

1 **Beth Simon**
2 **The University of California San Diego**
3 **26 June 2007**
4 **Dundee, Scotland, UK**
5 **Interviewed by Barbara Boucher Owens (50:15)**

6
7 **BO: This is an interview with Beth Simon of the University of California San**
8 **Diego conducted by Barbara Boucher Owens. This interview is being conducted on**
9 **the 26th of June, 2007 in Dundee, Scotland. It is part of the Computing Educators**
10 **Oral History Project. Did we give and pronounce you name correctly?**

11
12 BS: Yes.

13
14 **BO: Good. OK. When we start these interviews, they are kind of funny because**
15 **we start way back when. We're going to talk about your parents. Did your parents**
16 **have college degrees?**

17
18 BS: Yes, they were both the first in their families to get college degrees.

19
20 **BO: Were they in any kind of computer or math related fields?**

21
22 BS: Yeah. My mother actually did a five year degree in nursing and then got a
23 master's in public health and my father got a bachelor's degree in math and thought he
24 was going to be a high school teacher. But he found out he didn't like that and he went
25 and got a master's degree in computer science at Purdue University in one of the first
26 couple of years they offered the program there.

27
28 **BO: You may be one of the first second generation ...**

29
30 BS: Yes.

31
32 **BO: Were you a good student?**

33
34 BS: Yes, I was.

35
36 **BO: Did you take courses in math and science?**

37
38 BS: I took courses in math and science. There was actually ... I went to a small rural
39 school in southern Indiana, very small town, but it was near Indiana University. In this
40 small town we actually had a computer science course in my high school. I did not want
41 to take it because I did not like the teacher who gave it. He was not good at keeping
42 control in the classroom. All the boys took it and they played video games and messed
43 around with stuff. But my dad wanted me to study to try computing. We had a
44 computer, one of the few families that had a computer. He bought a Turbo Pascal book,
45 the Borland Turbo Pascal book. I said I won't take a class and do it. (They were doing
46 BASIC or something.) I did an independent study. I sat in the typing lab which had

47 IBMs and I put my Borland Pascal disk in and I probably worked through the first
48 chapter or two; I don't know. I would type in the programs and try to fix them. I did
49 that. He made me. He said, "You're going to do that." And I said, "OK." And it wasn't
50 like there were many exciting electives to take. I took journalism and I did band and
51 everything else, but the science electives were not great.

52

53 **BO: Did you like it?**

54

55 BS: I did. I did. I really liked it. What I really liked about it was because you would
56 type in a program and it may or may not work. You didn't have to wait for your math
57 teacher to give back your homework to tell you if it worked or didn't. You just ran it.
58 Like if there was a problem. The error messages were actually kind of meaningful back
59 in Pascal. So you'd, like, gee, I can fix something and you'd change one line and try it
60 again and that was it and you got feedback and eventually you could win. You would
61 get it right and the computer would do what you wanted it to do. Albeit, it wasn't much,
62 but you still felt like you won. And so I really enjoyed that part.

63

64 **BO: Did you have siblings?**

65

66 BS: I did. I had a younger brother and he was about 4 years after me and he was also
67 a very good student and he was very good in science and math. But he did not want to do
68 computing like my dad, and I don't think my dad pushed him to either. So he went to
69 college and got a degree in journalism.

70

71 **BO: You said a non-influence in terms of teaching, a non-mentor in terms of**
72 **teaching, but was there a teacher or someone beside you father who early on in life**
73 **who pushed who to pursue this science and math?**

74

75 BS: Definitely not. The best teachers at high school that were certainly my mentors
76 and are still close friends were in the humanities – my journalism teacher, my Spanish
77 teacher (I double majored in Spanish and computer science in college.). Yeah, my
78 instructors in math and science were not very supportive. I did have one fellow who was
79 the physics teacher, who I kind of liked, and he certainly mentored me, but it was a very
80 small town and I was really well-known. I mean it was just one of those places;
81 everybody was really supportive. I would say overall that I had more mentoring from the
82 humanities side, teachers in high school.

83

84 **BO: OK, why did you choose your undergraduate institution?**

85

86 BS: Sure. I went to undergraduate at the University of Dayton, medium sized, about 6
87 thousand undergraduates, and my dad picked the places I was allowed to apply for
88 undergraduate. Again I grew up right next to Indiana University, a large Midwest land
89 grant state school, but I went to a very small high school. My graduating class was 140
90 students and only about maybe 15 of us went to college, so again, very rural, very
91 southern Indiana and my parents didn't think I would do really well in a big large class. I
92 was very shy in high school – very odd to think that now, but it was true. And so my dad

93 wanted me to go to a smaller school so I could get individual attention, but I had to have
94 one that had decent computing resources. In early '90 (I went to college in '91) that
95 wasn't an easy thing to get. So he looked around at schools in – he wanted someplace
96 close – far enough away that I wouldn't come home all the time, but close enough that if
97 I wanted to, I could drive home, like for a weekend or something. So he started looking
98 about two hours away by car, and he picked medium-sized schools that had decent
99 computer program.. I went to the University of Dayton because they were right next to
100 National Cash Register Corporation in Dayton, Ohio, where they are headquartered in.
101 NCR had built them a building and stocked it with a VAX and a bunch of PCs and so
102 they had good facilities. I went and stayed overnight, and I chose Dayton because they
103 had good food and good showers.

104 6:10

105 These were really important. Everyone on campus seemed very friendly as well. I don't
106 even remember talking to any of the computer science faculty and I have spoken with
107 them and they don't necessarily remember me from before I was a student, but that is
108 how I.

109

110 **BO: You knew you were going to major in computer science? You said you ended**
111 **up majoring in computer science and Spanish.**

112

113 BS: I did. I enjoyed the time I spent with the computer, my dad sort of, again it was
114 almost expected. He said, "You can do this, why wouldn't you major in Computer
115 Science?" Sciencey things, I like those classes because they're very definite answers, and
116 you can succeed at them, and I knew not everybody else really could. So I wanted to
117 major in Computer Science, but I also was really good at Spanish, and I had done a study
118 abroad in high school. So I wanted to major in both.

119

120 So one of the other things that was key was that I chose a Computer Science department
121 that was not in a School of Engineering. The University of Dayton has a big School of
122 Engineering, very prestigious, but Computer Science is in the College of Arts and
123 Sciences. And that way if I wanted to switch or drop majors or switch to Chemistry or
124 whatever, I wouldn't have to change colleges within the university. And I remember that
125 was important at the time.

126

127 **BO: Well then, are there particular people that you can remember in that part of**
128 **your education that were transformative?**

129

130 BS: Well absolutely. So I took most of my classes, even though there was about
131 maybe 12 or 13 faculty in the department there, I took most of my undergraduate classes
132 from one of two people: Barbara Smith and Joe Lang. And they're both still faculty at the
133 University of Dayton, and I see them every year at the SIGCSE Conference, and we catch
134 up. And what I remember, I was also in the honors program at the University of Dayton,
135 which is actually a scholar's program, so they'd have 40 people a year who would apply
136 and get in. And I lived on a special floor in a dorm, and there were 3 girls in the scholars
137 program who were Computer Science majors that year. So I remember, they were living
138 on my floor in the dorm, and we would go to, we had like a freshman seminar for people

139 in the major. And I remember I would see them there. Actually there were four girls,
140 because there was one girl, we were honors and she was scholar. So there were 4 girls on
141 my floor who were also in Computer Science, and no guys that I knew in the program,
142 who were in honors and scholars who were also in the major.

143
144 So we had pretty much the same class, we had about 25 majors, and we pretty much
145 trooped through classes together. And it so happened we always had either Joe or Barbara
146 for our instructors, and they were really great. One of the best things about my first
147 Computer Science class was there was a know-it-all guy who had previous experience – I
148 mean I guess I had previous experience too, but I didn't, certainly never said that to any
149 of my colleagues or friends in the class. But this guy was one of these know-it-all's who
150 would try to always show off, and the instructor would just snap down on him whenever
151 he tried to show off in class and pretend to know things he didn't know. And I felt that
152 that was really comforting to me because I was very quiet but then I was getting A's on
153 the exams, and here was this guy, and he didn't pass the class. He never made it through.

154
155 And this professor was very, it was a very different experience for me. It was a new
156 experience, and he was harsh. But I could do it. And I did do it. And then I got to know
157 people and had the same thing, the same professors over and over again, and we had a
158 very strong class.

159
160 And I've asked them since, I said, "Do you always have so many women who are doing
161 really well?" And they said, "No, you guys were a very special couple of years. There
162 were a lot of especially good students at the time, and a lot of especially good women."
163 So I think it was unusual, but we did a lot of things and we had some special seminars,
164 and they were very supportive. And Barbara Smith, specifically, one of my faculty
165 members, she encouraged myself and there was another very strong girl who was a year
166 behind me, and they encouraged us to go off to Summer Research Experiences for
167 undergraduates. And we both applied to many, and I applied to the CRA-W Distributed
168 Mentorship Program [DMP], and I was involved in the second year. And my colleague,
169 or my friend, Sarah, minored, she was a year behind me but I was double majoring so it
170 took 4 and a half years because I spent 6 months in Spain, she went an NSF REU. And
171 we went away the same summer, so we kind of talked. And that was a real experience,
172 that I said I can go to grad school, that was really me, so that I knew that I would be
173 doing this, and so that I got into the schools that I did, because I worked with Fran
174 Berman at UCSD in the DMP program, and she must have written me letters that said,
175 "You should accept this person," because I applied to 13 schools and I got into every
176 single one of them, including Texas Austin, and Washington, etc.

177
178 **BO: Wow. Would you go back and just tell us what those acronyms, the**
179 **UCSD...?**

180
181 BS: Sure UCSD is the University of California, San Diego, so I did an undergraduate
182 research experience there, I ended up going there to graduate school, and that's in fact
183 where I work now, I've been other places. And then the CRA-W's the Computing
184 Research Association Committee on the Status of Women, and their project they have is

185 the Distributed Mentorship Project, which is undergraduate women can apply and be
186 paired with a faculty member not in their own institution, someplace else, and go for the
187 summer. I think of it being, you get to be an honorary graduate student, and they really
188 emphasize being placed in a laboratory where you work with graduate students. And I
189 just had incredible mentoring in doing that, and met many graduate students. And it was
190 not so much the technical experience that really made it great for me, but it was the social
191 experience of knowing this is what graduate labs are like, this is what graduate students
192 do. Talking everyday to graduate students since we would go out to coffee all the time,
193 “How did you apply? What do you put, how do you choose where to go? How do you
194 work with an advisor? What are the perils and pitfalls? How do you succeed?” And that
195 was what gave me certainly the confidence that I could make this work.

196

197 **BO: So you answered what would have been the next train of thought, how did**
198 **you decide to go onto graduate school. When you decided to go on to graduate**
199 **school, was your thought going straight for the PhD or was your thought Master’s**
200 **degree?**

201

202 BS: No I knew from my experience in this program that the thing to do was apply for
203 a PhD, because if you apply for a PhD first they pay for your education, you don’t have
204 to pay, although that would have been possible for me. But I knew that PhD students
205 were considered, that that’s where the respect was. That if you got in as a Master’s
206 student it was considered like you were lesser, you didn’t have the capabilities, at least at
207 big research schools like the University of California San Diego, etc. The Master’s
208 students are not treated with, it’s not even just respect, they’re, faculty are focused on
209 working with PhD students.

210

211 There was a really interesting thing, I didn’t tell you, but the reason I decided to do a
212 summer research experience is somewhere after my sophomore year in college I decide
213 to get a job, and I worked at the National Cash Register Corporation, and I hated every
214 minute of it. I was bored silly, and they, I remember I was hauling 286s out of cubicles
215 and replacing them with 386s, and I did nothing technical, and I thought, “This is the
216 most boring...how could I possibly do this?” Because they didn’t really use my technical
217 knowledge for anything. And I’m sure I just had a bad mentor, and I was in the wrong
218 kind of position. But that was what really pushed me, I can’t do this. I’ll be bored the rest
219 of my life, I’ll go insane. I have to keep going to school.

220

221 That really pushed it. But then having the confidence in knowing exactly what I was
222 getting into, how would I have ever known? My parents didn’t get a PhD, I didn’t know
223 anyone who had a PhD, etc. And certainly not in the sciences. So I really used that
224 summer research experience to find out exactly what it was going to be, and I came back
225 and I said, “This is what I’m going to do.”

226

227 **BO: Cool. Normally I would ask about your PhD experience, the question of did**
228 **you enjoy the research then? But you already told us that you liked the research**
229 **experience, but more for the social aspect at that time. So as you were in the PhD**

230 **program and you had this expectation for what your research might be like, did you**
231 **enjoy it, can you talk about it?**

232

233 BS: Yeah sure. I did, I certainly did at the beginning. I definitely picked, again I had a
234 lot of options in terms of going to graduate school. I had fellowships multiple places from
235 the individual institutions, and then I got a National Defense Science and Engineering
236 Graduate Student Fellowship, so I could go anywhere I wanted and I had three years of
237 funding, I didn't have to worry. And I picked, to go back to the University of California
238 San Diego, and I did not work for the same advisor, I worked for someone else I had met
239 there, because I picked an advisor.

240

241 I didn't necessarily, I had done some research in areas of interest, I knew I wasn't
242 interested in theory, was more interested in systems, maybe compilers. But I had met
243 Jeanne Ferrante, and I thought, I can work for her. We can talk, we can communicate. I
244 knew being able to communicate with your advisor was very important to success. And I
245 thought, I want to work with Jeanne.

246

247 And when I started out I really enjoyed the research that we did. We worked in
248 compilers, and you know, and I was taking my classes. But I have to say as I went along,
249 I worked with two advisors then, I was co-advised by Jeanne and Brad Calder, and like
250 many graduate students I got to the point where I really wasn't very excited about my
251 research, and I didn't find it very personally meaningful. I was developing branch
252 predictors and I made it through, and I produced a very reasonable thesis, but I would not
253 be what I would say a star student at the University of California San Diego. They did not
254 expect me to go out into a big research laboratory or a big university and really make a
255 name for myself. And I don't think I must have worked very hard.

256

257 I mean in retrospect I thought I did, but you know I hated what I did at some point, so
258 you can imagine I probably didn't work a whole lot, get a whole lot accomplished,
259 because I've sort of felt like, you know, why am I doing this? Who is this going to help?
260 If I produce another branch predictor for a particular computer architecture, no one's ever
261 going to use it. Intel's already done other things that are better. And they can't tell me
262 about them. And what am I going to, how is this meaningful?

263

264 So when I went into graduate school I knew I could do the research, but I thought I
265 wanted to be a professor. I wanted to teach. I'd always been very good at mentoring other
266 students and helping people with their homework. And so I thought, you know, I'll try
267 out this research stuff, and you have to do it, I knew you had to do it to get a PhD, and
268 you need a PhD to get a good job teaching. But I thought, I'll probably teach some place
269 like where I went to undergraduate.

270

271 So certainly toward the end of my graduate career, I thought, I just have to get out of
272 here, I have to finish, so I can go teach. And I did interview for a job that happened to be
273 available, a teaching position in San Diego, sort of a little bit before I was ready to
274 defend, and then said, "I won't be available until December." But I was ready to be done,
275 and I just wanted to teach students Computer Science.

276

277 **BO: Cool. So you continued right away?**

278

279 BS: Yes. So yeah, I did my PhD in 5 and a half years and I defended in December
280 2001, and like I said, a year and a half before, well two and a half years before I had seen
281 at the University of San Diego, which is a medium-sized Catholic teaching-oriented
282 institution, a PUI, Primarily Undergraduate Institution, I had noticed they had an open
283 position in Computer Science, but it was two and a half years, I still had a long way to go,
284 so I didn't apply. But I talked to some people down there, I knew someone in the
285 Engineering department, Computer Science wasn't in Engineering, but I had a friend that
286 I ride bicycles with, and she was a Professor of Engineering, and I talked to her about it.

287

288 And I contacted, they have a Math/Computer Science department, I contacted the
289 department head there. And I noticed on their web site they had a brown bag lunch
290 seminar series, and it seemed like there were a bunch of graduate students in the Math
291 department at the University of California, San Diego, the big state school that I was at,
292 that went down and gave talks. So I emailed this guy who was the head of the Computer
293 Science program, in the Math/CS department. And I said, "Could I come give a brown
294 bag talk?" And he said, "Oh, well that series was last year, but sure, what do you want to
295 give the talk on?" I said, "Well I work on," one of the more interesting side projects I
296 worked on was the Tera-multithreaded architecture, which is now part of CRAY
297 Computer Systems. And I said, "Well I've got this interesting talk, I could target
298 something at a junior level audience, could I come down and give a talk?"

299

300 So I did, and of course no students came, but there were all these faculty at the University
301 of San Diego. And I'm really focused you know on trying to give something appropriate
302 to them, and they were, I just remember the end of the talk, a fellow shook my hand and
303 he said, "That was very enjoyable. Thank you for coming down. So you're at UCSD, that
304 means you're going to go out and work in research academia right?" And I said, "Well,
305 no I don't think that's what I want to do." And he said, "Oh so you're going into industry,
306 right? You're going to go work for Intel?" And I said, "No, no, I really would like to
307 teach." And he said, "Oh! Really? Oh, well we should talk, we should stay in touch."

308

309 And so I had sort of gotten my foot in the door a little bit. They knew who I was. They
310 had a face, and they had seen me give a presentation. Normally, I know from experience
311 now, they think that people who come out of the University of California, San Diego or
312 other big research institutions don't even know what it's like to be at a teaching school,
313 and would never want to be there. And honestly, they don't look very hard at their
314 applications, because they figure, you wouldn't be happy here.

315

316 So I had gotten my foot in the door and made it clear this is what I wanted to do, and then
317 when they didn't fill their Computer Science position that year, the next year I said,
318 "Well I still have at least a year to go, maybe two, but I have to apply, just have to do it."
319 Because this is an opportunity, once they fill this position they're not going to have
320 another one available. So I went ahead and put in my application, and I interviewed, and
321 it all went well. And they said, "But when can you really graduate?" And I said, "Well, I

322 really can't graduate by June, but I can graduate by December. If you could wait one
323 semester." And they actually came up and talked to my advisor and said, "Beth's really
324 going to finish in time."

325

326 And I heard later (it was a very funny conversation) because this was not my advisor
327 Jean, she was on sabbatical at the time, it was my advisor Brad, and he's a very big name.
328 He's actually left academia now; he's a chief architect at Microsoft. And he said, "Well I
329 think Beth needs to get a couple other big papers and these big conferences. And the
330 program chair of Computer Science is thinking, he has no idea what she needs to do to be
331 successful at a teaching institution, and he didn't. He had no experience with any students
332 who would want to do that, and I was always really careful not to emphasize that to him.
333 He didn't understand it, he didn't understand why anybody wouldn't want to go out and
334 be the best researcher they could be.

335

336 But I finished, and I went there, and it was great. I really enjoyed the University of San
337 Diego, it's, you get to know students really well. And you have small classes. Five to I
338 think the biggest class I ever had was 18 students. And you know I really enjoyed, you'd
339 have students, again over and over again, just like I had in my undergraduate, and while I
340 was there I think I must have gotten, there was a really good crop of kids is what I've
341 been told. And 5 or 6 of them went off to get PhDs, two at the University of Washington,
342 one at Pennsylvania, one at Texas A&M. And they've never sent any students to get
343 PhDs before. Three women, and two or three guys.

344

345 **BO: Well you are no longer.**

346

347 BS: I am no longer at the University of San Diego. So I enjoyed teaching there, and I
348 pretty much stopped doing research. I saved a few things from my thesis, and I sort of
349 saved those so that I could have publications that would count for tenure. But after, I
350 didn't really want to do research anymore, so I just focused on teaching. But after a
351 couple of years I realized, I used to study performance. I used to study the performance of
352 programs on supercomputers, the performance of computer architecture. And I realized I
353 actually did care about performance. But I cared about the performance of my students.

354

355 And it was very, it was a similar question but it was a different question, so I through an
356 interesting just coincidence I heard about this Tablet PC program that it will allow you to
357 write on top of your slides in class. And I was introduced to this by a graduate student at
358 the University of Washington, happened to be in town giving a talk. And he said, "But
359 you probably wouldn't be interested in this, because we thought this would be targeted at
360 large classrooms." And I said, "No this is great, this is exactly what I want," because in
361 my classroom I would make PowerPoint slides, I didn't ever write at the board because
362 I'm very short and I can't read the board and I'm not good at writing on the board. So I
363 would make PowerPoint's, which would keep me organized, but I would print them out
364 and Xerox them onto overheads. And I would stand at the overhead and write on them to
365 be more interactive, which is the way, I was modeling what I had seen done as an
366 undergraduate at the University of Dayton.

367

368 And so I thought this Tablet thing sounded great, and I had some startup money, so I
369 went out and bought a Tablet. And the next week or two weeks I started using the system,
370 and I didn't know I was the first person outside the University of Washington to use this;
371 this was a research project that was being run by Richard Anderson. So I started using it,
372 and I was teaching a Computer Architecture course that term, and I was you know doing
373 all of this stuff. And at the end I thought, there was a computer architecture conference
374 coming to San Diego, and I had heard there was going to be a workshop on computer
375 education. And I thought, I should write a paper about how I've been using this really
376 cool Tablet thing to teach computer architecture, because in architecture you have these
377 data path diagrams, and it was really useful for me to be able to draw over them with the
378 Tablet.

379
380 So I kind of just wrote up a paper, and I emailed Richard Anderson, the researcher at
381 Washington who started it, and the graduate student who had introduced me to it, Steve
382 Wolfman. And I said, "I'd really like to write a paper on my use of your system in an
383 architecture class for this workshop, and I'd like to put your names on it, here it is. Would
384 that be okay with you?" And of course now I understand Richard was like, oh my
385 goodness, somebody's already written a paper, and they want to put my name on it, and
386 moreover she's using it and documenting how she's using our system for other
387 architecture educators, and that would be great.

388
389 And at that time basically, so that started it, Richard started inviting me up to
390 Washington, he paid me, paid my airfare to come up to Washington to talk to him about
391 how I was using his system, and help them further develop it, because I was actually an
392 educator in the field who just picked it up, and I was the first one. And that was the start
393 of everything. Richard mentored me in, I found out you could do education research, I
394 didn't know that. Oh yeah, you can publish. There's these SIGCSE venues, ITiCSE, and
395 he said, "We have to go to these things, and we could write a paper together on how
396 you're using Classroom Presenter in your CS1 class." And a number of things. And he
397 put me in touch with a lot of things.

398
399 And I went to, my first SIGCSE that I went to I was walking around with Richard in the
400 auditorium, and he said, "You need to meet this person over here, Sally Fincher." Sally
401 was recruiting for the Scaffolding workshop, which was a National Science Foundation
402 workshop that was training, as I understand it, taking Computer Science educators and
403 training them in the basics of education research. And Richard said, "Sally this is Beth.
404 She's been doing things with me; you need to have her do Scaffolding." And I put in an
405 application and that really became a turning point for me, so that's what led me to leave
406 the University of San Diego because I found a renewed interested in research, and I
407 wanted to do research on how students learn, and I wanted to have a real impact on
408 growing understanding of how people learn and how we should make that change in the
409 classroom. And I just didn't feel like I had the time, because I had a heavy teaching load
410 with maybe 5-6 classes a year, which is not that bad actually. But I also just didn't have
411 the outreach to students. They had such small classes. And I felt, I put all this time into
412 really making this great classroom experience for something, and I only reach 7 students.
413 And you know, even if it's 7 great students, there's going to be multiple days in the term

414 where none of them want to be there. And I felt like I put such effort into every class, and
415 I just didn't have the impact I wanted.

416
417 So while I was starting to struggle with that, and being frustrated at the amount of effort I
418 was putting in, what I felt I got from it, I decided, I was doing a little work in
419 supercomputing to try to still have a few publications in that area, which are more
420 respected in a small teaching institution than education research, at least in mine. So I
421 went and took a year leave at the San Diego Supercomputer Center, where I had a friend
422 who was running a research group. And he had me in for a year, he had money off the
423 grant for a year. And while I was there I made more connections again with the Computer
424 Science and Engineering Department, where I'd been a graduate student. My advisor
425 Jeanne had been a department chair for a couple of years, but now there was this new guy
426 there who I'd never really known.

427
428 And we got talking. I think my advisor Jeanne, who was now an Associate Dean, she
429 kind of was saying things like, "Hey, Beth is a really excellent teacher, she's been doing
430 really great things at San Diego," etc. And it turns out the University of California San
431 Diego had this really unusual position I'd never even known about when I was a graduate
432 student there, called a Lecturer with Security of Employment. It's a really bizarre title,
433 but it's a faculty senate position, that's like a regular faculty person, but instead of being
434 focused on research it's focused on teaching.

435
436 So at most large research institutions there's three parts to your job: there's research,
437 teaching, and service. But research is by far the most important of those three, and mostly
438 how you're evaluated. A Lecturer with Security of Employment series, the focus is on
439 teaching, professional standing, and service. And professional standing has a very broad
440 definition, you can do some research or you can do curricular development, or just be
441 known in your area in education. But it's education-focused.

442
443 And for example, in the University of California, San Diego, in the Computer Science
444 department, there are two of these positions currently for a faculty of about 60 to 65. So
445 they're pretty rare. But it turns out they've been trying to hire someone for three years in
446 this position. In fact, if you remember way back to the fellow named Steve Wolfman,
447 who first showed me the tablet, he was actually in San Diego it turns out to do a pre-
448 interview for the position, which didn't ever work out because he had two body issue,
449 and it wasn't going to work for him and his wife to both come to San Diego.

450
451 But they had interviewed many people for 3 years, never been able to hire. And so
452 essentially I was invited to apply. I remember I sat in the Department Chair's office, and
453 he said to me, "Well why don't you apply for this position we have?" And I said, "But I
454 already have a job. I'm at the University of San Diego." And he said, "Well what would
455 you need to want to apply?" And I said, "Oh, well that's a different question. I want a
456 position where I can teach but I can also do education research because I'm beginning to
457 see there's many things I'd like to do with that, and to really have an impact on students.
458 And he said, "Ok. We'll define it that way. We'll work it out."

459

460 And so I was very drawn to it because here I would be the expert in the department on
461 education, and I would get the chance to teach lots of CS1, the first computing class,
462 which I was very interested in. And I could reach lots of students, I have classes of 150,
463 you know? And I really, really enjoy that, because every day you go into class
464 somebody's happy from the effort that you put in. If there's 150 of them, somebody's
465 going to be happy. And the students are very excited, I like having them in the first term,
466 and they really appreciate the effort that I put into my classes. And I found that I could
467 still run very interactive classes where I really felt like I got to know a lot of the students,
468 even with 150.

469

470 **BO: Cool. Could you sort of, you have alluded to it a bit, but what's your teaching**
471 **philosophy at this point?**

472

473 BS: My teaching philosophy is very much the guide on the side and not the sage on a
474 stage. I've been teaching say 4-5 years in the classroom, and I have moved more and
475 more from an interactive lecture style, where I would present some material and then try
476 to solve problems with students and get them to do that, to this last year I finally
477 embraced full on, I do only active learning, I do almost no lecture in the classroom. The
478 way I transferred to this is that I looked at my lecture slides about the content that we
479 wanted to get people to understand, especially in beginning programming. And I would
480 say, well I want them to understand how for loops work. Well let me design a series of
481 questions that engages them in testing for themselves, students, their understanding of
482 how does this for loop run, or how would I build one, or what's wrong with this for loop?
483

484

485 And so my classrooms are almost a series of problems. Even with 150 students, I start at
486 the front, and it's the beginning and we have an overview slide, and then the first thing
487 we'll do is okay, well you read about for loops in the book, and they realize they really
488 have to do that before they come to class. And I say, "Okay, get together with a friend,
489 with somebody near you, and tell me when we run this for loop what is printed at the
490 end?" And then I say, "Go!" And with 150 kids they all start
491 blahblahblahblahblahblah, and they talk to each other. And they work on it. And then
492 I yell, "Stop!" And everybody gets quiet again. And through a technology system that we
493 use students can send in answers electronically, anonymously, and I can start showing
494 those on the overhead. I have a big projector system because it's an auditorium.

494

495 And then students yell out things and I ask for questions, and we discuss it. Then we'll do
496 the next thing. Okay, well you tried that, now try to write this piece of code, which is of
497 course much harder. And I do the same thing, I yell "Go!" and they all start working and
498 talking to each other. And if it doesn't get loud enough, I say, "Well you know you're
499 supposed to talk to each other," because it's better if they explain it to each other. And
500 then I bring them all back together and we go over examples again that people send in
501 electronically, anonymously, and I can quickly show them. And we show the errors, the
502 common errors, and we show that everybody makes these common errors. And the way
503 we approach it is, well just don't do this on your homework. It's much better to show you
504 the stuff that doesn't work so that you don't make these mistakes, than to show you
505 correct code. Because they're never going to write correct code the first time. So what

506 good does it do to show them that, you've got to show them incorrect code and how to
507 analyze it and look at it critically so that you can get from incorrect code to correct code.
508

509 So that's my, targeted at CS1, but my entire teaching philosophy, no matter what class it
510 is, is that me standing up there explaining things to students is very rarely useful, because
511 the words that come out of my mouth that may be meaningful to me are going to be
512 interpreted by students completely differently, and this is the constructivist learning
513 philosophy, that everyone brings their own understanding and background and brain
514 mindset to any problem. And so you have to give people something and let them try it for
515 themselves, and you can serve as the guide in the classroom to help them interpret
516 correctly or recognize when they're not interpreting correctly how some particular
517 concept or technique works.
518

519 **BO: Thank you. We're going to move into professional organizations. What types**
520 **of professional organizations have you belonged to and how has that affected your**
521 **career so far?**
522

523 BS: So I've been a member of the ACM, the Association for Computing Machinery, I
524 actually joined in high school because my dad thought it would be a good thing to put on
525 my resume for getting into college. And I didn't do much for it in college, we had a local
526 ACM. But again it sort of was like the geeks' club and I wasn't too interested in that. But
527 then when I've been a professional I've been a member of SIGCSE, the Special Interest
528 Group on Computer Science Education, and gone to mostly their conferences. And that
529 has been, again from the very first SIGCSE I attended in Reno where I met Sally Fincher,
530 I've realized these are invaluable. This is what I have to do, I have to go to conferences
531 and meet people and talk to other people about what they're doing in their classrooms
532 and find research colleagues, colleagues who...do you want to do a survey on this in the
533 classroom, or last year at ITiCSE in Bologna was at a talk where a person was reporting
534 on pair programming in a first computing class.
535

536 And there was this discussion at the end, a very famous guy in our field, Ray Lister raised
537 his hand, and said, "Great, we have another paper telling us about the benefits of pair
538 programming in a beginning computer course. I just need to ask the audience. So we've
539 reported on a number of things that pair programming's good in CS1, has anybody
540 reported anything that it doesn't work well or there's problems?" And people said, "Oh
541 no, not really, everything seems to be good." And he said, "Okay, for any of you people
542 out there who have done this research, are you hiding anything? Is there anything you
543 haven't told us?" Well there's a few little caveats. Well there's this little thing and that
544 little thing. And he said, "So why aren't we all doing it in our classrooms? How many
545 more research papers will it take before we all do pair programming?" And I thought,
546 well he's right, why am I not doing this? And it was that experience through that
547 professional organization coming to the conference, I put that pair programming in CS1
548 last year, and I think it was incredibly valuable. And I chose to evaluate it, and report
549 back to my colleagues in a different method than I'd seen anybody else do, which
550 everyone else I've seen has done very quantitative measures of improved student scores,

551 and I've just completed a study where we interviewed 12 students to ask them to compare
552 pair and solo programming experiences.

553
554 And that's where the professional organization is so meaningful to me, because there
555 aren't that many people at my institution who really think as deeply and carefully about
556 learning and computer science education. And when I come to these conferences and the
557 workshops that are supported by my professional community, it's just like coming to a
558 group of friends. And we just talk and everybody's so open. You don't have to know
559 anybody, but you all have this shared experience that you're doing this very hard thing,
560 and that is just invaluable, and that's been what's been the big draw for me.

561
562 **BO: In terms of professional, the sort of service, have you supervised**
563 **undergraduate students or graduate students in their research, and have you, the**
564 **other question is very different, and it's have you volunteered your services to**
565 **professional institutions?**

566
567 BS: Sure. So yeah, the first is the students, I have worked quite a bit with
568 undergraduates, I did both at the University of San Diego, I tried to get undergraduates in
569 the same way that I had into research experiences, both in the summer, some of them
570 with me at the supercomputer center. And then at the University of California, San
571 Diego, my research projects are pretty much run by undergraduates. It's not necessarily
572 my intention or even the job of someone in my position at the University of California,
573 San Diego to have graduate students, although I do have two, which I've co-advised with
574 another person. But their focus is not computer science education because I'm not sure
575 my department is ready to graduate someone who has a PhD whose basic research is in
576 Computer Science Education. So we spin it, it's technology, it's ubiquitous computing,
577 it's software engineering, and we really focus on that.

578
579 And I've only been there 2 years, but I do have a student who's in her third year and a
580 student who's in her second year, and they're doing very good things. But again, they
581 don't have a co-advisor who's a software engineering fellow, Bill Griswold, and he co-
582 advises them. And that lends them some authority. But I really enjoy working with
583 undergraduates, and I have worked with probably 10-15 undergraduates in the two years
584 I've been at the University of California, San Diego.

585
586 I also have service within the university in that I use this technology system and I present
587 every quarter at the Center for Teaching Development. I go out and I work within the
588 University of California, San Diego's organized into undergraduate colleges, and I work
589 heavily with my college, which is the Sixth College, whose focus is culture, art, and
590 technology. And I work with them helping them hire a chief technology officer or
591 helping them design courses, etc. So I try to be a resource on pilot education. I teach them
592 graduate teaching training methods class.

593
594 And within the larger community I've served on the board for the Grace Hopper
595 Celebration of Women in Computing as the local chair. I've not yet served in the
596 SIGCSE arena, which is our community. I've been approached, but there are some real

597 restrictions that are a negative for someone in my stage of my career. If you, for example
598 want to be the chair of the SIGCSE conference, you can't publish for two years. And
599 that's killer for me. I can't not publish in SIGCSE for two years, it would look very bad.
600 So that's something I have to wait on. I'm very interested in lots of service, but I'm
601 understanding that I need to wait for the appropriate time in my career where I can, you
602 know maybe I'm not doing quite as much research, I'm in so many research groups right
603 now, distributed across the entire world, and that I need to choose the times when I say
604 yes to things.

605

606 **BO: Good. Were there so far, you do so much, have you found challenges to**
607 **juggle, you have a personal life, I see you running, I know you bike, and you have a**
608 **husband, and all these, love to travel, all these kinds of things, do you have any**
609 **challenges about making your life balanced?**

610

611 BS: Yes, and I keep that very much in mind. Currently I'm in a stage where you know
612 very consciously I've chosen to be career-focused right now. When I moved to the
613 University of California, San Diego two years ago I knew I was moving to a community
614 that had a lot of resources, and it would be people I could work with, people in
615 Education, people in Sociology, people in Sixth College, and so I said for a while you
616 know I'm going to open up a little bit, I'm going to say yes to things that come along.
617 And I knew that at some point I'd need to start saying no, because I would have too many
618 things going on. And I think I'm getting to the point, certainly if I was going to be at the
619 University of California, San Diego this year I'd need to be careful, and worry about that
620 balance, because it got a little out of hand this year. I've got a little too much research
621 going on, little too much travel. And it's just you know I want to have a more balanced
622 life.

623

624 I do bicycle a lot. My husband and I bicycle at least 3-4 times a week, and my travel
625 schedule has been difficult in that way. But it's a choice of I know that I've been making
626 these decisions and that I can stop at some point. And what's nice about my current
627 position is that I'm definitely overachieving. I know that I don't, I know where the line is,
628 and I know that I'm above the bar. So I can choose to do fewer things. And that's very
629 different I think compared to many traditional research faculty positions, where people
630 maybe feel like the sky is the limit and they really have to go all out in order to get tenure
631 which is the big bummer.

632

633 **BO: And this may be an inappropriate question that we want to strike, but have**
634 **you considered having a family other than just your husband?**

635

636 BS: Yeah.

637

638 **BO: Do you want to talk, because other young women are interested in that**
639 **question.**

640

641 BS: Absolutely. So I personally am not interested in having children. I don't think it
642 has to do with my career choice. I'm not interested in having anyone dependant on me for

643 18 years or however many it is. And my husband and I both feel the same way. We really
644 like kids, and so it really confuses people because we're very good with kids, we have a
645 box of kids' stuff at our house for when friends come over with kids, but personally
646 we're not interested. Very interestingly, my mother is very clear that she sees my career
647 as the reason that I'm not having children. We've spoken frankly about it, that this is not
648 in fact the case, but I firmly believe that she does think my career is a major reason I'm
649 not having children. And I have to admit, I would have to make some other choices.

650

651 On the other hand there is a junior faculty woman in my department who does not have
652 tenure yet who just had her third kid. And certainly, particularly at the University of
653 California, San Diego, I believe there's really good plans for people having, you can
654 basically have a year off, and get full pay. And you can take an extra year on your tenure
655 clock if you want, and that's fine. And I feel it's very supportive in that regard, just not
656 something that I particularly want to do.

657

658

659 **BO: Cool. Well thank you. In the wrap up, would you like to tell us what kind of**
660 **advice you would give to a young person, thinking about that girl in school in**
661 **Indiana, interested in computing, interested in education, what would you tell her?**

662

663 BS: Well I would have to say, you may not know you're interested in computing. This
664 was one of the problems. I mean, who really knew what you did as a computer scientist.
665 My dad was a computer scientist, but I didn't really know what he did. And this is the
666 biggest problem I think, it's like how, when I wanted to go to college, I saw college as
667 the preparation for going out and having a job. So you should study something in college
668 that you have an idea, I'm going to go to work each day for the rest of my life and these
669 are the things I'm going to do, and I want to pick something that I think I'm good at, so
670 that I can be successful at it, because that's an important part of being happy. You want
671 to be successful and enjoy what you do every day. And I still didn't know again what
672 computer scientists did every day. My dad went in to work, and I thought he did some
673 typing things and he managed programs that tested certain things, but you know, I never
674 went and followed him for a day at work, never followed anybody else. And it would be
675 hard to even grasp I think as just a high school student going around what do people do in
676 a day as someone who say developed software.

677

678 So you may not know that you're interested in it. But if you're successful at math
679 problems, and you like solving problems, no matter what kind of problems they are –
680 biology problems, or whatever. If you like solving problems, then you like computer
681 science, you may just not know it. And so you should try it. And the problem is I know it
682 doesn't often count for a course towards your degree, but you should try it because if
683 you're good at it you have so many people pushing you. You have so much potential for
684 success, because lots of kids want to be premed majors, lots of kids want to study
685 biology, but if you're good at Computer Science all your professors will pay attention to
686 you, and you'll have lots of opportunities, because not that many people are either
687 interested in it or good at it. So you should try it out, and again that is probably going to

688 be something that will make you happy. How could you not be happy if people are
689 appreciative of all the things that you're able to do.

690

691 **BO: Nice advice. At the very end, is there one little tiny story, a short story, that**
692 **you'd like people to say, "Ah, that's Beth!"?**

693

694 **BS:** The most important thing that I would say to people is that you want to try things
695 when you're thinking about what your career is. You want to try things and not do things
696 because your parents told you to, even though that worked out really well for me. But you
697 want to try things and consider options, and just realize it's okay to change your mind
698 and to think about the fact that computing has power for every discipline. That, you
699 know, some of the best advances in biology I think are being made as a result of
700 computing. And that advances in chemistry, everything is, we have this computing focus.
701 So if you can think of how to apply something that you're interested in and computing.
702 There is real potential there, and you can be a person who really makes a change in our
703 culture and our communities for good, by applying this resource that exists, that honestly
704 is still incredibly underutilized.

705

706 **BO: Thank you, Beth, and I think you're doing that, and I'm glad you spent some**
707 **time doing that with us.**

708

709 **BS:** Thank you.

710

711

712