The Volta Review, Volume 104(1), 5-20

Parents' and Teachers' Expectations of Auditory-Verbal Therapy

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This study investigated parents' and teachers' expectations of Auditory-Verbal therapy and the child's language development. Data were collected by questionnaires that were distributed to parents and teachers at three early intervention centers. Twenty matching questionnaires were completed and returned. The results of this study showed that the child's expressive language development was predicted by a factor relating to age of diagnosis, device fitting and entry into early intervention, and by the teachers' expectations of the child. These factors also predicted a child's receptive language with the addition of the parents' expectations of the teachers' use of Auditory-Verbal therapy. High expectations were evident for teachers and parents alike. The results of this study are discussed in light of family centered practice.

Introduction

Early intervention programs in Australia now generally adopt the philosophy and practices of a family centered model (Bruder, 2000). There are four premises underpinning this model. First, children are best understood in the context of their unique family constellations. Second, parents have a history of experience with, and therefore intimate knowledge of, their children that will become important in the process of early intervention. Third, optimal child development will occur within a supportive family and social network, and fourth, families have unique strengths on which they can build, and needs that will guide the intervention process (Dunst, Johanson, Trivette, & Hamby, 1991). Profound, congenital hearing loss has been shown to impact

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the acquisition of spoken language (Yoshinaga-Itano, Sedey, Coulter & Mehl, 1998). Not only does profound deafness reduce a child's access to spoken language, but the child's communicative interactions with family members have also been found to be affected, particularly when the family is hearing (Blum, Fields, Scharfman, & Silber, 1994; Lyon, 1985; Musselman & Churchill, 1993; Spencer & Gutfreund, 1990). Given the importance of these interactions for the child's acquisition of spoken language (Wilkins & Ertmer, 2002), centering intervention on the family is therefore critical for children with profound hearing loss.

The auditory and spoken language abilities of children with severe and profound hearing loss are at risk if such children are not diagnosed and fitted with appropriate devices as early as possible and involved in early intervention programs (Samson-Fang, Simons-McCandless & Shelton, 2000; Yoshinaga-Itano, Sedey, Coulter & Mehl, 1998). There may also be secondary effects related to their academic and social development (Hayes & Northern, 1996). Despite this, many parents of children with profound hearing loss still want their child to communicate using spoken language. To this end, a number of approaches have been developed.

Auditory-Verbal therapy is a spoken language intervention approach which encompasses a philosophy, a range of techniques, along with goals, and strategies (Estabrooks, 1994; Parents and Famlies of Natural Communication Inc., 1998; Pollack, Goldberg, & Caleffe-Schenk, 1997; Simser, 1999). For instance, the long-term goal is for children with a hearing loss to grow up in an environment that enables them to become independent, participating, and contributing people in mainstream society. To achieve this, the approach aims for all children, despite their degree of hearing loss, to be included in mainstream educational settings. In this environment they can capitalize on and extend their spoken language development and have access to the regular academic and social curriculum. Critical aspects of Auditory-Verbal therapy include a strong focus on the early years of development, the strengths and skills of parents, and the use of emerging technology and methods that will specifically enhance the child's listening, speech, and language development. It is an individualized intervention program in which the parent is trained in specific techniques to help the child develop language primarily through maximal use of residual hearing. The teacher and parent work closely alongside each other for short intensive sessions with the expectation that the parent will implement the program in the home environment. In using this intensive approach, therapists and teachers of the deaf attempt to establish positive attitudes and high expectations in parents.

The triangular relationship between the child with hearing loss, the parents, and the teacher is seen by Harr (2000) as one of the most important elements for a successful outcome. In particular, research has shown that a cooperative relationship between parents and professionals is influential in the child's education, but even more importantly, that the congruence

between the parents' and teachers' beliefs about the child and the approach being used is critical (Dromi & Ingber, 1999; Simser, 1999). Anecdotal reports suggest that both parental and teacher expectations for those involved in Auditory-Verbal therapy are high, although there is no empirical evidence to support this as yet. If so, it would seem important to investigate whether these expectations are associated with the child's developmental status, or with the approach itself.

The aim of this study was to investigate parents' and teachers' expectations of the use of Auditory-Verbal therapy with pre-school-aged children with hearing loss. It was hypothesized that teachers and parents would have high expectations of the child's progress and that they would have high expectations of each other in using the Auditory-Verbal approach. Other factors that may have affected parents' and teachers' expectations were also investigated. These included the parents' level of education, their availability to carry out the program at home, their age, and the level of involvement in the program of other extended family members. It was hoped that the results of the study would provide parents and teachers with greater understanding of the effect of their expectations and attitudes on the children's receptive and expressive language development.

Method

Procedure

Six early intervention centers in Australia that had reported using Auditory-Verbal therapy were invited to participate in this study. Three centers agreed to participate. The remaining three centers indicated that, although they used some Auditory-Verbal techniques, they did not regard themselves explicitly as Auditory-Verbal programs. The director of the participating centers identified the number of potential child cases that would be included in the study. The director then contacted the children's teachers and parents on behalf of the researchers and invited their participation. When the children's parents and their respective teacher both consented to participate in the study, each case was allocated a numerical code and the questionnaires code-matched. The director gave the matched questionnaires to the parents and relevant teacher for completion. Each parent was invited to complete a set of four questionnaires, which are described in the Instrumentation section. In all, 22 sets of questionnaires were sent to participants and 20 complete sets of questionnaires were returned. The two incomplete sets of questionnaires were excluded from the data analysis. The questionnaires were returned directly to the principal investigator by the parents and teachers independently. This ensured complete anonymity of the participants in regard to the investigators and also the confidentiality of their responses in relation to the early intervention program.

Characteristics of the Child Participants

There were nearly equal numbers of female (11) and male (9) children in the sample. They ranged in age from 29 months to 110 months (M = 54.6 months). Eleven of the children were the first child in their family. Parental reports indicated that five of the children had additional special needs.

The hearing losses of the children were evenly distributed across the four categories of mild (4), moderate (5), severe (6) and profound (5). Sixteen children used hearing aids and 4 used cochlear implants. Eight of the children using hearing aids also used a FM system. None of the children using a cochlear implant also used a FM system. The age range for diagnosis was between 1 and 43 months (M = 23 months). The age range for first device fitting was between 12 and 54 months (M = 26 months).

Characteristics of the Parent Participants

The age range of the fathers was between 30 and 48 years (M = 37 years). Their years of education ranged from 10 to 24 years with a mean of 14 years. Nineteen fathers were hearing, and 1 had a mild hearing loss. Two fathers were unemployed. Two fathers reported sharing the responsibility of being the primary caregiver with the mother. The time the fathers spent in working with their child was reported as ranging between 0 and 10 hours per day (M = 3 hours).

The mothers' ages ranged from 30 to 45 years (M = 35 years). Their years of education were between 10 and 23 years (M = 14 years). More than half of the mothers (12) reported that they were not working and all described themselves as being the main caregiver. They indicated that they spent between half an hour and 12 hours per day working with their child (M = 7 hours).

One father and all the mothers reported that they were involved with their children's education. Six sisters and four brothers were also reported as involved with their sibling's education as were four grandfathers, seven grandmothers, and four close friends or relatives.

Fifteen parents indicated that they had chosen the Auditory-Verbal approach as their first choice for intervention. One parent reported that they had used some signs initially in their child's program. Three parents noted that they had commenced intervention using an auditory/oral approach before changing to Auditory-Verbal therapy. Duration of Auditory-Verbal therapy was reported as being from 1 to 80 months (M = 23 months). The age of the child at commencement of Auditory-Verbal therapy ranged between 14 and 54 months (M = 30 months).

Characteristics of the Teacher Participants

In total, 8 teachers participated in the study because some teachers were involved with more than one family. One teacher reported that he or she was

Table I. Parents' and Teachers' Expectations of a Child's Progress Using Auditory-Verbal Therapy

Parent Items	*Teacher Items*
I expect that	I expect that
My child will have fluent language	My student will have fluent language
My child will have intelligible speech	My student will have intelligible speech
My child will have friends with normal hearing	My student will have friends with normal hearing
My child will go to local school	My student will go to local school
My child will learn to listen to spoken language	My student will learn to listen to spoken language
My child will learn to perceive the majority of speech sounds	My student will learn to perceive the majority of speech sounds
My child will learn to discriminate between the majority of speech sounds	My student will learn to discriminate between the majority of speech sounds
My child will use his or her device during waking hours	My student will use his or her device during waking hours
My child will learn to manage his or her own device	My student will learn to manage his or her own device
My child will become an independent learner	My student will become an independent learner
My child will primarily use spoken language with family and peers	My student will primarily use spoken language with family and peers

not a trained teacher of the deaf. Of the 7 teachers of the deaf, 2 teachers were not certified as Auditory-Verbal therapists. Teaching experience in education of the deaf was reported as between 1 and 20 years ($\underline{M}$ = 11 years) and their experience in Auditory-Verbal therapy ranged from 0 to 16 years ($\underline{M}$ = 7 years). Teachers' experience in teaching children with normal hearing was between 1 and 18 years ($\underline{M}$ = 5 years).

Instrumentation

The parents first completed a questionnaire providing background information about themselves, their child, and their family's involvement in the program. In addition, they completed two further questionnaires in which they rated from low to high their own expectations of how their child would progress with this approach and their impressions of their teacher's expectations of the approach used with their child. These questionnaires used a seven-point rating scale from 1 (low) to 7 (high). The teachers completed one questionnaire giving details of their professional background, one questionnaire rating their own expectations of the child's progress, and one questionnaire rating their impressions of the parents' expectations of the approach. Details of the individual questions are given in Tables I and II.

Table II. Parents' and Teachers' Expectations of Each Other Using Auditory-Verbal Therapy

Parent Items	*Teacher Items*
My child's teacher	My student's main caregiver(s)
Uses AV practices consistently in teaching sessions	Uses AV practices consistently in the home
Believes that AVT is suitable for my child	Believes that AVT is suitable for their child
Has high expectations of AVT	Has high expectations of AVT
Enjoys working with my child using AVT	Enjoys working with their child using AVT
Strives to learn more about AVT	Wants to learn more about AVT
Expects me to act on his or her advice about using AVT	Acts on the advice given about using AVT
Expects me to understand the principles and philosophy of AVT	Understands the principles and philosophy of AVT
Expects me to create a listening and speaking environment to develop my child's language	Thinks that the AV approach guides them to create a listening and speaking environment to develop their child's language
Expects me to learn about auditory, speech, and language development	Thinks that AVT guides them in learning about auditory, speech, and language development

Finally, the teachers completed a checklist of the child's receptive and expressive language adapted from the REEL (Receptive-Expressive Emergent Language Scale, Bzoch & League, 1978).

Data Analysis

The background data relating to the participants provided descriptive statistics only. In order to investigate the congruence between parents' and teachers' expectations of a child's progress and each others' expectations of Auditory-Verbal therapy, series of t-tests and correlations were conducted. These were first computed for the overall mean expectation scores for the two questionnaires and then for each of the individual items in the questionnaires. Alpha levels were adjusted using Tukey's B because of the likelihood of dependence between item scores. A further set of t-tests compared the parents' and teachers' expectations according to the mothers' employment status, children's special needs, and degree of extended family involvement.

A factor analysis was conducted on the background variables in order to reduce variables that correlated to single factors. These factors were then entered into multiple regression analyses to investigate possible associations

with parents' and teachers' expectations. A second factor analysis was then computed that included the parents' and teachers' expectations and these factors subjected to multiple regression analyses with child expressive and receptive language as the independent variables. Due to the small sample size, only statistically significant differences or associations with a probability level of less than .05 are reported.

Results

This study addressed two central questions. First, we investigated whether parents and teachers had similar expectations of the child's progress and similar expectations of the others' use of Auditory-Verbal therapy. To do so, group mean scores were compared and then comparisons made between the group scores for the separate items on the questionnaires. Second, we investigated the contribution of background variables and parents' and teachers' expectations to the receptive and expressive language development of the child.

Parents' and Teachers' Expectations of Child Progress

There were 11 statements (see Table I) to which parents and teachers were asked to rate their expectations of the child's progress using Auditory-Verbal therapy. The overall mean scores for the parents' and teachers' expectations of child progress showed that there was no statistically significant difference between the ratings of the respondents. An examination of the overall mean scores indicated that both groups had very high expectations of child progress (parents' expectations $\underline{M} = 6.7$, $\underline{SD} = .36$; teachers' expectations $\underline{M} = 6.5$, $\underline{SD} = .79$). There was a statistically significant correlation between the responses of the two groups of respondents ($\underline{r} = .51$) suggesting some congruence in their expectations.

Separate t-tests were used to investigate possible differences between parents' and teachers' expectations of child progress for each of the 11 items. No statistically significant differences were found. There were statistically significant correlations between parent and teacher scores for belief that the child would go to local school ($\underline{r} = .81$) and manage their own device ($\underline{r} = .60$).

Parents' and Teachers' Expectations of Each Other Using the Auditory-Verbal Approach

As outlined in Table II, there were nine items for which parents were asked to rate their expectations of the teachers and teachers to rate their expectations of the parent regarding Auditory-Verbal therapy. The mean scores for the parents' and teachers' expectations overall showed a significant difference in the ratings of the respondents ($\underline{t} = 3.0$). Examination of the means indicated that the mean rating for the parents' expectations ($\underline{M} = 6.6$, $\underline{SD} = .35$) was higher

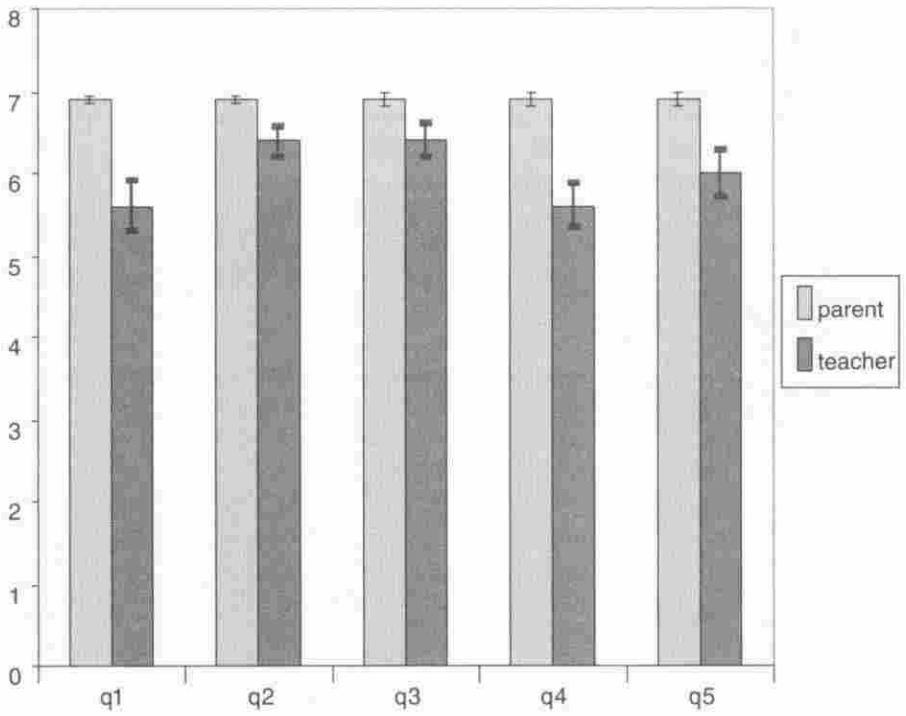

Figure 1. Parents' and Teachers' Expectations of Each Other Using Auditory-Verbal Therapy

than that of the teachers' expectations (M = 6.1, SD = .78). There was no significant correlation between the scores for the two groups of respondents.

Statistically significant differences were found for the first five items on this questionnaire. Figure 1 shows the mean scores and error bars for these items. Parents' expectations of their teacher's consistency in using Auditory-Verbal therapy were significantly higher ($t = 4.6$) than were the teachers' expectations of the parents. Parents also had higher expectations regarding the teachers' beliefs about the suitability of Auditory-Verbal therapy for the child than did the teachers ($t = 2.9$). For the item related to high expectations of Auditory-Verbal Therapy both parents' and teachers' ratings were high although significantly different ($t = 2.1$). Teachers' and parents' ratings of each others' enjoyment in working with the child using Auditory-Verbal techniques were found to be different ($t = 4.6$), with the mean rating for the parents' expectations being significantly higher than that of the teachers. Finally, the parents' rating of teachers on the item relating to learning more about Auditory-Verbal therapy was higher ($t = 3.2$) than was the teachers' rating of the parents. Significant correlations between parent and teacher scores for the individual items were found only for whether they had high expectations of Auditory-Verbal therapy ($r = .61$).

Table III. Component Matrix for Factor Analysis of Chronological Age, Age of Diagnosis, Fitting of First Device, Commencement of Auditory-Verbal therapy, Duration of Auditory-Verbal therapy, and Father's and Mother's Hours of Involvement

	Component		
Variables	*1 (critical age)*	*2 (duration of therapy)*	*3 (father's involvement)*
Chronological Age	—	.92	—
Age of first device fitting	.90	—	—
Age of diagnosis	.92	—	—
Age of entry to early intervention	.93	—	—
Duration of early intervention	—	.94	—
Father's involvement	—	—	.74
Mother's involvement	—	—	—

Several analyses were conducted in order to investigate possible factors underpinning the parents' and teachers' expectations. First, a factor analysis of potentially contributing interval-type background variables was conducted to collapse variables that were correlated into factors. These factors were then entered into multiple regression analyses with the independent variables being teachers' and parents' expectations of Auditory-Verbal therapy and child progress. Second, a series of t-tests were conducted comparing parents' and teachers' expectations according to maternal employment status, child's special needs, and degree of extended family involvement. Comparisons were not made for child hearing level due to the small number of cases in each cell.

For the first factor analysis, the individual scores for nine variables were entered. These variables were child's age at the time of the study, child's age at fitting of first device, age of diagnosis, age at which the child commenced Auditory-Verbal therapy, duration of Auditory-Verbal therapy, years of parent education, parent's age at the time of the study, and father's and mother's hours of involvement in working with the child. This analysis indicated that there were three component factors. Table III shows the significant correlations between the variables entered and the three component factors.

The first factor consisted of age of the child at three critical points; fitting of first device, age of diagnosis, and age at commencement of Auditory-Verbal therapy. This factor was then named *critical age*. The second factor consisted of the child's chronological age at the time of the study and duration of Auditory-Verbal therapy. The factor was named *duration of therapy*. The third factor was related to the amount of father's involvement with the child (*father's involvement*). These three factors (*critical age, duration of therapy,* and

father's involvement) together with scores on the remaining variables were then entered into separate multiple regression analyses with the independent variables being the mean scores of parents' and teachers' expectations of Auditory-Verbal therapy, and the mean scores of parents' and teachers' expectations of child progress. Results indicated that none of the factors or variables contributed significantly to these scores.

Using the t-test for independent samples, comparisons were made between the parents' and teachers' scores by the mother's employment variable. These analyses showed only one significant difference. Teachers' expectations of Auditory-Verbal therapy were statistically significantly higher for mothers who were working than for mothers who were not working ($t = 1.8$). Similarly, significantly higher parental expectations of child progress were found for cases in which parents had reported no additional special needs ($t = -3.1$). In relation to the degree of extended family involvement, parents' expectations of Auditory-Verbal therapy were significantly higher when grandmothers were involved than when grandmothers were not involved ($t = 2.5$). Interestingly, teachers' expectations of Auditory-Verbal therapy ($t = -2.5$) and of child progress ($t = -1.8$) were significantly lower when the grandfathers were reportedly involved in the child's program.

Factors Contributing to a Child's Receptive and Expressive Language

To investigate factors contributing to the child's receptive and expressive language, a second factor analysis was conducted that not only included demographic variables, but also included the scores from the parent and teacher questionnaires. This analysis was done because of the correlations between the variables and to reduce the number of variables for further analysis. As is shown in Table IV, the analysis yielded four component factors. This table shows the significant correlations between the variables entered and the four component factors.

The first factor was *critical age*. The second factor was *duration of therapy*. The third factor consisted of the mean scores for the parents' expectations of Auditory-Verbal therapy (named *parent expectations of AVT*) and the fourth factor consisted of the teachers' expectations of child progress (*teacher expectations of child progress*). These four factors and the remaining variables were then entered into two separate stepwise multiple regression analyses with the independent variables being scores of the child's receptive language and expressive language. Because the children were of varying ages, language scores were converted to language delay by subtracting the age equivalent score from the child's chronological age. The results of the multiple regression analysis with receptive language as the dependent variable indicated that *critical age*, *parent expectations of AVT* and *teacher expectations of child progress* contributed significantly to the child's receptive language. The multiple regression prediction equation that resulted was - adjusted $R^2 = .65$, $F(3, 20) = 10.70$, $p < .001$. The three predictive factors are given in Table V in order of

Table IV. Component Matrix for Factor Analysis of Chronological Age, Age of Diagnosis, Fitting of First Device, Commencement of Auditory-Verbal Therapy, Duration of Auditory-Verbal Therapy, Father's and Mother's Hours of Involvement, and Parent and Teacher Expectations

	Components			
Variables	*1 (critical age)*	*2 (duration of therapy)*	*3 (parent expectations of AVT)*	*4 (teacher expectations of child progress)*
Chronological Age	—	–.79	—	—
Age of first device fitting	–.81	—	—	—
Age of diagnosis	–.84	—	—	—
Age of entry to early intervention	–.89	—	—	—
Duration of early intervention	—	–.87	—	—
Father's involvement	—	—	—	—
Mother's involvement	—	—	—	—
Parent expectations of AVT	—	—	–.83	—
Parent expectations of child progress	—	—	—	—
Teacher expectations of AVT	—	—	—	—
Teacher expectations of child progress	—	—	—	.69

their contribution with their beta, t and p values. For expressive language, the results of the multiple regression analysis indicated that *critical age* and *teacher expectations of child progress* contributed significantly to the children's scores. The multiple regression prediction equation that resulted was—adjusted $R^2 = .45$, $F(2, 20) = 7.6$, $p < .01$. The two predictive factors are given in Table VI in order of their contribution with their beta, t and p values.

Discussion

This study investigated the expectations of parents and teachers using Auditory-Verbal Therapy. It should be noted that the data were limited to the questionnaire responses of 20 parents and their children's respective teachers. Although there were some statistically significant results, the findings should be treated with caution in view of the small sample size.

It was hypothesised that parents and teachers would have high expectations of the child's progress using Auditory-Verbal therapy. This hypothesis was clearly supported. In addition, the lack of a significant difference between the two sets of scores and the presence of a significant correlation between the overall mean scores indicates that the judgements of the teachers and parents were congruent. Implementation of Auditory-Verbal therapy requires the teacher to have an expectation that even children with little

Table V. Multiple Regression Analysis Predicting Receptive Language Ability

Predictive Factor	β *coefficient*	*t value*	*p*
Factor 1 (critical age)	–.56	–3.65	.003
Factor 3 (parents' expectations of AVT)	.46	3.08	.009
Factor 4 (teachers' expectations of child progress)	.33	2.18	.048

Multiple R = .84, adjusted R^2 = .65

Table VI. Multiple Regression Analysis Predicting Expressive Language Ability

Predictive Factor	β *coefficient*	*t value*	*p*
Factor 4 (teachers' expectations of child progress)	–.57	3.07	.008
Factor 1 (critical age)	.45	2.45	.028

Multiple R = .72, adjusted R^2 = .45

residual hearing can learn to listen and to speak (Estabrooks, 1994; Pollack, Goldberg, & Caleffe-Schenk, 1997). For the approach to be generalized to the home situation, it is important that parents share these high expectations. The results obtained here suggest that this group of parents was well informed about their child's potential and that their expectations were realistic. A correlation between the parents' and teachers' expectations for the child to attend the local school was also found. Inclusion in the community is a major objective of Auditory-Verbal therapy and this finding indicates that the parents and teachers were also committed to this goal.

The second hypothesis was that the parents and teachers would have high expectations of each other using this approach with the child. The results gave strong support for this hypothesis. The overall mean scores for both groups were in excess of six out of a possible maximum score of seven. Interestingly, the overall mean for the parents' expectations of teachers was higher than that of the teachers' expectations of the parents. This suggests that these parents had invested considerable faith in the professionals and had high regard for their ability and commitment. This was further born out by the scores for the individual items. High scores were given by the parents for the teachers' consistency and enjoyment in working with the approach, beliefs and high expectations, and their desire to further their knowledge and skills.

In general, parents who opt for Auditory-Verbal therapy are expected to attend long-term and they are deeply involved in the program. During the process of therapy teachers inform parents about the child's potential to develop auditory, speech, and language skills. As the parent gains confidence that this can be done, there are likely to be increased expectations of the child's progress. In the current study, the average age of the child at commencement of Auditory-Verbal therapy was 30 months and the average duration of

involvement was 23 months. Neither of these variables was associated with parent or teacher expectations. It would seem, therefore, that parents who opt for Auditory-Verbal therapy may commence the program with high expectations and that these expectations are likely to be sustained over time.

A number of factors that have been found to be associated with outcomes for the child are early diagnosis, device fitting, and entry into an early intervention program. For instance, Yoshinaga-Itano (1995) suggested that the positive outcomes arising from early identification could only be guaranteed if high quality early intervention is also provided in the first year of life. In a later study, Yoshinaga-Itano, Sedey, Coulter, and Mehl (1998) found that diagnosis in the first 6 months of life was associated with better child language outcomes. For groups of children diagnosed in later months there was no significant difference in the outcomes. In the current study, we investigated how some of these factors might underpin both the expectations of the parents and teachers and the outcomes for the child. Using factor analyses we collapsed correlating variables into factors and then conducted regression analyses. Regression analyses conducted with parents' and teachers' expectations as the independent variables showed no associations with any of our factors (critical age, duration of therapy, and fathers' involvement). Clearly, however, parental and teacher expectations are likely to be important mediating factors in the child's program. In our second set of regression, analyses with child expressive and receptive language as the independent variables we found a positive association between the critical age factor and language development despite the relatively later diagnosis of children in the study (23 months). A second factor that was associated with both expressive and receptive language was the teachers' expectations of child progress. This would suggest that the teachers were well tuned to the developmental status of the children. Parents' expectations of their teachers' use of Auditory-Verbal Therapy predicted child receptive language. Since the critical age factor did not predict parents' and teachers' expectations, these results suggest that the expectations of parents and teachers were not derived from the critical age factor, but add to, or mediate, its effect in predicting child language.

Further analyses were conducted to investigate whether other dichotomous-type variables might be associated with high expectations. These were the mothers' employment status, whether the child had additional special needs, and involvement of members of the extended family. Not surprisingly, parents' expectations of child progress were higher if the child was considered to have no additional special needs. In addition, parents' expectations of teachers' use of Auditory-Verbal therapy were higher if grandmothers were reported as being involved in the child's program. While Musselman and Kircaali-Iftar (1996) did not specifically assess parents' expectations, they found that better child outcomes were achieved if the parents were able to allocate effective roles to family members for involvement in the child's program. Grandparents' involvement is often considered tangential, in that although they may share the same feelings as the parents, they may only be

indirectly involved in the program and the decision-making. Often their role is seen as one of providing baby-sitting, emotional support, and financial assistance (Porter & McKenzie, 2000). In this study, when grandmothers had some direct involvement in the implementation of the program, the parents' expectations were higher, suggesting that deeper involvement may give the parents support and thus a sense of confidence for the future of their child. An interesting, albeit unexplainable, finding was that teachers' expectations of child progress and their expectations of parents' use of Auditory-Verbal therapy were both lower if grandfathers were reportedly involved.

Teachers were found to have higher expectations of the parents' use of Auditory-Verbal therapy when the mother was employed. It is possible that this finding reflects the teachers' views that parents with higher socio-economic status may cope better with the demands of raising a child with hearing loss and involvement in an intensive program. There continues to be some debate about the effect of socio-economic status on child outcomes. An early study by Musselman, Wilson, and Lindsay (1988) found no association between child outcomes and socio-economic status whereas Calderon and Naidu (1998) found a positive association. These researchers found parents who accessed early intervention services earlier and more rapidly were more likely to be of mature age and of higher socio-economic status. In the current study age of the parents was not associated with any of the expectation variables or child language development outcomes.

Musselman and Kircaali-Iftar (1996) found four family characteristics that were positively related to outcomes for the child. These were: the level of the parents' education, the strength of the family's commitment to the mode of the child's education (including methodology, program, and placement), the parents' level of involvement in their child's education, and the ability of the family to allocate roles in forwarding their goals for the child. In the current study we found no associations between parent level of education and degree of parental involvement in the child's program. While family commitment to the child's program was not specifically investigated in the current study, it is likely that, given the high expectations reported by the parents, these families were strong advocates of the approach used. We also found some support for Musselman and Kircaali-Iftar's fourth family characteristic. In this study a significant role in fashioning the parents' expectations appears to have been the involvement of the grandmothers. It would seem that opportunities, motivation, commitment, and the ability to utilize human resources effectively are likely to underscore positive outcomes for the child.

In summary, this study shows that child receptive and expressive language outcomes are influenced not only by age of diagnosis, age of device fitting, and age of entry into early intervention, but also by the teachers' expectations of how well the child will progress, and of how the parents use the approach. In addition, parental expectations of the teachers' use of Auditory-Verbal therapy were predictive of child receptive language. The adults who participated in this study had high expectations of Auditory-Verbal therapy and

child language progress overall. Anecdotal evidence suggests that parents' and teachers' expectations are critical factors in the early intervention process. This study provides convincing evidence for this.

The results of this study also provide some insight into the efficacy of intervention that is family centered. It would seem that when early interventionists adopt the practice of including significant members of the extended family in the process of intervention, it has positive effects for the parents and hence for the child. Furthermore, the results of this study suggest that the programs involved had individualized their intervention to the child and family, and that there had been a sharing of information, goals, and observations. This recognition of the uniqueness of the child and the family, and the strategy of working in a collaborative partnership with parents, as suggested by Byrne (2000) is likely to underpin high expectations and outcomes for the child.

Acknowledgments

The authors wish to thank the children, parents, teachers, and directors of the Cora Barclay Center, Adelaide, South Australia, the Speech and Hearing Center, Perth, Western Australia, and St. Gabriel's School for the Deaf, Sydney, New South Wales for their participation in this study. We also extend our thanks to Professor Field Rickards for statistical advice.

References

Blum, E. J., Fields, B. C., Scharfman, H., & Silber, D. (1994). Development of symbolic play in deaf children aged 1 to 3. In A. Slade & D. P. Wolf (Eds.), *Children at play* (pp. 238–259). New York: Oxford University Press.

Bruder, M. B. (2000). Family-centered early intervention: Clarifying our values for the new millenium. *Topics in Early Childhood Special Education, 20*(2), 105–124.

Byrne, M. R. (2000). Parent-professional collaboration to promote spoken language in a child with severe to profound hearing loss. *Communication Disorders Quarterly, 21*(4), 210–221.

Bzoch, K. R., & League, R. (1978). *Assessing language skills in infancy: A handbook for the multidimensional analysis of emergent language.* Baltimore: University Park Press.

Calderon, R., & Naidu, S. (1998). Further support for the benefits of early identification and intervention for children with hearing loss. *The Volta Review, 100*(5), 53–84.

Dromi, E., & Ingber, S. (1999). Israeli mothers' expectations from early intervention with their preschool deaf children. *Journal of Deaf Studies and Deaf Education, 4*(1), 50–68.

Dunst, C. J., Johanson, C., Trivette, C. M., & Hamby, D. (1991). Family-oriented early intervention policies and practices: Family-centered or not? *Exceptional Children, 58*(2), 115–126.

Estabrooks, W. (1994). *Auditory-verbal therapy: for parents and professionals*. Washington, DC: Alexander Graham Bell Association for the Deaf and Hard of Hearing.

Harr, J. (2000). Relationship between parents of hearing-impaired children and teachers of the deaf. *Deafness and Education International, 2*(1), 12–25.

Hayes, D. & Northern, J. L. (1996). *Infants and hearing*. San Diego, CA: Singular Publishing Group.

Lyon, M. (1985). The verbal interaction of mothers and their preschool hearing impaired children: A preliminary investigation. *Journal of the British Association of Teachers of the Deaf, 9*(5), 119–129.

Musselman, C., & Churchill, A. (1993). Maternal conversational control and the development of deaf children: A test of the stage hypothesis. *First Language, 13*, 271–290.

Musselman, C., & Kircaali-Iftar, G. (1996). The development of spoken language in deaf children: Explaining the unexplained variance. *Journal of Deaf Studies and Deaf Education, 1*(2), 108–121.

Musselman, C. R., Wilson, A. K., & Lindsay, P. H. (1988). Effects of early intervention on hearing impaired children. *Exceptional Children, 55*(3), 222–229.

Parents and Families of Natural Communication Inc. (1998). *We CAN Hear and Speak*. Washington, DC: Alexander Graham Bell Association for the Deaf and Hard of Hearing.

Pollack, D., Goldberg, D., & Caleffe-Schenk, N. (1997). *Educational audiology for the limited hearing infant and preschooler*. Springfield, IL: Thomas.

Porter, L., & McKenzie, S. (2000). *Professional collaboration with parents of children with disabilities*. Sydney, Australia: MacLennan & Petty.

Samson-Fang, Simons-McCandless, L. M., & Shelton, C. (2000). Controversies in the field of hearing impairment: Early identification, educational methods, and cochlear implants. *Infants and Young Children, 12*(4), 77–88.

Simser, J. I. (1999). Parents: the essential partner in the habilitation of children with hearing impairment. *Australian Journal of Education of the Deaf, 5*, 55–62.

Spencer, P. E., & Gutfreund, M. (1990). Characteristics of "dialogues" between mothers and prelinguistic hearing-impaired and normally-hearing infants. *The Volta Review, 92*, 351–359.

Wilkins, M., & Ertmer, D. J. (2002). Introducing young children who are deaf or hard of hearing to spoken language: Child's voice, and oral school. *Language, Speech and Hearing Services in Schools 33*(3). 196–204.

Yoshinaga-Itano, C. (1995). Efficacy of early identification and early intervention. *Seminars in Hearing, 16*(2), 115–123.

Yoshinaga-Itano, C., Sedey, A. L., Coulter, D. K., & Mehl, A. L. (1998). Language of early- and later-identified children with hearing loss. *Pediatrics, 102*(5), 1161–1172.