to Rice and was accepted. This was in 1953. And Rice was a fine school. And I ended up going to Baylor because my best friend was going to Baylor. And coasted for two years there on what I had learned in high school. Then I married the first time, had a little girl, and was working to put my husband through school. And my mother said that (we were in Houston where she was) that she would pay my tuition and baby-sit if I would go back to night school. And I was working at the University of Houston, and so I did. I took a class on my lunch hour, and they let me take a class. And then I took two classes in the evenings. So I got my undergraduate degree at night school. And I did it in math, because that was the quickest. I had always taken it because it was fun. I must have had 10 majors, from Spanish, to religion, to French, to geography, to social studies … you know, the gamut. But I had always taken math classes. And so when I went back, very calculatedly I asked, "What's the quickest way for me to get a degree?" And it was math. And I had a psychology major, and when I got ready to graduate, they said — a psychology minor — they said, "You can't do that!" And I said, "There's nothing in the catalog that says you can't have a math major and a psychology minor." And they went back and said, "Well, I guess there's nothing that says you can't, so we can't do anything about it. But that's really very unusual." And, of course, today it's not unusual at all.

B: Well, we've got you out of school with an undergraduate degree in mathematics. You're in Houston?

[8:40]

N: I was in Houston at the University of Houston. And I took my first computer class while I was working there.

B: At the University of Houston?

N: At the University of Houston. And going to school. And it was an electrical engineering, senior-level class. And they let me in it because I was a math major. And we learned SOAP on the IBM 650.

B: Do you want to tell people who might not know what SOAP is ?

N: Symbolic optimizing S-O-A- … P … [pause]

B: Assembly?

N: Assembly.

B: Programming?

N: Programming. Yes, absolutely, assembly language programming. And I fell in love with it. It was wonderful. I thoroughly enjoyed every bit of it. And I got my undergraduate degree in night school and a divorce at the same time. And decided that I would go to graduate school full-time. And I applied various places in psychology, clinical psychology, or math. And I got the best offer at the University of Texas at Austin.

B: Now I want to stop just a little bit because, I understood … at one point in time you had some industry experience. Is that prior to your going to graduate school or after you went to graduate school?

[10:08]

N: After I went to graduate school.

B: I'm sorry to have interrupted.

N: Yes, I came up to the University of Texas and worked for the Bureau of Business Research.

B: While you were studying …

N: While I was studying. I was working part-time at the Bureau of Business Research doing FORTRAN programming, working on a business game — it was a modeling project — and using FORTRAN in the early days of FORTRAN. I remember format statements were the new thing. I had a program running over at the computation center and I got a call that said, "You have written two reels of tapes. Should we let it keep going?" Well, since I was writing one line of output, I told them to stop it. And we had two reels of tapes of asterisks. The format statement was in error! [laughs] Anyway, I was here on campus for a year. And then left not finishing my thesis. And went back to Houston and worked for Shell for two years.

It was interesting applying for a job then. I was turned down for two jobs specifically because I was female. I didn't mind so much the one that was the interview and I was told I was perfect for the job except that it was an engineering company and they didn't think the engineers could cope with it. That wasn't so bad. The one that really offended me was I had an interview set up and the man discovered that Nell was Nell and not Neil and had his secretary call me and cancel the interview.

Anyway, Shell gave me a wonderful job. I'd been there for two months when I had a change of supervisor, interestingly enough, from a woman to a man who said he had been going over the records and discovered that I had been hired at the same time as Ernie Jones with exactly the same background and was being paid fifty dollars a month less. Now that was a lot of money in the 1950s. And I got the raise retroactively. And as a result I have always sent the best students to Shell. It's a wonderful company.

[13:01]

B: You're in Houston, working for Shell.

N: I'm in Houston.

B: Haven't finished your Master's.

N: No.

B: Clearly something happened in your life.

N: Something happened in my life was that I remarried. And I married someone that I had worked for when I was doing my coursework on my Master's degree. So two years after that we were married and I came back to the University and went to work for the Linguistics Research Center. Now the Linguistics Research Center did language translation and — fascinating time in that area. You would call it not quite artificial intelligence, but boy, there were some of the same things that were being used during that period of time. They thought it was going to be easy. "Oh, translating one language to another was just going to be the easiest thing" and NSF puts lots of money in it and then nothing seemed to happen. We discovered that language was NOT easy and translating it was NOT easy. And … I worked there for two years and finished my Master's thesis there on language translation. It was actually a database kind of project, but we didn't call it database at the time. And at that time the University formed the Computer Science Department.

B: So this Master's using linguistics was in math?

[14:45]

N: In math. It was in math. It was just the math that I was using there that I was able to apply. So when the department formed and had a Computer Science Department, I had by that time decided that math wasn't fun and games anymore and it was the computing that I really loved. And so the last — my thesis was really a computing project — and so I applied to the Ph.D. program in Computer Science at the University and was accepted. There were three of us that were accepted in the program at the same time.

B: Were you the only woman or … ?

N: Oh, yes. However, one of David Young's students in mathematics actually did a computer science dissertation, so in many ways I think she was the first, though her degree was actually in math. So I went back to graduate school. Loved it. Finished all my course work. Got bogged down in dissertation. I did have a fellowship, so I was a teaching assistant.

B: Is that your first experience teaching?

[16:12]

N: Yes, that was my first experience teaching and I found I loved it. And so it wasn't — I think it was the third semester — that, rather than being a teaching assistant, I was actually teaching the intro sections, which were called Math 355. They were still math classes in those days. Because the department, the Ph.D. program, was strictly a Ph.D. program. There was not an undergraduate at all; that was much later. And so the classes were all graduate-level classes, but math had a couple of programming classes, FORTRAN-based, and I was teaching those at the time.

It seems like a long time in there. How about your dissertation? Did it seem to go on forever?

B: I was pregnant at the same time, so that's another story for another discussion. But yes.

So tell me a little bit more. You were teaching. Were you doing research?

[17:24]

N: Yes. At the same time.

B: Yes, at the same time.

N: But not at the Linguistics Research Center. By this time I was just doing it on my own. And my major professor was Bob Simmons, who came to the University at the same time I enrolled in the Ph.D. program. And he had been at the RAND Corporation for a long time. Very, very well-known in artificial intelligence and natural language translation, which was where I got interested in this sort of thing. And I ended up doing a methodological study in what I think would now be called artificial intelligence. It was the use of words, the semantic — again, what would be called semantic nets now. But a lot of the things that I was using they are now using in data mining. It's classification techniques. And once I finished my dissertation, I never did anything more in it. By that time we had had two more children. So, when I did finally finish my degree, we left UT for three years.

B: Tell me about that.

N: Well, my husband was offered a …

B: Now this husband that we are talking about is Al Dale.

N: That's Al Dale, yes. He was offered a United Nations post and he took a leave of absence and so we went to Budapest. And I had just finished my dissertation. I hadn't really started a career yet. So this seemed to be a very good time.

B: So this is with three children?

N: Well, when we married Al had two children and I had one and then we had two. So there were five [children], but those that went to Budapest, there were three. And then the other two came and visited. And when we got there they had hired a full-time maid and housekeeper. Now we were in an apartment that had probably had 800 square feet and three children and a housekeeper. I didn't have a great deal to do except carpool. And although Al's role for the UN was bringing in experts to bring their computer science program in Budapest up-to-speed, they were going to become a center for computer science education for the Third World. So the UN was bringing in people to train the Hungarian staff. Many of the people they brought in, I knew as much or more than they did. But the UN had very strict nepotism rules. So I tried to continue with my research and I discovered I wasn't very good at it in isolation. I did get one paper written. And I discovered [the card game] bridge again. And I discovered tennis. And did an awful lot of carpooling for the first year and a half. [21:18]
Then they broke — or found a way around — the UN rules and I was able to work part-time for the UN doing training for the Hungarian teaching staff. And that I thoroughly enjoyed. It was a wonderful time. The Hungarians — because we were UN people, we were not Western diplomats — so we had many Hungarian friends. Now, the diplomatic community considered us Western diplomats, so we could have gone to a diplomatic reception every night of the year. So it was a wonderful, exciting thing to do, as long as you knew it wasn't forever. So, we had a wonderful three years. And we came back. And the day we got back, I was told there was a class they wanted me to teach.

B: At the University of Texas?

N: At the University of Texas in Austin. And Al … now, let me interject here that Al was in the Computer Science Department.

B: While you were getting your Ph.D.?

N: While I was getting my Ph.D. And this didn't cause any problems because I wasn't studying with him at all. And it worked very well because we could carry on interesting conversations every evening, and drive the kids crazy. But there wasn't any problem as far as the University was concerned. Then Al came back and the problem sort of began then in the senses that I was given a position as an assistant instructor for that year and I didn't realize it was going to be a problem. I think I was very naive about it. And what really concerned me was I was teaching a class I knew nothing about and frantically trying to stay, you know, one lecture ahead.

B: What were you …

N: Database. And I remember one day thinking, "I can't do it." I called in sick. I went to bed. I put the covers over my head. Slept for three hours. Got up. Used that as a chance to get more than one day ahead. And everything was fine from that day on. But I remember the sense of sheer panic. I got through it.

B: This was the assistant instructorship. You have a prolific writing career. When did that start?

N: When did that start?

B: Or what precipitated it?

[24:26]

N: Let me … That was precipitated by a teaching assistant. Let me come back to that.

B: Sure!

N: Let me fill in a little bit in there. During that time I simply was an instructor. And I can't remember the particular year that I was moved from what was the lowest tenure-track position to the lecturer side.

B: Would you like to explain a little bit about the difference at the University of Texas for the listeners?

N: Yes. We have the tenure-track path which is instructor, and lecturer, and senior lecturer, which is non-tenured. Tenure track is assistant professor, associate professor, and professor. And you have, of course, a certain number of years to get promoted. You have to get tenure within six years — or is it seven? — or you must leave. And someone in the administration decided that they didn't want to face the problem of tenure with me for several reasons. 1) My husband was in the department. 2) I got my degree from the University and had never gone away and taught. So they solved the problem by moving me over into the non-tenure position. Now, as I look back on this, thirty years later I see it and view it differently than I did at the time. At the time I didn't think about it one way or the other. As time went on, though, it was a year-to-year appointment, there was never any problem. I was treated exactly as all the rest of the faculty. My salary was never any different than any of the assistant professors. My committee assignments were never any different. And I didn't realize, again until much later, that there really was a difference in perception from the outside, though there was not any difference in my department. In the early …

B: Were there … can I just stop? During this period of time, were there particular people beside your husband — whom you talked with at home — were there other people that mentored you through the maze of the University, teaching, or were you in isolation? How was the collegial set-up — male, female?

N: Bob Simmons, my supervisor, probably dropped by the house every two weeks to have a drink in the evening and that's where we … the mentoring that occurred, occurred in a social

setting, where we would talk about all sorts of things in the department. It was never a formal sort of relationship.

Raymond Yeh was the chairman at that time. And he gave me a notice of a National Science Foundation program. I had been teaching for about 2 years. No formal mentoring at all. And he showed me where the National Science Foundation had a program for women in science. It was a Call For Proposal. And it was a program that Congress had passed specifically for women. Very unusual because you're not supposed to have anything that's gender specific. But this program was set up to try to reach out to women who had degrees in science who were unemployed or underemployed and do something to get them back in the workforce. It was the late 1970s when this was being done and where are the scientists, where are the women scientists? And he showed me this Call For Proposal and I got very excited about it. And put in a proposal to bring women back with science degrees and give them an intensive year's programming in computing. And bring them up to the level of undergraduate degrees in computer science. They had science backgrounds; a year of this program should do it. And we got the grant. And there was a slight problem of my putting in a major proposal because I was not tenure-track. So Al and I did it together and we got the proposal and then the add-ons which we did were in my name only.

[30:28]

B: Once you got into the pipeline then you were …

N: Yes. It was fine. Even the Office of Sponsored Projects stopped asking for special letters from the department.

This was a tremendously exciting program. And I must have interviewed 500 women that thought this program might be for them. And what interested me the most was that it really wasn't for most of them. But those women wanted to talk to somebody. And so the interviews really turned into my being able to mentor someone that had degrees in science. And by the second add-on proposal it was social sciences as well. So it was natural science and social sciences. And we advertised all over town — in the newspaper and libraries — and they would come in. And what I really discovered was they just, they wanted something different. They were ready for a change in their lives. And it gave them a chance to talk about what they might be able to do. And we ended up, I guess, maybe 110, 120 actually going through our program. But many of the others, it was the impetus for them to get started and get back.

B: Were you the only person teaching? You said you and Al had started the program. Were there other people teaching in the program?

N: Yes, Al was not actually teaching in it. I brought in people to teach. Carol Kincaid taught one section. Oh, dear. A senior moment on some of the names … we brought in four very well-known women to teach in the program.

B: So the teachers were women.

N: Yes, the teachers were women. And once this is over I'll go back and find out the names for you.

B: That's all right. Were there other women teaching in the department at that time?

N: When … yes, there were a few. Not many. Actually none when I started out, which is why I was on every committee that had to do with OEO [Office of Equal Opportunities] or minorities or anything. I got to know everyone at the college level very well because I represented the department in all of those committees. And I think you may find that a thread through these interviews.

B: All right. I am seeing that.

[33:59]

N: Yes. That was a wonderful program and I still … I was playing tennis and we had a substitute in tennis a couple of weeks ago. That turned out … when she heard that I had taught at the Computer Science Department, she said, "The Women in Science Program! I know people who went through that!" And that program was in the early 1980s.

B: I want to make sure that the listeners of this tape can get an idea of the look on your face as you're talking about this program. Nell is absolutely glowing and is so excited and so happy about … thinking about this program.

N: Well, it …

B: I think the listeners need to know the sheer joy and love that this program gave …

N: It was absolutely fabulous. It changed lives. And it changed my life. Because I stopped being the … (You are not going to believe this, but I really was very shy! She [referring to the interviewer] is not believing this! [both laugh]) You know I was very quiet. I have always spoken my mind, but I was simply teaching and doing my job. This gave me a chance to break out and realize I could do things. And so it really gave me a great deal of self-confidence, to know that I could plan and actually carry through and run this project. Of course, it was never intended to be a permanent project. These were all … I think there were 17 of these projects the year that we got the grant. And over the course of the funding of the programs there were probably 30-35 projects. But they were always seed projects, they were research to see what you could do. And we … oh, we proved it. You could bring these women back and turn them into absolutely wonderful programmers. And, out of that group, one worked, I remember specifically, as a programmer for several years, got her confidence up such that she went back and got a Ph.D. in clinical psychology. And she always wanted to do it, but it took proving that she could do something to carry through on it. Still hear from those. But when that faded out, that was about the time that I started writing, which was where you asked about the books.

I always taught from overheads. And my overheads were my cheat sheets. They were to remind me of what I wanted to talk about. I always gave copies to the students, And I had a

teaching assistant who got the writing bug and he said, "I'll take your notes, and I've heard you teach enough, I'll write." And so I agreed to do that.

B: Was this Chip [Weems]?

N: No this was David Orshalick.

B: Oh, OK.

N: And we signed a contract. And … at the same time we were doing this, we instituted the self-paced section of our first class. P-S-I, Personalized System of Instruction, had become popular a little bit before this. And there were grants. Again, the University of Texas had one in engineering. We required our students to take the circuits course that was done that way. So I got interested in this lectureless bit of … you know, the idea you can't teach them something until they are ready to learn it, so you make them go read it and then take mastery tests. So we instituted this program and the text we were using was the book we were writing. And I discovered that David couldn't write. He had a mental block. He couldn't leave a paragraph unless it was perfect. And paragraphs are never perfect. And so I discovered I had my name on a contract and if it was going to get done I had to start writing. And I will forever be grateful for David because I discovered it was what I love to do best of all. And so that was how I got started.

Ran into David a few months back and he wouldn't speak to me. I knew that when the second edition of the book was coming out, we gave him an opportunity to participate and he just didn't produce. And I'm sure that he has never forgiven me. The publisher bought him out.
[39:56]
That text was in Pascal. Do y'all remember Pascal? I've heard recently that some of us would like to go back to it, but I don't think that that will happen. I discovered I liked writing so much that I did a follow-on CS2 text with one of the women that had been in the Women in Science program, and that also was very successful. And while I was doing the CS1 text, was about the time that the Advanced Placement Exam in Computer Science came out. And so few people, particularly high school teachers, knew what it was they were going to be teaching. The teachers that knew any computing in the high schools knew BASIC and they were appalled that this language called Pascal was the language that they were going to have to use for the Advanced Placement exam. So we got the bright idea of doing this series of video tapes for CS1. And we got someone from — the "we" meaning my husband and I — got a producer from the faculty over in Radio, TV, Film [Department at UT Austin] and did this series of tapes on Pascal. I can't say it was terribly successful. We didn't make any money on it, but we certainly had a good time doing it. And during that time PBS had an experiment in video-produced courses and it was called narrowcast. And those tapes were used on a course on the narrowcast. But the narrowcast project was very narrow in the length of time that it was there. But what we did do with those video tapes, we found that the students that were non-native English speakers would go to the library and check them out. That seemed to work very well.

Back to writing. The good news when you have a successful book is that it is successful. And the bad news is that you got to do another edition, a second edition or another edition. So it's sort of like the little creatures that go around on a treadmill.

B: She's showing her fingers in a treadmill looping situation.

N: It is sort of hard to get out. But I was very fortunate that … to find very good co-authors along the way and built up a very rich network of friends that I worked with on the books. And after four editions of Pascal, along came C++. And then following that came Java. And somewhere in the middle there was a little Visual BASIC. And so, from that time on, I spent hours in my home office doing what I truly love, which is writing. And this continued along with my teaching, because I believe that you cannot write if you don't teach it first. I am very much opposed to publishers commissioning someone to write a new book about a topic that you haven't taught. Because what writing a book is is teaching.

[44:14]

B: This brings me to questions … I must say for people listening to the tape that Nell was part of the project that initially set up the kinds of questions that we would be asking in this interview series. And we've added a few that Nell doesn't know about.

So that one of the things is … she said how important it is that people ought to have taught first. Could you share something of your teaching philosophy, and as you do that, talk about whether your style has changed over the years?

N: My teaching philosophy is really case-based. If I had my way everything would begin with a problem, a solution to the problem and then a description of the syntax which does the solution. I started out that way and try to continue it though I have found it more difficult to do as you go along, and I am not sure why it has been more difficult. Maybe it's because that's a different approach to most of the students. The students want the program; they want to see a solution before they really think of the problem-solving to get it. I believe in asking questions of the students and that's a very difficult thing to do. I have had a kitchen timer, so that when I ask a question, I'll be sure I give them enough time to answer it, and sit and wait for answers. I think, in a sense, that my classroom teaching has been much more of a failure than my writing has been. I want to do all these things in the classroom, but I find it difficult to do. I am always changing, always trying to do something different.

I think the problem is this — that those of us that have done well in academia of our generation succeeded because of the lecture system. We did well in the lecture system. And for all the good intentions, I find myself falling back into the lecture system.

Yes, one likes to think about one's successes and not necessarily one's failures. And I think about the teaching evaluations. And they're predominantly very good, but it's those one or two that say, "Why did you hate me? Why did you pick me out to criticize?" When you think, "I never criticized a soul in class!" At least I tried not to. So, are you picking up the ambiguity that I'm feeling? And … when you are writing, you can go back and redo something that's not right. When you're in front of the classroom you can't rewind. So maybe that's why I love writing so much.

Now, my interviewer is looking a little blank.

B: No, what I'm doing … you are sharing with us your angst. However, I will say, skipping ahead on your vita, that you retired from the University of Texas from teaching and that you actually did stop for a period of time, but you're back in the classroom this fall [2006]. So, how do you feel, being back in the classroom ,that things have changed? Has your style changed?

N: I think I was much more comfortable this past fall. I was teaching a class that was really different for me. It was the second in a series for non-majors. And … I felt a sense of freedom because I chose to come back. And I had great fun. I did things like I started out each class on the overheads with a picture of someone in computing and asked them to tell me who it was. And of course, they couldn't. They did recognize Steve Jobs and Microsoft's Bill Gates. They recognized them. They didn't recognize Ada Lovelace: "Who is that funny lady?" I actually had on the evaluations one person comment on how much they enjoyed the human faces of the people in computing. But I think the reason I enjoyed going back so much was because I felt I could do exactly what I wanted to do and I could have a good time in the classroom. And I did.

B: You mentioned overheads. Was it overheads or PowerPoints at this point in your career?

N: Oh, they're PowerPoints.

B: OK.

N: Yes, it's PowerPoints.

B: During the break you also mentioned, "I haven't talked about SIGCSE." So one of the areas that we really do like to hear about is what professional organizations mean a lot to you and how have they affected your career?

[50:49]

N: You asked the question earlier about mentors and mentorship. I think in many ways SIGCSE was my mentor. The people that I've met in SIGCSE, the people that I have worked with in SIGCSE, have meant a great deal to me. The Symposium …

B: If somebody should listen to this tape and isn't aware, SIGCSE is the ACM, Association of Computing Machinery's, Special Interest Group in Computer Science Education.

N: I got involved with them very early in my career and some of those people that I met 30 years ago I still see. I have had breakfast with Angela Shifflet at SIGCSE for the last 25 years. So it's been a mutual mentoring. And you, Barbara, of course …

B: Absolutely!

N: … are one of those. So SIGCSE has meant a great deal to me over the years. It's given me the opportunity to move out from what is a major research university setting and realize that I probably would have been much better fit in a small liberal arts college than I have been at a major research university.

I have been, in a sense, the conscience of the department over the years. Because it's undergraduates that were the ones that I cared about. And I spent four years as associate chairman of the department, which is unheard of for — I think it was senior lecturer then — to do that. And I learned something about myself then. I learned I am not a good manager. I can't tell you how grateful I was for my husband to take over the chairmanship so that I could resign as associate chair and didn't have to do managerial duties anymore.

But SIGCSE gave me the sense of professional community that I didn't find within my department. Because over the years that has changed. There have been more lecturers and there is more sense of community and commitment to the undergraduate program. But for so many years I was the one. In fact, when the Women in Science program finished I realized that I had a decision to make. That I could continue to work with women's issues. But I was being thought of in the department as the person who was working with women's issues and was taken less seriously as a computer scientist. And so it was at that time that I did deliberately step back somewhat from being involved in women's issues.

A career is not a chronological issue. And as we were talking and I think about SIGCSE and I think about all the paths that have gone on, I am reminded that the graduate program in computer science education came about sometime in the midst of all of this. And I became the content expert for the Ph.D. students in that program, which led to one of the most important things in my life, which has been the group of Ph.D. students that I have worked with through the years. They never did get anyone in education that knew anything about computer science. And I remember seeing the description of the Ph.D. program and going over to talk to the dean over in education because there was no one over there that knew anything about it. And his comment was, "Oh! That's s Ph.D. on the use of computers in education." And I said, "That is not how it reads." And I realized that they didn't know the difference. And so I became very involved with that program and there were some very fine dissertations that were done – Computer Science Education dissertations, not using computers in education.

[56:13]

B: Part of this relationship with you and SIGCSE and in computer science education has been your focus on computer science education research. Do you want to address some of your frustrations as well as some of your successes in that area, and your mentorship, your leadership?

N: My frustration is that I didn't get involved in it earlier. It wasn't until this Ph.D. program was put in that I realized what sorts of things one could do in computer science education research. I was always collecting data on what was going on in my classes and then several semesters later throwing it away because I didn't really know what to do with it. And it was the first couple of dissertations that I worked on that taught me what computer science education research was. So my regret is that I didn't get involved in it much, much earlier.

But what I learned about it I learned from my students as I was working with them. And I think the successes that I have seen in their work is that that they are quantifiable, that we know some things that we didn't know.

If you remember closed labs — that was the greatest thing since sliced bread. Everyone was going to use closed labs. And no one had determined whether or not it really helped the learning process. I remember reading a paper that said, "We had the control group in closed labs and the other group we gave them extra homework. And the students in the closed labs did better." And I couldn't believe that that was published in a journal. Debra Burton did a dissertation in which the other group was with a teaching assistant in a discussion group so that you were comparing a closed lab setting, which is where you are in a lab at a specific time and have someone that is there to answer questions and perhaps leading the lab. And the other group was a discussion group, in which you had very specific lessons to do. Now this was comparing things that were comparable.

So, those are the successes. And if you look at the number of sessions on computer science education that you now see in SIGCSE, that's a success.

B: Some of the probing questions that are kind of funny when I think about it in terms of you: "Have you spent time volunteering your professional services?"

N: Yeah, yeah. A little.

B: Do you want to talk about some of those a little? [both laugh]

N: Yes. Of course with SIGCSE. And with the ACM.

B: What kind of things have you done?

N: Well, let's see …

B: What has brought you the most joy and what do you think has been of the most service to the community?

N: Now we are talking professional service, right? Well, my love is SIGCSE. I have served on the board, I have served as vice chair, I have served as chair, and I have served as a conference chair twice. That's my love.

ACM. I worked as an area director at a time when their organizational structure was such that each small group of SIGs had an area representative that you were their advocate at the upper level. And I enjoyed doing that. First time I was appointed, two of my SIGs were unSIGged — or whatever the word is. SIGFORTH — and I'll bet most people have never heard of SIGFORTH. But that was a SIG that had to do with a language that was on top of FORTRAN. But I did that.

Other volunteer work was … in Texas you have UIL — Interscholastic League — and they put in an interscholastic league contest in computing. And I was in the first group that was involved in that. And so did a lot of that which I thoroughly enjoyed. I am sure there are others, but they sort of fade away over time.

B: Would you … what were the most challenging things about your career? Can you think about the most juggling … you had all these children, you talked about. And they appeared in Budapest. And we haven't heard about them while you're juggling them, when you came back to the States. I assume the children were still there when you came back . Would you like to share …

N: Sure, I have a word to parents. One of the wonderful things about an academic career is your time is very much your own. You have to have your office hours and you have to be in your classes, but your schedule isn't rigid. So that you can take the kids to school. If they've got something going on at school you can go be there. If your kid in the band, their group won free ice cream you can run, pick them up to get free ice cream. But when we came back from Budapest, our youngest daughter was in first grade, and I always managed to come home before the school bus did. That was very important. But I must tell you one day she said, "Oh, Mother, can't I go to day care at least two days a week so I can see my friends and be like everybody else?"

[63:14]

But the academic career is wonderful for that issue, as I am sure you know. I remember one year, we had to … I had to describe my career to someone and what I thought about was juggling hats. Because that year I assigned all office space in the department. I was on all the college committees for various things. I was working on my books. I was teaching my classes. I think I may have been on zoning and planning committee for the City of Westlake Hills at the time. And my vision was of trying to keep all these hats going on at the same time.

B: She is showing, with hand motion, juggling.

N: But I think, to be very honest, the most important thing is having a supportive family. I don't know how someone can do if you don't have a supportive family. And I must give full credit to my husband for that, who has been the most supporting spouse that you could possibly have. And we always had dogs. And there is nothing like having a Labrador dog that comes up and sits on your feet. You know that you're loved.

B: One of the other questions as we get down to the end of talking about things today, is do you have any strong interests outside computing? And we did hear a brief … we heard about dogs and we also heard about the planning committee. But I know you well enough to know you do have many, many strong interests. And as you share some of those we might see more sides of Nell Dale than we have seen in talking about computing education.

N: Well, we have always been very involved in our church. And … I refuse to teach Sunday school. I figured that I taught for a living. I was not going to teach Sunday school. But I've done all sorts of other things in our church.

We are interested in music. One of the things I did when I retired was have the time to go on the board of the Austin Lyric Opera. And so I have just finished four years of supporting the Opera by being on the board. Symphony, we are very active in the symphony. And I guess, if you ask me one thing I wouldn't give up if I didn't have to, is tennis.

B: I was going to say, I hadn't heard about tennis yet.

[66:30]

N: Oh, it's tennis, it's tennis. I play doubles three times a week and to me that's the most wonderful time to get out there and hit that tennis ball. I'm not a particularly good player but I play with a group that are my age and they are rejects from tennis leagues where people cared if you won or not. And we just have a good time. And of course, playing tennis a lot means that I always come home with tennis balls, so the dogs are always very glad to see me come home because they know I've got a tennis ball for them.

I don't suppose that that sounds like a terribly full agenda, but it is. Have enjoyed retirement very much. You know, I taught half-time for the first few years. And I had a very bad time the last time I taught, which is why I actually went back and taught last fall. The last time I taught on a regular basis, I was teaching a class that was required for CS majors. And it was second-semester sophomore, first-semester junior — it's the old CS7. And the person that taught it the semester before had failed 60% of the students. And so I had 50% in my class that had failed it once before and had to pass it. And the hostility was so intense. I always had taught that class as a mixture of theory and practice, and it had been taught as a pure theory class the semester before. And I had students that couldn't write a program. And I would ask them, "How did you get this far?" "Well, we worked in groups and I did the documentation for the group." And the net result was that there was just so much anxiety amongst the students. I just decided I didn't need that. My youngest daughter was getting married and that was a wonderful excuse to retire completely. And as time went by I thought, "I don't want my last teaching experience to be that." And that's why I particularly asked if I could come back for a semester.

B: I see.

N: And that's why I loved it so much. It was wonderful. And I'm so glad I did. And they asked if I wanted to teach next fall. And I said, "Ask me in August." We'll see.

B: I see, I see. Now we're back in the sage part. If you had some advice that you would give to a young woman just starting out in computer science and having an interest in teaching, what you advice be?

N: I think you have to decide are you willing to put in the energy to have it all. And I think you can. I think a woman can have it all. You can have a family, you can have children, you can have pets, you can have an outside life, you can have a rewarding career — but it takes

energy, and I think you've got to make that decision up front. And I think if you don't make that decision consciously, you are going to be fragmented and pulled apart. I think that you can't do it halfway. You can't say, "It'll get better tomorrow," because it's not going to get better tomorrow. It's not going to get easier. It's a 1000% time to do it all, and I think you have to make a conscious decision to that. So that would be my advice to someone coming along. You can, but it's not going to be easy. To be successful at both you have to make a conscious decision.

B: Good advice. If you could change one decision you made along your career path, which one would it be? Or maybe you don't want to change any.

[72:01]

N: I don't know that I would change anything. But I did have something happen to me that made me rethink and made me think maybe I would have. When I was put on the non-tenure track, as I said, I didn't think anything about it. And the department has always been so supportive. And I just … it never really bothered me particularly. Someone would say, "Well, you're not a professor." And yeah, I'm not. OK. I was awarded the Karlstrom Award — the most wonderful thing that ever happened to me was the award given by the ACM for contributions to computer science education. I can't tell you how much that meant to me. As I said in the acceptance speech, I was the first grandmother to receive it. And several years later the [Karlstrom Award] committee asked if I would serve on that committee and I said, "Sure!" And the appointment went up to ACM. And the president of ACM said, "Oh we can't have her on that committee, she's not a professor." So I couldn't serve on a committee to choose someone for an award I had received because of my title. Now, I will say this: the members of the committee all resigned in fury. But that's probably the only time that I really felt the fact that my decision to stay here at UT. Talk about having it all. I wanted my family, I wanted it all. It never occurred to me that maybe I could go down the road to San Marcos and apply, or go up the road to Georgetown and apply. This was my home. This was where I felt that I was called to be. Did I make a decision? I don't think I made a decision. And so by not making a decision my career went the way it did. So one other bit of advice I would give to women is make decisions consciously. Don't float. Men tend to make career decisions explicitly and women tend not to. Now it's a vast generalization, I know, and all you hearing me are going to say so, but I think that that probably is true.

B: Well, thank you Nell. As we wrap up, is there one little story that you'd like to be remembered for or that you remember that you just can't wait to get out? Perhaps it has something about one of your classes, perhaps just any story that would be "Wow, I want the world to know this story."

N: That is … you are asking me to think back over 40 years and what story? Well, something of interest, perhaps! I've been on the board of the Journal of Computer Science Education for years. And someone just pointed out to me that I am listed as Neil, N-E-I-L, instead of Nell.

B: [chuckles] Do remember the story you had told us about Neil and Nell earlier?

N: I'm sure that once this is over I'll remember something I just have to tell you. In which case I will do so and we can splice it in.

B: Very good. Well, Nell, I have thoroughly enjoyed listening to you this afternoon. And I am sure that others that will be listening to this at another time will also. And thank you very much.

N: Thank you. I must tell you that there is nothing more fun than to talk about yourself for two hours.

B: [laughs] All right. Thanks, Nell.

[77:10]