

Edith Neimark

- Born 5/25/1928 in Sea Bright, New Jersey
- B.A. (1949) Skidmore College, M.A. (1952) and Ph.D. (1953) both from Indiana University

Major Employment:

- Rutgers University – 1965-1991, Professor
- Douglass College – 1966-1971, Psychology Department Chair
- Rutgers University – 1992, Professor Emerita



Major Areas of Work:

- Learning, cognitive development, problem solving, memorization, cognition

SRCD Affiliation

- Member since 1997

SRCD ORAL HISTORY INTERVIEW

Edith D. Neimark

Interviewed by Suzanne H. Boies
Dr. Neimark's home, Princeton, NJ
April 15, 2010

Boies: This is the SRCD oral history project interview of Edith D. Neimark. Edith is currently retired and she is being interviewed by Suzanne Henry Boies, a former student of Edith's. Today is April 15th, 2010. To begin, could you talk about your family background and any childhood and adolescent experiences that may be of interest, e.g., about your parents, where you were born and grew up, what your schooling was like and your very early work experience.

Neimark: I was born on May 24th, 1928 and I grew up on the north Jersey coast in Sea Bright and, later in Long Branch where we moved for several reasons. One was that living in Sea Bright in the winter was very iffy. It was a dangerous place during storms. But more important, the schooling was inadequate whereas the schooling was much better in Long Branch where the high school, as a matter of fact, was excellent. This was the Depression. People couldn't get jobs and so many of the teachers had PhDs.

Boies: It was quite a high-powered environment then?

Neimark: Well, for some teachers. The English teacher, Dora Davis, was outstanding. From her I learned that you have to take notes, I learned how to write and she was the first person to tell me that I was really bright and that I should go to a first rate college like Radcliff.

Boies: So she knew about many of the institutions of higher education and such?

Neimark: Well, she was an extremely bright person herself. But she did not have an opportunity to do what she was capable of doing. And incidentally, she came from right near Buffalo.

Boies: What was your school like?

Neimark: Sea Bright was a small town on the ocean. It was a resort town in the summer, but there were very few permanent residents, mostly fishermen. And it had a school that went from kindergarten to the sixth grade, but it was a very teeny-tiny school. There were maybe five or six kids in each class. So we

had one teacher cover several classes and divide her time between them, which gave people who wanted to do it an excellent opportunity to skip a grade and do two grades at once.

Boies: Did the teachers also split up the courses so there was one teacher who specialized say in math or science and the others--

Neimark: No.

Boies: They covered the whole spectrum?

Neimark: Well, we only went up to the sixth grade there, so it wasn't very specialized—

My parents were devoted to my brother and me and so they spent a lot of time with us and did a lot for us. Mom took us to museums in New York and in Trenton and bought us wonderful books. My father was on the board of education and served on the borough council. Although he immigrated at age ten with no English, he quickly became an outstanding student in the Long Branch public school, but quit at 16 to support his family. And interestingly enough, years later my brother had Mrs. Warwick, the same teacher who had had my father. She still remembered him.

And after he quit school he went to Detroit and ran a tool crypt at an automobile factory, where he was fired, because he asked for a raise of 25 cents and they refused to give it to him. So he returned to New Jersey and went into business with his brother running an automobile repair shop. They were supporting their baby sister, who went on to college and became a teacher. He was an entrepreneur who dabbled in real estate and in the stock market for his entire life, while he was running a gas station until his retirement. And my mother wanted to go to college as her brothers did. But her father said, "No. I'm not educating a girl." So she couldn't become a reporter, which is what she wanted to do. She became a bookkeeper for the family automobile dealership until she got married.

Boies: This was back in the '30s?

Neimark: No, this was before they got married...the early 1920s. Later she opened an antique shop in a huge space under the apartment we lived in. It was a commercial space that was rented by an interior decorator but I don't know what happened to him. He moved out and left a lot of stuff, so that was essentially the start. In the last days of the Depression and into WW2 people who were living in Rumson (which was a very upscale area) died or could no longer maintain their mansions so there were auctions, and my mother was getting outstandingly wonderful stuff. That was the start of the antique business that she maintained until it was destroyed by a fire.

Her parents, siblings and their children were an important part of my growing up. Another part of growing up was the year, 1938, we took a year off and went to Florida for my brother's health. Coming back from Florida my father took us on a tour all through the eastern United States into Canada and then back home; that was a wonderful year.

Boies: Was it like traveling for the whole year?

Neimark: No, we were in Florida because both my brother and I went to school—this was after school was over.

Boies: Oh, that sounds wonderful. Yes. To be able to see the country like that in those days and it must have been very difficult, because roads were very different back then. Right?

Neimark: And cars weren't that good either. But since my father was a big automobile mechanic--

Boies: He could take care of that.

Neimark: --he could take care of it.

Boies: Did they have--you stayed at hotels along the way, is that--there were guesthouses and such?

Neimark: Well, in the south there were mostly these tourist inns, little--now we call them motels, but then they were kind of little wooden cottages, pretty primitive really but there were hotels in the cities.

Boies: How old were you at the time that you did this?

Neimark: Ten years old. And that's the perfect age for doing things like that.

Boies: Yes, yes. So you came back and then you were ready to go on into junior high school and high school, is that right?

Neimark: Right. And we, for that we moved to Long Branch.

Boies: Okay. And your high school was just a regular sized high school, what we think of as high schools today, 100 people or smaller than that?

Neimark: It was a pretty big high school. And as I said, we had all these marvelous teachers.

Boies: Okay. So Edith, having described your family background and such, now I'd like to talk a little bit about early adult experiences and what was important to your development, your intellectual development, your college experiences, for instance, and beyond, work experiences also, whatever. Okay?

Neimark: Yes. I went to Skidmore College mostly because my cousin, Billie, was going there. And the idea was that we were going to spend a lot of time together, which we never did, of course. I was majoring in art until my mother said, "You're not going to make a living doing that." So I switched to psychology and the department chair, Phil Krawiec, urged me to go on to graduate school, although he warned me that I would have great difficulty getting into a graduate school as a woman and as a Jew. That was still the era of quotas when--

Boies: Yes. What year was this, 19--

Neimark: --this was immediately after the war, 1949.

Boies: '49? And they had quotas at that time?

Neimark: Yes. Schools would not admit more than 10% Jewish students.

Boies: Wow. Even after the Second World War?

Neimark: It broke down after the Second World War, but it was still going on and things like medical schools were just impossible. My cousin, Ernie, who wanted to be a doctor after he got out of the--no, he was in the army I think rather than the navy. I don't remember. Anyway, he had to go to Switzerland to go to medical school.

Boies: How many people were in the psychology major in Skidmore roughly?

Neimark: Oh, about 12 in our class.

Boies: Skidmore was a good private school. It still is really pretty much.

Neimark: Yes. It was all right.

Boies: You have some reservations?

Neimark: Well--

Boies: Krawiec was pretty well known at the time.

Neimark: Yes, he did work on oral histories of psychologists and a book on the history of psych. He was wonderful. He took us to EPA meetings and things like that; he was very encouraging.

Boies: So you applied to a couple of graduate schools?

Neimark: Yes. I did but the only one I got into was Indiana, which also offered me an assistantship that covered all my costs for attending.

Boies: That's really something. Indiana was one of the top schools at the time I think, wasn't it?

Neimark: Well, it was interesting. Indiana was famous because B.F. Skinner was there. And of course, the year I went B.F. Skinner left and went to Harvard, which is just as well, because I didn't need B.F. Skinner.

Boies: No

Neimark: But there were very few women in any of the graduate programs.

Boies: Yes. I wondered how many women there were in the Indiana--in your class?

Neimark: There were two of us. The other one was Bonnie Webb Camp. I was 20. She was 16.

Boies: Oh my gosh.

Neimark: Here were these two innocents at the era of the GI Bill when all those returning veterans were coming in. And they gave us a hard time.

Boies: I'm sure they did.

Neimark: But they were also very protective and helpful.

Boies: There were some Indiana grads who were at Rutgers as I recall. I don't know if they were there at the same time--

Neimark: Yes.

Boies: --that you went.

Neimark: Yes, they were. We all went--

Boies: Arnie Buss or--I don't remember now who it was.

Neimark: --Arnie Buss, George Collier, Seymour Rosenberg.

Boies: All three of them were classmates?

Neimark: Yes.

Boies: Okay.

Neimark: Well, there was the buddy system always that it was easy to recruit somebody you knew.

Boies: How many were in your class at Indiana total? There were the two women and how many men, do you know offhand?

Neimark: I really can't recall. I would say about maybe 20.

Boies: Okay. That covered the clinical program as well as social and psychology--

Neimark: No social. It was just experimental and clinical.

Boies: Experimental and clinical? That's fascinating.

Neimark: A lot of the men were hired as assistants, so they got started doing dissertations and got a research background. But nobody wanted us girls. Bonnie was in clinical, so it was less of a struggle I think to get research background. But Irv Saltzman took me on as an assistant and I did a study of latent learning with him.

Boies: I see, okay.

Neimark: I think the reason he wanted me was because I was pretty good at statistics. I had spent a lot of time figuring out what that was all about and I really understood it so I was analyzing data for him. Anyway, he was a lovely man and he was a lot of help.

Boies: Okay. Now before you went to Indiana you also worked in a mental hospital in Massachusetts, is that right?

Neimark: Yes, in North Grafton, Mass. One of my classmates, Beulah Schwarcz, had worked there every summer and she just loved it for some reason. So she said, "Why don't you come and work?" I was assigned to the ward that had the most severely psychotic patients. It was a devastating experience for me, first of all, because patients were treated very badly. Nobody had a toothbrush so there were an awful lot of dental problems and decaying teeth and, in fact, when I took patients outside to sit in the sun in the middle of the day they would all say, "Look at her teeth. She has all her teeth." And they were just so fascinated with my wonderful dentition. But it was heartbreaking, so that convinced me that I was not going to be a clinical psychologist.

Boies: Yes, I can understand that. So then you went on to Indiana and you--

Neimark: I did have some experience with--my only experience with developmental background there was--well, there were two. I took a course in developmental with Winthrop Kellogg..

Boies: Okay. I don't know that name.

Neimark: You don't know *The Ape and the Child*?

Boies: Oh, yes.

Neimark: He provided a wonderful background in comparative, which I've always cherished. And I taught comparative for a while. I really like that area. But I also took a course with Kuno Beller and that was my introduction to Piaget. I read *Moral Judgment of the Child* and when I was home for vacation I did a little experiment with kids in the Long Branch school system. It was so easy in those days to just walk into a school and say, "I want to do an experiment," and they would let you do it. So I looked at children's understanding of truth and lying.

Boies: By interviewing them and talking to them?

Neimark: Yes, Piaget's famous experiment, which is the worse thing a child who broke one cup and--oh, I don't even remember the experiment anymore, but it dealt with children who were breaking cups: one who broke many lied but the child who broke only one cup told the truth. Young children thought the worst thing was breaking a lot of cups rather than telling a lie.

Boies: Very concrete.

Neimark: Yes, exactly. That experiment actually got reported at MPA and Kuno wanted to publish it--

Boies: What happened after that?

Neimark: Well, it was time to do a thesis and I wanted to do a thesis on thinking, which nobody was at all interested in or willing to sponsor.

Boies: This is because they were all into the straight learning, traditional learning theory?

Neimark: No. Kuno Beller and he was not a very secure person there. There was Rollin Davis, who was a very great physiological psychologist, but I wasn't interested in that area. Most of the people were interested in learning at that time, so Bill Estes sponsored me for some stupid rat study. I don't even remember what the question was or what I found, except that I found that I'm severely allergic to rats.

Boies: Well, if nothing else it told you that, right?

Neimark: Yes. And I was having asthma attack after asthma attack; it was serious. I knew I couldn't continue with that and I was happy to abandon rats. I never liked them in the first place. At this time Estes and Burke were achieving quite a bit of notoriety, because they were proponents of what they called mathematical modeling of learning. I took their course and, as usual, when I got home on vacation I went to the public school and did a little learning experiment with the kids that tested a model and the data were pretty good. When I got back that became my dissertation. It was on probability learning where subjects were asked to predict which of two lights would come on. The lights came on randomly with probability p for the first light and $(1-p)$ for the second light. Subjects had to do this stupid thing for 100 trials as I recall. As it turned out the data were spectacular. They were exactly predicted by the theory.

Boies: Did you anticipate this? Did you and Estes have any idea of what was going to happen?

Neimark: Yes, I knew what was going to happen, because I had done this funny little thing with the kids. The dissertation was picked up later by Bush and Mosteller and it became an important part of their book on mathematical models. What was interesting was that after completing the experiment every subject would say, "What was the pattern? I kept trying to find it and I couldn't find it." It was interesting that the theory did nothing whatsoever to describe the actual behavior of the subjects. They were cognitively involved. This was not a random selection of stimulus elements drawn and conditioned on each trial with a different sample drawn on repeated trials.

Boies: They didn't understand that it was random?

Neimark: No. They kept looking for something, so that was an important lesson that people look for sensible explanations of what they experience.

Boies: Yes, and this is where you went into thinking and cognition?

Neimark: But it took a long while to get there.

Boies: Yes. I'm sure it did.

Now what I would like to do, Edith, is to turn to your interest in child development, and who was important to you in terms of your intellectual development, and your mentors? You mentioned Kuno Beller and you mentioned Piaget.

Neimark: Well, before I got interested in development there was a period of ten years when it was hard to find a job; and so I went from one place to another finally spending two years with the Air Force Research and Training Center at Lackland Air Force Base, in San Antonio, Texas, where I was studying problem solving. One inspiration for that work was familiarity with information theory, Shannon and Weaver. I was very impressed with the fact that it was possible to quantify information. I was also impressed by a paper of Bob Glaser's with a simple task providing quantification of the information gathered by a subject in the course of problem solving and mathematically characterizing what was going on. I used that task. One advantage of being with the Air Force at that time was, first of all, you could get all the subjects in the world as long as they were young males who were at the base, and of course, you had a lot of assistants assigned to you, so there was a lot of help. As a result, I got a lot of data collected and really understood what was going on in that problem solving situation, which was justified to the Air Force as being applicable to trouble shooting, an important thing for maintaining equipment.

Boies: I think it's to your credit, though, that you figured out how to put it in a context for them. That's something that's not always so easy for people to do.

Neimark: Well, they didn't care what we were doing really. I mean, it was a wonderful boondoggle and it was interesting for the two years that I was doing it. I also got involved in some social psychological experiments with Seymour Rosenberg.

Boies: He was there also?

Neimark: He was there also.

Boies: So the buddy network held up?

Neimark: The buddy network always holds up. The old boys run lots of things, but Seymour had nothing to do with my hiring. Anyway, I managed to get a job at NYU, so I left Texas quite happily. When I got to NYU, it was a very strange department. There was one big bullpen room where all of us had our office; and mostly what people were doing was teaching. Course loads were incredibly heavy. Fortunately the person who had hired me and who was the chairman of the department, Leo Hurvich, was a sweetheart if ever there was one. When I said, "Leo, this is too much teaching," he said, "Well, don't do so much."

Boies: Just like that?

Neimark: Yes. So I did reduce my course load, but I was teaching experimental; I was teaching learning; I was teaching comparative and I was pretty busy. I didn't have much time for research nor to write up my dissertation for publication, because although Bush and Mosteller had cited it, I had to publish it. Even so, the people at NYU (the rest of the department after Leo Hurvich left to go to Pennsylvania) decided I wasn't doing enough research and they were not about to give me tenure, even though I had been promoted. During that time, I don't know why or how it happened, I started reading *Origins of Intelligence* and was so impressed with the brilliance of that book that I became interested in cognitive development. When I was looking for a new job I was offered one at Cornell, a tenured associate professorship, but they really wanted me as a mathematical model builder.

While I was at NYU I worked on an edited book with Estes on statistical learning theory, which convinced me that that whole area was going nowhere and I did not want to spend any more time with it. My other job offer was at Rutgers, Douglass College actually. At that time Nelson Hanawalt, the chairman, wanted to retire and he wanted somebody to replace him. He was looking for a woman, because he wanted a role model for the students. They were all girls at Douglass. So this was a wonderful opportunity for me to switch fields and become a developmental psychologist, especially since there was a nursery school--right in the building--

Boies: I remember it well. This is where we intersect.

Neimark: --with a great big concrete bird outside in the playground.

Boies: And when you got to Douglass and after Hanawalt left you became the chair?

Neimark: Yes. And that gave one a lot of power in those days. I really had a free hand to hire people and I had good luck. The first person I hired was Peter Eimas; he was a ball of fire for getting students involved in research, so we had a lot of students doing research. It was wonderful. I hired a lot of other wonderful young people, so the Douglass psychology department became a terrific department.

Boies: Now you were part of the Rutgers psychology faculty at that time also, right?

Neimark: Yes, at the graduate level.

Boies: Okay. And did the faculty over at Rutgers exert any influence on you or did they let you have a free rein? This is when Rosenberg and Krauss and Collier and Arnie Buss were all there.

Neimark: Not Krauss. They were obnoxious. Lewis, who was the chair then called in outside consultants who recommended shutting down the Douglass department altogether. I mean, it was only women, so you could have graduate students teach them. Why waste time on women? So they left me alone because I was doing something that wasn't worthwhile, teaching women. I wanted to set up a graduate program in developmental and there I got very little cooperation.

Boies: I see.

Neimark: I wanted to recruit Irv Sigel to head the program. He came in for an interview the exact day of the Detroit riots. He left home early in the morning not knowing that riots were going on and all that Mike D'Amato did was to talk about the riots the whole time. They did nothing to encourage Irv to want to come there. I don't think they wanted him to come and set up a program or if they made an offer. In any event, he did not come so I had to develop a graduate developmental program, starting from scratch with little cooperation from the Rutgers colleagues. In fact, they did not support some of my candidates for the program

Boies: People more grounded in learning theory or what was it?

Neimark: Oh, it was more stupid than that. When there was an opening for a developmental person at Rutgers, the then chair hired his then girl friend (who was not in developmental) rather than a Katherine Nelson student with the language development background the program needed.

Boies: But you did bring in a lot of people, Sandy Harris, the Keaseys--

Neimark: Dick Lore, David Brodzinsky, Matt Erdelyi, there were a lot of good people. But, even within the department at Douglass there was some resistance to keeping some of them. For example, they did not want to keep Blake Keasey. He had had the unfortunate experience of having one parent after another die after he got here. And obviously that had an effect on him.

Neimark: I wasn't going to hold it against him that that slowed him down. But some of my colleagues did so we didn't keep him. And therefore, we lost Carol. Matt Erdelyi, I thought was an outstanding person, but he was a Freudian and you can't have Freudians. I mean, behaviorists can't stand that.

Boies: Not in one of the bastions of behaviorist learning theory.

Neimark: Right. So it was discouraging.

Boies: I understand.

Neimark: But a program did get started and great graduate students came

Boies: And that was a very vital program, was a lot of action going on there, a lot of activity.

Neimark: Yes.

Boies: And you had a fair number of graduate students in developmental by the time I left I think.

Neimark: Yes, and they were good students for the most part.

Boies: Let's turn to what were the political and the social events that influenced your research and writing, and your professional activities? Clearly being a woman and also being a cognitive theorist, but there are other things too probably that I don't know about.

Neimark: Well, one is always a creature of one's time. And this was a time when baby boomers were starting to go to college. So faculties grew and concomitant with that the woman's movement was becoming more effective. When I started it was hard to get into a graduate school. You couldn't get a job except at a woman's college, etc., etc., and women were not being promoted until there started to be real social pressure to recognize women and to treat them equally, which led to hiring a lot more women and giving them a chance to get tenure—a terrible battle that was frequently lost. For example, Jeannette Haviland—I remember the terrible battle to get her tenured. She just had twins, for heaven's sake! So there needed to be some additional consideration. Fortunately there was and she has gone on to be a very productive and outstanding person in the department. Judy Stern was hard working, very productive, frequently published. They didn't want to keep her, in part, because she could be a bit of a pain in the neck—but that's irrelevant—again, a battle and one that was won. Some women did not make it alas. Hollis Scarborough was one we lost.

Boies: You talked about quotas. Had the quotas disappeared at this time in your career?

Neimark: There was--of course, there's still--an ongoing battle of affirmative action for what we now call African-Americans. So discrimination is by no means gone, but for women it improved a lot and that was very helpful, because as one of the few women who was available at that time, I would be invited to do all kinds of things, like be on panels for NIH and so on.

Boies: Yes, it could work to your advantage.

Neimark: It did work to my advantage. I got a big increase in salary and rank, which helped enormously.

Boies: And I don't know if this constitutes a political or a social thing, but you've mentioned the network, the buddy system.

Neimark: Yes.

Boies: And that certainly affected your career--the graduate student relationships you formed when you were at Indiana.

Neimark: Yes.

Boies: And that went all the way through to your retirement I think-- that they were around?

Neimark: Well, I don't know. It certainly was what got me hired at Rutgers I think, because Collier and Buss were already there and they knew me and said, "Oh, she's terrific." So that's how I got hired--in addition to Nelson Hanawalt. Another thing that was going on was the student rebellion at Berkeley spread and this resistance to authority and to older people became a great problem on campus. There were sit-ins.

There were non-negotiable demands. There were all kinds of idiocy that really disrupted education at that time.

Boies: How would you characterize the development of your ideas in the field of child development?

Neimark: It was probably highly atypical, because I had never received systematic training in development. I had never worked with a senior developmental psychologist. I was really self-taught. My background was what I had gotten from Kellogg, and reading in Piaget, that was really it. So to head up a program and to direct graduate students was a humbling experience, because I didn't really know that much and I certainly had no template or model of what other people were doing.

Boies: What were the big developmental programs? I'm kind of curious.

Neimark: Minnesota, Iowa, Michigan, Yale, UCLA. Of course, there was Kagan and Bruner at Harvard. And in fact, when I got a sabbatical I did go to Harvard and talk to both Kagan and Bruner and also Roger Brown. In fact, I sent Brown tapes of a child beginning to talk that a former student who just had a child recorded. I didn't know how to deal with that data. He never did anything with it either. Years later Lorraine McCune did work with exactly that kind of data.

Boies: Not easy to do something.

Neimark: My evolution in the area of cognitive development (which was inspired by Piaget) was also influenced by my background with information theory and all the work I'd done on problem solving, so it was natural to use that problem solving work as a vehicle for looking at cognitive development. And that was really my first experimental work in the area.

Boies: I suspect it was just as well you didn't go to a standard developmental program, because your work represented the intersect of these traditions.

Neimark: Yes.

Boies: Which a student coming out of Minnesota or Iowa would have not have thought of ever doing probably.

Neimark: But I had none of the background of infancy and early childhood. And I missed that a lot.

Boies: Now I know you did some work with a visiting professor from Japan at this time.

Neimark: Well, yes, Tsuni Shirai came to Douglass for a year. She was really a model in herself, because bad as it was for women in this country, it was a zillion times worse in Japan. She had managed to get a PhD, to direct a program at a university, and do research, and become a respected person, which was very admirable. Anyway, she introduced me to some of the work that was being done in cognitive in Japan, which at that time had some pretty creative and productive investigators—She introduced me to the work of Nitta and Nagano on logical quantifiers and the development of them with age. It was a neat paradigm that yielded lovely results, so with that and the problem solving task I was beginning to get a feel for the transition from concrete operations to formal operations and that became a focus. To connect with colleagues who might be interested in that area, I started this funny little thing called *The Formal Operator*, which was a publication that lasted for about a year,

Boies: Well, that's great.

Neimark: Yes, it was fun. It promoted an interchange by people all over the world, but it was supported by a small grant and I don't remember whether I applied to have it renewed or not, but it sort of petered out on its own.

Boies: And you also did some work, that really was very important, in terms of how students dealt with memorization techniques

Neimark: Yes. John Flavell had done a paper on students' memorization, that I thought it was a very good paradigm for studying the tasks. So I replicated it much more extensively. I always, although I had assistants running subjects--ran some myself, so I knew what was going on--which one has to do. I was impressed with several things. One was the differences among individual children in how they approached this task. And children are wonderful. They tell you what's on their mind, which is what Piaget had always said. One little boy said, "My daddy told me if you can't remember something run through the alphabet." There were all sorts of little comments like this. Getting back to the individual differences in how kids tried to approach the task, some of them just did it very routinely. For others it became a challenge they had to master. I started quantifying that in a little four step-rating scale. The other thing that impressed me was that, although from Ebbinghaus on, learning was treated as a process of strengthening memory traces through repetition, Irv Rock's one-trial learning studies convinced a lot of us that's not the case. This further convinced me that there's a lot of cognitive activity involved and memorization is not simply a product of repetition. It involves creating a context, a set of principles, and meaning and all the rest to incorporate new material with existing knowledge.

Boies: And this inspired your book *Adventures in Thinking*?

Neimark: Well, I'm not sure. There were a lot of things going on then. I had gotten good support for longitudinal work on problem solving, of which there was very little. I thought that was important to do and I still think that. But funding was harder to get and I did not get a grant renewal--well, I had sort of shifted my interests. It's hard for me to remember what was going on then.

Boies: We're going to continue talking here about the development of your ideas. Go ahead and tell me a little bit more about this.

Neimark: With respect to the individual differences, that was something that in the behaviorist's tradition was not envisioned or admitted. If you studied rats you knew all there was to know about learning, because learning was a process that was *sui generis* so to speak. But as a result of working with so many subjects over so long a period of time I couldn't avoid the fact that there are individual differences, and they're important. So picking up on the rating scale years later I went back and did a factor analysis of the class standing of students who had participated, when they graduated from high school, as predicted by all the measures that I had from them (including IQ) from the earlier memorization experiment where they'd done four different kinds of tasks, only two of which ever got reported in the literature. The best predictor of their class standing was the funny little rating scale of the child's engagement in trying to master the task.

Boies: Wow.

Neimark: Another way that individual differences became a focus was looking at field dependence/independence. I used Witkin's water level task, which is a very fascinating task. Most people realize that water is always parallel to the surface and, knowing that, they have no problem with the water level task. Other people adjusted level to the rotation of the bottle, which is sort of amazing. I did an extensive study of the task with large numbers of subjects to get a real frequency distribution of errors. One would expect a J curve distribution with most people being sensible and a steep tailing off. What was intriguing in that study was at the tail a new distribution bumped up of people so influenced by context that they behaved in bizarre ways. They tended to be women and they tended to be--I'm going to say Hispanic, but I think Hispanic is just a carrier for a kind of social background where one is part of a group, influenced by, and connected to others in the group--Community oriented.

Boies: Did you publish that study?

Neimark: It was reported at a meeting and pretty well circulated. I don't know that it got published, because individual differences were not a particular interest in the field at that time-- or now probably.

Boies: Yes, this is the social political current.

Neimark: Yes. And the other thing that I pursued briefly was thinking as it occurs in everyday life as reflected by diaries that I asked students in my class to maintain. One clear finding of that was that you could take a page from any student's diary, mix them all up and it was possible to put them together so you knew who contributed what.

Boies: Yes.

Neimark: The individual differences in style of thinking were clear. That led to one publication that nobody ever picked up or got interested in and I didn't pursue it either. But obviously I was getting interested in not cognitive development so much as cognition in general. That led me to write a book, *Adventures in Thinking*, which was easy to find a publisher for, because at that time the state of California was giving courses in thinking. They thought thinking was important to promote and needed books to use for the courses so lots of people were turning out books on thinking (that were dreadful). Those books were superficial and picked up on the old chestnut problems existing in the field. I wanted to do a systematic book, because there really wasn't one. And so I started thinking about all the different manifestations of thinking and tried to write a chapter devoted to each. This led me back to decision-making (which I'd been exposed to at Texas where I was part of a group with Ward Edwards) and to judgment and evaluation, that struck me as a neglected area (aside from maybe psycho-physics, which is all about judgment) that is a major part of most peoples' life.

Boies: Yes, it is.

Neimark: I don't know that I found the best way to explore it, and I was really groping, so I had little kids evaluate food items as yum or yuck. They enjoyed doing that and it was clear that they had an evaluation system. They knew what they liked and what they didn't like and, of course, mostly what they like is what they already know. An undergraduate did her senior honors paper on something that Zajonc had investigated a lot, namely the importance of familiarity on judgment. I also asked many people of all ages in many places whom they admired. I even explored the construal of truth. None of this was published because I doubted any journal would accept it and I didn't fully understand the data.

Boies: So your thinking started in learning and mathematical learning theory and then took a turn towards Piaget and developmental.

Neimark: Yes.

Boies: And that's where you've stayed for the rest of your career pretty much?

Neimark: Well, except that developmental at the time focused on infancy and early childhood for research and attention. I was much more interested in adolescents and adults, so that led me out of developmental into cognition more generally. But cognition today is where in the brain is it going on, so--

Boies: Yes, not the lifespan approach or individual differences so much?

Neimark: Right.

Boies: We're now going to talk about the development of your personal research interests; at the beginning of your career you were primarily interested in statistical learning theory, mathematical learning theory. You had a first brush with Piaget reading *Origins of Intelligence* but then for a while you continued in mathematical learning theory, is that right?

Neimark: No, it was the moral judgment—

Boies: So the first brush was Piaget's book on moral judgment and that would have been the initial interest in child development at the very beginning of your career?

Neimark: Yes.

Boies: And then Origins of Intelligence is what did it?

Neimark: Yes. And then I read Piaget more extensively. Got into knowledge and understanding and all the rest of Piaget's later work.

Boies: And then in terms of the continuities in your work, I think we just talked about how things changed, and individual differences came in, and your interest and commitment to longitudinal research, and really understanding natural thinking, if you will, natural cognition--of everyday events and such?

Neimark: Yes.

Boies: Throughout there was the thread of cognition, problem solving, reasoning, and judgment?

Neimark: Yes.

Boies: Were there any particular events that shaped you during your career? I think Piaget, right?

Neimark: Yes. That was the big insight and impact.

Boies: What in your judgment are the strengths and weaknesses of your research and the impact of your work?

Neimark: --yes, okay. I guess the impact was on the area of formal operations, which I "owned" briefly. And students who worked in that area turned out terrific dissertations. Yours was one of the most important and it did get picked up. I don't know to what extent you went on.

Boies: I did a little bit, but not as much as I would have liked to perhaps.

Neimark: Yes. Anyway, getting back to the question, you and Moshman did outstanding dissertations; Besevegis did a nice study of solitary play that was not published. My contribution I guess would be that I was always concerned with generality of findings, so I'd use large samples of subjects, and was concerned with the determinants of the subject's behavior. I was never satisfied with simple explanations, because I think behavior is an enormously complicatedly-controlled process.

Boies: Okay.

Neimark: As for impact, I don't know that there was any really.

Boies: I think your influence as a cognitive psychologist, when behaviorism was still very much the dominant framework, had a real impact.

Neimark: Well, thank you. But I was always upset. I thought the work of Piaget was profound and important. There was just a very brief period when people acknowledged that but it was followed by Piaget-bashing, which became what developmental was all about.

Boies: What published or unpublished manuscripts best represent your thinking do you think?

Neimark: I don't think there is one. Early on I did a paper called Model for a Thinking Machine, which was my first attempt to formulate my thinking. That was a terribly difficult paper to get accepted for publication. It appeared in Merrill Palmer finally, because one of the editors there said, "Yes, there's some

useful stuff in this,” but anyway, that never went anywhere, so I can’t say that it had any great impact. The review of Formal Operations was probably the most widely cited.

Boies: But the cognitive style work?

Neimark: I don’t know. I guess *Adventures in thinking* is probably the best summary of my thinking. But that’s really not devoted to developmental issues particularly.

Boies: I think we want to understand the development of your thinking. And your focus on logical thinking and problem solving stands as a beacon.

Neimark: Okay.

Boies: What about research funding? You’ve mentioned a couple of times that there were grants, but did you have funding all the way through or no?

Neimark: I had good funding for the longitudinal work. I had a lot of NIH support and I was very grateful for it. And I also served on an NIH panel.

Boies: Were there quotas imposed in terms of the funding mechanics when you were working in that area?

Neimark: It was always a problem, because you’d try to give as much support to as many people as possible. And then there’d be--the government would turn off the faucet and so people would have to cut back in their funding and it was erratic. It was difficult. And of course, the business of always writing proposals and trying to get money takes a lot of your time -- and it’s not fun time.

Boies: I’d like to turn now to what institutions you were involved with

Neimark: I went to Tulane after getting my degree; that was just a two year stint replacing, again, an old buddy, Ed Hovorka, who had gotten a grant. After the two years I went on to Goucher College, a woman’s institution, where I didn’t feel I wanted to stay. So by December I said, “I’m sorry. This is not for me and I will be leaving at the end of the year,” even though I didn’t have a job. I ended up going to Air Force Personnel and Training Research Center at Lackland Air Force Base in San Antonio and I spent two years there. Again, there were some old buddies who helped get me in I guess. Mark Patton was there, Seymour Rosenberg was there, but I didn’t work with either of them particularly. I was working with Ward Edwards. It was interesting. It was a chance to get into research really for the first time. But it was not a career I’d want for the rest of my life. I wanted to teach, and went on to NYU where I stayed for six years. And then my professional career really began when I came to Rutgers where I made what might be considered my main contributions.

Boies: Describe your time at Rutgers--the achievements and frustrations you may have encountered

Neimark: Well, I think my major achievement there was to start a graduate program in developmental, which has grown over the years. It attracted good students from the very beginning, for reasons I never understood, but I was happy about. And it is now, I think, a major program.

Boies: You mentioned the university actually stepped in to some of the departmental machinations to give you support for the faculty you wanted to hire and such, is that right?

Neimark: Well, no, it wasn’t to give me support. I wasn’t getting support obviously, as I had said. The university administration was unhappy with the psychology department, because it was a department of the past and they wanted a more visible and productive department. So they brought in people from outside: cognitive psychologists. They brought in, for example, Rochelle Gelman and her husband, something I would have loved to have done. But it took the highest stages of the administration to achieve that bringing up of quality level.

Boies: They also had to provide some of the funding for that, right? It probably wasn't in your budget to hire--

Neimark: Yes, yes--I'm sure. Yes.

Boies: What about your experiences as a teacher? What was it like, what courses gave you the most satisfaction and what did you enjoy most about being a teacher of developmental psychology with graduate students in that area and undergraduates too?

Neimark: Okay. Actually I never taught developmental at the undergraduate level.

Boies: Oh, I didn't know that.

Neimark: No. At the undergraduate level I focused on statistics and experimental method. Teaching was a challenge that changed over the years as students changed. In the early days Douglass students were wonderful blank slates almost. They had never been anywhere. They didn't know much. So it was like watering seedlings and watching them grow. They were wonderful. But as time went on-- after the '60s-- there was no longer the eagerness and openness. There was resistance among students and engaging them became more difficult and more challenging. I think student reaction was a function of the age of the instructor. They really respond to young instructors; I felt more resistance as I got older.

Boies: When you asked them to do individual exercises and such? If it had been a younger person asking this they might have been more receptive to it do you think?

Neimark: I don't know. I also taught history of psych a lot. It was hard to engage students in that. I always liked to have students do a lot of writing, because that forces them to make their thinking more explicit. I was pretty critical of what they wrote. A few students appreciated it and realized that this was a shaping and formative experience for them. But a lot of them resisted it and didn't want to keep doing all that work. Also, there was a lot of plagiarizing going on, increasingly so. No sense encouraging that.

Boies: Yes, yes.

Neimark: And I would report plagiarism. The university never really enforced anti- plagiarism rules.

Boies: What about your experiences applying child development to research? How did you go about getting your students or yourself to apply theory in practice? What kinds of things did you do?

Neimark: Oh, that mostly arose with respect to teaching courses in thinking from my book where I would give students assignments designed to make them apply what they were learning. Students who had really good answers read them to the class so they could learn from their fellow students.

Boies: You mentioned one where you asked them to interview someone whom they felt was an expert in an area that was of interest to them. That must have grabbed some of them I would think?

Neimark: Well, yes, that was one of the good assignments and I got some interesting answers, for example, from a guitar player who asked a musician, "How do you learn a new piece?" and his answer was, "There are no new pieces," which was a profound response. He had a systematized context.

Neimark: Some of them became interested in expertise in areas that I didn't think were worth it. For example, I got something like a six page paper on a really good manicure.

Boies: Well, it was honest.

Neimark: Yes. And it was carefully detailed.

Boies: What we are going to do now is to talk a little bit about your experiences with SRCD.

Neimark: Okay. I guess the best single word is explosion, because SRCD grew enormously, covering far more than psychology and developmental psychology, spreading out to look at culture, and health, and psychological problems--which was really clinical--and so on. I certainly attended meetings, judged submissions, and participated, and was impressed at the increase and the size of the audiences as time went on. I was never particularly involved with SRCD beyond being an editor for *Child Development*, which I really enjoyed. I think I did some worthwhile work there helping authors. But SRCD didn't own the field. There were other organizations that were growing at that time, ISSBD, which had *Human Development* as its Journal, division 7 of APA, and Piaget Society. So interestingly, developmental broadly construed was exploding at the time and probably is still continuing to do so.

Boies: It's interesting. Were there any tensions between these three groups, SRCD and APA and ISSBD?

Neimark: I can't say. A lot of people in SRCD were involved with all of them. I've been out of it for 20 years after all. Although, I read *Science* and so to that extent I know that the focus in cognitive has shifted to its physiological basis.

End of Interview