Sign language interpreters working in schools often face isolation in terms of their sign language vocabulary development opportunities. The purposes of this study were to determine the key demographic characteristics of educational interpreters in British Columbia, to identify the resources they use to learn new vocabulary, and to shed light on their Internet use and access levels, with a view to exploring the viability of this resource as a tool for vocabulary development for interpreters working in educational settings. Key demographics associated with interpreters’ access to time and materials in advance of a lesson were job title and graduation from an interpreter training program. Interpreters with job titles that reflected their status as interpreters had more preparatory time each week than interpreters who had job titles focused on their roles as educational assistants. Interpreters overwhelmingly expressed the need for continuing professional development with respect to vocabulary development. In terms of the resources currently used, human resources (colleagues, deaf adults) were used significantly more often than nonhuman (books, videotapes, Internet). The resource use results showed that convenience was more important than quality. Books were used more often than videotapes, CD-ROMs, and the Internet, although the latter three had higher percentages of very satisfied users than did books. The design and content of online vocabulary resources and limited interpreter preparation time were identified as current issues keeping the Internet from reaching its potential as an easily accessible visual resource. Recommendations aimed at enhancing the viability of the Internet as a vocabulary development tool for educational interpreters are discussed.

Throughout North America, the number of children who are deaf and hard of hearing educated in their home districts has been increasing over the past two decades, while the number of children who are deaf and hard of hearing educated at residential schools has been decreasing. In a review of 30 years of the education of students who are deaf and hard of hearing in the United States, Holden-Pitt and Diaz (1998) found that in 1978 46% of these students were educated in integrated situations. By 1997, that figure had risen to 69%. This trend follows a general movement in society toward inclusive schools, that is, the integration of students with special needs into educational settings with their peers who do not have special needs in an attempt to foster “equitable access to learning, achievement, and the pursuit of excellence in all aspects of education” (British Columbia Ministry of Education, 1995, p. 7).

The shift from residential schooling to mainstreamed schooling for students who are deaf has had a direct, although unintended, impact upon the language transmission practices within the deaf communities of North America. Historically, the schools for the deaf were the physical locations where American Sign Language (ASL) and deaf culture were transferred between generations (Evans & Falk, 1986; Luetke-Stahlman, 1984; Padden, 1994). While the students who were deaf and hard of hearing were at the school, the control of ASL rested literally “in the hands” of its primary users—the deaf and hearing staff and the students who were deaf and hard of hearing. The advent...
of increased inclusion in neighborhood schools transferred the control of language modeling, at least to a degree, from primary ASL users to interpreters. As Stewart, Schein, and Cartwright (1998) stated: ‘‘young deaf children . . . may have no knowledge of signs when they come to school, so the interpreter becomes, in effect, the child’s sign teacher, opening the next question, which signs to teach?’’ (p. 104).

One result of the inclusion movement has been that the sign language used by students and educational interpreters can vary from school to school. In one school, a child may learn Signed English (Bornstein, Hamilton, & Saulnier, 1983) and in a nearby program another student may be exposed primarily to ASL. In spite of some shared vocabulary, upon meeting these two students may experience difficulty understanding each other as a result of the different word order, representations of pronouns, gender-specificity of pronouns, and verb tenses of the languages (Coryell & Holcomb, 1997). Similarly, interpreters utilizing different language systems may experience some difficulty supporting each other professionally. When they contact each other, there is no guarantee that they are using the same sign system with the children with whom they work. Thus, there are important cultural, practical, and professional implications for the diversity in sign language systems and vocabulary used by interpreters in educational settings.

The purpose of the present study is to investigate the professional development needs of, and resources available to, educational sign language interpreters working in public schools, with a focus on their sign-vocabulary development practices. More precisely, the aims of the study were a) to describe relevant characteristics of sign language interpreters working in public school settings, b) to describe the resources the interpreters currently use for developing unfamiliar vocabulary, and c) to describe the current extent of access to and use of the Internet by educational interpreters, with a view to exploring the viability of the Internet as a vocabulary development resource for educational interpreters.

Educational Interpreting

A common description of the educational interpreter’s role is “to facilitate communication between deaf and hearing individuals throughout the educational environment, both academic and extracurricular” (Sanderson, Siple, & Lyons, 1999, p. 2). Ideally, this description should be considered the primary role of an interpreter. However, the educational interpreter’s role involves more than interpreting because of the unique characteristics of educational settings. Based on the recommendations of the Commission on Education of the Deaf (1988), Shroyer and Compton (1994) emphasized the essential skills and knowledge that an educational interpreter needs. The recommendations include “tutoring skills, fluency in at least two languages, appreciation of two different cultures, content knowledge, knowledge of language acquisition, cognitive development, program evaluation and consultation” (p. 474).

Due to role confusion, interpreters are often asked to undertake tasks that take away from their primary role as communication facilitators. These tasks include “copying and filing, playground supervision, bus attendant duty, lunchroom duty, and monitoring study hall” (Registry of Interpreters for the Deaf, 2000, p.1). This list is easily expanded by adding classroom supervision while the teacher is away from the class (Hayes, 1993), grading, and arranging classroom or hallway displays. Furthermore, “asking interpreters to take on tasks for which they may not be prepared may force them to violate the principle that they should not accept assignments beyond their capabilities” (Stewart et al., 1998, p. 193).

Educational interpreters are often faced with the complex task of working in an isolated language environment, without knowledgeable support from supervisors or peers. When communicating in a visual language, isolation occurs when there is no face-to-face contact on a regular basis with other competent users of the same language. This isolation is amplified when interpreters work in remote rural locations, apart from other interpreters or members of the deaf community. In addition, some educational interpreters have been hired without proper qualifications (Jones, Clark, & Stolz, 1997; Schick, Williams, & Bolster, 1999). Recently, educational interpreters have indicated awareness of these challenges and, in response, have signaled the desire for increased professional development opportunities. In the Jones et al. study,
more than 95% of the interpreters surveyed responded that they would like more interpreter-related professional development than they were currently receiving. One possible reason for the high demand for professional development may be proposed by the results of a survey by Dean (1999, cited in Dean & Pollard, 2001), in which interpreters reported that 66% of the skills they learned, including knowledge of sign vocabulary, were learned on the job.

In determining the professional development needs of interpreters, then, it is important to ascertain several characteristics relevant to the work environment. First, the job description may indicate the extent of the interpreter's time that is actually devoted to communication facilitation. Second, the amount of preparation time available to the interpreter may shed light upon the opportunities an interpreter has to learn unknown vocabulary before a lesson occurs. Third, the vocabulary demands of the assignment may indicate the approximate frequency with which an interpreter encounters unfamiliar sign vocabulary. Finally, the resources available to interpreters in the school likely will bear a relationship to the resources the interpreters choose to use. For example, if there are other adult signers in the school, these individuals are potential vocabulary resources.

Vocabulary Development: Challenges for Educational Interpreters

Although a robust vocabulary alone will not make for a good interpreter, the present study focused on practices pertaining to and resources for vocabulary development over other aspects of language development, such as syntactic structure and discourse conventions, for three main reasons. First, a robust vocabulary in the target language is a necessary prerequisite to fluent and accurate interpretation (Humphrey & Alcorn, 1996). Second, there is currently no discussion in the literature as to how interpreters develop unknown vocabulary when working in isolated circumstances. Finally, the need for vocabulary development by educational interpreters will be ongoing, which requires professional development solutions that are also ongoing. Educational interpreter vocabulary use was most recently measured by Schick et al. (1999), who investigated vocabulary use among sign language interpreters in Colorado. The Educational Interpreter Performance Assessment (EIPA) that Schick and her colleagues administered contained a vocabulary use domain. The scores on this domain were only marginally better than the statewide minimal standard set for hiring educational interpreters in Colorado. Schick and her colleagues concluded that interpreters at the minimally acceptable level of performance require ongoing support with their sign language vocabulary development and use.

Two examples of current sources of challenge for educational interpreters with regard to vocabulary development are, first, the rendering of technical vocabulary in sign language for a particular English word or concept (Hayes, 1993) and, second, the advent of new signs. The advent of the Internet is a good example of both challenges. Along with the Internet came new vocabulary that required the development of new signs. E-mail, website addresses, and web connections are all topics of discourse that did not exist in common language a decade ago. As the deaf community adopted new signs to discuss these topics, the signs did not automatically disseminate to interpreters working in isolated contexts.

In yet another example, Stewart et al. (1998) provided a description of how existing signs can change over time to give rise to new vocabulary. They described recent vocabulary changes in ASL that were based on making some signs more politically correct than they had been previously. This movement led to the replacement of signs for countries that made reference to physical features of their inhabitants. For example, the everyday use of the signs for Africa, China, and Japan have all changed in the past five years.

New vocabulary development and sign modifications over time “tax the interpreter to remain current” (Stewart et al., 1998, p. 128). Stewart and his colleagues made the point that, according to the Oxford Dictionary of New Words (1991), the English language added 750 words in one year. Given that many ASL users also use English as their written language, ASL may well eventually add new signs to accommodate the new English vocabulary.
The importance of vocabulary as one component of quality interpretation is underscored by the certification processes of both the Registry of Interpreters for the Deaf (RID) in the United States and the Association of Visual Language Interpreters of Canada (AVLIC). They both include vocabulary assessment as one of the domains of their certification assessment process (AVLIC, 2001; RID, 1997a). Of important note is the fact that their assessments do not advocate a “one word = one sign” approach but an overall vocabulary use by the interpreter that attempts to create message equivalency. In addition, both organizations have a professional code of ethics that highlights ongoing professional development as a tenet of good practice (AVLIC, 2001; RID, 1997b).

Although it is true that certification may be related to good vocabulary development practices and thus is important to ascertain, neither certification nor graduation from an interpreter training program are used as a skill proxy in this study. Vocabulary use is only one piece of the interpreting puzzle and, furthermore, “graduates of interpreter preparation programs have varying degrees of skill level, and the possession of a degree does not guarantee the ability to interpret effectively” (Sanderson et al., 1999, p. 5).

The Potential of the Internet

The development of the World Wide Web and higher bandwidths for data transmission presents an opportunity to address some of the professional development issues that educational interpreters face. Video clips and animated images are used increasingly often for creating online ASL dictionaries. These dictionaries use English words for searching their database and then show the appropriate sign vocabulary in video format for the word when selected. The “American Sign Language Browser,” produced by Michigan State University (2000), contains thousands of video clips at the click of a mouse. Another dictionary, “Handspeak” (Lapiak, 2001), contains over 3000 signs. The concept of an online dictionary is neither novel nor new in English; however, for a language that does not have a written form, it may represent a very important sociolinguistic development for ASL and the deaf community. Teachers, interpreters, students, parents, and anyone else interested in the vocabulary of ASL can now refer to an online dictionary and receive sign vocabulary through consistent sign models. Furthermore, if they wish to view other examples, they can access more than one online dictionary.

Since 1996, the Internet has been explored as a tool for extending professional connections and professional development for rural teachers and students (Bauer, 1997; Heinrich, 1996; Johnson, 1997; Tremblay, 1996). Of course, vocabulary development resources served via the Internet will be best used by those already most skilled at interpreting. Learning new vocabulary is a lifetime endeavor for interpreters. The Internet provides a potentially cost-effective means of centralizing the resources for interpreters and promoting their vocabulary development, even in spite of professional isolation. However, before marshalling resources to create centralized sign language Internet resources, it is important to assess the current use of the Internet by educational interpreters as well as their level of computer comfort and skill with the Internet.

Therefore, the research questions that guided this investigation are:

1. What are the relevant personal and professional characteristics of educational interpreters who use sign language in public schools?
2. What are the resources that are currently used by sign language interpreters in integrated settings to acquire new vocabulary?
3. What are the Internet use and access levels of educational interpreters who use sign language in public schools?
4. Are there (a) relationships between personal and professional characteristics and vocabulary development practices? (b) relationships between personal characteristics and Internet use? (c) relationships between vocabulary development practices and Internet access levels?

Method

Participants

The present study investigated the sign language development practices of interpreters working in
British Columbia, Canada. A sample of the interpreter/signing support staff population in BC was chosen based on two surveys done by Van Gurp (2001a, 2001b). Based on the data from these surveys, a sample of 25 districts in BC was identified. These districts contained individuals who had responded to previous surveys regarding educational interpreting, thus increasing the likelihood of a high response rate. Furthermore, each district identified had at least one educational interpreter or special education assistant whose job required signing to a deaf or hard of hearing student. The total number of educational interpreters in the sample was 66. The chosen districts represented a mix of urban and rural districts. Given the wide variety of job titles assigned to individuals serving as educational interpreters to deaf and hard of hearing children in BC, the defining factor for this group is that members are expected to interpret the classroom instruction and conversation of students from English into sign language for a student or group of students. Furthermore, depending on the student and the situation, they are expected to interpret the sign language from the student who is deaf or hard of hearing into spoken English.

Questionnaire

This investigation used a questionnaire (Appendix A). The development of the instrument arose from a synthesis of ideas from the literature and feedback from teacher educators and educational interpreters.

Research question one of this study was addressed in the demographic section of the survey. The relevant personal factors identified were gender, age, training, certification, family background, and years of experience. The interpreting profession is relatively young, and it is possible that one’s age could have a relationship to the type of training received or exposure to particular sign systems. Family history was included in order to ascertain whether a relationship exists between new vocabulary development practices and sign language background. The work context of the educational interpreter was also captured in this section through questions related to job titles, formal and informal preparation time, preparation materials, and interpreter’s perceived need for vocabulary development.

Research question two was addressed by questions related to the frequency of use of the various resources available to interpreters. Furthermore, the interpreters’ impressions of the utility of each type of resource were also captured on a three-point scale. The resources typically available to interpreters for vocabulary development include other sign language users (hearing or deaf), books, videotapes, CD-ROMs, and most recently the Internet.

Research question three was addressed by questions relating to Internet access and use. The questions were broken down into computer availability and access to the Internet. Three contexts were considered for each access question, namely, the classroom, the school, and the home. A task analysis conducted by the first author identified that searching and viewing of web pages is the minimum skill level needed to view sign language dictionaries online. Based on these findings, a set of questions assessing participants’ comfort levels with computers and the Internet was added to the questionnaire. Individuals who reported not using the Internet or computers were asked to record the barriers to access to and use of the Internet that they perceived or encountered.

The final set of questions on the survey related to the hypothetical development of a resource designed to provide curriculum-related ASL vocabulary video clips via the Internet. The questions attempted to assess the interpreters’ attitude toward such a model and the interpreters’ suggestions as to who should be the sign language models.

One weakness of the questionnaire development process was that only limited pilot testing was undertaken on a group of three educational interpreters. To address this limitation, an item-by-item alignment check was undertaken to ensure that each research question was checked for an appropriate level of discrimination. If a scale or an item did not provide enough detail, or conversely if there was too much detail, then the item or the scale was changed. The clarity of the questionnaire directions and the readability of the items were addressed by review of a three-member research committee of teacher educators, two of whom are specialists in the education of deaf and hard of hearing students.
A second limitation is the self-reporting method used to gather the data. Due to the fact that the present study was both descriptive and preliminary in this area, the risks of using a self-report measure were outweighed by the advantage of the knowledge gained for future research and projects. In order to minimize affective reactions to the instrument, items were analyzed to avoid sensitive issues that might skew responses (Cox, 1996). Furthermore, no questions were asked about the signing method used with the student(s). These questions were omitted due to their poor reliability record in previous research (Schick et al., 1999). The overall length of the survey was designed to be completed in 15 minutes or less. It was hoped that the combination of short length and neutral questioning would contribute to the development of goodwill necessary for reliable responses. Comments on the returned surveys such as “good survey” and “targets important issues,” in combination with the high number of detailed comments regarding suggestion for future resources, suggest that goodwill towards the survey was achieved for many of the participants.

Data Collection

Educational interpreters were contacted through the Teachers of the Deaf and Hard of Hearing (TDHHs) throughout BC. There is no complete registry of educational interpreters in BC, but every child in BC who receives public funding for an interpreter also receives services from a TDHH. Thus, the decision was made to contact the educational interpreters in the selected school districts through the TDHH in those respective districts. A survey package was distributed to one TDHH in each school district selected for inclusion in the study. The package contained a letter requesting the help of the TDHH in distributing surveys, a copy of the survey and a set of sealed individual survey packages to distribute to the educational interpreter(s) in that district. The individual survey packages for each interpreter were enclosed in individual sealed envelopes and contained self-addressed stamped envelopes for returning the surveys. The cover letter for the survey explained the purpose of the study, requested the participation of the interpreters, and described procedures for returning the questionnaire. The TDHH packages were mailed in late April, and participants were asked to return the questionnaires by June 30th of the same year. The returned questionnaires were completely anonymous.

Data Analysis and Reporting

The demographic, vocabulary development, and Internet access and use data were summarized into frequencies, averages, and ranges. Correlational and chi-squared analysis was then used to examine vocabulary development behaviors and Internet use in light of the relevant demographic factors. Based on the descriptive nature of this study, only limited inference was made from any correlational findings. Beyond descriptive statistics of the sample, the only tests used on the data were t tests for comparing subgroups in the sample, chi-squared calculations for determining associations between categorical variables, and correlations for determining associations between continuous variables. The qualitative analysis consisted of organizing written comments into themes using the constant-comparative method (Merriam, 1998). The emergent themes are represented in the results along with direct quotes selected from participants whose quotes appeared representative of these themes.

Results

Of the 66 surveys mailed, 33 were returned, for a response rate of 50%, which was deemed adequate for a survey of this type (Babbie, 1982, as cited in O’Rouke, 1999). Twenty-nine of the respondents worked full-time and the remaining four worked at least four out of five days a week. An average school day in BC has between five and six hours of instruction.

Personal and Professional Characteristics

Personal characteristics of educational interpreters were determined by questioning them with regard to their age, gender, signing background, and connection to the interpreting profession (i.e., training, certification, and interpreter association affiliation). Participants had been working as educational interpreters or sign-language support staff for an average of 97.5 months, or 8.1 years (M = 8.1 years, SD = 5.9 years), with the range being from 6 months to 25 years. Twenty-four percent of the participants had less than
or equal to 2 years experience, whereas 42% had between 2.1 and 10 years of experience, and 33% had more than 10.1 years of experience (the total does not add up to 100% because of rounding).

Thirty (94%) of the 32 subjects who reported their gender were female. The mean age was determined by assigning participants the median age of the age-bracket they selected \((N = 33, M = 37.4 \text{ years}, SD = 8.9 \text{ years})\). The range was from 21.5 to 58.0 years. The actual minimum could have been between 18 and 25 years and the actual maximum could have been anywhere between 56 and 60 years. The majority of people surveyed (70%; \(N = 23\)) learned sign language as adults. Six of these respondents had deaf children and learned by necessity. Less than 10% of all participants \((N = 3)\) learned sign language as children and the remainder (21%; \(N = 7\)) learned in adolescence.

Three associations of professionalism were asked of each participant. These were whether the individual was certified as an interpreter, whether a current professional interpreter association membership was maintained, and/or whether an interpreter training school had been attended. The response rates for professional affiliation are shown in Table 1. The participants who had completed an interpreter training program had graduated from the program an average of 4.2 years prior to the study, with the exclusion of one subject who had graduated 24 years previously. A chi-square analysis, \((1, N = 33) = 4.06, p < .05\), indicated that membership in a professional interpreter organization and graduation from an interpreter training program are significantly associated. People who reported graduating from a program were more likely to maintain current membership in professional interpreter associations.

### Access to Preparatory Materials

Data were collected on job title and access to preparatory materials and time. The job titles that individuals held fell into two distinct categories. The first type (Type 1) focused on the individual's role as an educational assistant or teaching assistant. Job titles such as Student Support Worker, Special Education Assistant, and Teaching Assistant were grouped into this category along with hybrid titles, such as Educational Assistant/Interpreter. Type 2 titles were focused on the role of interpreting and included titles such as Interpreter, Educational Interpreter, and Sign Language Interpreter. The percentages of Type 1 and 2 job titles were 59% and 41%, respectively.

Interpreters were asked to report the average number of times per week they were provided material in advance of a lesson to prepare for the interpretation, with 29 participants responding \((M = 3.2 \text{ times}, SD = 4.6)\). Eleven (38%) reported having no lesson previews in an average week and another 14 (48%) were afforded less than 5 opportunities a week. There was a significant effect of job title on the number of times an interpreter received preparatory materials in advance of a lesson, \(t(30) = 2.77, p < .01\). Interpreters with Type 2 job titles received preparatory material in advance of their lessons significantly more often than did interpreters whose job titles were diluted or focused on the educational assistant’s role (Type 1). Participants were not asked how many specific lessons were interpreted per week. Given the context of isolated deaf students and interpreters selected for the study, it is unlikely that any lessons were repeated.

Participants were asked about the number of hours of preparation time they received during an average week and whether an amount was written into their contract. Five (16%) of the 32 respondents to this question had time written into their contracts, 22 (69%) did not, and 5 (16%) were unsure. The average preparation time per week for the entire group was less than two hours \((N = 32, M = 1.8 \text{ h}, SD = 1.86)\). There was a significant effect of job title, \(t(30) = 4.21, p < .05\). Signing support staff with Type 2 job titles (interpreting focused; \(N = 13, M = 3.1 \text{ h}, SD = 1.53\)) had on average 2.3 hours more preparatory time per week than signing support staff with Type 1 job titles \((n = 19, M = 0.8 \text{ h}, SD = 1.48)\). Interpreters did not believe that

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Measures of professional affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduation from an interpreter training program</td>
<td>33</td>
</tr>
<tr>
<td>Certification</td>
<td>33</td>
</tr>
<tr>
<td>Current affiliation with an interpreting organization</td>
<td>33</td>
</tr>
</tbody>
</table>

---
they had enough preparatory time on average. Only one interpreter strongly agreed with the statement, “I have enough preparation time for my interpreting duties,” while 69% disagreed or strongly disagreed with the statement. Furthermore, in a separate question, 73% of interpreters either disagreed or strongly disagreed with the statement, “I receive enough support with my Sign Language vocabulary development.”

Perceived Need for Vocabulary Resources

Interpreters were asked to self-report the number of times during an average week they encountered an English word or concept for which they did not know the established (or new) sign (N = 31, M = 6.7 times, SD = 5.31). The maximum number of times reported was 20 and the minimum was 1. When unknown vocabulary frequency was individually correlated with preparatory time, work experience, and age group, no significant relationships were found (r = -0.08, p > .05; r = 0.05, p > .05; r = .01, p > .05, respectively). There was also no significant effect of job title. Furthermore, there was no significant effect of having graduated from an interpreter training program on the reporting of encounters during an average week with unknown vocabulary.

In order to test the hypothesis that the demands of secondary-school interpreting are more vocabulary intensive, a correlation was done between the age of the students with whom interpreters worked and the number of times the interpreters reported not knowing the appropriate vocabulary. No significant association was found between the grade for which interpreters worked and the number of times they reported unknown vocabulary in an average week (r = 0.31, p = .096).

Current Resources Used to Develop Unfamiliar Vocabulary

To shed light on which resources interpreters used to develop new vocabulary, participants were provided a list of common resources and asked to represent the frequency of their use by selecting one of the following choices: quite often, sometimes, very little, or never. Participants who used the resource were then asked to rate their satisfaction with the resource as very satisfied, somewhat satisfied, or not satisfied. The frequencies of use and satisfaction levels of users are presented in Table 2. When divided into the two categories of human vs. nonhuman resources, the analysis revealed that human resources (colleagues and deaf adults) were preferred significantly more than nonhuman resources (books, videotapes, CD-ROMs, Internet), t(145) = -6.25, p < .01. Videotapes and books, which both have a long legacy as popular learning tools for ASL learners, both had high saturation rates: 94% of the respondents have used them at least some of the time for vocabulary development. Books were used much more frequently than videotapes (47% vs. 16% of participants, respectively, reported using them quite often). Videotapes, on the other hand, received much higher satisfaction scores than books (29% were very satisfied with videotapes vs. 10% with books).

Of the six vocabulary development resources listed, CD-ROMs and the Internet were used dramatically less frequently than the other options. Fifty-six percent of respondents reported never having used CD-ROMs and 44% never used the Internet. Both the Internet and CD-ROMs had only a 17% very-satisfied response rate. In fact, the Internet as a resource had the distinction of scoring the highest dissatisfaction score of all options.

In contrast to the satisfaction ratings, open-ended comments on the content of the Internet were overwhelmingly positive about its potential. Of the 26 comments that were categorized, 21 were positive and 5 were negative. Many of the positive responses were from participants who reported never having tried the Internet as a resource. For example, one participant said, “I’ve never used an online dictionary, but would love to check one out.” Another participant stated:

I think online dictionaries [are] a wonderful and useful resource especially for interpreters and educators who live far from larger centers (e.g., Vancouver, Calgary, Toronto) and often feel isolated and unable to access proper resources workshops etc. Although online dictionaries [are] secondary to asking a Deaf ASL specialist, I think it is a necessary tool for Interpreters and other sign support staff.
For the purpose of gathering feedback based on experience, only comments from those individuals who reported using the Internet as a resource in section two of the questionnaire were analyzed for themes (N = 19). The constant-comparative method, as described by Merriam (1998), was used to determine two predominant themes. The first theme was summed up by the phrase, “the content is too basic,” or, as one participant said, “Most of the time the online dictionary has only limited signs and signs I already know.” Fourteen of the subjects touched on this limitation of current Internet ASL dictionaries. The second dominant theme was the “need for content organization.” Participants want to be able to access content by theme or subject. For example, subject 22 said, “The educational environment is always taught in themes in younger grades & more specific at higher levels.”

The last question relating to the development of online resources asked participants, “If an agency were to develop a comprehensive online dictionary for signing support staff, who should the sign models be?” On average, each participant selected just over three groups to be sign language models (3.28 groups). There was a clear majority of support for deaf ASL specialists, deaf community members, and interpreters.

### Internet Use and Access Levels of Educational Interpreters

The participants’ computer and Internet availability was assessed in three contexts, namely, the classroom, the school, and the home. The summary of computer availability and Internet connectivity for the three contexts is presented in Table 3. The survey questions focused on the presence of computers, the presence of an Internet connection, the speed of the connection, and the computer availability when needed. Finally, participants were asked to identify the key constraints to using computers within each context.

In the classroom, for every 10 times an interpreter needed the computer, it was available 6 times. The two key themes describing the limitations to both the classroom and general school use were “students first” and a “lack of time.” Expressions such as, “I’m too busy interpreting” and “not enough time” were common. When interpreters did have time to use a computer in the school, more than 3 out of every 10 times it was already in use. The home was the third context for which participants reported their computer access and Internet connectivity. The home is the furthest context from interpretation events, which predominantly occur in the classroom. The majority of participants (78%; N = 32) had computers in their home that were connected to the Internet.

The second dimension of computer use addressed by the survey was the participants’ comfort levels with computer programs and the Internet. Over 90% of the respondents were comfortable or very comfortable using computers for e-mail, basic computer software, and for searching out and viewing Web pages.

### Discussion

The demographic findings of this survey are consistent with the largest and most recent survey of educational interpreters in the United States (Jones et al., 1997). Specifically, if you were an interpreter in a British Columbia school at the time of this study, it is highly likely that you were female, in your thirties,
and an adult learner of sign language. You worked at least four days a week and there is approximately a one in three chance that you had been on the job less than two years.

With respect to professional affiliation, the levels of certification reported by Jones and his colleagues (1997) were higher than those found in this study; Jones et al. reported 35% certification as opposed to 12% of the surveyed BC interpreters. Another measure of professionalism addressed was whether or not individuals maintained membership in a professional interpreting association such as RID or AVLIC. Thirty-nine percent of interpreters maintained a current membership. No previous study has reported professional membership statistics for this group or similar groups, making comparison impossible. Of interest to future researchers may be the fact that those interpreters who graduated from an interpreter training program were more likely to maintain active membership than those who had not. The reasons for or against maintaining memberships were not requested in this survey.

To place the individual within a work context, questions regarding job title, preparation time, preparation materials, contact with other signers, and proximity to the deaf community were asked. When these factors were analyzed for interactions, a pattern related to job status emerged that is supported by previous research. This study found that an individual’s job title was significantly associated with preparatory time and access to materials before a lesson for preparation. Numerous studies have pointed to the fact that the interpreter’s role should not be compromised by other duties such as preparing classroom materials for the teacher, marking, supervising children, tutoring, preparing classroom displays, and photocopying (Hayes, 1993; Jones et al., 1997; Salend & Longo, 1994; Stewart et al., 1998). The consistent theme is that the more noninterpreting duties that are requested of an individual, the more that person’s ability to provide quality interpretation is diminished. In this study, individuals who reported having job titles that clearly represented their roles as interpreters received more preparatory time and more access to materials prior to lessons than did those interpreters who had job titles that were diluted. Although questions regarding the role of job title and job description were not the primary focus of this study, and although it is not clear that the job title gave rise to the job description (or, alternatively, the other way around), the results suggest that rewriting a job description and refocusing a job might be one of the most cost effective and politically effective ways of aligning educational interpreters’ job duties with the role of communication facilitation.

The universality of perceived need for professional development in the area of vocabulary development across interpreters of different personal, training, and professional backgrounds is supported by the fact that 73% of the participants indicated that they would like more support with their sign language vocabulary development than they currently receive. Jones et al. (1997) found even stronger support for more professional development among the educational interpreters they surveyed in the U.S (95%). Educational interpreters’ openness to professional development is very promising in light of the findings by Schick et al. (1999) that interpreters in Colorado who meet the minimum standard for hire continue to require ongoing professional support to reach desired levels of interpretation skill.

When it comes to which resources interpreters prefer for sign language vocabulary development, clear preference for “human resources” over “nonhuman resources” was found. There was also a significantly higher satisfaction level associated with the human resources compared to the nonhuman. This finding

### Table 3 Computer and Internet availability by percent

<table>
<thead>
<tr>
<th></th>
<th>Computer present</th>
<th>Connected to Internet</th>
<th>Speed of connection</th>
<th>Availability per 10 tries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Yes</td>
<td>No</td>
<td>N</td>
</tr>
<tr>
<td>Classroom</td>
<td>32</td>
<td>81%</td>
<td>19%</td>
<td>32</td>
</tr>
<tr>
<td>School location</td>
<td>32</td>
<td>94%</td>
<td>6%</td>
<td>32</td>
</tr>
<tr>
<td>Home</td>
<td>32</td>
<td>88%</td>
<td>13%</td>
<td>32</td>
</tr>
</tbody>
</table>
appears to be a confirmation of the obvious: people would rather deal with other people than inanimate resources.

The most frequently used nonhuman resources were books. Surprisingly, books also received the lowest number of “very satisfactory” responses compared to all the other resources. This juxtaposition demonstrates the importance of convenience to busy interpreters. Considering that the average weekly preparatory time for interpreters is less than two hours and that interpreters reported being “too busy,” it is not surprising that interpreters are willing to put up with lower quality resources in order to have them easily accessible. In contrast to books, videotapes were used significantly less often; however, their satisfaction ratings were almost triple that of books. This demonstrates the importance of complete visual signals when learning a visual language. This finding is consistent with subjects’ comments stating that “signs in context” are a desirable element to include in future (Internet) resources. Therefore, the results suggest that an ideal vocabulary development resource would combine the rich context of video with the convenience of books.

It is surprising, then, that compared to all other resources the Internet had the highest dissatisfaction ratings. The question that needs to be answered is this: Why is what sounds so good in theory (the convenience and rich context of the Internet) not working in practice? One possible reason for the participants’ dissatisfaction with the Internet as tool for vocabulary development might lie in the issue of interpreters’ access to computers and the Internet. According to Bates (1995), whose research focuses on technology and distance education, “access is usually the most important criterion for deciding on the appropriateness of a technology” (p. 2). In the case of educational interpreters, access may be considered in three distinct domains. First, the resource must be physically available. In the case of a book, it must be nearby when needed. In the case of the Internet, an available computer that is connected to the Internet must be nearby. Second, the interpreter must be afforded the time and resources necessary to make meaningful use of the Internet. Finally, and perhaps most importantly, the interpreter must possess the minimum skill set necessary to use the resource.

Although most of the interpreters in this survey reported having computer skills and physical access to computers within their school context, one of the dominant themes that emerged from the data was that interpreters do not have enough time during their day to use computers. In addition, the current online sign language resources do not appear to meet the learning needs of educational interpreters. According to interpreters, existing resources are “too basic;” the current level of vocabulary of online sign language dictionaries is suitable for beginners, offering nothing for the intermediate-to-advanced sign language user. It was also suggested that the content should be organized by subjects or themes that match those taught in classrooms.

Educational interpreters’ competence levels are often criticized in the literature; however, little attention is paid to viable solutions (Johnson, K., 1991; Jones et al., 1997, Schick et al., 1999). A recent notable exception to this trend is Dean and Pollard's (2001) task-analysis approach to interpreting and their detailed suggestion regarding the merits of apprenticeship-style training for interpreters. The present study suggests an additional approach for professional development of interpreters working in isolated settings: the design of Internet-based sign language vocabulary resources that are guided by input from educational interpreters. The original intent of the study was to look at fixed-content web dictionaries. However, by combining the interpreters’ desire for human resources with the suggested advantages of the Internet, one could argue that the most successful future of isolated-interpreter professional development may lie in the use of video relay services that connect interpreters to ASL expert(s) in real time or with insignificant delays via the Internet. Feedback in this survey also included the following points: online sign language resources should be more comprehensive, they should be organized by topic or in connection with the curriculum, and they should use a variety of sign models. Furthermore, interpreters must have access to a high-speed online computer, if not in the...
classroom, then somewhere in the school where they are not required to undergo long waiting periods.

Although the future of the Internet is promising with regard to providing resources to distributed and distanced professionals, current online sign language resources do not meet the strong and continuing sign language vocabulary development needs of educational interpreters. In order to realize the Internet’s potential, resources need to be developed that meet the specific requirements of educational interpreters, and more detailed research needs to be undertaken to ensure that designers understand and properly respond to those needs in the form of relevant sign language learning resources.

Appendix A: Educational Interpreter Questionnaire

Instructions: Please respond in the spaces provided. If additional room is needed, please use the back of this sheet.

* Do not write your name on this form *

You have the right to refuse to participate and you may withdraw from the study at any time without prejudice.

**Part 1a—Personal Information:**
1. Number of years as educational interpreter? _______ years and _______ months
2. Are you full time or part time? □ Full □ Part (if part, what is your full time equivalent—FTE (0–1.0) _______
3. Job title?
4. The deaf or hard of hearing student(s) with whom you work is/are in grade(s) _______.
6. Gender □ Male □ Female
7. Are you from a family with Deaf members? □ No □ Yes
8. If yes, what is your relation to your Deaf family member? (mother, father, brother etc.) _______
9. When did you first learn to sign? circle one (infant) (child) (adolescent) (adult)

**Part 1b—Work and Community Information:**
10. Estimate how many times during an average week you are given a lesson outline, reading material, or you generally know the curriculum far enough in advance of the actual lesson or activity in order to prepare for signing the material. Number of times: (_______)
11. Estimate how many times during an average week you encounter an English word or concept for which you do not know the established (or new) sign. According to experienced interpreters, these situations may be represented by resorting to fingerspelling or inventing a sign. Number of times: (_______)
12. Estimate the amount of time during an average workweek you have for interpreting-related preparation. Amount of time: (_______)
13. Is there an amount of time written into your contract? □ No □ Yes □ I don’t know
14. Amount of time: (_______)
15. Are there Deaf adults working in your school? □ No □ Yes
16. If yes: How many? _______
17. Are there other signing support staff working in your school? □ No □ Yes
18. If yes: How many? _______
19. Do you hold an interpreter certification? □ No □ Yes
20. If yes: Which one(s)?
22. Do you currently hold a membership to an interpreting association? □ No □ Yes
23. if yes: Which one(s)?
24. Have you ever graduated from an interpreter training program? □ No □ Yes
25. if yes: When? __________
26. if yes: Which one(s)?
27. A Deaf community can be described as a community of Deaf adults, children, and/or families that gather together for social occasions both privately and publicly. They typically use American Sign Language as their main language of communication when with other members of their community. By this definition, is there a Deaf community in the town where you work? □ No □ Yes

Part 2—New Vocabulary Development:

Description: We are interested in the different resources that you use when you encounter English concepts or words for which the sign vocabulary is unfamiliar to you. Below, is a list of resources that interpreters have used to learn new sign vocabulary.

Please complete each row by placing a checkmark in: (1) How often you use this type of resource? and in (2) How satisfied you are with this type of resource?

<table>
<thead>
<tr>
<th>Resources</th>
<th>How often you use this type of resource?</th>
<th>How satisfied are you with this type of resource?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quite often</td>
<td>Very satisfied</td>
</tr>
<tr>
<td></td>
<td>Sometimes</td>
<td>Somewhat satisfied</td>
</tr>
<tr>
<td></td>
<td>Little</td>
<td>Not satisfied</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Printed Sign Language dictionaries and books
Sign Language videotapes
Sign language dictionaries on CD-ROMs
Sign Language dictionaries on Internet
Contact another interpreter/colleague
Contact a Deaf adult
Other (please describe):

Part 3—Computer access:

Instructions: We are interested in your computer access at school and at home. Please fill in each row

<table>
<thead>
<tr>
<th>Context</th>
<th>Computer(s) present</th>
<th>Connected to the Internet</th>
<th>Speed of connection</th>
<th>Availability (# of times available out of 10 when needed)</th>
<th>Key limitation(s) to availability (add your comments here)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School classroom(s)</td>
<td>Yes</td>
<td>Yes</td>
<td>Fast</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>Other location(s) in</td>
<td>No</td>
<td>No</td>
<td>Fast</td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>school (staff use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td></td>
<td></td>
<td></td>
<td>10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>

Notes: 1) A fast connection would be a T1, cable, ADSL, or similar speed connection. 2) A medium connection would be a 56.6kbps modem. 3) A slow connection is anything less than a 56.6kbps modem and requires long waits for web pages with lots of graphics. 4) Computer availability refers to how readily you can access the computer. It is measured by the number of times out of 10 that the computer is available to you when you want it. If you can rarely access a computer in the classroom, you might circle a 1 out of 10.
**Part 4—Computer comfort level**

Place a check in one box for each row. **Do not** place a check on the line between columns.

<table>
<thead>
<tr>
<th>very comfortable</th>
<th>comfortable</th>
<th>uncomfortable</th>
<th>very uncomfortable</th>
<th>never tried</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1. Are you comfortable using e-mail?
2. Are you comfortable using basic computer programs, for example CD-ROMs?
3. Are you comfortable using the internet to search out and look at web pages?
4. Have you received any internet training since working for your current employer? □ No □ Yes
5. if Yes: Please describe:

**Part 5—New vocabulary development support**

Place a check in one box for each row. **Do not** place a check on the line between columns.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

- I receive enough support with my Sign Language vocabulary development.
- I would like more support regarding computer skills and internet access at my job.
- I have enough preparation time for my interpreting duties.

**Part 6—Vocabulary resources and the internet**

Whether or not you have used an online dictionary, please comment on the content of online sign dictionaries and using the internet to support signing support staff.

**If an agency were to develop a comprehensive online dictionary for signing support staff, who should the sign models be?**

Check more than one if you wish.

- □ Deaf ASL specialists
- □ Hearing ASL specialists
- □ Deaf adults from Deaf communities
- □ Interpreters
- □ Deaf children
- □ Other?

Is there anything you would like to add?

Please Mail this survey in the Enclosed Envelope to:

Brian Storey, #105–1550 S. W. Marine Drive, Vancouver, BC V6P-6A6
References


Received January 15, 2003; revisions received May 24, 2003; accepted June 4, 2003.