

Computing Educators Oral History Project

An Interview with *Jane Chu Prey*

Conducted Sunday, July 15, 2007

In Bellevue, Washington, USA

Interview conducted by Barbara Boucher Owens

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[Context of the interview: To be provided.]

- 1 [0:00]
2 **Barbara Owens:** This is an interview with Jane Prey from Microsoft Research conducted
3 by Barbara Boucher Owens. This interview is being recorded on the 15th of July 2007,
4 in Bellevue, Washington, United States. It's part of the Computing Educators Oral
5 History Project.
6
7 **Did I get your name right?**
8
9 Jane Prey: Yes.
10
11 **B: Good! OK. We're going to start way back when. When we start these things we start ...**
12 **back. Did either of your parents have college degrees?**
13
14 J: Yes. Both my parents had college degrees. My father was a lawyer for the Chinese
15 Nationalist Government and my mother was an accountant.
16
17 **B: So that kind of leads into a little bit of the next question, which was did either of them**

18 **have interest in math or science, and so it sounds like accounting ...**

19

20 J: Not really. But what they did do was when we came to the United States and they knew that
21 language was always going to be a deficiency for them and they believed that in order for
22 their children to be successful, the only common language was science and math. And so
23 that's what we did, because they could help us with that.

24

25 **B: When did they come?**

26

27 J: I was six weeks old. 1948. 1949! Fall of 1949.

28

29 **B: Then were you a good student?**

30

31 J: Yes. I was the stereotypic good Chinese girl student until I went to college and then I had a
32 good time. [laughs] So it was one of those where you always did your homework, you always
33 did what you were supposed to do. We always did what we were expected to do.

34

35 **B: Did you take classes in the math and sciences in high school?**

36

37 J: Oh, yes. We used to have our own workbooks at home. My father would go to whatever was
38 the equivalent of Borders back then and he would go buy workbooks, math workbooks. And
39 my brother and I would have to do one or two pages a day when we were in school before we
40 could go out and do anything after school. So that was our after-school homework. And then
41 during the summer we had chapters to do. So that we were always doing math things.

42

43 **B: So you said you did have a brother. Did he go on to college and get a degree ... ?**

44

45 J: Yes, he's a medical doctor with a Master's in epidemiology, which is statistical kinds of
46 studies.

47

48 **B: So, did they encourage you equally?**

49

50 J: No. Well, they expected him to be a medical doctor. That was the model. They would like to
51 have had me do that, but money was always short. And so I figured out early that it was
52 better for him to be the medical doctor because he was the boy. And so I went into math and
53 then I ended up in biology. But then somebody told my parents that computers were a good
54 thing to do, so I started taking some computer courses and that's how I got into computing to
55 begin with.

56

57 **B: What were your parents doing in the States? Were they still having accounting and ... ?**

58

59 J: My father was a diplomat with the Nationalist Chinese Government. But when I was in sixth
60 grade, they had transferred him back to China, to Taiwan. And since my brother and I did not
61 read Chinese, he and my mom made the decision to stay in the United States. So he quit his
62 job and went back to school and got a Master's in mechanical engineering.

63

64 **B: Well then, you answered that question a little bit differently, because now we are back**
65 **into the sciences with your dad.**

66
67 J: Yes, but it was not natural for him. My mom has reflected in recent years that it was very
68 difficult for my dad. It was not something that came naturally to him. Mathematics was not
69 easy for him. But he just sat there and he just did it and he did it and he did it until he got it.
70 It was one of those where they believed in drill and practice. And that's how he got through.
71 It was not because he thought it was something he was interested in particularly or that he
72 was good at, but he knew he could get a job.

73
74 **B: Then reflect on your math that you were doing.**

75
76 J: Oh! I think it's one of those things where when you start doing it when you're little, you
77 don't know any different. So my brother and I have always been pretty good at math. It's not
78 that it is so easy, but it's not something we're afraid of. So when it came time to do hard
79 things in math, we just did it. It was just something we knew we should do. And I think a lot
80 of that is because of my father's insistence that we do all these extra math things during the
81 summers and during the school years. He just believed mathematics was the way to keep us
82 competitive if we were going to live in the United States.

83 [5:13]

84 **B: Hmmm. How did you then ... were there any teachers that were particularly influential**
85 **when you were in high school? Or elementary school? That shaped some of the**
86 **decisions you made?**

87
88 J: Not really. My parents were very hands-on when it came to our education. Not so much with
89 the teachers, but what they thought they could do themselves that we should be doing on our
90 own. So our vacations were very much going to the museums. We never went to ... I mean, I
91 think I was probably in eighth grade before I ever went to a professional baseball game or
92 any activity like that. We would go to the ballet, my father would take us to the ballet. But he
93 would never take us to a sporting event or a popular concert. That was just not what we spent
94 money on. But the ballet, he would buy tickets to take us to the ballet. If we were going to
95 the movies, it was never ... I don't remember going to the movies when I was a child except
96 for ... I can remember once my dad took us to see a Disney movie, but he didn't even go in
97 because it was too expensive. He took us in and sat us down and then he left and came back
98 to get us because all they could afford was those two tickets.

99
100 **B: Wow! Well, how did you choose then your undergraduate institution, since your**
101 **parents were hands-on?**

102
103 J: They were very good about that part of it. Education was not a matter of money. My brother
104 graduated from Georgetown Medical School, which is a private institution, debt-free, as a
105 medical doctor. Think about that. I mean, it was an incredible amount of money, but my
106 parents ... education is not to be dealt with by dollars, it's to be dealt with because you can
107 do it. And when I ... I got my Ph.D. late in life.

108
109 **B: But let's talk about at the beginning ...**

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J: But at the beginning ... my father came to me and said he wanted to pay for my Ph.D., even though I had already been married and had three children by this point.

B: Oh, all right. I understand.

J: I said, you know, well ... fortunately I had gotten a fellowship. But he said, "Well, we paid for your brother, we should be paying for you. This is our responsibility." But it worked out that we didn't need to ... my husband was actually kind of embarrassed that my father would want to pay for it. He said, "Well we can afford to pay for you." But it was one of those where, that was their belief that education was a parent's responsibility, regardless of when that education happened. A very different model.

B: So how did you go about choosing an institution, your undergraduate institution?

J: Well, back then the Chinese family coalitions that were talking about all of us going to college and whatever, our support system families that we would get together and talk about things. And there was always a discussion of what schools were better, what schools were best, where you should go. And it got to, living in the Midwest, there was no reason not to go to a state school. Back then they were still very good, already very good, and the price was so much cheaper.

B: And where were you living?

J: In Illinois. I did my undergraduate work at Illinois Urbana. My parents had said I could go to Northwestern, it was a private school, would have cost a lot more. But I could have gone anywhere I could get into was basically what my parents told me, and they would worry about the money, which is really quite a gift.

B: When you got there did you know what you were going to major in?

J: No. Well, I was a math major, I started out in math, and I probably should have stayed in math, except that I was having too much fun. And so it was ... math was hard, you had to spend time doing it. Other things were more fun and easier to do, and so that's what I did. I mean, I changed out of math because I could do other things that were easier.

B: So what did you do?

J: Biology. So it ended up that I was taking all these lab science courses because I liked them, and I just stopped taking math, which was a shame.

B: Did you know what ... what attracted you to biology? I mean, were there teachers that ... were there friends that were in your classes?

J: Fit into my schedule. I mean, at a big school you got what you got. So it was really happenstance. So it wasn't any lightning that said, "Oh this is just fascinating!"

156 [10:02]

157 **B: So you finished in four years with a biology major?**

158

159 J: Yes.

160

161 **B: OK. And your choices are in front of you. What kinds of things were you thinking**
162 **about and who was helping shape those choices?**

163

164 J: Well, it was interesting because it didn't occur to me that you can't really get a very good job
165 without an advanced degree in biology. And most biology people were pre-meds, which I
166 had thought about for a while, and then ... I knew didn't have the grades for, plus my parents
167 wouldn't have the money to send both my brother and me to medical school at the same time.

168

169 **B: Was your brother younger?**

170

171 J: One year. He's right behind me. So we were both in college at the same ... three years
172 together. And then we would have both been in, and I knew that couldn't happen. So I
173 actually toyed around with physical therapy for a little bit. Thought about that, decided nah, I
174 didn't really want to do that. So I did what was natural and I went back to school and went in
175 math. And so in essence I made up all the courses that I would have taken as a math major,
176 and then did graduate work in math. But I never finished that because I got married. I was
177 working and never finished. So it was one of those where, I sort of regret not finishing, but I
178 have all my math background. And that's when I started taking computing courses.

179

180 **B: In graduate school.**

181

182 J: In graduate school.

183

184 **B: And where was this?**

185

186 J: Back in Chicago. And I was working at an engineering firm. So it was a really easy transition
187 because back then when you started taking any kind of computing courses they would put
188 you in jobs that required some kind of computing understanding, and that just kept me going.
189 I thought, "Well, this is pretty interesting; we'll just keep going here." And working part-
190 time, I was the company's first software librarian, where they actually kept records of what
191 software they had and who used it, and it was very interesting kinds of just tidbits of how
192 people even thought about stuff. Where they thought you would check it out and use it and
193 then check it back in, like a library book. It was very interesting. They didn't know what to
194 do with it either.

195

196 And then I got married, and decided to have kids, and stayed home with kids for many years
197 before I went back.

198

199 **B: About how many years did you stay home, Jane?**

200

201 J: I stayed home fourteen years ... without a full-time job. I taught part-time at our local

202 university.

203

204 **B: Teaching what?**

205

206 J: Computing, Intro Computing. I was a FORTRAN programmer. And you know, you could do
207 all of the assembly language stuff and whatever. But when I was there I taught Pascal, I
208 taught ... I can't even remember what I taught now, but the programming languages of the
209 day. I taught COBOL. It's not hard to teach a programming language once you understand
210 computing, because it's just different syntax. And so that was what was really the
211 enlightening thing for me, was it really isn't about syntax, it's really about how to solve the
212 problem. And that's what was fun. And I enjoyed being around students, and so that
213 motivated me to go back to school.

214

215 **B: What did you like about programming or dealing with the computers? What was it that**
216 **... ?**

217

218 J: Remember this is the days, the first computing courses I took, we had to use punch cards, we
219 dropped them in a basket, a messenger came and took them someplace where they could be
220 ... the jobs would be run. And then they would bundle the paper up with your card deck and
221 bring it back at a certain time. So back then it was really very labor intensive, was not
222 instantaneous by any stretch of the imagination. And then the nights before you had big
223 projects, you went down to the computing facility and you lay on the floor and worked your
224 card decks and whatever. But what I really liked about it was how cool it was to be able to
225 solve a problem. How you could make a machine do something that you wanted an answer
226 for. It was just very ... I just thought it was really interesting, how I could make something
227 happen by telling it what to do. And it would give me the right answer, that I couldn't
228 necessarily know what the right answer was, but I knew how to get to the right answer. So I
229 just thought it was really fascinating.

230

231 And then the equipment kept getting better and we got rid of card decks, and I even used data
232 back when I was working, paper tape. I was in an environmental group where we would do
233 studies for environmental impact statements. So we had to a lot of times use weather data and
234 try to decide — population data, whatever — all on paper tape. So I'd actually have to go
235 somewhere to have a paper tape read, and dealing with the broken tapes and all! I just
236 thought the whole idea of being able to look at all that data, and being able to try to make ...
237 making some sense out of it, and being able to think about what that meant. That was just
238 fascinating. It was just really interesting stuff.

239 [15:34]

240 **B: Were there other people working with you that shared your interest? Were you like the**
241 **other people ...**

242

243 J: Oh, yeah!

244

245 **B: ... you worked with? Women ... ?**

246

247 J: Yes. In fact ... well, I hate to say it, back then there weren't very many women, but there

248 were probably four or five women in my group. And so it was really fun ... we had a great
249 time. We would always ... we would work sometimes on projects together, but other times
250 we would have independent projects. I know one of the men I most admired — and I still
251 admire — in my whole life was a gentleman I worked with back in the old days when we
252 used to flow chart. You'd give him a project, and he would spend 80%, 90% of his time
253 working on a flow chart. He literally, day after day, would sit there and draw flow charts.
254 Every single piece he would draw, and he'd refine it, he was very meticulous. And you'd go
255 in there, and you'd see him working, and he'd explain a problem to you or something. He
256 was a very nice man. And at the end he'd go in and he'd code it. He'd probably code the
257 whole thing up in just a few days, because he had his flow chart. And then he'd go run it, and
258 it was unbelievable, it always ran. It was just one of those things, that he had spent so much
259 time analyzing the problem that he understood what the issue was, and then when he wrote
260 the code, it was all there. I was just amazed. I could never ... I was never that clear a thinker.
261 He was just ... he was really incredible, just really an incredible thinker. So I will never
262 forget him.

263

264 **B: So what ... you were teaching part-time, this whole time, fourteen years, since your**
265 **children were small?**

266

267 J: Probably not the first two or three years. Probably for, let's see. I went back to work ... I
268 probably taught for ten years part-time. And it was fun, and the people in the department
269 were really nice. And the chair of the department always said, "I'll let you always pick the
270 times you want to teach because I don't pay you anything." So I always taught when my
271 children were in nursery school, so it wasn't like they were at a babysitter so I could teach.
272 And then I would pick them up from nursery school after class let out. And then I would do
273 my grading and lesson planning and everything when they went to bed at night. So, you
274 know, it was a really exciting time for me because I felt like I had it all. I felt like I was really
275 doing some interesting work, and I loved college students. And I still had my babies, and I
276 could still be the full-time mom that they thought I was. So it was a very nice life.

277

278 **B: So what moved you on after the children were older?**

279

280 J: Well, when the children were in school, the youngest one was in third grade, it got to the
281 point where, if you want to make anything ... by this time I really thought I liked college
282 teaching. And I really wanted to be more engaged in understanding how to teach better in
283 college. And I really liked the computing side of things. So I said, "All right, well, what am I
284 going to do?" Well, one of my colleagues at the school said, "You know Jane, you're never
285 going to get any respect unless you have a Ph.D." And he said, "It doesn't matter that you're
286 not ... you're just as smart as you are when you finish, but it's a union card, and you need it
287 if you think you're serious."

288

289 And so, reflecting on that I thought, "Yeah, if I'm serious I really need to do this." And
290 fortunately, my husband was very supportive and he says, "Yeah! You want to go to school,
291 go to school. It's OK, go to school." And so I went back to school. I was fortunate enough
292 that the University of Virginia is close by. It's only an hour. And I went over and I
293 interviewed a bunch of the departments and talked to faculty over there, to decide what I

294 wanted to do.

295

296 **B: Where were you teaching part-time?**

297

298 J: James Madison University.

299 [19:52]

300 **B: So you were still in Virginia, you had left Illinois at this point?**

301

302 J: Right. We'd left Illinois, gosh, 1970 ... 1980. Yes, 1980. So we were already in Virginia.

303 And it was a blessing in disguise, moving to this small town, because I got my job at the

304 university based on somebody we had met in the neighborhood who taught there, who in that

305 department, whose chair said, "We need somebody to cover some of these intro classes, do

306 you know anybody?" And he happened to say, "Oh yeah, I met somebody who just moved to

307 town and she's a stay-at-home mom, maybe she'd be interested in doing it part-time." And

308 that's what started all of this. I mean, every time I get mad at things I call Tony and go,

309 "Tony it's all your fault. You made me do this." So, but I mean, he was actually really

310 influential, without knowing it, on why I actually got my Ph.D. He opened the door to

311 introducing me to something really fun.

312

313 **B: So how did you choose the program?**

314

315 J: OK, I went and ... I went for a Ph.D. instead of an Ed.D. because of the same colleague who

316 said, "You don't get any respect with an Ed.D." You know? And he said, "If you can do the

317 Ph.D., you should do it. If you can't do the Ph.D. but you still want to teach, then you do the

318 Ed.D." And I thought, "OK, well, the difference (at least at the University of Virginia)

319 between those two degrees was whether you could do statistics." Well, you know, I thought

320 this should be a no-brainer! Because math is easy. Math makes sense to me. So I said, "OK!"

321

322 So I looked for a Ph.D. program, and I actually looked in several different ways. I looked at a

323 business Ph.D., because I had taught in a business school in an MIS environment. And then I

324 looked at a computer science degree, Ph.D., and then I looked at ... it was ... it's out of the

325 liberal arts school, but it's an education Ph.D. And they had what they called instructional

326 technology, which really focused on classroom technologies. How do you use technologies to

327 enable better teaching and learning? And that, I decided, was what I was more interested in,

328 versus the traditional CS and all the theory and algorithms and whatever courses you were ...

329 that wasn't really what I was interested in doing. I really wanted to teach. I was interested in

330 learning about how people learn, and how people should teach effectively. So I was able to

331 merge those together, and this program was really great.

332

333 I took some of the education courses, but I took a whole lot of the more MIS technical

334 courses. For whatever reason the engineering school was not as amenable to me taking

335 courses, so I took all the database courses, and operating systems courses, like that, out of the

336 business school. And then I took all the education courses out of the education school. And I

337 graduated from the College of Liberal Arts. But it was a Ph.D. and that's how they ran the

338 program.

339

340 So my dissertation was on graphical user interfaces, and whether they were better for
341 teaching business interrelationships. Whether students, if they could draw a concept, were
342 able to grasp that concept better than having to actually put numbers into a simulation. So it
343 took in both sides of what I wanted to do. You had to build a little something that allowed
344 you to do graphical inputs. It was actually one of the first pen-based things that was around.
345 It was just a toy that somebody had sent one of the faculty members, and he had always
346 wanted to do something with it. It was back in 19 ... I can't, what year? ... 19 ...

347

348 **B: You were in graduate school from 1988 to 1991.**

349

350 J: OK, so it was probably ... yeah, so back in 1988, they had this little tablet with a pen
351 attached, and that's what we built ... this little input device that allowed ... and we could
352 track students and how they made their motions. And we built a little simulation where they
353 could draw on it and, based on a number simulation, the graphical version of it. So it was
354 really interesting that now I've come around, and my work at Microsoft is really about pen-
355 based technology, which I'm just still in love with. So ...

356

357 **B: As you were going through graduate school, you had mentioned the guy that convinced**
358 **you to go to school. But were there other mentor relationships? Were there colleagues?**
359 **Were you in a cohort of people going through graduate school?**

360 [25:05]

361 J: It was an interesting time because many of the courses had ... they were all graduate
362 students, but they were graduate students in all different programs, so it was really an
363 interesting place. You could take ... some people were in the education programs, the
364 courses I took, some of them were in ed leadership or ed policy, and then when I would go
365 over and take the computing type courses, they would be people who were getting MIS
366 degrees and whatever like that. So there were different groups of people that I hung out with.
367 And yet both of them helped me figure out what I wanted to do as a dissertation topic.

368

369 And on my committee I had people from both sides that ... they actually didn't know each
370 other. And one of the comments I got from one of my advisors at the end was they really
371 enjoyed being on my committee because they met people that had interesting perspectives on
372 education, but they were more technical. But they were still really interested in how do you
373 teach better and how do students learn better. So I thought that was a good thing.

374

375 But one of the benefits of being an older student is that you really are more focused on your
376 work. And I used to be a typical college student where I'd stay up all night before a paper
377 was due. My dissertation was — all the papers I did and all the research I did and all the
378 work that was due in a class — was always done at least 2 weeks ahead of time, which was
379 so unlike my previous educational experience. And in part because I knew that my family
380 always came first, and if I waited until the last minute to do the paper, there's somebody
381 who's sick, or somebody who needs something, and that would have to take precedence over
382 my going to school. I mean, that was my choice, and I knew I never wanted to be put in a
383 position where I had to make that choice. So I always tried to make sure that my work was
384 done in plenty of time, so in the event that something happened that I couldn't work on my
385 school work, that I wasn't stuck.

386

387 **B: So then you have your Ph.D. in your hand.**

388

389 J: Mmm hmm. And ...

390

391 **B: How did you go about making the next set of decisions?**

392

393 J: I actually got my Ph.D. because I wanted to, not because I had any long-term job aspirations.
394 My father had always thought that I could do it. And it was an opportunity. The door kind of
395 opened that, you know, I could go to UVA and do this. And then they offered me a
396 fellowship and I thought, "Well, this is really telling me I should go do this." And so I did it
397 as an intellectual challenge. And my big fear in going to begin with was what if I didn't
398 finish. Because I'd never not finished things in my life. And, you know, my father was a very
399 wise man. He said, "There's no reason that you can't finish. But if you decide you don't want
400 to finish, it's OK too. But you've done it. You'll never regret not trying it." He said, "If you
401 don't try it, you'll never know whether you could have done it." So I thought, "OK, fine."
402 But I was determined to finish it.

403

404 So I did it and I finished it. And so I did it as an intellectual challenge, and it was really
405 exciting and I loved it. I mean, learning to learn is really a wonderful opportunity. And with
406 my children in school, I had my days. And so ... I had planned it so that my summers were
407 where I did a lot of independent study work. My professors were wonderful. They
408 understood that I had a family. They knew that I wanted to make progress. And so they
409 allowed me the luxury of being able to do independent studies during the summer. I mean, I
410 went over and visited with them, but there was not a daily or weekly obligation to be over
411 there. So it was up to me to be self-directed in doing that.

412

413 **B: Were they all male mentors?**

414

415 J: Let's see, for the most part. (I'm trying to think back!) For the most part, yeah, for the most
416 part they were all male. Interesting — both in the education school and in the computing
417 side. So ... but they were more than willing to help me do things. You know, to try to work
418 with me to make sure I got what I needed. So when I finished my degree it was kind of like
419 this big relief. And more that I had finished and my father was still alive to see me do it.

420

421 So then I took a year off. I didn't look for a job. I mean, when I finished I didn't look for a
422 job. I was not — because I did not do it to find a job, I just kind of said, "OK, I'm done. Now
423 let's just take a deep breath and see what the next thing is." And so, after a year — or it
424 wasn't even quite a year — and I was thinking, "Well, I should go do something," I get a call
425 from Anita Jones, who was chair at Virginia at the time. And she asked me to apply for this
426 job. And she had heard about me because one of my fellow students, her husband was a
427 faculty member in the CS department, and so I had known ... the wife told the husband about
428 me and being a computing person and whatever.

429 [30:31]

430 And so he had passed my name along, saying, "Well here's a person who's a computing
431 person but came out of the education school. This is the kind of person I think you're looking

432 for, for this particular job.” So she called me and said, “Would you like to come in and talk
433 about this job?” And it was ... UVA had just been awarded a large amount of money from
434 the National Science Foundation to be one of the schools to develop a new curriculum for
435 undergraduate computing. That was back in the days where closed labs — which we take for
436 granted now — were brand new. The idea of being more mathematically rigorous was brand
437 new. All the kinds of things that the old curriculum was not, was now being thought about.
438 And this is what, fifteen years ago.

439
440 So they were charged with being one of the places to develop some new curriculum. So they
441 needed an education person on board to help them both in the design and the assessment of
442 this new curriculum. And what was wonderful about it is that they had departmental buy-in.
443 The entire department agreed that this was a good thing to do. Wasn’t just a couple of people
444 in the department who had got the NSF award. Yeah, there were PIs [principal investigators],
445 but the entire department bought in that this was the right thing to be doing. And every one of
446 them was willing to take a piece of it. So from my perspective coming in there, it was like
447 this wonderful environment that everybody wanted to do what they could to make this
448 project successful.

449
450 There were lead people in certain categories in CS1 and CS2, and then the Software
451 Engineering part. There were people who were definitely leads, but there were people who
452 were supporters and always supporting, saying, “Yeah, let me try that in my classroom,”
453 “Can I help you do this?” Or when we needed to do some testing in classrooms, I never had
454 anybody turn me down — when we wanted to get some baseline data, when we wanted to
455 see what kids knew about a particular topic at the time — I never had anybody give me a
456 hard time about, “Oh god, here she is asking me to ...” They were always more than willing.
457 And that’s why I believe our project was pretty successful. NSF named us the flagship
458 institution for this undergraduate curriculum development.

459
460 So it was a wonderful opportunity to be there, and then I just stayed on and started teaching
461 at the core undergraduate intro courses. And I started doing a lot with another one of my
462 soapboxes, is really talking about literacy: What do students really need to understand about
463 computing? And I think this is a failing in our community, that we haven’t sold how cool it is
464 and how important it is to others outside of our community. Anything that we touch today
465 has some kind of computing in it, but yet we get no credit for it. You know, we get no credit
466 for the fact that cars are better, safer, stronger, and more intelligent than they ever were.
467 People don’t think of computing as being part of a car. But yet so much of a car is now
468 computing. Engineers get credit. Material science people get credit. All these other people
469 get credit for developing better cars. Computer people don’t get any credit for being part of
470 that development. Bad thing. I think it’s very bad. So as I moved on in my career that was
471 kind of one of the areas that I worked on at Virginia.

472
473 Another one of the areas that I worked on while I was there was really getting students
474 involved in undergraduate research, helping ... having them become community members of
475 our department. I don’t know, just all that kind of being ... being in a university environment
476 was really wonderful. So I just stayed after the ... after we finished our curriculum
477 development stuff.

478

479 **B: You touched on it a bit, but one of the semi-standard questions is, what's your teaching**
480 **philosophy? Do you want to elaborate just a bit on that? You've touched it tangentially,**
481 **but ...**

482 [34:46]

483 J: I think it's really interesting. One of the things I learned late in my teaching career was that if
484 you really talk to your students early, it makes it a much easier environment to work with
485 them. And so the last few years I taught, the first day of class I would talk about my teaching
486 philosophy. And how I believed that we could work together to make the most of the class
487 time and their time. And I really told them, "I'm not here to teach you. I'm here to help you
488 learn." And I said, "I think those are very different things. Because no matter how good a
489 teacher I am, if you're not willing to learn, it doesn't matter. And learning takes effort on
490 your part."

491

492 Good students ... my philosophy is that good students don't need teachers, we get in their
493 way. But the students who need us are those who really want to learn something. And so we
494 need to accommodate how they can learn, versus just saying, "This is what you need to
495 know." And so I tried very often to do active learning things before I even understood what
496 active learning was. I tried not to lecture, even before I really understood that I really hate
497 lecturing, and lecturing doesn't necessarily capture students' interests. You know, it was one
498 of those things that I tried to reflect on how I like to learn things, and what makes me happy
499 when I finally get it, than standing there saying, "I need to prepare my lecture notes for
500 tomorrow's lecture."

501

502 You know, that was the way I started out. I mean, I started out, I think, very traditionally, the
503 way we always did it in college. I would lecture to my students. I would do my notes. I
504 would try to make good examples. But I lectured at them. And then I'd say, "Do you get
505 this? Is it OK?" And then, of course, what would they say? They'd say nothing. And it took
506 me many years before I figured out how to engage them in a more active way. And I think
507 that's a failing of all teaching, that we aren't helping people become better teachers. Because
508 people are spending a lot of time getting ready for class, and I don't believe anybody spends
509 that time deliberately to go do a bad job.

510

511 And so the old stereotype, "Oh well, you use the same notes from ten years ago." I think
512 there are very, very few people who do that. I find that an old wives' tale that has no
513 credibility. People who spend time in the classroom really do spend time getting ready. And
514 so how do we enable them to become more effective? And that's my teaching philosophy;
515 it's really a partnership, that if both sides aren't working at this, it's never going to work. One
516 side can't make it work.

517

518 **B: OK, you really did that! Do you have a particular story that would illustrate this with a**
519 **student that you can remember or a class that you can remember?**

520

521 J: It's a little bit different, but in my early years I really tried to give good feedback to my
522 students, especially on homework assignments. I was someone who would read every line of
523 their code and comment, even if it was the same comment on 100 papers, I would write that

524 comment, to try to help them understand that I really did care about how they wrote their
525 code and whatever.

526
527 And I had an incident where one young man turned in some code and then had the results —
528 this was back when it was paper — and I looked at it, and I looked at his code, and I said,
529 “This code doesn’t work.” And yet he turned in a set of answers that were the correct
530 answers to the problem that needed to be solved. And as I looked more carefully, I noticed he
531 turned in somebody else’s answers. And so I was just devastated. I didn’t know what to do.
532 He had then violated the Honor Code; he had turned in somebody else’s work as his own.
533 And the person whose work he turned in, I asked her — and she was a very good student and
534 there would be no reason for me to think she would need to cheat or do anything like that.
535 And so when I talked with her — and didn’t say anything about this incident — I asked her, I
536 said, “Well how’s it going? Did you get your work? How’s the lab getting when you go back
537 and get your printouts?” and everything. And she goes, “You know, it’s really not a good
538 system. People ... I can’t find them so I have to rerun them.” So I knew then that people
539 were taking them, not necessarily just hers, but people were taking other people’s work and
540 then, I don’t know whether copying or whatever, but this student took the answer sheet and
541 put her answer sheet at the back of his work.

542 [39:51]

543 And I debated for a long time on how to handle it, and he was never in class for me to even
544 talk with him about this. So I had to do something, so my department chair said, “You have
545 to turn him in to the Honor Council.” So, as the story goes, from what I heard from the Honor
546 Council, was that when he was asked to appear, he didn’t even know which class it was that
547 he was being brought in to Honor Council for violation. So obviously this young man was
548 not ready to be a student. And he quit school ... he left school.

549
550 And when I heard he left school I was devastated, and I thought, “Oh my god, I’ve ruined
551 this child’s life, I’ve thrown him out of college, he’s probably ... What can he do with a half
552 finished degree?” And I was just devastated that I had done this. But I had to say this was the
553 right thing to do, you can’t go through life ...

554
555 And then, three semesters later, I’m looking at my class roll. He’s on my roll! And I think to
556 myself, “Oh no! He’s back!!” And so I didn’t know what to do. But the first day of class,
557 when I saw him, I approached him and I said, “You’ve paid your penalty. We start all over.
558 Brand new year. Brand new course. You’re gonna do your work. We’re gonna be good.”
559 And he says, “Yes, ma’am, I’ve learned my lesson.” And it turned out that he was kind of
560 aimless. He didn’t know what to do. He worked construction for a while. Found out he really
561 did want to go to college and get a better job. He had to stay out of school a year. He was a
562 fabulous student. He was a great student. I did watch carefully. I have to admit, I did watch
563 his work very carefully because I just wanted to make sure that I wasn’t being fooled.

564
565 And at the end of the year he wrote me a note that I still have — this is probably close to
566 twenty years ago — that he thanked me for giving him the respect that he didn’t deserve. The
567 way I handled him in class, the way I ... you know? And I felt like I’ve done something to
568 help this child get on the road to do the right thing in life. So it just made me feel like, this is
569 what teaching is about. These are the things we do to help students grow. And so I need to

570 make sure I understand how to help them be the most effective student that they can be. And
571 how to help other teachers be the most effective teachers that they can be. So that's kind of
572 where my soapbox stops.

573

574 **B: OK. Well, this is sort of a little bit different interview because you took a couple**
575 **different paths. You clearly love teaching, you liked shaping the students' lives in that**
576 **way, in the kind of teaching that you did. But then you've taken some other roads.**
577 **Would you like to talk about ... ?**

578

579 J: Sure. As I was teaching and having this wonderful time at UVA, and because our curriculum
580 was something that was sponsored by the National Science Foundation, it was obviously
581 available to all, anybody who was interested, and we would share all our class examples and
582 our lecture slides, and whatever. And I was the one who would coordinate all of that and
583 keep people on track if they had questions, and they would contact me. And I realize that
584 there are a lot of people out there who are interested in finding out what people are doing,
585 and how computing is different from place to place and what people are doing, what things,
586 and what's interesting to people and what's not. And how they can improve their own
587 school's information by looking at other people's. So the opportunity came up to go to the
588 National Science Foundation in the Division of Undergraduate Education, where I would be
589 the Program Manager for Computer Science.

590

591 And so I thought of this as an opportunity to get out there and really try to make more
592 computing people aware of what computing is going on across the country, across schools,
593 across R1s [Research I institutions] to comprehensives to community colleges. I thought it
594 was a really big opportunity for me to try to build more community within the computing
595 world. And so I went up there and it was a really wonderful experience. I would recommend
596 that to anybody. I don't recommend that to anybody in their first few years of teaching. But
597 certainly once you've taught for a while and you have built kind of what you believe, you
598 have a philosophy on teaching, you feel confident about what makes *you* an effective teacher,
599 and also understand that that doesn't necessarily work for everybody. So it was an
600 opportunity to go up there and try to shape some of the programs and shape some of the
601 thinking of the awards and who got awarded for what kinds of programs and whatever. So it
602 was a really exciting opportunity, and a wonderful two years.

603 [44:50]

604 **B: At the same time, that's when you became quite active in professional societies.**

605

606 J: Mmm hmm.

607

608 **B: Do you want to talk a little bit about the influence, any mentoring, anything about your**
609 **... what types of things you did within professional societies?**

610

611 J: Well, I was very fortunate when I first went to UVA that part of what they wanted me to do
612 was become more engaged with professional societies. And so as far as going to SIGCSE and
613 going to Frontiers in Education and these other education conferences, they were like, "Yes,
614 you should be there. Yes, you should be writing for these. Yes, how can we help you do
615 these?" So from the beginning of our curriculum development all the way through, I was

616 always encouraged to be very active within these communities.

617

618 And so after you get your ... getting your first paper accepted to SIGCSE is always a
619 monumental experience. And being able to get up and present there. And then you start
620 knowing people. And then you start looking forward each year to going and visiting with
621 these people again. And it's a very natural thing to then become active in an organization that
622 you believe in the program, that you believe that they're doing good things by bringing all
623 these folks together. And so, I can't remember ... I was asked to be program chair in ... I
624 can't remember what year it was. But program chair, and then I went on to being conference
625 chair. And being able to implement some of the ideas that you think are important.

626

627 One of the things that I'm most proud of is I introduced the idea of First Timers. Getting First
628 Timers together so that they became part of the community much quicker. It wasn't an
629 original idea on my part. I was at another conference where they had an active First Timers
630 program. It was a much larger conference, it was like 6,000 people. But I really felt like that
631 was a great thing to do because then all of a sudden I had somebody to go to dinner with. All
632 of a sudden, you know, I had a community of people to hang out with, or to go to the next
633 session with, or to sit with, and not be alone among 6,000 people for two days or three days.
634 So I thought this would be ... SIGCSE was a very warm and embracing community, but we
635 had never done anything overtly to try to interact with this group. And as we got larger, I
636 thought it would be harder to do.

637

638 So I started that when I was program chair. I did it again when I was conference chair. And
639 then people must have thought it was a good idea because we're still doing it, and people
640 have taken it to the next level of engagement and being part of actively seeking out the new
641 people. And I think that's the kind of thing that makes me feel good about why I'm involved
642 in these organizations that are about building community. Because that's what makes a
643 community, is figuring out how we find each other, and how we can then become better
644 community, a stronger community, a community that shares and works together to do bigger
645 and better things.

646

647 So those are the kinds of ideas that, when people have them, I really hope that they will bring
648 them up, because I think there are communities who are very interested. Some people are
649 afraid to, some people ... some communities aren't welcoming of that. But certainly the
650 SIGCSE community is very welcoming and open. I felt very warm the first time I went there.
651 Some of my best friends are in that community. The reason I go there now, not just to hear
652 the papers, but it's to see my friends and see how they're doing and see what's new. So it has
653 served me well through these many years.

654

655 **B: So do you want to talk a bit now about your transition from academia and direct**
656 **support for academia through NSF to another kind of support for academia, what**
657 **you're doing now?**

658

659 J: Sure. I never expected to go back to industry. I mean, obviously I was in industry before I
660 had children. But I never really expected to go back there, I always thought I'd be in the
661 academic world. And so my turn at NSF was just kind of an interesting opportunity to learn

662 more about the academic world. And I was literally back at my desk at UVA five weeks, and
663 I got a call from Microsoft, Microsoft Research. And they said, “Gee, you know, we’re really
664 interested in working with faculty and higher ed, and we need people who understand that
665 space and who are interested in helping education understand how industry works. And
666 would you be interested in this job?” And I was just, like, blown away. I just never had
667 thought about going to industry. Never sought out a job in industry. And they made it sound
668 so enticing that the deal was done, like, in two days. I actually went home and told my
669 husband about it, and I said, “Do you think they’ll wait a year for me? I’d like to go back to
670 the classroom,” because that was what I missed at the National Science Foundation. I really
671 missed the classroom, I missed the students. And he started laughing, he goes, “You really
672 are an academic.” In the academic world, if you needed to postpone a semester or a year, the
673 odds are you could do it if you have a good reason. He says, “You think Microsoft is going to
674 wait for you for a year? That doesn’t make any sense whatsoever.” So, you know, yeah, I
675 didn’t think so either, but that’s ...

676 [50:29]

677 So I took the job and it was very exciting because they said, “Well, what do you think is an
678 interesting ... what would you be interested in doing?” And was able ... I identified tablet
679 technology as something that I was really excited about. The story behind why I was excited
680 about it is that they sent me this hardware before Christmas — I started in January — sent me
681 the hardware before Christmas, and I didn’t have time to play with it. I just had it in a box
682 sitting in the family room, and my children were playing with it. And I heard this yelling
683 from the family room, “Mom! Kevin’s not sharing. It’s my turn!!” And then another one
684 would go, “No it’s my turn. Dana’s already had it for two hours. It’s my turn now, it’s my
685 turn!” And they were fighting over this, and my children are in their twenties, fighting over
686 this computer.

687
688 And I finally went over to look and see what they were doing, and they were using the pen to
689 do various things, and trying to figure out how to use the pen with this tablet. And I’m like,
690 “Wow, that’s really kind of interesting stuff!” So they were already showing me things that
691 they had figured out how to do that were really interesting. And I thought to myself,
692 “Wouldn’t this be cool to use in a classroom? Wouldn’t this be an opportunity to do different
693 things, still do paper-and-pen things that we’re so comfortable with, but yet allow technology
694 to enable us to do more things like being able to search on it, being able to annotate, being
695 able to put video in it, being able to do all these. Building a classroom environment that uses
696 technology to make us feel comfortable in how we learn. Just a very different way of using
697 technology.” And I thought, “OK, that’s what I want to do.”

698
699 And at that point there were no programs in tablet technology. Tablet was barely out, and
700 there were very few applications or whatever. So I thought, “OK, this is where I can step in.
701 And what can we do in academia, what kinds of applications do we need to build in order to
702 make this technology useful to computing, and this technology useful in engineering?” So for
703 the past three years, that’s the initiative I’ve led, is tablet technologies in higher ed, first
704 looking at computing, then being more broad understanding that this is a technology that is
705 not a discipline-specific technology. We can build platforms on it that engage students in
706 better learning. It’s a platform that we can enable teachers to be better teachers. And so that
707 has no content-specific orientation. The math teacher can do it as well as the physics teacher

708 as well as the English teacher. And so how do we build platforms and tools that allow
709 teachers and students to be more effective? And that's where I've been excited for the last
710 three years.

711
712 **B: Cool.**

713
714 J: Yeah, it's very cool.

715
716 **B: You can see the excitement on her face. We're getting to the sort of end of our**
717 **interview. Not the very end. What were ... can you identify some real challenges that**
718 **you had throughout your career? Balancing, political challenges, gender challenges,**
719 **ethnic challenges, any ... what are the kind of challenges? Children, family, anything**
720 **that you can think of that were particular challenges, and how you overcame them or**
721 **didn't.**

722
723 J: Some of the early challenges were when I was new and didn't know how to be assertive in
724 faculty meetings. It would be hard for you to believe now that I was actually very shy and
725 retiring at one point in my life, but I truly was. And I didn't know how to be effective in
726 addressing groups, and making my point, and being heard. And I don't know that it was
727 because I was a woman or because I was new, but it was something. And I know what helped
728 me was a couple of my colleagues that I would sit with. And I would say something and then
729 somebody would say it five minutes later and everybody would jump on that and say, "Gosh
730 that's a good ..." Well then one of my colleagues in particular said, "Oh yeah, that's what
731 Jane said ten minutes ago." And so he was the one who helped me stand up and say, "Yes,
732 that's what I was talking about." And so I think a lot of it is confidence, and to know that you
733 can think of things that are actually pretty good, or that are worth discussing further, not that
734 everything that you come up with is perfect. But it's an opportunity to discuss and have value
735 in an opinion of others about your ideas.

736 [55:28]

737 And so I would encourage people, especially women, not to give ... not to become really
738 mean about it. But certainly if something you have said has come around, you should make
739 sure you get credit for that. Or at least partial credit. Always share the credit. There's plenty
740 of credit to be shared. But make sure you're part of that credit. Even if you were the
741 originator and had the best part of the idea, share that idea, saying, "Oh yeah, Mary and Sue
742 and Bob and Harry, yeah, we came up with this." Because that's what gives you credibility.
743 People start thinking, "You know, yeah, she's always on that group that comes up with those
744 good ideas." That to me is how you build your credibility.

745
746 Being a lone wolf, in my mind, is never a successful strategy. And it took me a lot of years to
747 figure that out. You need to have people who have the same passions as you. Different
748 operating mode, different ideas, different thought patterns, but have the same passions.
749 They're good people, they have good ideas. You work together and you can come up with
750 some really fabulous things. Being able to work as a group is far more powerful than being
751 able to work by yourself.

752
753 So, other things that ... industry is a very different game. I still have a hard time with it. They

754 used to laugh at me when I first started at Microsoft, and they'd say, "Well what's the ROI
755 on it?" And I had to ask them what ROI stood for. That's Return on Investment. Well, so
756 they said, "Well what's the ROI on this activity?" I'm like, "Well it's a university activity.
757 Our Return on Investment are our students." And they said, "So how do you document that?"
758 "Well, in ten years they'll be great programmers or they'll be great developers or they'll be
759 great human beings." That's not the way business runs. Business runs under much more
760 concrete, definitive things, and they don't want to wait ten years. And that was one of my
761 biggest ... that has been one of my biggest frustrations in industry is that they need more
762 quick action, more definitive actions that are deliverable. They need to know that this is
763 working.

764
765 But yet when you're on the research side of the house, you say, "Well, not everything can
766 work all the time. And you need a certain percentage of failures in order to understand that
767 you're pushing the envelope." Well, philosophically everybody agrees with that. But
768 practically, is that something that works in an industry environment? I don't think so. And so
769 there's always this tension between being an academic — and always being an academic, I
770 will always view myself as an academic — being an academic, but being in industry. And so
771 how does that tension work? And it actually works in your favor, if you don't get all bent out
772 of shape over, "This is really a stupid thing to be doing, because it's not enough time." Or
773 "This is really a question of ... why aren't academics addressing." If you don't get yourself
774 wrapped tight up in knots over not being able to solve all of the problems of the
775 academic/industry engagement, but just keep working at it and keep pushing both sides to
776 give a little. And then you get, you know ... and hopefully someday the hole in the dam will
777 be big enough and the water will come out in bigger spurts.

778
779 **B: Well, do you have any outside interests that would help us know you a little bit better?**

780

781 J: Oh, well, what I do in my spare time?

782

783 **B: [whispering in background] 67 cookies!**

784

785 J: Oh! I love to cook, I love to bake. Baking is one of my stress relievers, although I'm getting
786 to the point now where I'm starting to eat my baking, which is a bad thing. But I love to
787 bake, cookies especially. I have ... Christmas is a big time for me, that is when I stay up until
788 2am and 3am in the morning baking cookies, and get up the next morning at 7am and want to
789 start again. I find that very relaxing. Chinese people don't bake, and so this is my gift to my
790 family and to my friends, is that I bake lots of cookies. I bake all sorts of cookies. I bake very
791 time-intensive cookies. And I do it for love.

792 **[60:02]**

793 And the other thing I like to do is I like to read cookbooks, even if I never make a recipe out
794 of it, I love to read cookbooks. I can almost start to taste something if I can read it. And I
795 love to read murder mysteries, again because I think it's about a puzzle. It's trying to figure
796 out what happened and how the clues fit together. And there are many mystery writers that
797 are women, with women heroines. There are many mystery writers who actually have used
798 culinary settings as part of ... so I mean, you can wrap all of those into many different things.
799 So I love to read, I love to cook, and I love computing. And I love my family most of all.

800

801 **B: Well, we should stop right there, that's so sweet. If you had — and you've done a bit of**
802 **that — had some advice to give to a young woman just starting out in computing, and**
803 **especially in computing education, what would that be?**

804

805 J: Wow. I think you really have to decide you love being a teacher. And being a teacher —
806 meaning being a mentor. Being a teacher — meaning not being perfect. Being a teacher —
807 meaning not expecting your students to be perfect, but really trying to help people grow. I
808 view teaching as being a mom. I think that all teachers, in the generic sense of being a mom,
809 not in a gender sense. But the whole idea of nurturing, of letting them pick what clothes they
810 wear, whether it's the orange shirt with the red shorts to school three days in a row, but you
811 wash them every night. You let them do that because that's part of growing up, that's part of
812 the decision-making process, that's part of nurturing them into making the right decisions.
813 Same thing with teaching. The whole idea of having them think and being able to help them
814 understand how to solve the problems. And that's what a teacher does.

815

816 And for a woman I think it's not that unrelated to being a mom. I think women who are
817 moms have almost an innate sense on why is the student having problems, or how do I deal
818 with this difficult student. Because you know what? We've dealt with difficult children,
819 we've dealt with difficult situations with our children, and we've all made a decision. We
820 don't sit around and hem and haw as our child is lying in the middle of the grocery store
821 throwing a tantrum. We do action. Was it the right action? I don't know. But we made a
822 decision, and the next time that happens hopefully we have learned from how to deal with
823 that action so that when that child does it again, we are going to help that child outgrow that.
824 And I view that as very much of a teacher's role. Being able to understand how that student
825 thinks, and enabling him or her to learn to outgrow whatever that problem is.

826

827 **B: Is there one last story that you'd like to say, "This is Jane."**

828

829 J: Umm ... [removed 8 seconds of silence]

830

831 **B: Actually, you know you could tell us a travel story, because you haven't mentioned**
832 **travel, but ...**

833

834 J: OK.

835

836 **B: ... I've known you a while and I may rephrase this sentence, but travel with your family**
837 **is very important and makes you a whole person. Do you want to talk a little bit about**
838 **... ?**

839

840 J: Traveling. Well, I love to travel. That's one of the other things I love to do, so this job is just
841 like, you know, godsend. I'll tell you, not a family travel story, but a travel story nonetheless.

842

843 **B: Fine!**

844

845 J: When you travel as much as I do, it's really a little scary when you start recognizing people

846 on the plane. People that you sat next to, people that you've had conversations with, and they
847 recognize you back. They're traveling also too much. Last week, coming out to Seattle, this
848 woman yelled at me across the plane, "Jane, Jane!" And so I waved at her and I kind of
849 remembered sitting next to her on a flight some time back. And she came back and found me,
850 and she said — and she shows me this piece of paper — she bought a tablet [computer]. And
851 she said ... I said, "Wow that's really cool." She goes, "Yeah, after you showed me yours, I
852 had to go buy one. This is so ..." And she's a management consultant, she's a mother of
853 three children, she travels too much, and, but yet, I had shown her some of the cool things
854 that kids could do on it. She said she's already shown her kids the stuff, and now she has to
855 fight her children to stay away from her business machine. So it was just really funny that ...
856 I thought, "Wow! I sold a tablet on the airplane."

857
858 **B: That's cool. All right.**

859
860 J: But again it's about the technology.

861
862 **B: Good. Very good. Anything else you want to be sure you get down?**

863
864 J: Life is good.

865
866 **B: Great! Good.**

867
868 J: Life is good. You should enjoy it while you can.

869
870 **B: All right. Thank you.**

871 [65:16]