INTRODUCTION

Augmentative and Alternative Communication (AAC) is a form of Human-Computer-Interaction (HCI) in which an individual with a disability must select and/or retrieve information stored in their AAC device in order to construct utterances needed for spoken and/or written communication. Learning and use of an AAC device is often problematic due to device characteristics and communication pressures. For practitioners, assessing AACHCI is difficult and time consuming because there is no direct way to record, view and analyze the interactions occurring between the user and their AAC device. Unfortunately, this means that the practitioner has no direct way to monitor or assess an AAC user's HCI with their device or to make clinical judgments based on empirical evidence of user performance. Automated Data Logging (ADL) technologies could provide the practitioner with an easy to use and reliable means of recording and measuring AAC-HCI, directly benefiting the AAC user through evidence-based clinical practices, and empirical research and development on AAC use and usability.

ADL shows promise for clinical practice, but work needs to be done to establish the validity of its measures and measurement contexts. As a technology for measuring AAC-HCI, ADL can be used to accurately and reliably record simple and low inferential information pertaining to device use, such as device input and output rates, keystroke and word counts, device related errors, selection efficiency, etc. However, current versions of ADL are not capable of recording other communication modalities (e.g., gesture, vocalizations), interlocutor participation or descriptions of the communication context.

Conventional language measures based on a vocal model of communication may not be valid under AAC-HCI constraints. Measures like mean length utterance may not reflect language development, but rather the technical constraints imposed by the AAC device. When personal communications are stored on one's communication device, a number of ethical and legal concerns arise with respect to communication control and privacy. These issues include: the protection of logfiles from unauthorized viewing and analysis; providing permission for ADL to occur; the privacy rights of individuals interacting with an individual using ADL; and how the technological characteristics of AAC devices affect communication control and privacy, etc.

This presentation will present part of the results of a Phase I study funded by the National Institute on Deafness and Other Communicative Disorders, Small Business Technical Transfer Program (Higginbotham, 2007). Findings from four focus groups (practitioners, engineers, scientists, consumers) were analyzed to inform us about the construct and measurement validity issues that must be dealt with to make a valid assessment tool.

METHODOLOGY

Four focus groups participated in this project representing four different stakeholder groups: practitioners, scientists, engineers, and consumers. Five to six individuals participated in each group. Focus group members were solicited based on their prominence in their various constituency groups and previous work with automated data logging and/or related transcription and analysis measures. Groups communicated via a listserv for a 2 month period (approximate). The engineering and practitioner group also discussed met in a face-to-face meeting. Although the questions posed to each group were tailored to their particular experiences and expertise, general topic themes

included: What would you like ADL to be able to do?, What are your current concerns with ADL?, Describe how you would have ADL solve the following problems?, What features would you like to see on an ADL application? What concerns do you have with the ethical use of ADL, particularly with respect to communication privacy?. Each of these questions was used to facilitate exchanges on the major topic areas. They were frequently followed up by questions related to the focus group members' responses.

Email and spoken transcripts were compiled and reviewed for thematic content. Groups were analyzed individually, but themes and categories were later combined.

RESULTS
The major themes are presented below:

Theme Area 1: What should Automated Data Logging do?
This theme was used to derive the general principles driving the interface design. The ADL interface should provide a data analysis that:
- Is meaningful to practitioners,
- Provides valid indicators of communication performance,
- Presents a guide for making valid conclusions, helping the practitioner adjust therapy, device content, and organization in an efficient manner,
- Minimizes misinterpretation
- Promote visual analysis
- Facilitates comparison across time & setting
- Improve product design
- Protects consumer privacy
- Is easy to use.

Theme Area 2: Specific Features Recommended for ADL
Information contained in this theme area was used to determine the specific data collection, analysis and report features to be provided on each interface. The specific features chosen for the interfaces were based on several factors, including:
˙ the relative importance of a particular measure,
˙ analysis or safeguards to ensure valid data collection
˙ the relevance for practitioner use,
˙ novelty of the feature (i.e., not implemented before in an ADL approach, such as rating scales or device on/off measurement); designer-perceived contribution to interface design (e.g., present graphic analysis of performance data).

Theme Area 3: Caveats
This theme was used to determine areas of concern regarding validity and misuse of data including:
- Problems with quality of data and its use by professionals.
- Quantitative results create temptation to jump to conclusions, misuse data.
- Appropriateness of Measures
- Differentiating between the Person and the Device
- Competence of the Practitioner
- Problems Deriving Communicative Intent from Data Files
- Developers Must Take the Lead in Ensuring Validity
- Problems with Using ADL for Device Design
- Validity and the Use of ADL

Theme Area 4: Legal and Ethical Concerns
This theme provided some information for further safeguarding the consumer-generated logfile from inappropriate inspection or use, including:

- Straightforward Solutions to Ensure Privacy
- Permission Protections for Using Logfiles for Research and Clinic.
- Use of Logfiles by Insurance Companies.
- Use of Logfile Data to Track Practitioner Time Providing Services Privacy Concerns. A review of the current literature on ADL and the focus group transcripts was undertaken by a lawyer with a specialty in disability and augmentative communication, in order to obtain a professional assessment on the legal and ethical implications for the clinical application of ADL. A summary of the findings is included below:

Three criteria that ADL or any innovation must meet in order to be proposed as a replacement for an existing procedure. They are:
1. It must be very easy to learn and to implement;
2. It must be able to be performed in less time than the procedure it will replace; and
3. It must provide the same information or higher quality information than the procedure it will replace.

In all cases, ADL failed to meet the criteria. Currently, ADL appears to require more, rather than less time to use. Information provided by ADL has not been demonstrated by scientific research to enhance current evaluation methods, and it appears that learning to use and implement the technique requires more, not less time than standard assessment practice.

Similarly, ADL fails to meet the criteria of being recognized as a valid additional procedure because there is no published information that indicates that ADL will provide access to information that is uniformly recognized as being essential to clinical decision making, and that could not be otherwise obtained through other assessment techniques. There are no controls for scientific method, quality, or conflicts of interest. There also are no filters for vocabulary, allowing articles to state they are discussing "best practices," and "evidence based practice," regardless whether either is an earned application of those phrases, or even, as in the case of evidence based practice, it is an accurate application of the concept.

The legal issues and communication privacy concerns may be reduced to one of personal property, in which the inappropriate use by a professional may constitute the act of theft.

Conclusion
In conclusion, we found that there are specific uses for ADL for research; however, insufficient work has been done to demonstrate its validity or efficiency as a practitioner tool.
Further, ADL doesn't meet the criteria to replace or be used in addition to standard assessment techniques. Currently, ADL is not appropriate as a replacement for any existing assessment procedure, and it also is not appropriate as an added procedure.
We conclude that affirmative steps are required to protect against ADL's promotion as an SGD assessment tool, to ensure to the greatest degree practicable against its adoption for use by an SGD funding program. ADL should have no current role in SLP

recommendations for SGDs, in SLP reports for SGD funding, or in SGD funding decision-making.

Higginbotham, D.J. (2007). Automated Data Logging Tool (ADL) for AAC Practitioners National Institute on Deafness and Other Communicative Disorders. Small Business Technical Transfer Program. Final Report, Grant #R41 HD047 038-01.