SUCCESS WITH ACADEMIC ENGLISH: REFLECTIONS OF DEAF COLLEGE STUDENTS

The study identified social, educational, and demographic characteristics of deaf postsecondary students who demonstrated strong reading and writing skills. Questionnaire information, information from institutional databases, and in-depth personal interviews were used to identify factors and characteristics that positively influenced the attainment of strong academic literacy skills. Among the areas investigated were school experiences, reading and writing experiences, study habits and attitudes, communication preferences, personality traits, and home and family background. Results of the study generally support previous work conducted with talented hearing youth. Several primary themes emerged from the study: heavy parental involvement in early education and educational decisions, differing modes of communication but extensive family communication, early exposure to and intensive experiences with reading and writing, an enjoyment of reading, a relatively limited social life, high parental and secondary school expectations, the importance of television, and positive self-image.

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Much has been written about the minimal literacy skills of deaf students and the difficulties these students frequently experience in reading and writing standard English (see, e.g., King & Quigley, 1985, or Moores & Meadow-Orlans, 1990). In the preface to their classic text, King and Quigley wrote:

> By the school-leaving age of 18 years, the typical deaf student scores at only about the fourth or fifth grade level on standard reading achievement tests, or about the same level as a typical 9 or 10 year old hearing student; and the written language of that deaf student will vary greatly from the written language of the typical hearing student. (p. xi)

Such language difficulties make the academic requirements of college a major challenge for many, if not most, deaf students, and the barriers these students must overcome to attain college-level reading and writing skills are formidable. Foster and Walter (1992) have noted:

> If we continue to increase the number of opportunities for deaf people to attain a postsecondary education without increasing their academic preparedness, what can we expect to accomplish? After all, availability does not ensure access. Overall, the basic academic skills of young deaf adults have not improved significantly during the last quarter of a century. (p. 199)

But clearly, some students do overcome these barriers. Since 1968, when large numbers of deaf students began attending the National Technical Institute for

theDeaf (NTID), at the Rochester Institute of Technology (RIT), a small percentage of deaf students have defied the traditional negative norms for language skills of deaf postsecondary students. RIT enrolls more than 13,000 students and includes NTID as one of its seven colleges. Established in 1965, NTID currently serves more than 1,000 deaf students in programs leading to diplomas, certificates, and associate's degrees in a variety of applied disciplines. Faculty members within the college of NTID teach deaf students using a variety of communication strategies, including American Sign Language (ASL), natural sign English, and simultaneous communication. Approximately 400 deaf students are also matriculated as bachelor's-level students in the other colleges of RIT. These students are considered students in their home college and are provided interpreting, tutoring, and note-taking services through NTID. The instructors in these other colleges rarely sign for themselves.

Over the past few years, faculty responsible for providing support services to deaf students working toward baccalaureate or graduate degrees within RIT have observed an increase in the number of deaf students who enter college with above-average academic literacy skills. Language and literature faculty, in particular, have begun to speculate about the reasons for these students' success with reading and writing. The purpose of the present study was to identify possible variables that have contributed to high levels of achievement within this population.

While much has been written about strategies that could be used to facilitate the development of proficiency in academic reading and writing (see, e.g., Moores & Meadow-Orlans, 1990, or Marschark, 1993), what is notably absent from the bulk of the research is a description of those deaf students who have surpassed English proficiency expectations and have demonstrated noteworthy academic literacy. Relatively few researchers have examined the general area of highly developed written English skills in deaf students. Kimmel (1996) investigated how familial relationships, education, and perceptions of deafness limit or encourage the deaf person's ability to become literate. Kimmel's work confirmed the importance of social-cultural context, both at home and in school, in the achievement of literacy skills. Menchel (1995) described the characteristics of successful deaf students attending elite 4-year colleges. He found that these students were highly motivated and uncharacteristically goal oriented, and demonstrated personal responsibility in solving problems. Menchel did not investigate the literacy backgrounds of these highly skilled students.

There is an extensive body of published work related to gifted and talented hearing students. Although the students who participated in the present study were not necessarily "gifted" (usually defined as the top 2% or 3% of the population as measured by a variety of assessment instruments), from a very practical viewpoint they have been identified as "successful" and academically motivated by the faculty who work with them. Most important, they have overcome barriers that many educators feel are almost insurmountable. We mention two texts on the characteristics of hearing teenagers who exhibit superior talent in one or more disciplines because some of their findings parallel those of the present study. One well-known work, *Developing Talent in Young People* (Bloom, 1985), describes the characteristics of exceptionally talented teenagers from information gleaned from parents, teachers, and the students' own childhood memories. In *Talented Teenagers: The Roots of Success and Failure*, Csikszentmihalyi, Rathunde, and Whalen (1997) report the results of a national survey of talented teenagers. Their findings suggest that children must first be recognized as talented in order to develop a talent and, therefore, must have skills that are considered useful in their culture. This implies that parents, teachers, and teenagers must realize that talent alone is not a guarantee of future success; it must be cultivated and nurtured with great discipline for many years. Csikszentmihalyi and colleagues also found, with some certainty, that enjoyment of talent-related work was one of the most important determinants of success.

It is important to note that the focus of the present study is on students' self-perceptions and the reasons they feel they are above average in reading and writing skills. Many of the characteristics and experiences the students discuss are as much related to general academic competence as they are to "literacy" per se. Several recent books have focused specifically on the development of literacy within the population of deaf students (see Paul, 1998). The students in the present study were academically successful and certainly "literate" in the sense of being extremely competent readers and writers, but perhaps most important, they were competent college students functioning successfully with normally hearing students at a competitive institution.

We hope the major themes emerging from the analysis of the data collected for the present study will be of interest to parents and teachers of deaf children, as well as researchers and faculty working with deaf college-age students.

Method

Participants

Faculty working with deaf freshman-level and sophomore-level students were asked to identify students they considered to have reading and writ-

ing skills comparable to those of entering hearing college students. More than 90 names were received; the research team reviewed the list of students, eliminating those who were hard of hearing or had less-than-proficient English skills as measured by English scores on RIT-wide tests. The decision to eliminate hard of hearing students was made because of the traditional assumption in deaf education that the acquisition of good reading skills is related to the ability to hear. In the present study, we wanted to look at high achievers who were profoundly deaf and exhibited excellent reading and writing skills. Table 1 provides the mean pure tone averages of the students who participated in our study. The total group pure tone average ranged from 83 to 120.

From the reduced list of students, 15 were randomly chosen and asked to participate in the first phase of the project. Ten agreed to participate and were interviewed during the first year (phase 1). Prior to being interviewed, the students were asked to complete a written questionnaire, which included items on school experiences, reading and writing experiences, study habits, communication preferences, and home and family background. The following year (phase 2), 20 additional students were asked to participate. In total, 30 deaf college students participated in the present study. All of the students completed the survey, and 20 participated in in-depth interviews.

Table 1 contains some basic background information on the student subjects. The 30 students included 15 men and 15 women. Ninety-three percent of the students had at least one hearing parent, and most had attended a mainstream public school for at least part of their academic experience. Most of the students (63%) had been deaf since birth. The students had an average college grade point average of just under 3.0 (on a 4.0-point scale), and for the 19 students for whom Scholastic Assessment Test

Table 1
Selected Background Characteristics of Study Subjects ($N = 30$)

Gender		
Male	15	50%
Female	15	50%
Pure Tone Average (PTA) in better ear	28	98.36
Number of deaf parents		
None	27	90%
Both	2	7%
One	1	3%
Deaf siblings		
Yes	10	33%
No	18	60%
Deaf family members (other than parents or siblings)		
Yes	14	47%
No	16	53%
How old were you when you first became deaf?		
From birth	19	63%
After birth but less than 2 years old	9	30%
Between 2 and 17 years	5	17%
18 years or older	3	10%
SAT verbal score	19	553 (*M*)
College grade point average	30	2.898 (*M*)
Type of elementary school attended		
Mainstream or public	17	57%
School for the Deaf	6	20%
Both	4	13%
Other	3	10%
Type of high school attended		
Mainstream or public	19	63%
School for the Deaf	6	20%
Both	4	13%
Other	1	3%
What was your first language?		
ASL	7	23%
English	14	47%
Other	9	30%

(SAT) verbal scores were available, the average score was slightly over 550. This verbal SAT score is roughly equivalent to that achieved by their hearing RIT peers. Although RIT does not make public the mean SAT scores for entering students, we can say that both the SAT verbal and SAT mathematics subscores of the deaf students in the present study were very close to those of their hearing counterparts.

Just under half of the students in the present study (46%) considered English their first language; another 23% stating that ASL was their first language. However, several students were born and raised in countries where English is not the first language, and one student raised in the United States came from an Hispanic family where Spanish was the primary language. In total, 30% of the students considered some language other than English or ASL their first language. The academic majors of the students included business, social work, computer science, engineering, graphic arts, and professional/technical communication.

Table 2
Selected Interview Questions

Elementary school

Think about your elementary school experiences related to reading and writing. What stands out in your memory about those reading/writing experiences?

Middle and high school

Did you spend much time reading and writing in middle and high school? Was the time comparable to social time? Athletic time?

Reading experiences

Did your parents read to you as a child? If yes, was it primarily for pleasure or primarily for education/learning?

Do you remember at what age you were able to read and understand what you were reading?

When did you realize you were talented in reading and writing? Who told you or confirmed your feelings?

Do you remember how you learned to read, the specific method? Was it "phonics-based," "see and say," another method?

Study skills and other

What difficulties did you have to overcome to be successful? How did you solve those difficulties?

Please describe briefly how you think your approach to studying compares with that of other RIT students.

Do you try to relate ideas in one course to ideas in other courses? Can you give an example?

Do you use computers? If so, how and for what primary purpose?

Describe your social life outside of school. Did you have many friends? Did you date in high school?

What makes you NOT give up when you face a difficult reading and writing assignment?

Communication and home and family

Can you describe early communication with your family and friends? Did your family sign?

How do you think your parents or other people helped you achieve high skills in reading and writing?

How old were you when communication became easy in your family (if ever)?

Instruments

With the exception of demographic and test information available in the college student databases, all the information for the present study came from two sources: the individual student interviews and the student questionnaire. A complete copy of the questionnaire and interview protocol is available from the authors. The research team for the project represented a total of more than 40 years' experience in teaching and research related to postsecondary deaf students. The team developed the original drafts of both the survey and the interview questions and then had both reviewed by a variety of teachers and researchers throughout the college. Table 2 contains sample items from the interview protocol. As with most individual interviews, the specific probes or follow-up questions varied depending on the response of the subjects. Table 2 gives a sense of the type and breadth of questions asked.

Procedure

Participating students were randomly selected from the group of students who met the criteria of identification as academically able students by teachers, demonstrated competence in English as measured by standardized

English tests, and had a hearing loss that would identify them as deaf rather than hard of hearing. These students were contacted by e-mail and asked to participate in the project. Those students who agreed to participate were scheduled for interviews and sent a copy of the questionnaire for completion prior to the interview. The questionnaire included an informed consent statement which students signed giving the research team permission to use the results of the survey and interview and to obtain access to student records. The interviews were conducted by one of the members of the project team and were both audiotaped and videotaped. The tapes were later transcribed and the paper copy of the transcription used for the data analysis.

Data Analysis

The student surveys were summarized and basic descriptive statistics (frequency, mean, standard deviation) were calculated. Most of the results from the survey are reported in the next section of the present article. The survey questions were used by the interviewers to help focus the interviews. The research team used the written transcripts of the interviews to identify major themes. The team members first worked individually and then as a group to identify and refine those themes that appeared consistently across our subjects. The complete summary of the surveys and interview transcripts (with identifying information removed) is available from the first author.

As much as possible, the research team followed the recommendations of Bogdan and Biklen (1992) in developing coding categories and then coding the transcripts of the interviews. The team members also constantly discussed with each other the interpretations of some of the information along with the various themes that emerged.

We believe that the use of a survey in conjunction with the in-depth interviews strengthened and enhanced our results. More than 20 years ago, T. D. Jick, in a chapter in *Qualitative Methodology* (1979), discussed the value of using different methods to study the same phenomenon:

> Triangulation is broadly defined by Denzin (1978: 291) as "the combination of methodologies in the study of the same phenomenon." The triangulation metaphor is from navigation and military strategy that use multiple reference points to locate an object's exact position (Smith, 1975, 273). Given basic principles of geometry, multiple viewpoints allow for greater accuracy. Similarly, organizational researchers can improve the accuracy of their judgments by collecting different kinds of data bearing on the same phenomenon. (p. 136)

Results

Characteristics of Home and Family

The parents of the group of students in the present study were educated and dedicated. Twenty-one of the 60 parents possessed graduate degrees, and only 9 did not have a high school diploma. Seventeen of the 30 mothers have either graduate degrees or 4-year college degrees. More information on some of the family characteristics of the students' families can be found in Table 3.

In discussing their homes and families, students talked about parental values, expectations, and involvement, as well as communication within the family. Parents were deeply involved in setting goals and motivating their children to achieve academically, particularly in the areas of reading and writing. The families portrayed by these students were close-knit and goal oriented.

Parental Involvement in Academic Success

Without exception, parents had high expectations for their children. Students were asked to rate on a scale of 1 (low) to 5 (high) a list of expectations placed on them by their parents. Students gave the highest ratings to "valued what I said and did at home and school," "stressed working toward a distant goal," and "stressed work before play." These parents were very actively involved in selecting the best educational environment possible for their children. One student spoke very eloquently of her mother's determination to get her appropriate schooling:

> My mom was a day care teacher. She made only $20,000 a year. But I remember, she really wanted me to be very successful in the future. And she was determined. She didn't have a strong education herself, but there were 14- or 15-year-old kids that were getting killed on the street and my mother really wanted me to be successful. That was very important. She wanted us to avoid that kind of environment and influence. She wanted the best for us. She encouraged us to go to school. My mother had very high hopes and expectations for me and my brother.

Parents as Teachers and Advocates

Most of the students felt that their parents had played a pivotal role in the development of their reading and writing as well as other skills. Almost without exception they indicated that mothers, in particular, had been very supportive in the development of reading and writing skills.

Seventy percent of the students indicated that their parents taught them the alphabet and provided them with other early reading tools. Interest-

ingly, half the students indicated that they were not read to very often as children. However, the other half described many reading experiences with their parents ranging from reading for pleasure to reading for learning. Fifty-seven percent reported that their parents listened to their oral reading when they were young (see Table 3).

Involvement and support were perceived by most students as factors in their success. Parents were available and involved at home. Many students spoke of learning to read at home. One in particular described a very deliberate teaching approach:

> My mother bought a lot of books for me when I was little, primarily picture books. She always let me look at the books whenever I felt like it. Later, when she felt it was the right time, she would cover the written words for the picture, and just point to the picture and say, "What's that?" I would say, "I don't know," and then she would say, "It's an apple. An apple," and then show me the sign for apple. As time progressed, then she would cover the picture and let me see the words. My mother would say, "What does that word say?" I would say, "I don't know." She'd say, "There's the word *apple*." And then she would uncover the picture above the word, and I would see the picture and the word at the same time. That's how I would correlate them. That's how my mother taught. She used fingerspelling and signing at the same time to teach me that.

Another student described learning more from her mother than from school:

> With my mother I think I learned more through her, more than with school, because since I was little, she was always working with me. Like, you know, she would say, "What is that?" and point at things. I learned relationships that way. Ever since I started reading, I mean, we were always reading from books, and I guess she started reading to me, and then as I got better

Table 3
Responses to Questionnaire Items Related to Home and Family Characteristics ($N = 30$)

How did you parents show you that they wanted you to become skilled at reading and writing? (check all that apply)		
By reading to me every day	15	50%
By hiring a tutor or other special help for me	4	13%
By talking frequently to my teacher	11	37%
By paying for special classes	2	7%
By listening to me read when I was young	17	57%
By buying a decoder for our TV	24	80%
By teaching me the alphabet and other reading skills	21	70%
Father's education		
Less than high school or high school	4	13%
1-2 years of college or A.A. degree	5	17%
4-year college degree	7	23%
Graduate degree	11	37%
Mother's education		
Less than high school or high school	5	17%
1-2 years of college or A.A. degree	7	23%
Four-year college degree	7	23%
Graduate degree	10	33%
Family members fluent in sign language		
Mother	12	40%
Father	10	33%
Brother/sister	11	37%
Grandparents	5	17%
Did your parents sign with you as a child?		
Yes	20	67%
No	10	33%
If yes, did your family sign using English word order?		
Yes	17	57%
No	4	13%

Table 3, continued

My parents/grandparents (5 = always, 4 = most of the time, 3 = sometimes, 2 = rarely, 1 = never)	*M*
Demanded hard work	3.93
Stressed "work before play"	3.90
Stressed "working toward a distant goal"	3.65
Participated in my education on a daily basis	3.45
Sought outside experts to help me	2.31
Expected me to reduce social and other interests so I could study more	2.31
Paid for private education	1.92
Often paid for extra tutoring or speech therapy	2.10
Gave me special treatment at home	2.23
Valued what I said and did at home and school	4.85
Stressed independent thinking	4.21

In high school, did you spend more time, ess time, or about the same amount of time with your family as compared to time your friends spent with their families?	*n*	%
More	12	40%
Less	4	13%
About the same 1	2	40%

and better at reading, I would start reading to her from the books.

Students who came from families that did not sign reported writing back and forth with their parents and learning a great deal about reading and writing from this exchange:

> I would have to read what [my father] would write me and I would respond back to him and he would say that my grammar was wrong or whatever and I would have to write it again. My dad really picked on me a lot about my English, I remember.

Students reported experiencing less one-to-one teaching with their parents in middle school, but did recollect that they were available to provide special help. One student recalled:

> My mom had been an English major, so she really encouraged me. It's interesting, my mom was the English half of things and my father was the math and physics half of things, so it was nice.... I would say that what she used on me was the "sandwich compliment" technique. She would say "Well, this paper is very good, but ..." And then she would give me another compliment after the *but*. That's how she would proceed. She would compliment me but always say, "But remember, this part here could be changed this way," and then she would always add "but this is very good." She always encouraged me that way.

One student summed up the important role parents play in teaching young deaf children when she described what she would do if she had a deaf child: "I would start with them at a very young age and make sure that they understand everything well, teach them a lot, make sure that they understand the important parts of grammar, language, reading, and writing."

Involvement in schools helped ensure that students were afforded the support services they needed. Parents put academics before social life, though they often also assisted their children in establishing and maintaining a social life. When questioned about parental support, one student expressed the feeling that his family had shaped his values. He had learned to...

> always read on your level, but try to stretch to read at a higher level; even if something is way over your head, go ahead and try it. It's important to have good family support that motivates you well. It helped me. Even if it's tough, even if you don't have as good a social life as other kids, but that's life.

While some students acted out of a desire to please, others humorously described their particular motivation to achieve:

> Interviewer: What motivated you?
> Student: The wrath of my parents, I guess.... I mean, I attended a private school and we received really personal relationships from the teachers. So if you weren't doing well, they hounded you for it. Partly just to keep them happy, I guess. Generally, if I didn't get an assignment done, or if I ignored it and didn't do it, and if my parents found out, they would make me do it anyway. It was to my benefit to do it on time and actually do it.

Whether parents assisted, supported, or coerced, they were deeply involved in guiding, directing, and structuring their children's lives.

Communication With the Family

The students we interviewed indicated that their parents were actively involved in fostering the development of communication skills although they held a variety of communication philosophies. Sixty-seven percent of the students reported that their families signed to them as children. Fifty-seven percent indicated that their parents used English word order in their sign communication. Even parents who did not sign worked at ensuring communication. The students indicated that they were able to communicate with their parents and that they appreciated the choices their parents had made for them as young students. Although mothers tended to take the lead in promoting communication, 87% of the students indicated that fathers, siblings, and extended-family members were also very involved in learning to communicate with them, which gave these students a sense of belonging and opportunities for participation. Forty percent of the students had mothers who were fluent in some type of sign language. Thirty-seven percent had siblings who could sign, and 33% described their fathers as fluent signers (see Table 3). Several parents were foreign born, and for them English was an acquired second language. Communication between these parents and their deaf children was more difficult than for American-born parents.

One student explained that his mother's fluency in sign developed as a result of heavy involvement with deaf groups, interpreters, or groups who knew sign, while another explained that her mother took speech

Table 4
Responses to Questionnaire Items Related to Communication and Personal Characteristics ($N = 30$)

How do you prefer to communicate?		
Using speech	3	10%
Using speech and sign simultaneously	11	37%
Either speech or sign, no preference	9	30%
Sign only	6	20%
Choose the sentences that best describe you.		
I am oral.	8	27%
I am not oral.	2	7%
I sign.	5	17%
I don't sign.	0	0%
I am bilingual (ASL/English).	22	73%
If you use sign, how old were you when you first started signing?		
I do not use sign language at all.	1	3%
I started signing before the age of 5.	20	67%
I started signing after the age of 5.	9	30%
Did you have access to a computer before coming to RIT?		
Yes	28	93%
No		27%
If yes, at what age?		
10 years old or less	17	57%
11 years old or more	12	40%
What did you typically do when using a computer?		
Homework	22	73%
Play games	21	70%
Use the encyclopedia	5	17%
Use the Internet	13	43%
How much time did you study each school night in high school?		
2 hours or less	22	73%
More than 2 hours	8	27%
How much time do you study per school night now?		
3 hours or less	19	63%
More than 3 hours	11	37%
Do you like spending time alone?		
Yes	28	93%
No		26%

Table 4, continued

If yes, do you find time alone productive?		
Yes	26	87%
No	4	13%
Check all the phrases that describe you.		
Excited about life	20	67%
I need to achieve.	21	70%
I can concentrate for long periods of time.	8	27%
Eager to learn	20	67%
I am often moody.	7	23%
I was: (5 = always, 4 = most of the time, 3 = sometimes, 2 = rarely, 1 = never)		*M*
A fast learner		4.73
Willing to put in extra time to learn		3.50
Committed to reaching a high level of education		4.30
Noticed as having special talent		3.67

lessons in order to be able to enunciate more clearly. Consequently, this student was better able to lipread what her mother said. Another student explained the role of ASL in her family:

> I was born in Buffalo and went to St. Mary's School for the Deaf. I took ASL classes. My parents took ASL courses until I was about 8 years old. So, for 8 years my parents went to sign classes, and kept going, and going, and going. They needed to keep up with me, since it was my first language and I progressed very quickly.... I have a brother, younger. But he can sign also.... My aunt knows some sign. Here and there some of my other relatives know some sign. Even though I am the only deaf person in the family, they all made the effort to include me. I know that doesn't happen everywhere, that you are included at the dinner table. They always made me part of the family conversation. Always.

Family members did not halt in their efforts to learn to adapt and to communicate. One student said, "My parents and my sister don't know sign; it's easy to lipread my family, but my mother and sister are learning sign right now...they're taking classes now."

At times, communication was not optimal, but families developed strategies to compensate and to identify with their child's deaf world:

> I ask my mom what my dad is saying and I understand, but sometimes I feel there are certain subjects we can't discuss freely because it is so hard to understand each other. Sometimes we write. Every once in a while, we'll write and I'll give it to my dad, just to make sure things are clear.... My relationship with my dad is very close.

Another student said:

> My mom always tells the story that one time she went to a party when I was a kid, and it was all deaf. She was the only hearing person there, and she was completely lost. She understood how I felt. So, since then she has always made sure that I have been involved in the conversation.

These families demonstrated the value they placed on communication within the family by learning to sign, fingerspell, and use cued speech and other visual communication modes. Forty percent of the students said they learned to fingerspell before they learned to write. Four students indicated that they learned fingerspelling and sign late in their education. Two students were introduced to sign language in junior high, another in late elementary school, and a fourth in college. The other students knew sign language before beginning school and one used cued speech and sign as a preschooler. Thirty-seven percent of the students reported that they currently preferred to communicate by using speech and sign simultaneously. Thirty percent used speech or sign, without preferences, while 73% described themselves as bilingual, in ASL and English (see Table 4). Sixty percent said that hearing never helped them to learn, and only six students said they must be able to hear to learn.

While all of the parents valued communication, they held a variety of communication philosophies. Three students had private speech-language therapy starting at preschool age. Three of the students had at least one deaf parent and used ASL very early on, thereby reinforcing the use of sign language. Thirty-three percent had deaf siblings, and 47% had deaf family members other than parents or siblings (see Table 1). In some families, other hearing members (i.e., siblings

and grandparents) learned fingerspelling, sign language, sign-supported English, total communication, Signing Exact English, or cued speech. One mother was a trained interpreter of the Deaf. While communication may or may not have been easy, students were unanimous in their perception of positive support within the family unit. The development of strong reading and writing skills, therefore, cannot be said to be the result of the consistent use of a single communication method.

In summary, the families of the students in the present study took pains to learn to communicate and were deeply involved in their children's academic lives. Most of the students felt that their extended families were also supportive, and generally saw family life as positive and encouraging. These students had parents who were active and engaged from the very beginning of their deafness. The attention given to them by their parents and the early teaching they experienced led to self-esteem and feelings of competence.

Early Reading and Writing Experiences

Seventy percent of the students we interviewed attended mainstream schools for at least part of their elementary years. The majority of the students felt positive about their school experiences, describing school as "fun," "lively," "challenging," and "helpful." Student comments suggested that early reading and writing tasks were not difficult for them and were rather enjoyable. Student responses to some questionnaire items related to education can be found in Table 3.

Participants in the present study described themselves as bookworms as early as elementary school. One student admitted, "Basically, I was a bookworm. I read anything that I could get my hands on, everything. It didn't matter if it was too advanced or not." Another student described her bookworm experience as growing out of her elementary school regime:

> I remember that in elementary school, third, fourth, and fifth grades, we had a reading hour. Every day for 1 hour, everyone had to read a book. Then you had to write about that book that you had just read, summarize the book, talk about your feelings about it, whatever. That was every day. So that encouraged us to read every day.

This early reading habit enabled some of these students to experience the wider world around them. One student described herself as 5 or 6 years old and...

> [wanting] to read more because I wanted more information. I wanted to learn more. When you're small, you have your own little world. But when you start to read, the world opens up for you and you find out what's out there, and find out that there are so many things you don't know about; it motivates you to learn.

These students knew they were surpassing their peers in skill levels as early as elementary school. One student, who attended a mainstreamed program, said, "It was easy and I enjoyed it." Another echoed a common theme: "I could write well since I was very young and elementary school was a good experience. It was more of personal growth and I wrote a lot of stories." Another student, who started reading in preschool, emphasized, "When I was in preschool, the basics were stressed. We had books and I read a lot of those and other books too." Another student recalled that she was 2 years younger than her peers in elementary school and yet could keep up with reading and writing activities. One student, who had grown up in a Soviet bloc country, was the only one to indicate that she hated reading and writing and was not particularly adept at it until one of her elementary school teachers began spending a lot of time after school with her. She spoke passionately of the transforming effect of that teacher:

> Yes, that teacher I talked about was the beginning of me learning to enjoy reading and writing. When I went into her class, it was very challenging because I was behind most of the other students in the class.... But the teacher had special hours after class and she would work with us on reading and writing...and that special time after the class was what really helped me to improve my skills.

The earliest reader began to read at the age of 2 or 3 years, while most of the other students said they began reading between the ages of 4 and 7 years. These students became independent readers between the ages of 5 and 10 years. These findings suggest that these deaf students' reading profiles resembled those of most hearing students who begin reading in preschool and become independent readers during the first 3 years of elementary school.

Methods used to learn reading and writing varied greatly. Although most of the students reported early exposure to written English, there were few similarities in the approaches families and schools took to instruct them in basic skills. Some students indicated that their mothers took the lead in showing them sound/letter correspondences in the early years. Describing his mother's involvement, one student said, "We would play the ABC game, like when we were driving. She would ask me to recite the letters seen

on driver's plates and from billboards. She would have me sounding out words that we saw on billboards." Another student had a similar experience: "My mother would take pictures and drawings and paste them next to a word. And through that I learned many, many words." Another student's mother taught him Signing Exact English, cued speech, and speech reading when he was a young child; he attributes his early reading development to this instruction.

One student described her learning of reading and writing through the "see and say" method. Her parents, who were teachers, "would point at things and show me. See this, say that, say dog. Here's a picture. Here's a picture of a cat. So that's how I learned to read." Another student described her first-grade teacher as important to her reading development. She described a "reading club" that encouraged students to read. She also remembered telling stories in that same class: "After lunch, we would all sit and sign stories to each other and we would read to each other." One oral student reported that he learned to read the traditional way, "with flash cards and that kind of stuff." Another described his early reading experiences in very detailed terms:

> We practiced sentences and stories word by word, not really entire sentences or entire stories. Also they gave us books to read in the summertime as well; every month we had books to read. We were given points and prizes, whatever. I mean, it was a good thing, it kind of encouraged us to read.

Two students identified phonics as the main approach to their early reading in the interviews, while in the written survey, 17% of the students said they learned to write through a phonics-based system. This is not necessarily a discrepancy since the interview responses were based on a free-recall response to a question asking the students if they remembered how they had learned to read. The survey offered the students a multiple-choice type of response to the question related to the method they used to learn to read. Sixty-three percent of the students mentioned sight-reading as a method they remembered, and 17% said they learned to read through a combination of phonics and sight-reading (see Table 5). One student mentioned learning to read from early exposure to closed captioning.

Early and consistent exposure to books that were enjoyable was a common theme for these students. One said, "We had books [in preschool] and I read a lot when I was in elementary school. I have always enjoyed reading and writing." Another talked about reading as a child in this way:

> Well, I remember I first started learning to read books...children's books...when I was 3 or 4 years old. And I began reading at that time because it was the same time I was learning sign language. Then, when I was 7 years old, I can remember that I got the idea of reading books on my own. I would also write short paragraphs and draw pictures about them. I would draw a picture about Pluto the dog or Mickey Mouse. And I would be really proud of myself. I would be able to finish a book without any help at all. I would say when I became a book worm was about the age of 10.

For some of the students, realizing that they were equal to or better than their hearing peers was motivating. One student described her experience this way:

> When I was 10, I went to mainstreamed school and I read. But that mainstreamed class was very easy for me, too. They put me in a gifted group, but that met just once a week. That's when I realized, "Hmm, I guess I read pretty well." Because with the deaf group I thought that deaf people tend to have problems with reading and writing, but when I realized that sometimes hearing people did too, that's when I realized that perhaps I was a good reader, and that I had a little bit more skill in that area than others.

When asked to describe their early writing experiences, one student talked about doing a heavy amount of writing in the early years. Another student pointed to his success with writing and his willingness to improve. Another student talked about starting to write daily at the age of 10 years and never stopping: "I just write and write and write." When directly asked in the survey how they learned to write, 77% said "grammar instruction," while 73% responded with "writing stories." The other respondents described early writing in terms of drawing cartoon stories (20%), dictating stories (40%), and fingerspelling stories (13%). Forty percent indicated that they learned fingerspelling before they learned to write, 30% said they learned writing first, and 30% could not remember. Surprisingly, 93% of the interviewees said they still liked to write, citing poetry, essays, letters, and stories as favorite genres. Although 70% said writing was challenging, a solid 77% saw it as enjoyable (see Table 5).

Secondary Education and the College Years

Seventy-six percent of the students we interviewed attended a mainstreamed program for a least part of their secondary school years. Twenty percent of the students attended a school for the Deaf (see Table 1). The interviews

revealed that most students used an interpreter, several had note takers, and five had no support services at all.

Middle school was the time when several of the students came alive academically. All students mentioned their academic competence during middle school. As with elementary school experiences, work and school continued to be "fun," "lively," and "challenging." Several students mentioned that they began to really enjoy reading during middle school and began reading adult books at this time. One student said:

> In middle school, I began reading more advanced books. Reading seemed easier for me in middle school.... I was reading for pleasure and started collecting certain kinds of books especially related to my hobbies, and comic books. In middle school I knew I was a good student.

Another student described being a voracious reader in junior high school: "I would generally get 20 books from the library and read them all in 2 or 3 weeks. I learned a lot that way."

One student remembered being fascinated by his older brother's writing books. He started writing for the school newspaper during middle school and became a fan of John Grisham and Stephen King. Another student stated, "I love words. I would read the dictionary just to learn new words. In sixth grade, I became very motivated to learn vocabulary and English." Another student said, "When I was 10 years old, at Christmas time my mother bought me 15 books.... I became a book worm." She and some of the other female students in our group became avid readers of the *Baby Sitters Club* series and *Sweet Valley Twins* during this time.

These deaf students enjoyed and appreciated the high expectations placed on them by parents and teachers during their middle school years. One student described coming home with a C grade and his father insisting that he get an A the next time. Parents were aware of their middle schoolers' homework, and in some cases gave feedback on writing and discussed class material with their child. Although these students were already accomplished readers and writers by middle school, two students talked about their parents providing extra tutoring for them. One student had a tutor for grammar since that was not covered in his middle school English curriculum. Another student described how her summers always included tutoring in English, which she admitted helped her achieve higher skill levels. Another student described being transferred to a private school that provided tutors.

Table 5
Responses to Questionnaire Items Related to Reading and Writing ($N = 30$)

Can you remember a teacher who had a special influence on you?		
Yes	28	93%
No	2	7%
Were other people important to development of your reading and writing skills?		
Sister	4	13%
Grandparents	8	27%
Neighbor	0	0%
Minister/rabbi/priest	0	0%
Brother	2	7%
Uncle/aunt	1	3%
My friends	5	17%
Other	7	23%
Did you learn to write or to fingerspell first?		
Write	9	30%
Fingerspell	12	40%
Can't remember	9	30%
Did you learn to read through (check all that apply)		
A phonics-based system?	5	17%
A "see and say"(sight reading) system?	19	63%
A combination of phonics and sight reading?	5	17%
Other?	5	17%
Did you learn to write through? (check all that apply)		
Grammar instruction	23	77%
Writing stories as a child	22	73%
Drawing cartoon stories as a child	6	20%
Dictating stories as a child	12	40%
Fingerspelling stories as a child	4	13%

Table 5, continued

	n	%
Do you still like to write now?		
Yes	28	93%
No	2	7%
Do you enjoy reading for pleasure?		
Yes	29	97%
No	1	3%
Check adjective that comes to mind when you think of reading and writing:		
Reading		
Fun	25	83%
Informative	29	97%
Easy	20	67%
Difficult	5	17%
Helpful	18	60%
A bore	2	7%
Writing		
Challenging	21	70%
Easy	19	63%
Difficult	10	33%
Fun	18	60%
Enjoyable	23	77%
A bore	3	10%

Students in this study remembered teachers telling them that, as deaf students, they could achieve more, and gave them extra time and attention to improve their grades. In the survey, 80% of the students described having a teacher "who cared about my interests and supported my goals." These teachers required heavy amounts of writing, both in English and in the content areas. They expected students to do extensive reading. Students described reading books that were advanced in level, and often cited classics in their middle school experience. The English programs these students experienced emphasized regular reading, book reports, and a great deal of writing. One student described how her teacher encouraged her to have her poetry published. Another student wrote short stories in middle school that were praised by parents and teachers alike.

Students commented on their skills relative to those of their hearing counterparts. In several cases, these deaf students clearly viewed themselves as better than the other students in the class. By middle school, these students knew they were talented, and this concept was reinforced by parents, teachers, and peers. One student proudly said, "Well, I remember in seventh grade...we were taking tests, and my reading level in seventh grade was college level. I remember a lot of people were impressed. I thought it was cool."

As early as middle school, a few students talked about very conscious study habits they used, especially when reading and making connections to other books. One student said she relied on a dictionary to understand new vocabulary words as well as context cues. She described this process very clearly: "If I [didn't] get the vocabulary, then I would just go ahead and read the whole sentence or paragraph, and just try to visualize what that vocabulary word might mean based on what follow[ed] in the sentences after that." Another student talked about breaking down paragraphs he did not understand into smaller and smaller parts until he got the meaning. He also asked his teachers and his parents for extra assistance. Clearly, these students knew how to get help when they needed it.

When asked to compare the time they spent reading and writing during middle school with the time spent on social activities or sports, most students reported spending more time alone, reading, watching television, and using computers. One student said, "[I was] more interested in reading and writing and let my social life go by the wayside." Another described the relationship as "pretty much a balance, not a lot of social life, but sports and academics." Another said, "I didn't spend much time on athletics or social events during middle school, except in the summer." In the survey, 93% indicated that they liked spending time alone, and 87% found time alone to be very productive (see Table 4).

The high school years were described as a time of change for several students. Their academic efforts changed from a focus on reading to a focus on writing. One student said:

> I remember doing a lot of writing throughout high school. My reading became somewhat less, but still it persisted. My father is a com-

puter programmer and he gave us free rein to use his computer anytime we wanted. So, I would type stories. I have some of them from way back and I can't believe I wrote those stories.

Another student recollected:

Before 10th grade, it was very hard for me to write essays and compositions...but then I improved my writing skills. I transferred to a new school and they focused a lot on writing. They had a very good English department there. They had high expectations of us. So I learned a lot in those 4 years.

All of the students indicated that specific individuals, such as reading or writing teachers, had made a difference in their attitude toward English-language skills. One student remembered his New York State Regents English teacher, who assigned five projects every quarter and then sat down to explain grammar in detail: "I got lots of vocabulary, and I had to read a lot and figure it out." Another student mentioned a literature teacher: "One teacher really impressed me in the 10th and 11th grades. She was my literature teacher. I was very surprised, and wondered where she got the information she had." One student was very emphatic in his praise for his high school English teacher: "[The English teacher] brought it to my attention that I could write well. He would help me with outside activities, sometimes with speech contests or something else. He would help proofread and listen to me. Yeah. He really encouraged me."

Students characterized these "special" teachers as challenging, enthusiastic, interested, and progressive. One was described as "different, dynamic, full of life, very funny, a very crazy person." Another student talked about a middle school teacher who showed great interest in fostering students' academic and personal growth and about the students' across-the-board appreciation of his involvement. A teacher who always liked to use formal language in conversation captured the interest of one of the students, while another described her teacher as "very flexible, motivated...made learning interesting...never criticized, was very supportive." This student further praised this teacher as "my second mother." All of the students could remember at least one teacher who had a special influence on them and who thought they were special. Seventy percent of the students indicated that these individuals showed a commitment to and enthusiasm for their subject matter.

Social life improved in high school, compared to middle school, for many of the students. One student said:

At first, I was more interested in reading and writing [in middle school] and kind of let my social life go by the wayside. Then when I was a sophomore, things kind of reversed themselves. I was reading and writing less and much more active socially.

A minority of students described an active social life, dating hearing schoolmates, and having many hearing friends in high school. They were involved in drama and sports during this period and felt quite accepted in their school environment. In the interviews, only five students described having a good social life with deaf and hearing friends. One student dated a hearing boy in high school, and another, who attended a school for the Deaf, dated extensively. For those students who attended deaf schools, social life happened all the time. As one student said, "It helped me a lot with my self-esteem. I felt accepted by people. I was always around people that loved me. It was a very happy environment. It was extremely important." However, when asked to describe their life outside of school, most of the students responded that their social interactions were not great and that communication with their hearing peers was an ongoing problem. For most of the students, middle and high school experiences did not meet their expectations for an active social life. A student who lived in an isolated area of a western state described himself as a "loner," dating little and having only a few friends. Another student indicated that it was hard to overcome deaf stereotypes. Sometimes this student brought along her interpreter for social activities with hearing friends. Several students said they had problems in social situations and had only a few friends. Another described a typical younger sibling situation: He relied on his brother's friends and connections in middle school and early high school.

Academically, the students in the present study described high school in much the same way they discussed middle school: as demanding and engaging. In the interviews, roughly half of the students reported the middle school and high school as challenging. Two students mentioned taking advanced placement classes in high school and working hard to meet the higher-level demands of these courses. Two students who were in deaf-only environments described the English classes as very exacting and as providing them with the skills they would need in college. One student admitted that he wanted to write the best essay in his class, and that this goal motivated him to exceed all expectations. Another student described having one English teacher for the 4 years and really loving the difficulty of that instructor. Without exception, all students talked about having a love of reading by the time they reached high school. For some, summers were spent reading; for others, any free time was con-

sumed with reading. Their interests varied from the classics to best-sellers to newspapers and magazines.

Surprisingly, many students reported being very active in high school, with sports and student government involvement. They were able to manage all the demands of extracurricular life while still excelling academically.

In the interviews, two students elaborated on how their study skills had evolved since middle school. They described very specific study skills they had developed in high school: how to deal with complicated texts, how to remember huge segments of information, how to improve their vocabulary, how to make connections to different courses and books. For at least two of the students, their parents continued to be an important presence in their academic lives.

College provided some change for these students. We asked about their study habits in college, and several mentioned specific processes or skills they used. One said, "I skip a lot when I read. I read fast. If I don't understand, I re-read or ask for help." Another described study strategies such as using tutors, talking to peers, and being thorough in doing her assignments. She said that she attacked everything related to the assignment from "A to Z." Another said that she sometimes became upset with the difficulty of college, but understood from an early age that difficulties were good and trying to "figure it out" would yield benefits. She talked about her mother as her encouragement in times of academic distress. Some students were very forthright about describing typical college work habits such as cramming the night before a test and writing their final research paper of the semester the day before it was due. Sixty-three percent of the students said they spent up to 3 hours each night studying, while 37% said they spent more than 3 hours each night (see Table 4). Clearly, these students put priority on consistent academic success.

College also provided a challenge socially. Two of the students stated that it was easier now to have hearing friends, and another mentioned that her current setting, with deaf students making up about 10% of the student body, offered her more balance in social interactions. The other respondents, however, talked about the difficulty of mingling with hearing college students. Mostly, their friends were within the Deaf community. One student however, said that he was tired of the gossip within the deaf student community and he only dated "hearing" girls at college. "This school is a harder social scene," he said. "There is too much gossip."

Although we did not ask the students directly whether their limited social interactions during middle and high school might have led them to seek comfort in books, this conclusion does not seem unreasonable. Csikszentmihalyi et. al. (1997) reported that talented hearing students spend less time just socializing or "hanging out" and a greater amount of time alone than their nontalented counterparts. Perhaps this same principle applied to the students in the present study as they developed their talents in written English. Over 90% of the students continued to find reading and writing to be very motivating. These students talked about learning to express themselves through writing. They described writing as helping their "thinking processes" and "structuring their thoughts." One student expressed it this way: "Writing helps me to understand other people and my own feelings." These students felt they had become good readers and writers for a variety of reasons. Several explained that their parents or families influenced them deeply. For most, there were the high expectations of their parents. One student said competition particularly motivated him:

> I was very good at math and I wanted to be just as good in English. One of my teachers used to make a bet with me and some other students. If I got 100% on an assignment, he agreed to do 25 push-ups. I liked that...so I worked hard.

Other Factors

Television and Computers

Very early on, the families introduced their children to television with decoders and to computers and TTYs. Television was regarded as a valuable learning tool by most of the students. In fact, 80% of the students claimed that buying a decoder was a clear sign that their parents wanted them to become skilled at reading and writing (see Table 3). Most indicated that their television viewing was not limited by their parents for either content or time. The students often discussed programs with friends and family and stated that they enjoyed the exposure to the "hearing world culture" that they learned about on TV. Several indicated that closed captioning was helpful in the acquisition of reading skills. One student described how television helped her with English grammar:

> So we would have Chinese shows with English subtitles. But for English, in Hollywood, like in Hollywood movies, they never showed the English for that, only Chinese. So I never knew what was going on with that. I would just watch the pictures. So every night we would watch a Chinese movie, because that had English subtitles for me to learn. I think that was very good for me, actually. I watched how the grammar worked.

Another student reminded us of how television is used by parents as a

source of conversation and a means of learning about the world.

> Interviewer: When you were watching TV, did you discuss what you watched with your parents? Was that a topic of conversation?
>
> Student: Well, always the news, and sitcoms.... Most of all I remember watching lots of news, and talking with my parents about that.

Most of the students had access to computers at a young age. Fifty-seven percent began using computers by the age of 10 years or earlier, most commonly for homework or games. One student recollected typing stories on the computer at an early age, and others indicated an interest in the Internet, both currently and in high school, as a means of keeping in touch with friends and family and feeling more connected with others. One student talked about growing up with computers: "My father works with computers for a living, so I grew up with computers always in the house and always a part of the household environment. I grew up involved with computers. Especially with the Internet." Ninety-three percent of the students reported that they had access to computers by the time they entered college (see Table 4).

Personal Qualities

We also wanted to investigate the personal qualities that led these students to their academic success. In the written survey, students characterized themselves as "capable," "intelligent," "sociable," "self-motivated," and "creative." In the interviews, students described their successes as the result of tenacity. Several students made statements like "I won't give up. It's not my nature to give up. When something is really hard, I feel I need to try it and push myself. My parents taught me that." One student attributed her success to persistence, patience, and her strong will, which propelled her to achieve her goals and not stop halfway. Another talked about perseverance, and another said that to him a difficult assignment was "like a mystery that isn't solved.... I need to understand so it will help me understand other things later. So if I leave it, I feel like I'm missing something.... I need to solve it.... I'm stubborn." Another explained: "If I don't have a struggle, it's boring...the challenge keeps me going.... I like the stimulation." One student best captured this spirit when she said, "To never give up, determination. To stick with it. Conscientiousness, consistency, organization. I think that's it."

In the written surveys, students were asked about people who were important to the development of their reading and writing skills. We had hoped for a wide range of response to these questions, but most of the students wrote "mother" or "parents."

Finally, for most of the students interviewed, there was a personal recognition of their talent and a confirmation by others that they were skilled. One student said she knew she was special by the time she was 10 years old: "I was in a class of 100 students and I was at the top of the class. My mom confirmed my feelings." Another remembered that "compared to other students, I could see I did better, so I knew I was different.... The teacher told me too.... I loved learning.... I was more motivated than other students." Another student summed it up this way: "My mom always told me I was smart."

Discussion and Implications

Analysis of the interview transcripts and student questionnaire information indicated that several general themes appear consistently across the group of students who participated in the present study.

Heavy Parental Involvement in Education and Educational Decisions

The parents of the students were, for the most part, highly educated. They were actively involved in almost all phases of their deaf child's education. One family moved to a different town to improve the educational opportunities for their deaf child. Almost all of the parents sought out additional assistance or experts (private therapy, private schools) and looked for additional resources to assist their children. Much attention was given to buying books and rewarding children for reading. There were many strategies parents used to instill a reading ethic in their children. Parents actively taught their children reading and writing skills, and provided assistance during elementary and middle school: responding to their writing, answering questions about reading, and generally being available to help them. For parents, this message was clear: For teachers and other professionals working with deaf students, the additional effort required to involve parents in all phases of the educational process and to help parents gain the skills needed to become active partners in this process is clearly worth the effort. In their study of talented hearing teenagers, Csikszentmihalyi et al. (1997) found similar results: "Families providing both support and challenge enhance the development of talent" (p. 247).

High Parental Expectations

All the students talked about their parents' high expectations. The parents demanded hard work and expected them to finish their academic work before engaging in nonacademic or

leisure activities. Most of the students also mentioned that their extended families (grandparents primarily) reinforced this view and encouraged them in their academic efforts. The students believed it was important, both to their families and their own self-concept, to maintain the image of "successful student." Such a finding makes intuitive sense and is similar to results found in other studies. Marschark (1993) suggests that one reason deaf children of deaf parents have frequently been found to be more successful academically than deaf children of hearing parents is because of the higher expectations deaf parents have for their deaf children. Although most of the students in the present study had hearing parents, those parents communicated the expectation of high achievement to their children in much the same way deaf parents conveyed their academic expectations to their deaf children.

Students Could Communicate With Their Families

Family members, particularly mothers, took pains to learn to communicate. Many of the students had good communication with siblings and grandparents. The families of these students clearly emphasized communication and valued a visual language as well as written and spoken English. The simple ability to communicate with those closest to them is not usually an issue with hearing children, but is of constant concern to many deaf children within hearing families. These students were almost unanimous in their agreement that they communicated frequently and easily with their families, a factor that likely was directly linked to their success.

> The deaf children who appear most likely to be the most competent in all domains of childhood endeavor are those who actively participate in linguistic interactions with their parents from an early age. From those interactions, they not only gain facts, they gain cognitive and social strategies, knowledge of self and others, and a sense of being part of the world (Marschark, 1993).

Communication Modes Differed

Six of the students said sign only was their primary mode of communication. Three said speech only, 11 said speech and sign simultaneously, and 9 indicated no preference. Twenty-two identified themselves as bilingual, in ASL and English (see Table 4). This group did not exhibit the traditional communication characteristics frequently observed in deaf students with strong literacy skills (more hearing, a long history of speech-language therapy).

The diversity within this group of 30 students was striking, but also encouraging, because it supported the principle that the mode of communication is less important than the quality of communication.

Early Development of Basic Reading and Writing Skills

In most cases, the students in the present study had very early exposure to and intensive experiences with reading and writing. They developed basic skills at the same time as their hearing peers. No single instructional method seemed to dominate this early development. This finding is consistent with that of other researchers and indicates that early and intensive exposure to language and the skills associated with language development is important.

> Three such factors now appear to stand out as having central implications for deaf children's competence in dealing with the world. One is early language experience (Marschark, 1993, p. 237).

Students Enjoyed Reading for Pleasure

The students in this study read early, read well, and enjoyed their reading experiences. This enjoyment began in elementary school and was a constant theme in middle school and high school. These students consistently read a variety of books, from best-sellers to popular literature and the classics. Twenty-eight students could identify reading and writing teachers who had positively affected them, and all said their parents and extended family and friends had encouraged them during the early learning process. Although Csikszentmihalyi and his colleagues (1997) did not find that their group of talented teenagers spent any more time reading for pleasure than their nontalented counterparts, these students did spend significantly more time on class work and their area of talent. Most of the research with deaf students has focused on reading competence rather than reading for pleasure or enjoyment. Although common sense seems to indicate that at least minimal competence is necessary to the enjoyment of any endeavor, this is an area that might deserve further investigation.

Demanding Middle and High School Experiences

Almost without exception, the students mentioned that not only did their parents and family have high academic expectations for them, but so did their schools. Teachers encouraged students to achieve and provided them with extra attention. For the most part, these students seemed proud of the fact that they had attended schools that had been demand-

ing. They were involved in substantial reading and writing during secondary school. They actively developed study habits that facilitated their learning. The theme of hard work, particularly in the middle school years, was echoed across most of the group. Although it has become more popular in recent years to credit family and personal characteristics for the success of talented youth, Csikszentmihalyi and his colleagues (1997) support the views of our students:

> Entire nations—France in the 19th century, Germany before World War II, and currently Japan—have achieved outstanding success in science by taking primary and secondary education seriously and by supporting talented youth as if they were an important national resource. Even single high schools have become legendary for nurturing outstanding talent in a variety of domains. There is no questions that schools can make a great difference in whether talent will flower or remain latent. (p. 31)

Social Life Limited, Especially During Middle School

The students in the present study were not the "social butterflies" of their peer group. Although none expressed feelings of extreme isolation, all said academics took precedence over their social life, at least through middle school. They saw themselves as good students and tended to construct their self-image around factors related to academics rather than their social life. Social life improved during high school, with many of the students indicating that they were very involved in sports, drama, and other extracurricular activities. Csikszentmihalyi et al. (1997) also found that their group of talented teenagers spent significantly more time on solitary pursuits (such as class work, art, and hobbies) and less on socializing than their nontalented counterparts.

Television, TTYs, and Computers Are Important

Like their hearing peers, these deaf students were truly part of the "television generation." TV had an influence on them and helped shape their worldview. They learned about life beyond their family and community from TV. Because TV was so important to these students, captioning was a critical technology for them and may have been a significant influence on the development of their reading and writing skills. Interestingly, Csikszentmihalyi et al. (1997) also found that their talented teenagers spent significantly more time watching television than their nontalented peers. It is also possible that the relatively strong reading skills of our group of students combined with their tolerance, if not actual preference, for solitary activities led to television being a source of both entertainment and information. In the case of the students in our study, captioned television also increased their opportunity to read. Television could also have played a role in helping to increase what researchers such as Marschark (1993) speak of as "diversity of experience": "A second essential factor for normal development is diversity of experience. It is through active exploration of the environment and through experience with people, things, and language that children acquire knowledge, including learning to learn" (p. 237). In addition, this generation had access to computers and TTYs at an early age, which made possible ease in communication with friends and family. These technologies afforded them additional reading and writing opportunities.

Positive Self-Image

Finally, it is clear that these students had personality characteristics that enabled them to believe they could overcome setbacks and succeed. Whether one calls it "positive self-esteem" or "belief in oneself," they saw themselves as competent, valuable individuals. They cited persistence and determination and a desire to strive for the top as their most important attributes in becoming literate college students. In their summary of factors associated with talent development, Csikszentmihalyi and his colleagues (1997) said, "Talented students have personality traits conducive to concentration (e.g., achievement and endurance) as well as to being open to experiences (e.g., awareness, or sentience, and understanding). These four characteristics distinguish both talented males and females from average teenagers" (p. 243).

While the themes that emerged from the present study might seem to be obvious and well-recognized factors in the development of reading and writing skills among the general hearing population, the fact that deaf students benefited from these same factors is important. Professionals working with deaf youth have tended to isolate certain factors (often communication mode) as critical to the development of literacy skills, sometimes to the exclusion of other areas. An important finding from our study is that no single factor predominated as the key to strong reading and writing skills. Rather, it appears that these successful students benefited from the combination and synergy of most of these variables. Parents and teachers of deaf students may see better results in English-language reading and writing skills if these themes and other factors are equally addressed.

Note

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