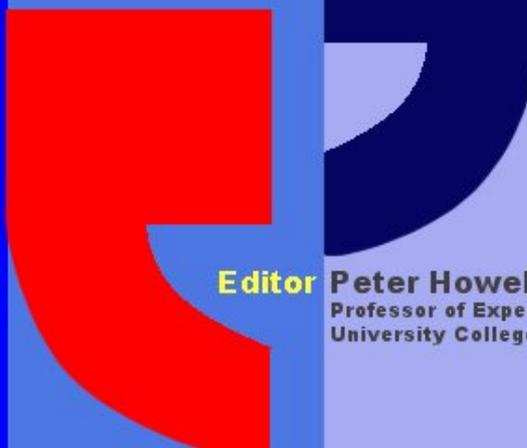


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Stammering Research



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Stammering Research

A Journal Published by the British Stammering Association

Volume 1, Issue 3, September 2004

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Notice

The British Stammering Association is a UK-based charity which seeks to promote understanding into the causes, treatment and understanding of stammering. Its activities include research into stammering which it supports through its vacation studentship scheme (http://www.stammering.org/research_schol.html) and the publication of Stammering Research (provided free of charge to all-comers).

Stammering Research is intended to promote public understanding of high quality scientific research into stammering and allied areas

If individuals wish to make a donation to support either of these initiatives, they should forward a cheque (payable to the British Stammering Association) to The British Stammering Association, 15 Old Ford Road, London E2 9PJ, or call the BSA on 020 8983 1003 (+44 20 8983 1003 from abroad) with their credit card details. If they wish this to be used specifically for either the vacation studentship scheme or Stammering Research, they should mark it accordingly on the back of the cheque. For information on tax-effective ways to support the charity's research activities, please go to <http://www.stammering.org/donations.html>.

Donors will be listed in the last issue of the appropriate volume of the journal unless they indicate otherwise. Companies wishing to make a donation or who wish to make enquiries about advertising in Stammering Research should address correspondence to Norbert Lieckfeldt at nl@stammering.org.

‘Stammering Research’.
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Description

Stammering Research is an international journal published in electronic format. Currently it appears as four quarterly issues per volume (officially published March 31st, June 30th, September 30th and December 31st). The first issue of volume one appeared on March 31st 2004. The journal is dedicated to the furtherance of research into stammering, and is published under the auspices of the British Stammering Association. It seeks reports of significant pieces of work on stammering and allied areas, such as other speech disorders and disfluency in the spontaneous speech of fluent speakers. Articles published include (though are not be limited to) reviews in an area in which the author has produced eminent work and attempts to introduce new techniques into studies in the field. The journal offers an opportunity to table topics where there are grounds for considering a major rethink is required, as well as detailing development and assessment of research-based techniques for diagnosis and treatment of the disorder. Submissions are encouraged that facilitate open access to scientific materials and tools. Articles are peer-reviewed, the role of reviewers being to ensure that accepted standards of scientific reporting are met, including correction of factual errors. Disagreements about interpretation of findings raised by reviewers will be passed on by the editorial board to the authors of accepted papers. These disagreements will not necessarily preclude publication of the article if they are judged to be topics that are suitable for open peer commentary. Once accepted, commentaries will be sought (actively and by self-nomination) from specialists within the field of communication disorder and its allied disciplines. These commentaries will be reviewed for style and content. The author’s responses will be reviewed in the same way. The article, open peer commentaries and author’s responses will be published in the same issue as the target article and in subsequent issues. Authors should contact the editor in the first instance with a short description of the topic area so that its general suitability can be assessed before full submission. Notification that a topic is suitable does not imply that the paper that is subsequently submitted will be accepted. Decisions about suitability will be made by the editorial board.

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SUMMARY OF STEP BY STEP PROCEDURE FOR AUTHORIZING AN ARTICLE TO STAMMERING RESEARCH

1. Contact the editor with a brief outline of the proposed article. The editor and other board members make initial decisions only as to the suitability of the general area proposed. The primary function in this step is to ensure the topic is of sufficiently broad interest for, and within the remit of, the readership of Stammering Research. The intent behind this initial contact is to ensure authors do not spend time preparing articles on unsuitable topics. Review, empirical and theoretical work are all appropriate. Authors will be informed whether the judgement is that the proposed topic has a suitable, or too narrow, a focus. Indication that the scope is too narrow does not imply anything about the scientific standard of the proposed work. Neither does notification that a topic is suitable indicate that the submitted work will necessarily be accepted for publication (all submitted material has to go through the normal processes of peer review).
2. Submitted articles are peer reviewed in the normal way and an indication as to suitability of publication or not (possibly after revision) is notified to the author by the editor.
3. After an article has been accepted, the author cannot change the article. It is then made available for open peer commentary. Details how the accepted article can be accessed are posted on the British Stammering Association's website (www.stammering.org). Indications that the article is available for access are posted on <http://www.mnsu.edu/dept/comdis/kuster/Internet/Listserv.html> for ASHA members, the British Stammering Association's website (<http://www.stammering.org>), the stut-l list (stutt-l@listmail.temple.edu), the stutt-x mailing list (stutt-x@asu.edu), and on the stuttering home page (www.stutteringhomepage.com). The primary function in posting details about access available to an accepted article, is to alert potential commentators. A list of commentators is being drawn up and individuals are encouraged to submit their nominations (for themselves or others).
4. See the next page for precise details how to prepare a commentary and the timetable allowed for this. When preparing a commentary, authors might find it helpful to consult a recent issue of Stammering Research to see the range of comments that are appropriate, the style and format of commentary.
5. All accepted commentaries are available to the author of a target article from receipt until two weeks after invitations for commentaries has closed. In this time, the author can prepare a response to commentaries. The response will be peer-reviewed by the editorial board. Further details are given on the next page and authors should again consult a recent issue of Stammering Research to see the sorts of comments that are appropriate, style and formatting of a submission.
6. On completion of this process, the target article, commentaries and response to commentaries will be published together in the next issue of Stammering Research. Authors are responsible for preparing their articles according to the stipulated format. The current and previous issues of the journal are available as PDF files at <http://www.speech.psychol.ucl.ac.uk/>.

Notes about commentaries for Stammering Research ISSN 1742-5867

Once a manuscript has been accepted as a target article, the authors cannot change it. The manuscript needs to be available for commentary before it is officially published so that commentaries and the author's responses can appear simultaneously.

Manuscripts are posted for commentary on <http://www.psychol.ucl.ac.uk/> under *Stammering Research*. Commentators are alerted as indicated on the previous page.

Manuscripts will be available for peer commentary for six weeks. Commentaries have to reach the editor, or associate editor, responsible for the article within that time (late submissions will not be accepted). Commentaries should ordinarily not exceed a total (including references and other material) of 1,000 words. The commentaries have to conform to APA style conventions.

In order to appear in the same issue as the target article, commentaries should be sent by email as soon as possible within the six-week period the article is open for peer commentary. The commentary should appear within the body of the email text (not as an attachment) and be sent to psychol-stammer@ucl.ac.uk or to p.howell@ucl.ac.uk. Authors of target articles will receive commentaries as they are accepted and have two weeks from close of submission of commentaries to complete their responses. Commentaries that appear outside this timetable may appear as continuing commentaries in subsequent issues (these are considered in the same way as commentaries that appear at the same time as the target article).

Commentaries will be peer-reviewed and edited for style as well as content. Authors of commentaries need to establish the relevance of their submission to the target article at the outset, and preferably also show an awareness of the wider work of the target article's author.

If there are several commentaries which raise the same point, the editorial board reserves the right to group them together and prepare them as a single coauthored commentary. In this (probably rare) eventuality, the authors will have the opportunity to see the manuscript and decide whether they wish to be included on the list of authors.

Editing and revision of commentaries will be completed within two weeks of close of submission. Revisions that are not satisfactorily completed in this period, or that are received late, may be published as continuing commentaries.

Formatting Accepted Publications in Stammering Research

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Abstract. A short abstract summarizing the significant content and contribution of the paper should be included here. This page illustrates and describes the format for paper submissions. Authors are requested to adhere as closely as possible to this format once an article is accepted. The abstract should be in Times New Roman 9-point font, justified with left and right margins indented 1 cm in from the margins of the main text. **Keywords.** A few key terms that will be used by abstracting services to make sure your article reaches those who will be interested in reading what you say.

1. Introduction

Articles and commentaries should be submitted for review in APA format. After an article or commentary is accepted, it needs to be prepared according to the journal format as indicated next. Articles and commentaries must be in Word format. An article will typically be up to **15,000 words**. A commentary should preferably be up to **1,000 words**. Authors may submit longer articles or commentaries for consideration but these may be reduced in length by the editor. Articles with fewer than 15,000 words and commentaries with fewer than 1,000 words are acceptable if the author can demonstrate sufficient content and contribution. Typically commentaries will have an abstract, usually only a single section in the text headed so as to identify the target article. If an author needs to use more than one section heading and diagrams or figures, then they should follow the same instructions as for preparation of a target article. Each page of an article should consist of single column, of single-spaced text in a 16cm x 24cm column using **A4** or **US Letter** settings on your word processor as illustrated in Figures 1 and 2. Figures should be numbered consecutively and appear close to the text where they are mentioned.

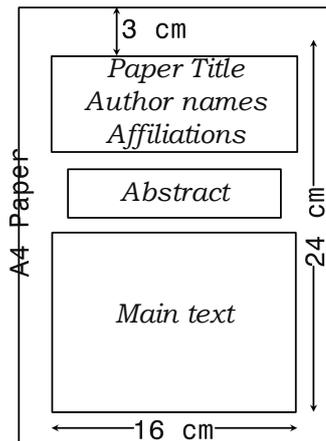


Figure 1: First page format

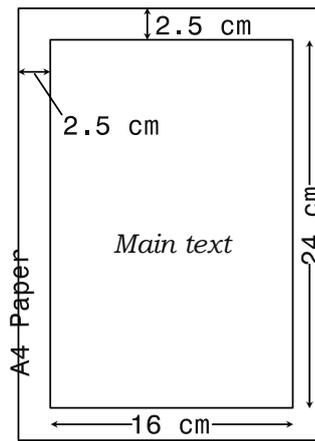


Figure 2: Subsequent page format

2. Detail of styles

The article or commentary title should be bold and centred using 14 point Times New Roman font. Authors' names, affiliations and email details should be centred using 10 point Times New Roman font. The author's name and affiliation should be italicized. The main text and the bibliographical

references must be left and right justified and single line spaced. The main text should be in 10 point Times New Roman font with numbered section headings in 11 point bold font.

All references should be cited using APA referencing styles. For example a publication which is referred to as support for a statement would be cited in the text this way (Howell & Sackin, 2002) whatever the number of authors. When an article is referred to directly in the text as in "... in the work of Howell and Sackin (2002) the ..." only the year is placed in brackets. If there is more than one reference from the same authors in the same year then they are distinguished by using different letter designations after the year as in 1996a, 1996b etc. In the references below, examples are given of how a conference paper, a journal paper and a book would be listed. All references should be listed at the end of the paper using 9 point Times New Roman font.

All figures, and diagrams must be good quality black and white images suitable for readers to display and print. Colour illustrations or text can be used, but bear in mind readers who want to print articles may not have access to a colour printer. When an article is accepted, figures and pictures must be inserted in the word file in the exact position they will appear in the publication. Any format for figures, pictures and diagrams may be used provided they allow good quality reproduction for readers who wish to print off a copy.

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Editorial for Stammering Research

Readers of *Stammering Research* will be aware that it offers two novel features in the area of fluency research: 1) The target article and commentary format that is already lending itself to lively and stimulating debate. 2) Provision of data, software and other resources that it is hoped will have some lasting value to the research community. Sharing data is not, at present, widespread in this research community, partly because of difficult (but demonstrably surmountable) ethical and data protection issues. Sharing software has its own problems such as clashes between academic and commercial interests. There are also issues of what to do with data and software that have been made available. In this issue of *Stammering Research*, the UCL group provide data that demonstrate the effects of frequency shifted feedback on voice control. These can be used for illustrative and teaching purposes or, like the data reported in the previous issue by Howell and Huckvale (2004), for audio, perceptual or other analysis that would be welcomed as submissions to *Stammering Research*.

The current issue of *Stammering Research* includes two more target articles (authored by Acton, 2004 and Sage, 2004), along with a commentary and response to one of them. There has also been some on-going debate about the Savage/Lieven and Furnham/Davis articles which appeared in previous issues and these are published as continuing commentaries. It has become apparent that more time is needed for preparing commentaries than has been allowed to date. On the other hand, it is important that authors of target articles receive speedy feedback and for some commentators to make their point/s immediately. To meet these demands, the rules for submitting commentaries have been extended (the old convention is retained for commentaries that appear at the same time as a target article and the new convention introduced of publishing later commentaries as on-going commentaries). Details are given in 'Notes about commentaries to *Stammering Research*'. One article that appears as a continuing commentary (by Gordon and Ingrid Blood) was sent, but not received, by email in time to be published at the same time as the target article. We wish to apologize to these authors and if other commentators have experienced such problems, they should let the editor know.

The two further publications that appear in the 'Research data, software and analysis' section both concern frequency shifted feedback. Many people have contacted the editor of *Stammering Research* to express interest in trying out frequency shifting and delayed auditory feedback techniques. I searched round for any software that would allow people with the required hardware to do this for a free trial period. Artefact have some such software that is supplied under these conditions. Serge Joukov from that company describes this software in the article in his paper in the research data, software and analysis section of *Stammering Research*. The description of the software is included so that anyone with a PC reading Howell's (2004) review or reading and listening to the demonstrations of the effects of FSF in Howell, Davis, Bartrip and Wormald (2004) (that also appears in this issue of *Stammering Research*) can access and try out these manipulations immediately. The software is available any where in the world though, unfortunately, the software is not available for Mac users (if anyone has a Mac program that makes such manipulations, they should let *Stammering Research* know). It should also be pointed out that when the software produces a frequency shift, there is also a time delay which is 40 ms at minimum (Joukov, personal communication). Thus this, and all other commercial devices, do not produce a pure frequency shift (unlike the original method used by Howell, El-Yaniv & Powell, 1987). Speech synchronous frequency shifts are less distracting than delayed and shifted speech and, consequently, procedures with no delay are more acceptable to long-term users. If anyone is producing a time-synchronous frequency shifting device (particularly one that is available for a free trial period), *Stammering Research* would like them to submit a report for consideration for publication. Please note that *Stammering Research* (and the BSA) have no commercial interest in these products and the publication of these details should not be seen as an endorsement of the said products or imply support of such approaches to alleviating stammering to the exclusion of any other. In this connection, Judith Kuster was asked to examine Joukov's article to see whether it raised any ethical concerns. Thanks are expressed for her comments in this matter (these have been incorporated). Also, as stated previously, reports on other forms of treatment are welcomed as submissions. A lot of the reports that have appeared concern frequency shifted feedback, partly because these procedures are instrumental and the effects are easily demonstrated with audio data (thus, they lend themselves readily to the report format *Stammering Research* offers). Reports of other treatment procedures will also appear (such as Sage's report of the Apple House Fluency Course's approach to treatment).

The current issue includes reports of the results obtained in the Summer of 2004 on three vacation studentships supported by the British Stammering Association. At present, these studentships are open to students in the United Kingdom and interested parties should see the BSA's website (<http://www.stammering.org>) early each year for details.

The next issue of the journal (which will complete volume 1) will include a report of an analysis of some of the Howell and Huckvale (2004) data. Family history data on groups of persistent and

recovered persons who stutter will also be published. There will then be, through the pages of *Stammering Research*, examples of the target article and commentary formats, release of two forms of audio data and associated software, release of one other form of data about speakers who stutter, an example report of one type of analysis that can be done with audio data. It is hoped that the international community will take up the prospects and new challenges that have been opened up by *Stammering Research*. A workshop conference has been arranged for June 2005 which will include tutorials describing ways to deal with the UCLASS material described in Howell and Huckvale (2004) with talks by Rose and MacWhinney (on CHILDES) and Huckvale (on SFS). This has been timed to precede the Oxford Dysfluency Conference so people can attend both. Details of both conferences appear at the end of this issue.

Peter Howell, September, 2004

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TARGET ARTICLE

A conversation analytic perspective on stammering: Some reflections and observations

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Abstract. While the contribution of quantitative research to our understanding of stammering is well-recognized, the reasons for the under-utilisation of qualitative frameworks are less clear. This main aim of this paper is to highlight the distinctive methodological features of one specific qualitative research paradigm, conversation analysis, and to draw attention to the potential of this approach for developing our understanding of interactional implications of stammering. The literature on turn-taking, adjacency pairs and response tokens is examined along with previous conversational analytic work on 'communication disorders', and it is argued that in order to fully comprehend the interactional consequences of stammering we need to engage in a fine-grained analysis of the details of recorded naturally occurring conversation. **Keywords:** Conversation Analysis; Qualitative research; Stammering.

1. Introduction

Research on stammering has traditionally relied upon experimental designs and statistical analyses and in so doing it has made great strides, not only in terms of our knowledge about the nature of stammering, but also with regard to the development of effective treatment strategies. While there is inevitably going to be disagreement over the value of individual studies, there is little doubt that collectively this research has significantly increased our understanding of a wide range of stammering-related issues. However, given the extremely complex and multidimensional nature of the phenomenon, it is possible that an over-reliance on quantitative methods could result in other important aspects being under-researched or overlooked completely. The qualitative research tradition has a long and well-regarded history in the social sciences and the benefits of applying some of these approaches to the study of stammering have been highlighted by Tetnowski and Damico (2001), who suggest that researchers will be able to:

'collect authentic data that are true representations of how stuttering impacts on individuals in the real world,create a richer description of what stuttering is,focus on the impact of stuttering on the individual... and collect data from the perspective of the individual person who stutters [PWS], ...focus on the PWS and their collaborations with their coparticipants within the social context [and] learn more about the phenomenon under investigation, how it operates, and how PWS attempt to reduce its impact in social contexts'.

While the term qualitative research encompasses a wide range of data collection techniques, some, such as in-depth interviewing and ethnographic methods, have a greater potential than others to open up certain relatively unexplored dimensions of stammering. Indeed there are encouraging signs of an increasing willingness among researchers on stammering to embrace qualitative methods. Studies such as those carried out by Crichton-Smith (2002) and Corcoran and Stewart (1998) provide important insights into the lived experience of stammering and highlight the need for more research in this area. However, the descriptions of stammering and its consequences that permeate this kind of research often rely heavily on the respondents' recollections and interpretations of events. While such data allows us access to an important dimension of stammering it is nonetheless problematic in terms of our ability to fully understand the mechanisms at work in everyday interaction. So, for example, Crichton-Smith's (2002:347) suggestion that 'many of the limiting experiences reported..... may be associated with the consequences that follow a member's chosen speech strategies' leaves a number of unanswered questions and generates the need to obtain a much more detailed account of these strategies, how they function in everyday conversation and what interactional implications they have. Alternative research methods, however, may provide the opportunity for obtaining an account of stammering-related strategies at this level of detail and, conversation analysis offers such a potential. Although conversation analysis falls under the broad category of qualitative methods, it represents a quite

distinctive research paradigm and one which, I will attempt to show, is ideally suited to the examination of certain aspects of the phenomenon of stammering.

It is important to stress at the outset that this paper is not intended as a critique of quantitative methods *per se* or even the application of such approaches to the study of stammering. Indeed, while it may be a useful means of classifying various research methods, some regard the distinction between quantitative and qualitative ambiguous and somewhat unhelpful (see Bryman 2004:19; Oakley, 2000:303). This ambiguity is evident in the fact that conversation analysts often employ various types of quantification when reporting their findings. However, these generally take the form of informal quantifying expressions such as ‘regularly’, ‘frequently’, ‘commonly’, ‘routinely’, ‘massively’ and so on, rather than percentages and significance levels¹. While some conversation analysts do stray into more formal counting, quantification is not regarded as the ultimate aim, or even a preliminary stage, of analysis (Hutchby & Woffitt 1998:115). This reluctance to engage in formal quantification derives from conversation analysis’s unique approach to social interaction and this is explored in some detail below. When conversation analysts gather collections of some particular phenomenon, they do so in an attempt to reveal systematic patterns in talk-in-interaction. However, this does not entail treating these phenomena as statistical variables and there is a recognition that each case is unique. Hutchby and Woffitt (1998: 116-19) provide a good illustration of some of the key distinctions between conversation analysis and an experimental approach to talk, and conclude that ‘the focus on quantification tends to lead the analyst away from considering, closely on a case-by-case basis, how participants themselves are orienting to one another’s actions’.

It is also necessary to say a few words here about the primary focus of conversation analytic research, naturally-occurring talk-in-interaction. While data may be obtained from almost any source there is a requirement that it is ‘naturally-occurring’, rather than produced for the purposes of study, as it might be in laboratory experiments or controlled observations (Psathas 1995). Much of the data employed by conversation analysts, then, consists of conversations that take place as people go about their everyday lives, free from the intervention of a researcher. However, the term talk-in-interaction indicates that this research is not just confined to ordinary mundane conversation, but may also include other ‘speech exchange systems’ (Schegloff 1978), such as news interviews, classroom interaction, courtroom discourse and doctor-patient interaction (e.g Clayman 1988; Heritage & Greatbatch 1991; Mehan 1985; Atkinson & Drew 1979; Frankel, 1990). This focus on talk-in-interaction may offer a particular way in to some of the difficulties experienced by people who stammer. As many claim to be fluent while alone² and the nature of the listener³ has an impact on the severity of stammering, there appear to be strong grounds for focusing on the kinds of data advocated by conversation analysis, rather than various forms of monologue.

The main aim of this paper, then, is to highlight the distinctive methodological features of conversation analysis and to draw attention to the potential of this approach for developing our understanding of the interactional implications of stammering. More specifically, it will examine some of the basic foundational concepts of conversation analysis and attempt to demonstrate their relevance for the study of speech dysfluencies. To put these issues in context, this discussion will be preceded by a brief summary of examples of previous work on communication ‘disorders’ which have employed this approach. To begin, however, I will provide some background information on the conversation analytic perspective. This overview is, of course, necessarily selective and draws only on those issues which I consider to be directly relevant to the current enterprise.

2. The Conversation Analytic Perspective

Conversation analysis first emerged in the early 1960s as result of a fusion of the perspectives of Erving Goffman and Harold Garfinkel regarding the organisation of everyday interaction⁴ (Goodwin & Heritage

¹ Schegloff (1993) has dealt at length with the issue of quantification in the study of conversation and draws attention to the fact that ‘one is also a number, the single case is also a quantity, and statistical significance is but one form of significance’ (Schegloff 1993:101).

² Indeed, it could be argued that stammering is a problem of interaction as Bloodstein (1995:303) suggests that any stammering that does occur when PWS are alone may be partly due to the fact that they serve as their own critical listeners

³ Severity of stammering seems to be significantly affected by the nature of the listener. For example, speaking to a close friend is likely to be less problematic than speaking to a stranger who may exhibit negative reactions (see Bloodstein 1995:300). Similarly, speaking to someone who is perceived to be in a position of authority may also exacerbate speech difficulties (e.g Sheehan, Hadley and Gould 1967).

⁴ A detailed examination of the intellectual origins and fundamental philosophical assumptions which underpin conversation analysis is beyond the scope of this paper but these issues are well documented

1990:286; Heritage 2003). While conceptually ethnomethodological,⁵ it developed its own distinctive approach, methodology and topics of interest, based largely on the pioneering work of Harvey Sacks and his associates, Gail Jefferson and Emanuel Schegloff. Sacks believed that sociology could be a 'natural observational science', one that would be able to handle the details of actual events, 'formally and informatively' (Sacks 1984:21-27). This is the context in which he began to work with tape-recorded⁶ instances of naturally occurring conversations and the following extract helps to clarify his position:

Such materials had a single virtue, that I could replay them. I could transcribe them somewhat and study them extendedly - however long it might take. It was not from any large interest in language or from some theoretical formulation of what should be studied that I started with tape-recorded conversations, but simply because I could get my hands on it and I could study it again and again, and also, consequentially, because others could look at what I had studied and make of it what they could, if, for example, they wanted to be able to disagree with me.

The central goal of conversation analytic research, which is to describe and explicate 'the competences that ordinary speakers use and rely on in participating in intelligible, socially organized interaction' (Heritage & Atkinson 1984:1), clearly conforms to the ethnomethodological principles of locating and describing the methods and techniques that people use to produce and interpret social interaction. This represents a clear shift away from traditional sociological concerns⁷. In fact it is somewhat paradoxical that while talk is fundamental to social interaction the focus of conventional sociology has been on the content of talk rather than the analysis of talk as a subject in itself. The interview, for instance, is a primary data collection technique within sociology, yet it only uses talk as a means to obtain data. Conversation analysis redresses this imbalance to some extent, and by treating talk as a topic of inquiry in its own right, seeks to examine the structure and organization underlying it. Thus Button and Lee (1987:3) have characterised conversation analysis as a new style of sociology which leaves behind the positivistic and functionalist assumptions of the past and 'instead of using data as a resource to test theories as to the nature of social organisation, it examines the social organisation of materials in an attempt to describe and understand that nature'.

Clearly conversation analysis represents a radical departure from the methods of social research traditionally adopted by social scientists. However this entails not just a critique of the quantitative techniques associated with survey and experimental research but also of those methods typically favoured by ethnographers. Although conversation analysis involves an in-depth analysis of naturally occurring data it differs from conventional field research in that it does not rely on the observer's memories and notes. The problem with traditional ethnography according to Psathas (1990:9) is that because field notes are 'subject to all the vagaries of attention, memory, and recall', we cannot recover and re-examine the interactional phenomena themselves. By contrast, the employment of audio and video technology enables conversation analysts to systematically and repeatedly examine the raw data of conversational interaction in its original form. Some of the methodological benefits generated by this distinctive form of data collection are clearly identified in the following extract from Atkinson and Heritage (1984:238):

the use of recorded data is an essential corrective to the limitations of intuition and recollection. In enabling repeated and detailed examination of the events of

elsewhere (see, for example, Lee, 1987:19-53; Goodwin and Heritage, 1990:283-287; Zimmerman, 1988:406-412; Sharrock and Anderson 1987:290-321; Garfinkel, 1967; Heritage, 1984; Leiter, 1980; Benson and Hughes, 1983; Psathas, 1995: 3-8; Cmerjrkova and Previgano 2003).

⁵ Developed by Harold Garfinkel, ethnomethodology refers to the study of commonsense knowledge and practical reasoning in everyday life. As Hutchby and Woffitt (1998) point out, from this perspective, the aim of sociology is to describe the methods that people use for accounting for their own and other's actions. For a detailed exposition of this approach see Garfinkel (1967) or Heritage (1984).

⁶ The ability to record and replay episodes of talk-in-interaction played a crucial role in the emergence of conversation analysis and the potential of current technology to make this data much more widely available is likely to have a similar impact on its ongoing development. In this context the move to make recordings of spontaneous speech data from speakers who stammer available to the research community through *Stammering Research* represents an exciting prospect for the future development of this field (see Howell and Huckvale, 2004 for details of this initiative).

⁷ Although it has now developed into a truly interdisciplinary endeavour, in order to fully understand the methodological stance and preoccupations of conversation analysis, an appreciation of the precise nature of its relationship with sociology is necessary (see Lee 1987: 19-53 for a details of the connections between sociology and conversation analysis)

interaction, the use of recordings extends the range and precision of the observations that can be made. It permits other researchers to have direct access to the data about which claims are being made, thus making analysis subject to detailed public scrutiny and helping to minimize the influence of personal preconceptions or analytical biases. Finally, it may be noted that because the data are available in 'raw' form they can be reused in a variety of investigations and can be re-examined in the context of new findings. All of these major advantages derive from the fact that the original data are neither idealized nor constrained by a specific research design or by reference to some particular theory or hypothesis.

As already alluded to, those working within the conversation analytic tradition insist upon the use of 'naturally occurring' conversations as it is only through the systematic examination of actual talk that we can uncover the fine-grained minute details of conversational interaction. If we wish to illuminate the methods and procedures which conversationalists employ then we need to have access to their 'language-in-use'. So there is a strong emphasis within conversation analysis on what actually takes place during ordinary talk rather than analysts' interpretations or reconstructions of what goes on. In direct contrast to 'official' linguists, who often create artificial material in order to overcome the problems associated with the apparently disorderly nature of real-life talk, analysts working within the conversation analytic tradition have clearly demonstrated that conversation is extremely orderly and rule-governed. Moreover, this orderliness is produced by the participants themselves, 'making sense of what one another said or did, and fitting their utterances appropriately to their understandings' (Drew:1990:29).

Heritage and Atkinson (1984:5), in their critique of speech act theory in linguistics, go to the very heart of conversation analysis when they state that 'it is sequences and turns within sequences, rather than isolated sentences or utterances, that have become the primary unit of analysis'. This interest in the sequential organisation of interaction has produced a substantial and cumulative body of work which has helped to uncover the fundamental structures of talk-in-interaction. The initial concern was to describe and explicate the basic organisational features of ordinary conversation, such as the turn-taking system⁸, adjacency pairs⁹, preference organisation¹⁰ and repair¹¹. Subsequent studies have steadily built upon these foundations and in recent years there has been an enormous upsurge in

⁸ The turn-taking system as outlined by Sacks, Schegloff and Jefferson (1974) provides a general model of the way in which turns are organised and allocated in ordinary conversations (see Section 4.1 of this paper for a more detailed examination of this model).

⁹ Closely related to the turn-taking system, the concept of an adjacency pair refers to a particular set of actions where the first pair part sequentially implicates the production of a second specific complementary action. Examples include question and answer; greeting and return greeting; offer and acceptance/rejection (see Section 4.2 of this paper for an elaboration of this point).

¹⁰ Preference organisation refers to the fact that there are systematic differences in the design of these responses to the extent that some are preferred (in terms of structural complexity rather than psychological desires) and some are dispreferred. Preferred responses (e.g accepting an invitation or agreeing to a request) usually have a simple structure and are generally performed straightforwardly and without delay whereas dispreferred responses tend to be structurally more complex and are characteristically delayed, qualified and accounted for (e.g refusing an offer or turning down an invitation). It is worth noting, in the current context, that speakers often indicate the status of a dispreferred turn by starting it with markers such as 'Well' or 'Um' (Hutchby & Woffitt, 1998:44).

¹¹ We can define repair as the 'general technical name for the processes through which we fix conversational problems (or in some cases non-problems)' (Nofsinger, 1991:124). Schegloff, Jefferson and Sacks (1990:31-61), in their analysis of the organization of repair in conversation, draw our attention to a number of important distinctions. First, they highlight the need to distinguish between the initiation of repair (the noticing or marking of a source of trouble) and the outcome of this process (the actual repair itself). It is also necessary to differentiate between 'self' and 'other' initiation and repair, in terms of who actually produces it. Although Schegloff *et al.* (1990:32) draw a distinction between 'self-repair' and 'other-repair' they emphasise the organisational relationship between them which manifests itself in a preference for self-repair and, indeed, they make this relationship a central theme of their paper. They point out that 'even casual inspection of talk in interaction finds self-correction more common than other-correction' and this leads to an exploration of the mechanisms which operate in individual cases to produce this 'observed over-all skewed distribution' (Schegloff *et al.* 1990:32). In relation to preference organization, then, self-repair predominates over other-repair and there is an additional preference for self-initiation of repair. Although, the conversation analytic literature on repair is clearly relevant to the issue of stammering it will not be discussed in any detail in the current paper (see Levinson 1983:339-345; Nofsinger 1991:124-132 for a summary of the relevant issues).

conversation analytic research, impacting upon a wide range of substantive topics across a variety of disciplines. Rather than attempt to summarise this diverse body of work it may be more profitable to turn our attention to some of the practical aspects of data transcription.

Transcription

As the emphasis in conversational analysis is on the structure rather than the content of talk, the transcription system¹² used by researchers in this field is fundamentally different from that associated with other forms of data analysis. Like all transcription systems it is inevitably selective, and the main concern has been to capture the sequential features of talk-in-interaction. The development of such a system has emerged progressively over the last four decades, primarily through the efforts of Gail Jefferson. Transcription not only makes the data more amenable for analysis, but also represents an important stage in the analytic process itself (West & Zimmerman 1982:515). Indeed it is through the process of transcribing the data that the analyst begins to apprehend the underlying structural and organisational characteristics of the interaction. Fundamental as this process may be, it is nevertheless important to remember that it is the original recordings that constitute the data. The transcripts merely facilitate the process of analysis and serve to make the findings available to a wider audience. Moreover, as Paul ten Have (1999:77) points out, they are 'selective "theory-laden" renderings of certain aspects of what the tape has preserved of the original interaction, produced with a particular purpose in mind, by this particular transcriptionist, with his or her special abilities and limitations'. In practice, therefore, most analysts tend to work with the recordings and the transcriptions alongside one another.

For those unfamiliar with the Jeffersonian transcription system it can appear opaque and disconcerting. Pauses, silences, overlapping talk, applause, laughter, pitch and volume are just some of the features that are transcribed in an attempt to capture not only the content of the talk, but also the way in which it is produced. The key features of a recording are rarely apparent the first time it is played and the analytic process therefore involves repeated listening to the original tape recordings in order to become familiar with the complexities of the interaction. The emergence of relatively cheap video-recording technology has enabled researchers to incorporate non-verbal behaviours into their analysis, and while this form of conversation analysis is growing, visual data has generally been used to supplement audio analysis. A nonverbal notation system¹³ has also been developed and the strategy usually adopted involves adding the relevant non-verbal information (direction of gaze, posture, pointing and so on) to the audio transcriptions.

Although it is impossible, in this introductory summary, to fully convey the breadth of research currently being carried out under the rubric of conversation analysis, it is important to highlight the extent to which conversation analysis has developed our knowledge about the natural organisation of social interaction through the continual incorporation of new research topics and issues. The real and permanent gains that have materialised over the last four decades of research give substance to Psathas's (1995: 68) assertion that 'the study of talk-in-interaction brings more than a promise....it has now achieved a demonstrable record of rigorous, systematic, replicable, and cumulative studies'. In many ways, the strength of conversation analysis lies in its ability to bring a fresh approach to well-researched topics and to illuminate issues that previous researchers have been unable to access. However, despite the diversified nature of recent conversation analytic research, work still continues into the 'basic' mechanisms of conversational organisation and it is these studies which hold the greatest significance for the analysis of stammering.

3. Conversation analysis and 'disorders' of communication

Before considering the potential benefits of a conversation analytic approach to stammering it may be productive to examine a number of studies that have been carried out on other groups or individuals who experience communication difficulties. While the specific focus of this research is in certain respects marginal to the issue of stammering, the broader methodological concerns of the individual projects have more general application. It is also important to emphasize that the studies outlined below represent only a tiny fraction of the conversation analytic work currently being carried out in these areas.

Considerable research has been carried out into the language and communicative abilities of mentally handicapped children and adults, some of which suggests that these skills have been seriously underestimated. One such study is that of Peskett and Wootton (1985) and in concentrating on the speech of young Down's Syndrome children, they seek to draw comparisons with the conversational skills of non-

¹² There are a number of accessible introductory discussions on the transcription procedure of conversation analysis. See, for example, Psathas and Anderson (1990); Hutchby and Wooffitt (1998), Chapter 3; and ten Have (1999) Chapter 5.

¹³ See Goodwin (1981: 51-53); Heath (1986: xi-xvi); and Heath (1997) for some illustrations of the transcription of nonverbal activities.

handicapped children. The turn taking system is one of the most fundamental structures for the organisation of conversation and the ability to successfully manage turn transfer is a significant accomplishment (see Section 4 of this paper for a more detailed discussion of the turn-taking system and its relevance to stammering). One of the basic features of the turn-taking system is the way in which it operates to minimize gaps and overlaps and it is this question of overlap (both how to avoid it and how to limit its scope when it does occur) that Peskett and Wootton wish to draw our attention to. In relation to simultaneous talk they make the distinction between overlaps that occur at potential completion points (transition relevance places or TRPs in conversation analytic parlance) and those that occur in the middle of another's turn, and suggest that:

whether the production of overlaps initiated by the children could be seen as clearly violative in terms of normal turn-taking coordination depended upon where they were positioned in another speaker's turn (Peskett & Wootton 1985:270).

Their findings showed that over half the overlaps were either near-simultaneous starts or were in the vicinity of TRPs and that the overall rate of mid-unit overlaps did not exceed six per cent of the total communicative vocalizations. They also examined the children's behaviour when overlaps did occur and although they observed that various communicative skills to remedy the position were being developed, there were substantial variations among the four children studied (Peskett & Wootton 1985:271). In fact, while three of the children employed techniques which exhibited an awareness of the fact that overlap had occurred the least advanced child did not use any of them. This led Peskett and Wootton (1985:271) to the conclusion that although this child 'was apparently able to organize his behaviour so as to avoid being in overlap most of the time, his behaviour when in overlap did not clearly display that he treated the fact of being in overlap as a problem'.

The significance of this piece of research in the current context is that it illustrates the innovative way that conversation analysis can be utilized in order to shed light on an area previously regarded as marginal to sociological investigation. Moreover, the particular manner in which they utilise the turn taking model to analyse the conversational abilities of Down's Syndrome children can serve as a template for the investigation of the speech of people who stammer. Anthony Wootton has employed a conversation analytic perspective in several other studies (Wootton 1981a; 1981b; 1987; 1990) which continue his focus on the communicative abilities of Down's Syndrome children. However, given the level of communicative development of his subjects and the fact that many were unable to use any recognizable words, there is a substantial emphasis on non-verbal activity. While this work would be of fundamental importance to research on the development of speech dysfluencies in childhood, it is of limited value to the study of adults who stammer, most of whom have the ability to communicate 'normally'.

In recent years conversation analytic procedures have been applied to the study of aphasia with considerable success (see for example, Booth and Perkins, 1999; Copeland, 1989; Goodwin, 1995; Laasko and Klippi, 1999; Lindsay and Wilkinson, 1999; Milroy and Perkins, 1992; Perkins, 1995; Simmons-Mackie and Damico 1996, 1997; Wilkinson 1995). According to Hesketh and Sage (1999) this upsurge in interest in conversational data stems from its ability to shed light on the effects of communication impairment in a meaningful and realistic manner. This has led to a growing emphasis on the collaborative nature of communication which has opened up new avenues for research and produced significant therapeutic benefits. In the remainder of this section I will provide a brief summary of one particular study that has obvious implications for stammering research, before highlighting some of the more general issues to emerge from the application of conversation analysis to aphasia.

A study by Lisa Perkins (1995) on the impact of linguistic impairments on conversational ability in aphasia using conversation analysis provides an indication of the potential rewards a similar study of stammering may yield. Her analysis of the sharing of the conversational floor for three aphasic participants combined both qualitative and quantitative techniques in a similar way to Zimmerman and West's (1975) study of male/female interaction. Although Perkins is aware of the dangers associated with quantifying conversational behaviour she believes 'it has the major advantage of facilitating comparison which is important in the evaluation of the effectiveness of therapy' (Perkins 1995: 373). The data for this study comprised recordings of three aphasic participants, both in conversation with their relatives and with the researcher. The purpose of the quantitative analysis was to determine how much the aphasic participants contributed to the conversations, and comparison was made both within participant (in conversation with relatives and with the researcher) and between participants. The qualitative analysis aimed to uncover the management strategies that influenced the unequal distribution that emerged in the data. In particular the operation of the turn-taking system was examined with a specific focus on the timing of turn transition, the treatment of silences, and the management of repair. The findings displayed some significant differences in terms of the distribution of turns both between the different participants and across the different partners

and in order to explain this Perkins (1995:380) identified three key factors which had an influence on the way that conversational partners dealt with the consequences of aphasia in conversation: the amount of shared knowledge of the interlocutors; linguistic impairments; and individual discourse styles.

This study illustrates the benefits of a 'twin-track approach' with the quantitative analysis helping to identify certain patterns in the data and the qualitative analysis revealing the organisational mechanisms underlying these (Perkins 1995: 382). Perhaps more importantly, it also gives an indication of the potential of conversation analytic research as a resource for improved therapeutic practice. Not only did the research identify the consequences of linguistic impairments on conversational ability, it also demonstrated the different ways that interlocutors deal with these consequences. As Perkins (1995: 382) concludes, 'the insight that CA provides into the relationship between linguistic impairment and conversational ability provides guidance to the selection of management strategies which take into account the linguistic limitations of the aphasic client'.

In certain respects the burgeoning of conversation analytic work on aphasia provides an indication of the possible avenues that similar studies of stammering could traverse. For example among the contributions to the special issue of *Aphasiology* (1999, Vol 13), there were papers on the use of conversation analysis as an assessment tool for aphasia (Perkins, Crisp & Walshaw, 1999), the collaborative nature of aphasic conversation (Laasko & Klippi, 1999), and differential conversation patterns in aphasic-therapist, aphasic-spouse interaction (Lindsay & Wilkinson, 1999), all of which have potential relevance for conversation analytic research on stammering. For example, Lindsay and Wilkinson's (1999) study of repair in aphasic-therapist and aphasic-spouse conversations uncovered differential patterns to the extent that therapists worked to minimize interactional difficulties, whereas spouses engaged in behaviour that brought conversational repair to the surface. Their discussion of the possible reasons for these differences and their clinical implications highlights both the theoretical and the therapeutic benefits that conversation analytic research on aphasia can produce, and as the following extract from Hutchby and Woffitt (1998:256) suggests, these payoffs are likely to result from similar studies of stammering:

[If] conversation analytic studies of everyday interaction provide a resource which allows us to chart comprehensively the distressing effects of speech problems in everyday life, then they may in turn furnish the basis for more sophisticated and effective means of treatment. Equally important, however, the application of CA to these kinds of data can provide deeper insight into the precise nature of the difficulties faced by people with aphasia and other forms of speech problems.

The various studies referred to above provide fascinating insights into the communicative competencies of different groups and individuals and we can see, even from this brief synopsis, that conversation analysis has the potential to further our understanding of the nature of 'disordered' talk in a variety of interesting ways. Wilkinson's (1999:251) comment that 'it is in conversation that aphasia is likely to be most visible and problematic for people with aphasia and their conversational partners in everyday life' can also be applied to people who stammer and their conversational partners. However, while this research can provide some valuable suggestions on how best to proceed with a conversation analytic investigation of stammering, people who stammer encounter a quite distinct set of interactional difficulties and in many ways the most relevant literature is that which relates to the 'basic' research into the mechanisms of conversational organisation. This literature represents an important resource for stammering research and while it is not possible to summarise it here, I will attempt to identify a few of the key issues and examine these in some details. In the following section, therefore, I will consider some of the conversation analytic literature on turn-taking, adjacency pairs and response tokens and attempt to highlight the potential significance of this literature for future research on stammering.

4. Conversation analysis and stammering

4.1 The turn-taking system

One of the most interesting findings of conversation analysis, bearing in mind Chomsky's typification of ordinary talk as disorderly and degenerate (see Goodwin & Heritage 1990: 290), is the incredibly orderly and structured nature of conversation. The overarching objective of the present paper is to put forward the proposition that there may be some merit in exploring how, and to what extent, that orderliness is maintained in a conversational environment that includes stammering. Given the considerable status of Sacks, Schegloff and Jefferson's (1978) treatise on the organisation of turn taking in ordinary conversation this will serve as my initial point of departure. In this seminal paper, Sacks and his colleagues set out to provide a general model of the sequencing of conversations by examining the organization and allocation of turn-taking. The turn management system that they identified is extremely effective given that 'less (and often considerably less) than five per cent of the speech stream is delivered in overlap' and gaps between speakers are 'frequently measured in just a few micro-seconds' (see Levinson 1983:297). The literature on stammering seems to portray a rather different image of conversation however, one frequently disrupted by

severe speech dysfluencies which results in interpersonal communication that is disjointed and strained. In this respect, it would be appropriate to examine the relationship between stammering and the turn taking model developed by Sacks and his colleagues, by engaging in a thorough analysis of conversational interaction involving people who stammer in terms of this model. This is likely to be quite a substantial and long-term project, the outcome of which would be a description of the general organisational mechanisms that shape these conversations and an examination of the degree to which the constraints imposed by the turn taking system contribute to speech patterns characteristic of people who stammer. A further issue to be considered is whether stammering violates the turn taking model, or sufficiently distorts it, to the extent that it could be regarded as an example of disadvantaged interaction. To put all of this in context, it is necessary to outline the key features of the turn-taking model for conversation as formulated by Sacks, Schegloff and Jefferson (1978).

The mechanics of turn-taking

In order to explain the high degree of orderliness in conversation, Sacks, Schegloff and Jefferson formulated a set of rules which serve to allocate turns within what they regard as a conversational economy. With access to the floor thus perceived as a scarce resource, it is the function of the turn management system to distribute turns among participants, the basic currency being turn constructional units. While these unit-types may take the form of words, phrases, clauses, or sentences, the important thing about each is that they are projectible, that is participants can predict where they will end. A speaker¹⁴ beginning a turn is initially entitled to one such turn constructional unit, the completion of which constitutes a possible 'transition relevance place' (Sacks *et al.*, 1978:12). The concept of a transition relevance place (hereafter TRP) is fundamental to the turn taking model and may be broadly defined as the point in a conversation where a natural transition of speakers may occur:

This spot that participants recognize as the potential end of a turn, this place where a transition from one speaker to another becomes relevant, is called a 'transition relevance place' (Nofsinger 1991:81).

It is here that the turn-taking rules governing the rights and responsibilities of speakers come into play. At each TRP three different techniques may be used by participants to determine the next speaker: 'current speaker selects next', 'any listener self-selects', and 'current speaker continues' (Nofsinger 1991:107). The first technique allows the current speaker to choose the next speaker during the course of the current utterance and if employed 'the party so selected has rights and is obliged to take next turn to speak' (Sacks *et al.*, 1978:13). If the current speaker does not select the next speaker then any listener can select himself or herself as the next speaker, with the one who starts first acquiring rights to the turn. The main implication of this second option is that it puts a premium on starting quickly, a point I will return to later. Finally, if neither of the previous two techniques are employed then the third option, 'current speaker continues', may come into effect, in which case the system begins again at the next TRP. It is also worth noting that these options are hierarchically ordered, leaving current speaker the most powerful in the economics of next-speaker selection (Hopper, 1992:104).

This model is characterised by Sacks *et al.* (1978:40) as a 'local management system', that is it operates on a turn by turn basis. In this respect it can be clearly distinguished from other speech exchange systems where turn allocation is determined in advance. It can also be described as 'interactionally managed' (Sacks *et al.*, 1978:42) in the sense that what one person does or can do affects how the other participants behave. In short, Sacks, Schegloff and Jefferson have 'demonstrated in great detail that turn transfer is interactionally managed through recursive procedures which enable very precise real-time co-ordination between speakers' (Heritage 1989:25).

In compiling a list of 'grossly apparent facts' based upon their observations of ordinary conversations Sacks *et al.* (1978:10-11) identified the empirical constraints which any model of turn taking, including their own, must be capable of accommodating. Successive studies of talk-in-interaction have drawn heavily upon this material and a closer examination of some of these constraints, coupled with a consideration of some recent research in this area, will help to illustrate how the system described above is responsible for the regularities evident in everyday conversation. As many of these constraints have an added significance for people who stammer this discussion will act as a bridge into an examination of some of these issues.

The practical implications of the model

The significance of the rules developed by Sacks, Schegloff and Jefferson lie in their ability to account for the basic regularities found in ordinary conversation. In general, conversation is remarkably orderly

¹⁴ The 'speaker' here refers to the party that is currently talking and his/her conversational partner is referred to as the 'listener' or 'recipient'. In ordinary conversation these roles alternate and speaker selection is governed by the operation of the turn-taking system.

and speaker exchange is finely coordinated so that one person speaks at a time and turn-taking occurs smoothly with minimal gaps or overlaps. Given the fact that even those problems which do arise in coordination usually occur around TRPs, it is clear that timing is a major accomplishment of conversationalists. Precision timing, of course, also requires a high degree of skilled listenership and as Sacks *et al.* (1978:43) point out, the turn-taking system with all its various turn-allocational techniques:

builds in an intrinsic motivation for listening to all utterances in a conversation, independent of other possible motivations such as interest and politeness. In the variety of techniques for arriving at a next speaker, and in their ordered character, it obliges any willing or potentially intending speaker to listen to, and analyse, each utterance across its delivery.

Listeners need to monitor the conversation in case they are selected by the current speaker, and potential speakers need to be alert to upcoming TRPs if they are to intervene successfully. For instance, the second option, that of self-selection, requires a high degree of conversational competence on the part of the listener, particularly in multi-party settings. This is because the 'pressure rule' (see Downes 1984:254) comes into play here, leading to competition between potential speakers over who gets the next turn. As alluded to above, the first person to speak has exclusive rights to the turn and others who have started are obliged to stop. The speaker-continues option further increases this sense of urgency for potential speakers as any delay may result in the current speaker resuming his or her turn.

While it is clear from the above that the achievement of precision timing in turn transfer requires an ability to predict an up-coming TRP, we need to examine the basis upon which this prediction is made. Robert Hopper (1992:104-106) considered three candidate indicators of transition relevance (utterance syntax, terminal pitch contour, and pauses) and placed more weight on the first, because it not only allows participants to identify transition relevance as it occurs, but also makes it possible for listeners to project unit completion slightly in advance of its occurrence. While he found evidence that terminal pitch cues were of some use, he concluded that speakers did not 'reliably distinguish transition relevance on this cue alone' (Hopper 1992: 105). They were not an aid to the prevention of overlap, nor did they make it less likely that the current speaker would continue. Similarly pauses are not reliable indicators of turn completion because a large number of pauses are not transition relevant and most turn exchanges are 'pauseless' (Hopper 1992:106). However, he showed that speakers classify pauses in terms of transition relevance and points out that long pauses during telephone conversations are treated by participants as problematic and may lead them into 'speakership' (Hopper 1992:106). The fact that turn transfer may also be facilitated through the employment of nonverbal signals highlights one of the possible advantages of analysing data drawn from telephone rather than face-to-face interaction. As Robert Hopper (1992:103) rightly pointed out, telephone conversation is the ideal site for the investigation of the turn taking mechanism 'because its constraints simplify the next-speaker's problem: there are only two speakers in a vocal-only system' (the potential methodological benefits of analyzing the telephone talk of people who stammer are discussed in more detail below).

Stammering and turn-taking: some initial considerations

It should be clear from the preceding discussion that there are a number of fundamental issues which need to be addressed concerning the relationship between stammering and the turn management system. A conversation analytic focus may help us to distinguish between the various forms and features of stammering in more meaningful ways. For instance, silent blocks are likely to have very different interactional consequences than repetitions. The 'pressure rule' referred to earlier will inevitably create serious problems for those who, because of their speech impediment, can be regarded as 'slow conversation starters'. In this respect, those whose speech dysfluency consists predominantly of silent blocks are more likely to experience difficulty in securing their turn than those whose stammering episodes are more audible. This is particularly true in telephone interaction where non-verbal signs of struggle are not available to the other participant. Therefore an examination of the role of silence in the turn-taking system and the implications of this for those categorized as people who stammer may help to develop our understanding of the various characteristics of stammering and to refine the analytic distinction between silent and vocal dysfluencies.

One of the most important observations that can be made with regard to silence in conversation is that not all instances of this phenomenon are treated identically. Indeed it is the relationship of a silence to the turn-taking structure that is important, and this determines whether it will be classified as a gap, pause or lapse (see Sacks *et al.* 1978:27). A gap refers to a silence that may occur between the end of one speaker's turn and some listener self-selecting for the next turn. This gap is 'usually brief, often about one second or less' (Nofsinger 1991:94). A lapse, on the other hand, occurs when none of the turn-taking techniques described above are employed and the conversation comes to a halt. The third category of silence identified

by Sacks and his colleagues is the pause. This is a silence that occurs within a participant's turn and is attributable to that person.

Nofsinger (1991:95) outlines three primary ways in which pauses may arise. The first of these is relatively straightforward and concerns the silence after a TRP when no listener self-selects and the current speaker decides to continue. In this situation the silence at the TRP then retrospectively becomes a silence within that speaker's turn. Silence at a TRP may also be classified as a pause if a listener does not immediately respond after being selected by the current speaker. Consequently the silence is attributable to a specific listener because they have rights and obligations to speak having been selected to do so. The final sort of pause is somewhat different in that it does not occur at a TRP. This is where a silence materializes in the course of a person's turn, for whatever reason (for example, a pause for thought or a momentary memory lapse).

To differentiate between silences in this way may seem unduly academic but as interlocutors themselves make this distinction (see Sacks *et al.* 1978:54) it can aid our analysis of stammering considerably. The fact that all silences are not oriented to in the same way by conversationalists has potential implications for people who stammer and raises the possibility that the impact of a particular dysfluency will be determined by its placement in the overall structure of the turn-taking system, with those occurring close to a TRP liable to prove more critical. Bearing in mind the nature of the disorder we would expect to find a large number of silences in the speech of people who stammer. However, what is important from a conversation analytic perspective is how these silences are treated by their conversational partners.

Stammering, of course, manifests itself in a number of different ways and each individual will display their own idiosyncratic pattern of behaviours. The speech of some people who stammer will contain a plethora of silences, while others will go to extreme lengths to ensure that talk is continuous, no matter how meaningless that talk may appear. The fact that people who stammer are able to maintain their turn in spite of frequent and, at times, lengthy blocks contradicts the common-sense view that turn taking in telephone conversation is activated by pauses (see Cappella 1979) and, instead, seems to support Hopper's (1992:114) finding that 'participants usually limit speaker change to pauses following transition-relevance places'. However, these speculative observations need to be underpinned by empirical evidence and this highlights the need for a detailed examination of the talk of people who stammer, focusing in particular on events surrounding TRPs. While conversation analysis could be fruitfully applied to a wide range of stammering-related issues, there are a number of advantages in making the telephone environment the initial site of such research.

Speaker transfer in telephone talk

The tendency for telephone interaction to exacerbate the communication difficulties of people who stammer is well-documented and many rate this high in their list of dysfluent situations (Dalton & Hardcastle 1977:89; Leith & Timmons 1983). Recent research on this phenomenon has produced some interesting findings (Brumfit & James 2001, James, Brumfitt & Cudd 1999), but as a survey was used as the primary means of data collection the results are based upon people's attitudes and opinions, rather than the actual details of interaction. An earlier study by Zimmerman, Kalinowski, Stuart and Rastatter (1997) examined the effect of altered auditory feedback¹⁵ on stammering, but while recordings of actual telephone interaction were employed, this research was based on an experimental design and the conversations were scripted. Conversation analytic research, by contrast, would allow us to examine the interactional consequences of stammering through a fine-grained analysis of the details of recorded naturally-occurring conversation. In this way we could explore the reasons why the telephone might be a particularly problematic environment for people who stammer or, perhaps more accurately, why face-to-face interaction seems to be less troublesome. By focusing on the naturally occurring talk of people who stammer and their co-conversationalists this type of study would attempt to examine the nature of the various difficulties that arise during interaction and describe and explicate the various methods and procedures that participants employ in an attempt to overcome them.

The analysis of telephone talk has a respected history within conversation analysis and formed the basis of much of the early ground-breaking research. More recently, Robert Hopper (1992) has focused more intensively on this form of interaction and his observations are directly relevant to a conversation analytic perspective on stammering. Although the benefits of telephone analysis are documented elsewhere (e.g. Benson & Hughes:1983:158-9; Drummond & Hopper 1991; Hopper 1992), it may help to summarise some of the most important ones here. First, as telephone communication is 'constrained to sounds, split off from the rest of action' (Hopper 1992:8) we are able to focus exclusively on the most basic elements of talk-in-interaction. In this respect, the non-verbal activities which sometimes threaten to overwhelm

¹⁵ See Howell (2004) for a review of research on 'alterations to recurrent auditory feedback' (ARAI) and a discussion of how the fluency-enhancing effects of ARAI in people who stammer might be employed in a clinical setting.

researchers of face-to-face interaction are excluded from the analysis. A second significant advantage of telephone interaction is the fact that it is generally limited to two speakers. This focuses our attention on what is 'specifically dialogic in conversation: how speech action emerges across speaker turns' (Hopper 1992:9). Finally, not only do telephone recordings eliminate the potential interference of multiple participants and non-verbal behaviour, but they also enable the researcher to obtain the complete conversation, from start to finish. This may be particularly significant in relation to stammering as it would facilitate an analysis of the potentially problematic opening moves of a conversation. Together these unique features of telephone interaction greatly simplify the transcription process and facilitate the task of the analyst.

As telephone conversations display the purest instances of turn taking principles (Hopper 1992:100) our recordings should enable us to address the main issue that arises from the preceding discussion, namely how do participants know when it is their turn to speak. Given the preponderance of pauses within the turns of people who stammer, how can listeners be sure that similar silences at TRPs do not represent temporary dysfluency as opposed to a willingness to relinquish the floor? The short answer is that, in the absence of nonverbal information, they do not know for sure. However, this response tends to gloss over a number of interesting and complex issues and to put these in context I will briefly consider Robert Hopper's (1992) research which, among other things, examined the ways in which this dilemma is solved in 'normal' conversation. The main conclusions of his study were that speakership rarely changes following non-transition-relevant pauses, gaps are frequent, and most gaps do communicative work. Hopper used a randomizing procedure to select one hundred turn beginnings and while an analysis of these showed that most turn transition occurred smoothly he was startled to find that twenty eight turns began after a pause, many of which were of a duration longer than half a second.

However, his analysis showed that seventeen of these could be explained in terms of the model developed by Sacks and his colleagues in that they marked actions such as disagreement or repair, while the others were examples of 'post episode-completion pauses' (see Hopper 1992:113). Moreover, by classifying every pause longer than two seconds in terms of its transition relevance, Hopper was able to conduct a statistical analysis of the relationship between transition relevance and speaker change. On the basis of this analysis of 1105 pauses, his predictions that speaker change was unlikely to occur following non-transition relevance pauses were confirmed. He also found that speaker change would occur nine times out of ten if a pause followed a 'current speaker selects next' procedure, but only half the time if the pause followed a TRP where a speaker selection device was not used. This led him to conclude that there was 'a distributional relationship between transition relevance and speaker change - at least within pause environments' (Hopper 1992:110). A more detailed analysis of exceptional cases served only to strengthen his conclusions and confirm the conventional model of transition relevance. So, for example, in the few instances where speaker change did occur at non-transition-relevant pauses (for example, when pauses immediately followed a TRP and a free-standing conjunction) these were marked as exceptional by the next speaker (see Hopper 1992:111). There were also cases in this corpus where speaker change was expected but did not occur, for example after a pause following the first part of an adjacency pair (see Section 4.2 below for a more detailed discussion of the concept of adjacency pair). However, these exceptions are also marked and Hopper's (1992:111) data suggests that 'if current speaker selects next, pauses, then takes another turn, that next turn shows orientation to the partner's failure to speak'.

As Hopper's work can be seen as an empirical verification of the turn-taking rules it should serve as a provisional benchmark for analysis of telephone interaction involving people who stammer. On the basis of his research, and from my own preliminary observations, the location of silent blocks in relation to the turn taking system are likely to have a determining influence on the interactional repercussions of these dysfluencies. In other words, a silent speech blockage close to a TRP is likely to be treated differently by listeners than a similar blockage in the middle of a speaker's turn. Moreover, this type of silent stammering, when it occurs at a TRP, will probably be more noticeable if the speaker has been other-selected rather than self-selected.

From this perspective, the multifarious practices employed by people who stammer, many of which are frowned upon by speech therapists, take on a new significance. The use of 'starters', 'fillers' and various forms of circumlocution, often categorised as avoidance strategies, may serve an additional and quite paradoxical function. By enabling the speaker to secure his or her place at a TRP these devices help to ensure that the person who stammers does eventually get to convey his or her message. To prohibit their use may result in greater vulnerability at TRPs, certainly in the short term, and fewer opportunities to speak, especially in multi-party conversations. Of course, it is quite likely that these techniques are variants of the strategies commonly used by conversationalists to signal their intention to begin or continue speaking even before a response has been totally formulated. In these situations 'initiators' serve to secure or 'maintain the conversational turn while momentarily not contributing substantially to the conversational content' (Duckworth 1988:68). The main difference in relation to stammering is that many people who stammer know what they want to say but seem unable to deliver it fluently. By producing some form of

vocalisation, however, they are conveying the message that it is their turn and they intend to take it. Unfortunately some people who stammer experience very real difficulty in vocalising at all and these people are particularly vulnerable at transition points. It is they who are likely to be most adversely affected by the restrictions imposed by telephone communication where visual signs of struggle are unavailable to the listener. Others make a clear choice to remain silent for fear of 'exposing' themselves as people who stammer but, perhaps ironically, risk leaving themselves relatively powerless in the turn-taking economy.

The critical role played by silence in the turn-taking system creates a dilemma for people who stammer, as many develop an acute fear of speechlessness. Some of the conversational consequences of this phobia are alluded to in the following extract from Sheehan (1970:27):

stuttering is not just a difficulty of starting, for many stutterers it is a difficulty of terminating. The more severe the stutterer, the more trouble he has getting started, and the more trouble he has getting stopped. An aspect of listening to a severe stutterer that exasperates many people is that he never seems to know when to stop, as hope sags that each next word will be the stutterers last.

One of the hypotheses put forward for this 'clinically observed phenomenon' is that because people who stammer experience most trouble at the beginning of utterances¹⁶ they become conditioned to fear silence. Filibustering is a common feature of stammering (Sheehan 1970) and on the basis of earlier discussion which drew attention to the severe competition that exists at TRPs, this concern to hold the floor is understandable. However, Sheehan (1970:29) suggested that people who stammer 'be taught to risk and to court the fear of silence, by permitting pauses in his speech....., pauses to permit the stutterer sufficient breath so that he is not trying to force out words on residual air'. This may appear sound advice, but given the nature of stammering and the exigencies of the turn-taking system, pausing at or near TRPs may create the wrong impression for listeners, who could justifiably interpret this as their opportunity to speak. I would suggest, therefore, that the fear of silence, which is common to many people who stammer, has a quite legitimate basis and derives, at least in part, from the operation of the turn-taking system and the constraints this imposes on conversationalists. In this respect, it was perhaps erroneous for Sheehan (1970:29) to refer to the 'time pressure set' as 'self-imposed'. Moreover, these difficulties are exacerbated in multi-party talk where the increased competition for turns makes self-selection far from automatic, a fact that may have important ramifications for the development of the conversation. For example, when a participant wishes to respond to something the current speaker is saying, it is often crucial that they get in at the next TRP. Otherwise whoever does become the next speaker may select someone else and the relevance of what they were going to say may be lost. These additional constraints only serve to illustrate the need for people who stammer to devise strategies that will allow them equal access in the turn taking economy. For some, these techniques, which have been cultivated through years of painful conversational experience, are quite effective in turn management terms. For others, however, the severity of the stammer precludes any such straightforward manipulation of the turn taking rules. An inability to control silences in any significant way leaves these people who stammer in an extremely vulnerable and powerless position within the turn taking system, especially in telephone conversations. This may help to account for the well-documented feelings of frustration and anger that people who stammer often experience and may also explain the reluctance of many people who stammer to use the phone. Given Nofsinger's (1991:96) claim that research has consistently shown that perceptions of participants' communicative competence and even the viability of their conversation is related to the way they manage conversational silence, it is also extremely likely that many people who stammer are unfairly judged in terms of their overall communication skills.

The preceding discussion has focused on silences and considered the ways in which their placement has differential implications. We have considered some of the possible strategies that people who stammer may employ in an attempt to minimise silences and commented on the specific advantages of employing these at transition places. Of course, as I have already indicated, many of these techniques are employed regularly by people who do not stammer, usually to secure a turn while formulating a response. Empirical research, however, is needed to clarify these issues. For example, to what extent do people who stammer manipulate these turn-holding techniques in an attempt to overcome difficulties which are specifically related to their fluency disorder? Nevertheless, on the basis of our current knowledge of talk-in-interaction, to crudely dismiss them as avoidance strategies (as some of the literature on stammering attempts to do) risks overlooking their possible role in helping people who stammer secure a turn at a point in the conversation where the speech difficulties put the maintenance of speakership in jeopardy.

There is of course the additional possibility that by employing devices that are widely used in 'normal' talk, people who stammer are able to conceal their disorder more effectively. For many people who

¹⁶ There has been considerable research carried out into the various linguistic determinants of dysfluency (e.g Brown, 1945; Howell, Au-Yeung & Sackin, 1999; Wingate 1988) and these findings need to be taken into account in any examination of the relationship between turn-taking system and stammering.

stammer, then, it is not just the elimination of unwanted silences at TRPs that is important, but also the specific manner in which this is achieved. It is, however, important to point out that the steps that people who stammer often take to reduce the impact of silent dysfluencies at TRPs are not without their drawbacks, and as Hopper (1992:99) suggests, in attempting to minimise silences we thereby make overlap more likely. The inevitable tension between these two opposites raises the possibility that the 'fear of silence' experienced by people who stammer will generate additional difficulties in terms of overlapping speech. While a consideration of the literature on simultaneous talk would serve to develop some of the issues outlined above, it may be more productive, in the current context, to elaborate upon the notion of turn-taking as a constraint by focusing on the organisation of adjacency pair sequences.

4.2 Adjacency pairs

One of the most basic, yet analytically powerful concepts so far devised by conversation analysts is the adjacency pair. Closely tied in with the turn-taking system, this concept has contributed greatly to our understanding of various aspects of the organization of conversations and may also be able to shed light on certain features of stammering. Adjacency pairs are fundamental to the organization of conversation (see Benson & Hughes 1983:175; Levinson 1983:304) and can be formally defined as 'adjacent utterances produced by two different speakers where the production of the first part of the pair makes the production of the second part sequentially relevant' (Benson & Hughes 1983:173). Adjacency pairs are ubiquitous in conversation and paired utterances such as question/answer, greeting/greeting, offer/acceptance, and compliment/response are familiar examples. While they also do considerable interactional work (including opening and closing, selection of speakers and repair of the turn-taking system) their use involves the same basic rule:

given the recognisable production of a first pair part, on its first possible completion its speaker should stop and a next speaker should start and produce a second pair part from the pair type the first is recognisably a member of (Schegloff and Sacks 1974:239).

A close examination of naturally occurring conversation reveals that Schegloff and Sack's characterization does not always hold up, and that strict adjacency is too strong a requirement. In reality it is often the case that first and second parts of adjacency pairs are separated by other talk and may even be several turns apart. Nevertheless, by employing the concept of 'conditional relevance' (Schegloff 1968:1083) we are able to retain the structural import of adjacency pairs. So while the two parts of an adjacency pair may be separated by an 'insertion sequence' (see Nofsinger 1991:61-65; Levinson 1983:304-306) the second part still remains relevant and expectable. In other words, it is the expectation of the second part, rather than the actual adjacency, that bonds the pair together (Nofsinger 1991:64). The first part of an adjacency pair places a powerful conversational constraint on what follows, to the extent that a failure to respond to a first part in the appropriate fashion will be interpreted as an 'official absence' (Downes 1984:237).

Although telephone openings may 'seem a peculiar object on which to lavish scholarly attention' (Schegloff 1986:111) they are probably the ideal place to begin our examination of adjacency pairs. The seemingly routine and even trivial talk that occurs in these environments conceals an elaborate organisation and, as Hopper (1992:51) observes, 'the telephone opening packs a great deal of information and communicative accomplishment into just a few seconds'. One useful function that telephone openings perform is to provide an 'anchor position' for the initiation of first topic and this is situated after a fairly standard pattern of four core opening sequences: a summons/answer sequence; an identification/sequence; a greeting/greeting sequence; and an exchange of 'howareyou' sequences (Schegloff 1986:116). While it is the caller who typically introduces the first topic (usually the reason for the call) its placement in the anchor position is a collaborative achievement. There are procedures whereby the recipient can introduce first topic and indeed a variety of opportunities exist for either participant to initiate first topic before the anchor position and potentially control the shape of the conversation (Schegloff 1986:117). In this respect 'routine' openings are not automatic responses designed to conform to a prespecified blueprint but rather are more accurately characterised as interactional achievements.

As conversational openings are constructed primarily from adjacency pairs (in that the four core opening sequences each represent a distinct type) a detailed examination of the ways in which people who stammer cope with telephone beginnings should provide a valuable insight into the relationship, if any, between stammering and adjacency pairs. Schegloff's (1968) analysis of five hundred telephone openings demonstrated that the ringing of the phone should be regarded as the initial turn in the conversation because it represents a nonlinguistic realisation of a caller's summoning act. The treatment of the telephone ring as the first part of a summons/answer adjacency pair sequence explains why it is that the person being called, the one with least information about the identity and purposes of the caller, speaks first. That the recipient is under an intense obligation to respond is even demonstrated by the only exceptional case in Schegloff's corpus, where the caller rather than the recipient spoke first. This can be understood as a reaction to the

recipient's failure to respond on picking up the receiver and by producing a repeat summons, the caller is actually drawing attention to the official absence of a second pair part. From a person who stammers' perspective, then, the sound of the telephone represents a summons to talk, to talk promptly after lifting the phone, and to construct that talk in a form that constitutes a response to the summons. In other words, upon picking up the receiver the person who stammers does not have the same freedom to remain silent as he had prior to self-selection at TRP's. Moreover, given that speakers typically employ standard responses in telephone conversations, circumlocution does not seem to be a viable option for people who stammer. In fact, in many instances, it is likely to create a more negative impression than the dysfluencies which the person who stammers is attempting to avoid. One possible solution is to use 'starters' and this may be employed as a deliberate strategy by some people who stammer. The obligation to speak immediately on lifting the phone puts considerable time pressure on people who stammer and a decision to use a starter in this position may have advantages. First, it would ensure immediate vocalisation and thus prevent a silence from being misinterpreted, and second it may provide the quickest available route to the target utterance (e.g. hello).

For a variety of reasons 'hello' is the most common response form in domestic/personal calls (see Schegloff 1986:123) and, as already alluded to, to substitute it with some other response form may lead to certain inferences being drawn. The social organisation of telephone openings, then, imposes a variety of constraints upon speakers and this may help to explain why 'to a greater or lesser extent, the telephone haunts all people who stutter' (Carlisle 1985:181). Indeed, if there is one word that best sums up the relationship between people who stammer and the telephone it is probably 'fear'. Although, clearly not all people who stammer react in exactly the same way, the sound of the telephone ringing is likely to generate some form of anxiety in most people who stammer. While this reaction may be, to some degree, the result of conditioning, detailed analysis of conversations involving people who stammer may provide a more fundamental explanation.

However, it is not just recipients who experience anxiety but callers as well, and some people who stammer will go to great lengths to avoid using the phone at all. By dialing a number and thereby initiating a summons the caller is propelled into the midst of a speech situation by implicating a three turn sequence (Hopper 1992:56). There are very few situations in which people who stammer have absolutely no alternative but to meet a particular word head-on and we should not underestimate the difficulties that adjacency pair formats create for people who stammer. Indeed, the constraints imposed by the adjacency pair sequences within conversational beginnings closes down many of the possible routes out of stammering, making dysfluencies more likely. Of course adjacency pairs occur in environments other than openings and a consideration of some of these should help to develop our discussion.

While all adjacency pairs are structurally capable of creating interactional difficulties for people who stammer the potential for trouble is directly related to the number of viable responses. Nofsinger's (1991:76) observation that 'participants will "go looking for" missing second pair parts', suggests one possible explanation for the anxiety expressed by people who stammer in the face of direct questions, especially those that require a specific answer. So, for example, people who stammer report most difficulty in responding to direct questions that require specific answers such as those relating to their name, address or telephone number. In these situations common strategies such as word substitution, circumlocution or even feigning forgetfulness are simply not realistic options. As the American speech pathologist, Fred Murray (1991:28) observed, 'of all the words in a person's vocabulary, his name is representative of something he should know and utter with unhesitating automaticity. To do otherwise implies all sorts of possibilities, none of them associated with normality'. While most adjacency pair first parts are not quite as restrictive as this, the fact that they require matching second pair parts, places unwelcome constraints on a group of people already circumscribed in their ability to communicate. Although many people who stammer have developed strategies to overcome these constraints, the ultimate success of such strategies is dependent on the nature and severity of the stammer. Of course, the actions and reactions of co-conversationalists are also important and an understanding of the various idiosyncrasies that accompany stammering may have an impact. The interactional benefits that this kind of 'inside knowledge' can yield are evident from the following account of one person who stammer's encounter with a New York operator:

After the operator had come on the line and had said, "Number, please," "Gramercy," the word exchange in the number, simply stuck in my throat. It was a bad block; I kept trying and trying, but the only sound I could make was a faint croak. The operator must have heard it because suddenly she said, "Sir, I know what your difficulty is. Now, I have plenty of time. You just relax and say the number when you can." She said it in the nicest way, and in a moment I was able to say easily "Gramercy", the number, and "thankyou" (Murray 1991:29).

While an appreciation of the difficulties people who stammer are likely to face in telephone conversation may help to create a better interactional environment this knowledge will not in itself

eradicate the source of all misunderstandings. In many respects the key assumption underlying this anecdote (that the communication problems experienced by people who stammer in interaction are correlated to the degree of patience and understanding displayed by the interlocutor) is based upon an erroneous view of social interaction. Such an interpretation fails to take account of the complex structures that underpin ordinary conversation. It is clear from the preceding discussion that the organisation of turn taking and adjacency pair sequences create a number of specific problems for people who stammer. Given the nature of stammering, it is likely that the constraints that these structures impose upon conversationalists operate in an even more oppressive manner on people who stammer and may serve to exacerbate the stress and anxiety that often accompanies the disorder. However, in order to clarify the precise nature of the relationship between the turn taking system and stammering we need to engage in detailed fine-grained analyses of naturally occurring conversations involving people who stammer. Although the discussion so far has illustrated the collaborative nature of conversational interaction, I want to focus more sharply on this issue now and consider some of the ways in which 'listeners' can facilitate the production of a multi-unit turn by the speaker.

4.3 Response tokens

Many who are unfamiliar with conversation analytic work are puzzled by the close attention given to the mundane and everyday aspects of social life and the tendency to focus on increasingly smaller and apparently more trivial pieces of talk. However, as an examination of the research literature on response tokens will show, the detailed analysis of the minutiae of conversation is capable of yielding some quite far-reaching and significant results. These studies represent the ultimate confirmation, if indeed further confirmation were needed, of Sacks' (1984:22) claim that 'there is order at all points'. Moreover, because small bits of talk such as 'mm hms', 'yeahs', and 'uh huhs' can have vital importance for the construction of the interaction order (Czyzewski 1995:74), their significance in relation to stammering needs to be carefully examined.

John Heritage (1989:29), in his review of recent conversation analytic research, argued that the growing interest in response tokens is understandable, given the exceptional prevalence of these objects in ordinary conversation and their 'almost purely sequential' role in interaction. In contrast to linguists who characterise these items as 'backchannel communication' (Yngve, 1970; Duncan & Fiske, 1977) and examine them in isolation from the surrounding talk, conversation analysts stress the importance of a sequential analysis of response tokens. Not only does their sequential placement influence the way in which they are heard, but response tokens can also have 'systematically different sequential implications' (Czyzewski 1995:74). For conversation analysts, then, the focus is on the job that response tokens do in the interaction. They are interested in their interactional functions rather than their performative functions (see Czyzewski 1995:75). A brief synopsis of some previous research on response tokens should help to clarify the specific interactional role that they perform.

The achievement of multi-unit turns

Emanuel Schegloff's (1982) analysis of vocalisations such as 'uh huh', 'mm hmm', and 'yeah' clearly shows that the conventional treatment of these objects within linguistics significantly underestimates their role. Schegloff's analysis is built upon the assumption that conversation is fundamentally an *interactional* activity, even if only one participant is doing the talking, and his main point of departure is the treatment of discourse (the multi-unit sentence) as an interactional achievement. Bearing in mind that the turn-taking system is geared towards a minimization of turn size, Schegloff sets out to examine the various ways in which multi-unit turns are achieved. We can distinguish between speaker-initiated devices and recipient-initiated devices and while this section will focus primarily on the latter, a brief mention of the methods used by the speaker to create a multi-unit turn is appropriate. One way in which a speaker can potentially secure a multi-unit turn is to indicate such an intention at the beginning of the turn. This may be achieved through the use of various devices such as the 'list-initiating marker' or the 'story preface', whereby the speaker provides an indication that what follows is going to require more than a single turn construction unit (Schegloff 1982:75-76). The placement of devices for the achievement of multi-unit turns is not, however, confined to the beginning of the turn. The 'rush through' technique, for example, is initiated near a potential end of turn and is designed to effectively bypass a transition relevance place. It involves the speaker speeding up the talk and running the intonation contour and phrasing across the possible completion point (see Schegloff 1982:76; 1987:78). All of the above, while classed as 'speaker-initiated' methods, remain only *potential* turn-extension devices and their successful implementation depends upon the collaboration of speaker and recipient. Although people who stammer clearly face additional obstacles in producing an extended turn at talk, there is evidence that they employ a similar range of speaker-initiated devices to fluent speakers in order to achieve these multi-unit turns.

Listener-initiated discourse

The achievement of multi-unit turns described in this section is also contingent upon speaker-recipient collaboration but here recipients play a more pro-active role. For instance, by passing the opportunity to take a turn at talk at a transition relevance place, a recipient may be seen to initiate a possible multi-unit turn by the speaker. Failure to take a turn at talk, of course, does not necessarily suggest complete inactivity, and recipients often produce some form of behaviour, including vocalisations such as 'uh huh', 'mm hmm', and 'yeah' and associated non-verbal behaviours like head nods. Schegloff questions the traditional linguistic treatment of these as evidence of attention, interest, and understanding, based as they are on a consideration of these events taken in the aggregate with each removed from its context of occurrence, and advocates instead the analysis of particular instances. The following quote from Schegloff (1982:80) serves to illustrate the methodological distinctions between the two approaches:

Although appeals to signalling attention, interest, and/or understanding appear equivocal when invoked on behalf of the aggregated occurrence of tokens such as "uh huh", "yeah", and the like removed from their particular environments, such accounts may be viable and strong when introduced for delimited and described cases in which the relevance of these *for the parties to the conversation at that point in the talk* can be shown. Appropriate sets of such analysed single cases may then be assembled to display recurrent practices, themes, structures, etc.

Schegloff (1982:81) goes on to assert that, by passing an opportunity to produce a full turn at talk, 'uh huh' and cognate utterances 'exhibit on the part of its producer an understanding that an extended unit of talk is underway by another, and that it is not yet...complete'. In categorising these items as 'continuers', he draws our attention to some important issues. First, bearing in mind the nature of the turn-taking system, a TRP is an appropriate position for participants to display their understanding of the current state of talk. Second, it should be pointed out that continuers do not merely 'claim' an understanding that an extended turn is underway but actually display this understanding by declining to produce a full turn at talk. Finally, only a limited set of behavioural productions have the ability to achieve such an outcome (i.e. display this understanding without constituting a full turn in their own right) and fulfil the conditions of a continuer.

This characterisation is extremely pertinent to the situation that people who stammer often find themselves in and the ambiguity that dysfluencies often introduce into the conversational proceedings means that such a display of understanding is all the more important. Apart from their function as 'continuers', Schegloff suggests that tokens like 'mm hmm' and 'uh huh' can also be employed to pass an opportunity to initiate repair. We have already seen how such tokens are categorized as continuers on the grounds that they pass an opportunity to take a full turn at talk. In a similar way their treatment as indications of understanding and agreement is based on the assumption that if there were problems of understanding or agreement in relation to prior talk, opportunities to initiate repair would be taken up. However, as Schegloff (1982:88) emphasises, there is a clear distinction between this usage and the continuer usage:

With respect to the understanding of, and agreement with, what a prior speaker has said and done, "uh huh" is merely a claim of understanding. Such a claim may turn out to be incorrect; and passing one opportunity to initiate repair is compatible with initiating repair later. The status of "uh huh" as an indication of understanding or agreement is equivocal in a way in which its status as a continuer is not.

As most people who stammer are only too well aware from past experience that dysfluent talk has a high potential to be a source of interactional trouble, it is likely that they will be on the lookout for 'other-initiated repair'¹⁷. Similarly, those recipients who are sensitive to the difficulties experienced by people who stammer may want to offer reassurance that they have understood what has been said, and one way in which this claim of understanding can be achieved is through the production of certain response tokens.

Schegloff's treatment of discourse as an interactional achievement, then, appears to provide a solid framework on which to build an analysis of conversations that are characterised by stammering. Where fluent speech is disrupted by repetitions and blocks of various types the usual signals which promote smooth interaction may be distorted. In such circumstances the nature of discourse as an interactional achievement is brought into sharp relief.

The differential deployment of response tokens

Gail Jefferson's (1984) analysis of 'acknowledgement tokens' can be viewed as a development of Schegloff's (1982) study in that it takes up an issue referred to but not addressed in that paper, namely the difference of meaning or usage between tokens such as 'uh huh' and 'yeah'. A consideration of the kinds of work that these tokens do, raises a number of important issues, many of which have a direct bearing on the problem of stammering. Jefferson (1984:200) suggests that a clear distinction can be made between certain

¹⁷ For an explanation of this concept see Schegloff, Jefferson and Sacks (1990). Levinson (1983:339-345) and Nofsinger (1991:124-132) provide good summaries of many of the key issues relating to repair.

objects which fall into the general category of acknowledgement tokens. Her analysis demonstrates that among those speakers who regularly use both 'Yeah' (or 'Yes') and 'Mm hm' the former is employed to indicate a preparedness to shift from reciprocity to speakership and the latter to exhibit 'passive reciprocity'¹⁸.

Our understanding of acknowledgement tokens is significantly advanced by Marek Czyzewski's (1995) recent analysis of the use of 'mm hm' tokens by psychotherapists. In this study Czyzewski concentrated exclusively on 'mm hm' and identified four different interactional devices based on a systematically different use of this token. Czyzewski's data raises a number of interesting issues, not least the enormous potential for ambiguity and misunderstanding and although his research deals specifically with conversational interaction in a therapeutic setting, the framework established by Czyzewski may help to shed light on the interactional problems that people who stammer experience with different conversational partners. Given the difficulties that people who stammer experience, they need to be able to clearly distinguish between those tokens that are designed to encourage further talk and those that are associated with speaker transfer. Research into the differential deployment of 'mm hms' and other response tokens, both within the speech therapy environment and during everyday conversation, has the potential to increase our understanding of some of the factors that contribute to successful conversational interaction.

Of course, it is important to acknowledge that the type of encouragement to continue that certain response tokens perform can also be offered non-verbally. To conclude this discussion, therefore, I would like to examine a brief extract from a transcription that will serve both to illustrate this point and provide an indication of what a full-blown piece of conversation analysis might look like.

Non-verbal displays of encouragement

Tetnowski and Damico (2001) provide an insightful demonstration of the way in which 'continuer latching'¹⁹ are employed to facilitate interactional collaboration involving people who stammer. Their analysis of a video-recording of a two-way conversation involving a person who stammers and a speech and language professional (one of the authors) uncovered the systematic use of certain behaviours that appear to be designed to encourage the speaker to continue the turn during despite moments of dysfluency.

As we can see from the transcription below, JT offers encouragement through the use of the vocalization "mhm" and/or head nods (characterized by Tetnowski and Damico as 'continuer latching'), at precisely those moments when ML is experiencing difficulty (e.g lines 54, 55 and 56).

Extract from Tetnowski and Damico (2001:30) [See Appendix for transcription notation]

		x-----M-----smile-----x
53	JT:	I mean... you were on your best behavior, right?
54	ML:	Best behaviour and really I didn't think I stuttered at all un::: { stoppage }
	JT:	x-----head raise-----M-----eyes blink-----head nod-----x
55		until her n..n..nephew which.. I met him a couple of days later..y.young
		x-----headnod/-mhm-----head nod/-mhm
56		kid and when I spoke to him and he.. hey you know you stutter, Huh?
		-----close eyes-----M-----head nod-----mhm-----x
57		and I'm like...hm...I didn't know ((laughs)).
		-----M-----laughs--x

This example clearly demonstrates the collaborative nature of talk-in-interaction and indicates the benefits that can be gained from analyzing the talk of people who stammer at this level of detail. Moreover, the fact that JT was not conscious of using continuer latching at the time, highlights the importance of basing any such analysis on recordings of naturally occurring interaction. As Tetnowski and Damico (2001:32) point out, 'if we engage in careful and rich descriptions of authentic conversational

¹⁸ 'Passive reciprocity' refers to a situation where the person who produced the token is proposing that his/her co-participant is still in the midst of some course of talk and should continue talking (Jefferson 1984:200).

¹⁹ The term 'continuer latching' derives from the ability of this strategy to operate as an encouragement to continue the turn coupled with its typical location at the end of a speaker's utterance (Tetnowski & Damico 2001:30).

exchanges, we always find a plethora of strategies, devices, or mechanisms that help us “get things done” in conversation – even in the face of a communicative disorder’.

5. Conclusion

While this paper has indicated how some of the existing work in the field of conversation analysis may have relevance for research into stammering, we can identify a number of specific areas which might warrant such investigation. The existing stammering literature suggests that there are various opportunities for well-designed research studies to extend the work on turn-taking and repair carried out by conversation analysts. Such studies have the potential to demonstrate how interlocutors actively and skillfully work to achieve orderliness in an environment that is characterised by potential disorder. Although the pauses, restarts, prolongations, repetitions and numerous other features that constitute stammering represent a constant threat to communication, there is a need to examine the extent to which this threat is realized in conversational interaction, and identify and describe the management strategies that are employed in an attempt to prevent it.

As much of the research into stammering has focused on the speech mechanism and the specific act of stammering, the interactional implications of various types of dysfluency and the role of the listener in the process has been frequently overlooked. Indeed this neglect was one of the motivating factors behind Martin Duckworth's (1988:73) appeal for 'further analysis of stuttering.... outside the well-trying and tested frameworks of reading and within more naturalistic conversational settings'. From a conversation analytic perspective one of the most interesting aspects of recipient behaviour are cases where 'listeners' finish off the 'speaker's' utterance. While such instances are generally categorized under the rubric of pre-emptive completions (see Lerner, 1989), it is possible that they take on a rather different character in conversations involving people who stammer. A refusal to allow people who stammer to finish off their sentences seems to represent a lack of understanding regarding the problems that they encounter in interaction and research in this area may help to explain why recipients display apparent patience and understanding at one point in the interaction, yet feel the need to intervene at others.

Of course not all recipient activities are unwelcome and as we have already seen, there are various ways in which speakers can construct or design their utterances in order to display an orientation and sensitivity to people who stammer. Our discussion of response tokens and the illustration of Tetnowski and Damico's (2001) work underlined the facilitative role that people who stammer's co-conversationists can play, especially during periods of dysfluency (or apparent dysfluency). By producing 'continuers' at regular intervals they help to reassure people who stammer, not just that they are being understood but, perhaps more importantly, that they are not about to be challenged for the floor. In this respect they perform a vital function and help to counteract some of the pressures that stammering and the turn taking system conspire to create. While different conversational partners are likely to respond to people who stammer in very different ways it would be useful to know whether or not this variation was patterned. For example, there may be systematic differences, in terms of their interactional response to dysfluency, between speech therapists and others who have an insight into the nature of stammering on the one hand, and those who have very little understanding of the difficulties encountered by people who stammer on the other. This could also be extended to incorporate different speech exchange systems, for example the therapeutic interview compared to everyday conversation. Some research of an experimental nature has already been carried out into the relationship between interview style (formal as opposed to casual) and level of dysfluency (Howell, Kapoor, & Rustin, 1997)., and future conversation analytic work has the potential to build on this.

I have alluded to many of these possible avenues of exploration throughout the article, but some bear repeating here. As multi-party talk introduces additional constraints into the interaction an examination of how PWS cope with these would be useful. A study involving teleconferencing would facilitate the analysis of PWS interacting with other PWS and people who don't stammer simultaneously without the additional complexities associated with face-to-face interaction. While face-to-face interaction is a valid arena for future research on stammering this needs to be developed on a step-by-step basis. Some of issues that emerged from Tetnowski and Damico's video analysis need to be examined in much more depth and these will inevitably open up additional areas of interest. Through the cumulative development of research in these two distinct interactional environments we may be able to gain a deeper understanding of the different constraints that operate in each and why some people who stammer are able to manage these more successfully than others.

The main thrust of this paper, then, has been to propose that conversation analysis provides an appropriate framework on which to build an analysis of stammering and to conclude it is appropriate to reiterate some of the key arguments underpinning this proposition. First, such an approach facilitates a consideration of the *interactional* implications of the disorder and an evaluation of the contribution of both speaker and listener to the overall communication process. It is insufficient to focus solely on the individual and his or her speech disorder when attempting to understand the experience of stammering.

Just as significant are the interactional consequences of stammering, and in order to understand these we need to examine how the stammer unfolds during interaction and how participants deal with its various manifestations. Second, the emphasis on naturally occurring talk allows us to consider the nature of stammering in a natural everyday setting. As most research on fluency disorders takes place within a clinical or speech therapy environment and is often of an experimental nature, the methodological strategy adopted by conversation analysts represents a considerable strength. The inability of most people who stammer to transfer fluent speech back into the world of everyday talk suggests that the nature of this form of interaction creates specific demands on them and represents a significant factor in their ability to manage the disorder. Moreover, given the serious problems associated with stabilising and generalising fluency outside the therapeutic setting (Syder 1992:144), and Bloodstein's (1995:445) assertion that 'relatively little is known about the subject of relapse', it seems sensible to examine the site of these difficulties more thoroughly.

In various ways, then, this type of analysis has the potential to shed light on many previously inexplicable or generally misunderstood behaviours of PWS. When these are interpreted from a conversation analytic perspective their relationship to the organisational constraints of ordinary conversation should become more apparent. By drawing attention to the distinctive and innovative ethnomethodological research programme of conversation analysis and suggesting how it might be utilised to increase our understanding of the nature of stammering and its specific social organisation it is hoped that other researchers will be prompted into taking up the challenge of future research on dysfluent talk. This may have substantial practical payoffs and as Martin Duckworth (1988:73) perceptively observed, a broadening of perspective in relation to stammering is likely to have 'more therapeutic significance than the creation of yet another "method" for treating the stutterer'. Indeed, as the procedures of conversation analysis have 'already proved themselves capable of yielding by far the most substantial insights that have yet been gained into the organization of conversation' (Levinson 1983:287), they hold the potential of opening up another dimension to our understanding of stammering.

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Appendix: Transcription notation

This is a simplified (and modified) version of the Jeffersonian transcription system adapted from Tetnowski and Damico (2001:36-37)

1. (()) Comments enclosed within parenthesis provide a description of the context or the nonverbal activities of the participants.
2. {{ }} Comments enclosed within brackets provide a description of the moment of stammering.
3. (#) A number within a single set of parenthesis indicates a pause with the number indicating the length of the pause.
4. .? Punctuation markers are used for intonation. A period indicates falling intonation and a question mark indicates rising intonation.
5. : A colon is used as a sound production marker, indicating that the prior syllable is prolonged.
6. - A short dash indicates a “cut-off” of the prior word or sound.
7. (*) Single pairs of parentheses with asterisk indicate that the transcribers are not sure about the words contained or that the talk was unintelligible.
8. // The double oblique indicates the point at which a current speaker’s talk is overlapped by the talk of another.
9. Gaze of the listener is marked below the numbered turn at talk. A line indicates that the listener is gazing toward the speaker.
10. Gaze of the speaker is marked above the numbered turn at talk. A line indicates that the speaker is gazing toward the listener.
11. x Marks the beginning and end of the direction of gaze.
12. ,, Indicates a shift of gaze from one direction to another.
13. Specific gaze direction is described orthographically through indication of the person or place of the direction of gaze (i.e., initial of person, or ‘mid distance, away’)
14. Simultaneous gesture of the speaker is described orthographically above the numbered turn at talk.
15. Simultaneous gesture of the listener is described orthographically below the numbered turn at talk.

TARGET ARTICLE

How interviews with adults who stammer inform research directions concerning what we think about our stammer: Participants views from the Apple House Fluency Course, Oxford

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There is a pressing need to show how qualitative research can help change the world in positive ways.
(Denzin & Lincoln, 2000: x)

Abstract. Academic and political interests lead research and promote particular perspectives generally measured in quantitative ways. A qualitative interview approach, arising out of the real concerns for people who stammer, is employed to elicit priorities for investigation and intervention that is client-led (Yaruss & Quesal, 2004). This is used to illustrate a study into adult fluency management at the Apple House, Oxford. Courses have run for 32 years and one participant for interview was selected at random from the 200 attending in each decade. There are four case studies, therefore, from a total cohort of 800 adult course participants over this period. The four interviews are transcribed and reviewed and reveal common concerns amongst participants. The goal was to suggest a research and practice agenda, which is client-led to enable outcomes that maintain improvements from intervention when compared with current 50% relapse rates. The pros and cons of interview approaches are discussed in making a judgement about their value in the research process. **Keywords:** Interview methods, case studies, views of those who stammer, research agendas, fluency courses, adult treatment.

1. Background to stammering - interruptions in the speech flow rhythm

Folk beliefs have honourable status but they are not the same intellectual object as a scientific analysis (Moerman, 1974:55).

Folk beliefs about stammering abound. My favourite reports a cure in the 1950s, after eating the meat of a black tomcat at midnight, under a half moon, and drinking the urine from a virgin mare (Sage, 1998). The shock provided the will never to stammer again! Since then, understanding of stammering has been revolutionized by improved knowledge of *inside and outside the person factors* that affect performance.

Inside the person factors

With regard to *inside the person factors*, the contribution of brain imaging techniques (**PET** – positron emission tomography; **fMRI** – functional magnetic resonance imaging; **DTI** – diffusion tensor imaging) has been important. Brain images suggest a structural weakness in rolandic operculum fibres of the left-brain of those who stammer. The disturbed signal transmission through connecting parts used for speech articulation and planning may impair the fast sensorimotor integration necessary for fluent speech (Sommer et al., 2002). Studies by Webster (1996) indicated that the right brain of those who stammer has higher activation than the left, which is the reverse of the pattern seen in fluent speakers. Since high right-brain activation is shown when fear and anxiety is experienced, this may overflow to the left and interfere with speech movements. This is one possible explanation of the supposed higher right hemisphere activity. Fluency improves with dopaminergic medication (Brady, 1991; Lavid et al., 1999; Maguire et al., 2000) suggesting hyperactivity of the dopaminergic neurotransmitter.

It has also been hypothesized that the normal temporal pattern of activation between premotor and motor cortex is disturbed (Salmelin et al., 2000) with more left-brain activity in dysfluency, whereas right activation correlates with smooth speech (Braun et al., 1997) Therefore, hemispheric language areas (suggested by studies of cerebral vascular accident patients) may try to compensate for the deficit (Fox et al., 1996). Language lateralisation is less pronounced in females, possibly accounting for their lower dysfluency incidence and better recovery rate (McGlone, 1980).

Theories, like those just described, seek to explain brain function, support fluency methods such as reading to a metronome, choral speaking and singing that reduce stammering by using an external signal (metronome *beat*, choral *speakers* and song *music*). These act as pacemakers feeding into the

speech production system through the auditory cortex and may reach speech-producing brain areas by circumventing the frontocentral disconnection, enabling resynchronization of decorrelated activity.

Outside the person factors

Outside the person factors, concentrate on the context of communication and aspects other than speech, which affect communication. These include roles and relationships, attitudes, values and emotions as well as the quality and quantity of support. Gerda Wilson (1998) the senior therapist in charge of the stammer courses at the Apple House said: 'As the years rolled on, it was quite obvious that a great deal more than 'stammerbashing' had to take place. What was the use of fluent speech if the environment of the client was poor or his opinion of himself low?' The client needs help in rearranging parts of his life and so a holistic approach that considers both component and contextual aspects of communication is likely to be more effective. Sage (2004) points out that the British low context communication style, which has most information vested in words, is componential, abstracting and logical, dealing only with what has been taken from a context and made explicit in digital (linear) thinking ways. Therefore, as a society, we are not predisposed to value the contextual features of communication that are bound up with the meaning of the event, in contrast to high context cultures like Japan, which emphasize environment, attitudes, relationships, non-verbal signals such as touching, intuition and analogue (circular) thinking. This may be the reason why our approaches to fluency have traditionally targeted the word aspects of messages with less attention to the broader perspectives operating in communication. Modern interventions, however, take context factors into more consideration.

Thus, abnormal brain activity, reinforced by learned behaviour and the influences of communicative contexts may well deliver a triple whammy for those who stammer, so making their disorder extremely complex to unravel.

Factors in dysfluency

Previous discussion has hinted at *three* factors operating in dysfluency (Sage, 1998).

Predisposing factors are biological resulting in less facility in using words

Precipitating factors include upsets, illnesses or losses that activate biological weaknesses

Perpetuating factors - insecurity, stress and unsuitable demands - facilitate stammer development

Presently, we can do little about the first two factors, as we arrive in the world with a mixed bag of parental genes and surrender to life's ups and downs. Perpetuating factors, however, offer chances for help and hope. There is now more co-operation between parents and professionals, so reducing chances that stammering will become established. Therapy has taken a broader approach, in line with a greater focus on context issues in learning (Sage, 2004), concentrating less on the speech problem and more on a person's relationships and interactions with others. This increases opportunities to change mental attitudes and develops a wider range of skills (Sage, 1998). Together with a greater knowledge of the cause of stammering, effective therapy, helps to reduce the 50% of performance relapses (Garvin-Cullen, 1990). Relapses are common if therapy is limited to word *component* rather than non-verbal *context* issues and there is no support following intervention (Sage, 1998).

2. A research rationale

Prins (1991) said that to change behaviour you must alter the way people think. Sage (2000) showed how taking account of clients' most pressing problems motivates them to achieve more effective communication. Therefore, a study of Oxford Fluency Courses in 1998, over 32 years of their existence, included structured interviews to elicit views from four clients who had attended a short intensive course, with follow up opportunities, during this period. Data reveals the real issues in their lives, which help to define future research and practice. This descriptive approach, known as ethnography, has a characteristic 'funnel' structure, being progressively focused over its course. There are two distinct components. First, the research problem is developed or transformed over time, which then leads to clarification and delimitation of the scope and exploration of the structure. Over the course of the study one discovers what the research is about which commonly turns out to be quite different from the initial focus. This progression parallels Glaser and Strauss's (1967) famous account of *grounded theory*, which involves three stages:

1. An initial attempt to develop categories to illuminate data
1. An attempt to 'saturate' these categories with appropriate cases to demonstrate relevance
2. The development of categories into a general analytic frameworks relevant outside the setting

Grounded theory is criticized because it is clearer about the generation of theories than about their testing and can degenerate into the empty building of categories (Silverman, 2000). At best, it allows creative theory to be generated from good observation of a real situation in contrast to the abstracted empiricism present in most statistical studies.

3. Research methods: a discussion of the issues

'Survey procedures themselves only manipulate data that had to be gained at some point by asking people' (Procter, 1993).

The disparity between views displayed in formal and informal contexts strikes at the heart of qualitative/quantitative traditional divisions. *Qualitative* methods are associated with research carried out in an interpretative frame seen in interview data (Acton, 2004). *Quantitative* strategies are concerned with a search for facts as in survey statistical comparisons. These forms have become polarized in politically motivated debate associating *interpretivism* with so-called 'softer' social sciences and *positivism* with the 'hard' more fundable natural sciences.

Dependence on purely quantitative methods may neglect social and cultural construction variables. Attitudes, for example, are not just inside people's heads and researching them depends on making a series of analytical assumptions about people, their context and culture. According to critics, much quantitative research leads to ad hoc procedures, described as 'the cart leading the horse', to count and analyze variables that unknowingly use everyday methods even when claiming scientific objectivity (Silverman, 1975). Therefore, qualitative researchers have preferred to *describe* how we actually go about defining, counting and analyzing. So the quantitative desire to establish operational definitions at an early stage of social research can be an arbitrary process, which deflects away from common sense procedures. For example, a multimillion project '*Learning about learning*', in order to raise educational achievement, has succeeded in measuring a number of classroom aspects but not really got to the heart of why children are not succeeding in school because it did not start by interviewing children, their parents and teachers to illuminate common issues and determine a research direction based on pupil concerns.

Therefore, quantitative research has been criticized as a 'quick fix', lacking contact with the people that matter and based on arbitrary variables (Silverman, 2003). These are merely complaints about some quantitative research as many professionals are conscious of the problems of interpreting statistical correlations in relation to what the variables mean to participants.

Qualitative researchers suggest that quantitative data are not the only valid or generalizable social facts. Experiments or survey data may be simply inappropriate for some tasks such as the observation of behaviour in everyday situations. The methods used by qualitative researchers exemplify the belief that they provide a 'deeper' understanding of social phenomena than numbers can provide. Even so, those in the natural sciences treat qualitative research as a minor methodology only to be considered at the exploratory stages of a study before the serious sampling and counting begin. The *reliability* of transcript interpretation is weakened by failure to note trivial behaviour such as pauses, overlaps or body movements as verbal rather than non-verbal information is recorded. This is countered by saying that as social reality is always in flux, it makes no sense to worry about whether research instruments measure accurately (Marshall & Rossman, 1989). Further criticisms relate to the *validity* of explanations and how anecdotes are representative of reality. This 'damning by faint praise', however, has been more than balanced by the criticisms of quantitative research. In the 1990s the assumed reliability of numbers was threatened by the changing ways inflation and employment were calculated, suggesting that indexes were fixed to cast the best light on the matter.

Although numbers talk in our bureaucratic and technological world and are useful for counting the frequency of an event they neglect many of the features that are important in a complex situation such as the communication between people. We can easily count the number of times someone stammers in reading or conversation but this does not address the issue of inter-relationships of verbal to non-verbal behaviour, the contingent nature of interaction, the multiple functions of language and the roles and attitudes of participants - to name but a few!

In conclusion, we are not faced with a choice between numbers and words or precise and imprecise data but whether our measurement is appropriate for the purpose. As researchers we have to manage the tensions between reality and representation. Qualitative information can put flesh on the bare bones of quantitative data. As Hammersley (1992:182) argues:

'The process of inquiry in science is the same whatever method is used and the retreat into paradigms effectively stultifies debate and hampers progress'.

When we compare quantitative and qualitative research we find emphases between 'schools' who themselves contain many internal differences. A dependence on purely quantitative methods may neglect the social and cultural construction of the variables which quantitative research seeks to correlate.

Further issues about interview methods

We have touched on debates about the quality of research and its relevance to policy and practice. Silverman (2003), a researcher in medical professional-client interactions, says:

'Although I could manipulate my data so as to provide a rigorous test of my hypotheses, these data were hardly 'raw' but were mediated by various kinds of

interpretative activities. Not the least of these arose in my administration of the interview schedule. As I was interviewing my respondents, I was struck by the need to go beyond my questions in various unforeseen ways so as to obtain the sort of answers I wanted'.

Antaki and Rapley (1996) suggest that how we make sense in interview conversations necessarily relies on everyday conversational skills that cannot be reduced to reliable techniques. The anthropologist, Michael Moerman (1974) observed how people categorized their world but soon realized that without a set of animating questions, attempts to describe things are doomed to failure. Facts never speak for themselves! Baker (1982) says when we talk about events we give them a particular character. Interviewer and interviewee actively construct some version of the world, raising issues about data:

1. What is the relation between interviewees' accounts and the world they describe? Are accounts potentially true or false?
2. How is the relation between interviewer and interviewee to be understood? Is it governed by standards of good practice (whatever that is) or based on conversation conventions we employ daily?

Answers are provided by three philosophies:

Positivism - generates valid, reliable facts from a random interview sample, using standard questions with easily tabulated multiple-choice answers. The problem is that responses are framed and delivered at different descriptive levels.

Emotionalsim - generates data giving insights into people's experiences through unstructured, open-ended interviews. Retrospective study poses problems in penetrating private worlds successfully.

Constructionism - generates data on how interviewees construct narratives of places, people and events, treating the mutually constructed meaning as a topic. Participant conversational skills rather than spoken content may be relied on.

All three philosophies offer strengths, respected in the method chosen to gain information from the four course participants. A structured interview was chosen to allow across subject comparisons, using open questions, which allowed the participant to choose their response narrative in a setting that was comfortable and relaxed. Thus, the weaknesses of the interview are ameliorated by a systematic procedure that allows us to reflect on the life history of respondents, in the best way possible to produce client-centred approaches to intervention and target lines of investigation in research. The structured design aimed to give the procedure validity and reliability.

4. Case studies using the interview method

Case studies allowed participants to present their views on stammering and although these were collected in a survey of 200 participants on fluency courses, the numerical data merely revealed weight of opinion rather than a view of real life events. Participants for interview were chosen at random from each decade of a 9-day Fluency Course, at the Apple House, Oxford. The reason for this was to judge whether issues changed over the 32 year period. They form part of a research project to record and review management of adult dysfluency at Oxford (Sage, 1998). Therapy was initiated in 1964 by Dr Seymour Spencer, psychiatrist, and Catherine Renfrew, chief speech therapist, within a research framework that monitored a component approach to treatment (speech fluency methods) which later incorporated a contextual focus using ideas from cognitive therapy to deal with problems surrounding stammering. The senior speech therapist, Gerda Wilson, was in charge for 32 years, and assisted by Sylvia Davey, voice specialist. Gerda Wilson's achievement was recognized in 1996, by the International Association of Therapists and Counselors, when she was awarded the European Educator of the Year, and in 1998 when she received the Diana, Princess of Wales Award for Human Communication.

The interview subjects (names changed for confidentiality)

Paul, Robert, John and Helen joined the course during the 1960s, 1970s, 1980s and 1990s respectively.

The Method

Each person was questioned on 7 *standard questions* that were intended to generate valid, reliable, narrative, comparative data independent of the research setting. The questions were:

1. What are your first memories about stammering?
2. Do you see your stammer as an issue for life?
3. How do you think about your stammer?
4. How has your stammer affected you most?
5. What made you seek help for your stammer?
6. Can you tell me how the Apple House course has helped you?
7. Did all the good things started at the Apple House continue for you?

The final question was intentionally a leading one. All participants had answered a questionnaire as part of a random cohort of 200 out of 800, who had attended the Apple House Fluency Course. This

had concentrated on the positive and negative aspects of the Apple House intervention. In the interview, we wanted participants to expand on which positive effects continued, to provide information that would help devise more effective support strategies. Questions were the result of a focus group discussion (previous course participants) of views of their stammer and the help they had received. This conversation revealed topics that were biographical information, beliefs about facts, feelings, motives, actions and reactions as areas of social reality regarding their dysfluency. The most popular questions were chosen and piloted with a male and female subject and presented no problems in answering. The author familiarized participants with procedures before they were interviewed in their homes.

Even more important for reliability than the type of interview selected, was the need to follow standardized protocol for their delivery. Sellitz et al (1964) in *'The Art of Interviewing'*, provided rules and taboos. Questions must be asked as worded and in the same order. Interviewers should not show surprise or disapproval of answers, offer impromptu explanations of questions, suggest possible replies, or skip items. Brenner (1981) states it is important to achieve equivalence of stimulus conditions to prevent bias. These criteria were respected and pilot interviews were videoed to examine and adjust procedures.

Interviews began with a period of casual conversation to allow participants to relax and settle. Responses to the target questions were taped and transcribed. There was no prompting or comment by the researcher who only provided occasional encouraging smiles and nods. When participants appeared to have said all they wanted on a question, the next question was asked. This goal-oriented structure was designed to provide participants with opportunities to give their views about their own dysfluency issues without fear of judgment. The interpretive repertoires following the data collection identified broad discourse themes used to characterize experiences. Non-quantified data frequently contains clues to understanding phenomena that enrich conclusions and provide theoretical and practical significance for therapy. For example, the way participants think about their stammer is so different that it would be difficult to reduce information to numbers that convey the picture described in words. Two experts transcribed the text. They also highlighted those sections of the text that closely answered the questions and all these passages are scripted below. There was a 90 per cent agreement among raters regarding the passages highlighted. Approximately 30 per cent of the taped interviews were discarded because they moved away from the question. Dysfluencies are not marked in the text as the views rather than the performance of participants was the purpose of the interviews. Other than the introductory paragraph, which is a summary of the initial conversation when participants gave background information, all the answers reported are the actual wordings of the interviewees who checked the transcripts to ensure this.

The Interview data

The aspect of things that are most important for us are hidden because of their simplicity and familiarity. (Wittgenstein, 1968, para 129)

PAUL

Paul is in his fifties. He is married with a son attending senior school and a daughter at university. The first impression one gets of Paul is his lovely smile and an eagerness to make conversation, It is immediately apparent that he is very knowledgeable about a huge range of things. He went to Public school and later studied at Oxford, gaining a PhD. This gave him entry to a career dealing with important buildings. He heads up a department that manages aspects of national heritage. Paul has been able to immerse himself in research and writing and minimize speaking situations that could bring pain and embarrassment. However, he is naturally friendly and interested in people. He has had to change his life to fit his speech situation. This interview demonstrates how dysfluency can interfere with career plans and cause endless problems in living successfully and happily.

Question: Paul, what are your first memories about stammering?

Answer: My speech problem had been obvious since starting school at five, but got worse as I became older. I remember an incident in a school play when I was nine - one of the parents thought I had forgotten my lines when I started to stammer on stage. Although I remember very little direct teasing at school, the words 'unfortunate' and 'poor Paul', were certainly in the air and occasionally expressed.

When I was ten, my mother became anxious about my speaking and consulted an uncle who was a clergyman and also a speech therapist. We had some informal counselling sessions but my speech did not make any improvement. I have inherited a family trait as my father stammered when he was young and still shows some hesitancy. My sister started to stammer after the birth of her first child and now falters sometimes when she speaks. We all have this genetic predisposition. It is there, like a cloak around the shoulders, smothering you on occasions.

I went to see my prep-school headmaster, at the age of thirteen, on my own initiative, in order to find out more about my early stammering days. He was helpful, and remembered that my stammer would be worse at the beginning of term after being at home for the holidays.

Question: Do you see your stammer as an issue for life?

Answer: My stammer is part of me - and I have accepted that it will be there forever. I have adjusted to it and alter my life to cope with its problems. Although often tempted to escape public or group speaking, I seldom take avoiding action by getting others to do what I should do myself. In my present job it has been more a matter of being stereotyped by colleagues as unsuitable for front-of-house work and, therefore, not given the opportunities that might have come my way. I refrain from pushing myself into a situation where somebody else could be more effective. You might argue that the net result has been to foster the idea that I am not really promotable, since the next post upwards would definitely require more presentational work.

It is fair to say that my stammer has seriously interfered with my job. Talking to large groups of people is difficult. I make sure I avoid situations, which put pressure on my speech. However, it is amazing what you can do if you have to, such as acclimatizing oneself to the telephone! I have a life where I do not have to meet new people all the time. If I had to do so it would produce intolerable stress as first impressions are so important and I worry that I might let myself down as well as others.

Question Paul, how do you think about your stammer?

Answer I think about it as *feeble* and *cowardly* as it makes you opt out of things. A stammer puts one at a huge disadvantage and produces great dissatisfaction with situations that involve others. You can never be comfortable and relax in case it strikes and causes havoc. Writers depict people who stammer as very unattractive creatures with cringe-making qualities.

How others think about you can be quite oppressive. When I was young my mother was constantly concerned about my dysfluent speech, whilst father thought I might grow out of it. This produced two different types of pressure on me. My family has always been supportive, but I feel very awkward when I do stammer in front of them. It is a very negative experience for everybody and sets up a barrier in relationships.

Question Paul, how has your stammer affected you most?

Answer Socially, it has held me back a great deal. I am constantly worried by the possibility of blocks in speech and long silences in front of other people. The stammer hits you on the head when you are least expecting it as I can be fluent for ten minutes and then have an awful block in speaking. This has made me very insecure. Basically, I am a sociable person and enjoy the company of others. I feel I am being robbed of the pleasure of conversation.

As regards my career, the stammer has prevented me choosing my favoured path, which would have been an academic one. In university life, one is constantly on show to others and a reputation is made on the basis of skills with spoken as well as written words. I have the academic knowledge but not the performance ability.

Question Paul, what made you seek help for your stammer?

Answer My mother thought that this was necessary. I had informal counselling with my uncle, when I was about ten. When this did not result in any improvement in speaking I went to a Saturday clinic at Guys hospital and did work with a voice specialist. I felt this was a complete waste of time. Then I got referred to a research project at St. George's hospital, Knightsbridge. We were played records of story reading and had to shadow this process. It was useless! By this time I was feeling quite angry and *bolshee!*

I stumbled on throughout my teenage years until I arrived at Oxford and was referred to Dr. Seymour Spencer, at the Warneford hospital, for depression. He became interested in speech therapy, partly because he felt my sessions with him would make faster progress if I could speak more fluently. Dr. Spencer suggested I join a research project which was starting up in 1964. I declined the first offer of a place at the Warneford, but in 1967 I had another chance on Gerda's third course. She had just taken over the research project. I joined an intensive group course that was organised at the hospital, although I was cautious and apprehensive due to my previous experiences of speech therapy. At this stage my rating on assessment suggested I was stammering on more than 30 words in a sample of 100. This was very high.

Question Paul, can you tell me how the Apple House course has helped you?

Answer From day one of the course I became a great deal more fluent. However, I was very tense, lacked confidence and was quite obsessive about the techniques. In one way this was an advantage in the initial stages of treatment when I had to concentrate hard in order to master new ways of talking. I may have been helped by a musician's sense of metre as well as rhythm. Later on *obsession* became more of a minus I suppose.

The course introduced me to some behaviour modification methods that were aimed at breaking down bad talking habits by introducing syllable-timed speech. In English, we are used to using stress-timed speech so I needed tremendous effort to control what I was doing. The technique was useful, as I was able to exert control over speaking and this was a wonderful feeling. I could speak fluently without anxiety. However, I suffered bad relapses and had to take two further courses at the Warneford

hospital in order to consolidate fluency. I was very angry about my problem and had to work through this and change my feelings.

Nevertheless, I have to confess that I do not look after my speech as I should. I need to concentrate but don't always do so. My experience of therapy has taught me that I can control symptoms, but maintaining this can be a very demanding and often a discouraging process, needing immense and continuous effort.

Five years ago I took on extra work, which I couldn't cope with. I felt acute anxiety and expected my speech to be worse but it was very fluent. This suggests that the state of the mind is not wholly responsible for a dysfluent condition. Was my good speech a result of the medication I was taking for the anxiety or because I was beside myself and out of touch with my normal behaviour pattern?

I found the course at Oxford helped and supported me a great deal. Perhaps it was the right time to concentrate on my speaking performance. I was at the start of my career and motivated to succeed. My breakthrough, followed by the longest period of fluency I have enjoyed, was when Dr. Seymour persuaded me to be 'up-front' about the syllable-timed speech and explain to strangers on a first meeting why I was speaking in that way. It is not possible in the short time of the course to master new techniques confidently and competently. I needed much more practice than was possible and was not good enough at the new patterns of speaking to use them outside.

The group aspect of the course is vital. I am surprised to hear how many other people attending the Oxford courses have such bad experiences of therapy in their past. It makes my own history look normal! The dynamic of working with people is motivating. Others give support and it is reassuring to realise one is not alone. However, one cannot underestimate the importance of the group leader. She or he must be interested in *people* rather than just theories of *practice*. Gerda (the senior therapist) has been just the right person to develop the work at the Apple House. She has been ably supported by Sylvia (voice specialist).

The Apple House approach is broad in concept. The therapists are very much in touch with new ideas and the course has changed a great deal over the years. There is no longer investment in just the syllable-timed approach. Course participants are encouraged to develop a technique for fluency that they feel comfortable about using. Emphasis is given to understanding the nature of communication and how to find strategies to overcome the range of problems one might be having with it. Great attention is paid to the feelings of the course participants and much effort is spent in replacing negative attitudes with positive ones.

Some people have found that Hypnotherapy and Neuro-Linguistic Programming have helped to release fear and develop positive views. Total immersion is needed which can be very exhausting for therapist and patient. Personally, I have not found these new techniques have worked for me. This may be partly because I have retained an old-fashioned commitment to syllable-timed speech. What does not work is to use hypnotherapy methods as part of a pick-and-mix approach along with other therapies in the same group or course as you don't get the necessary reinforcement. But here I go being dogmatic again!

The Apple House staff are truly committed to developing the potential of all course participants. However, Gerda bears the brunt and for most of the time is working on her own with groups as well as carrying out administrative tasks and directing all Apple House activities. This makes it very hard, as there is little support for her. Often a client needs individual attention, which has to be given after the course has finished for the day. There are not many jobs where this level of responsibility occurs. In the long term there are huge drains on physical and emotional energy. Greater resources are needed to sustain the work at the Apple House, allowing more specific training and exploring local support for clients. It is so important to continue and build on 32 years of tremendously successful work.

Question Did all the good things started at the Apple House continue for you?

Answer They did, but I must confess that over the thirty years I have not looked after my speech as I was advised to do so. I have not given it the attention it deserves and kept up the practice. As a consequence, I still lapse into dysfluency at times. However, I am a very different person to the one I was initially at the beginning of treatment. In general I have learnt to cope with my speech and my life. Things are generally good for me and I keep up an active interest with the issues of dysfluency through the Stammer Trust. I am very committed to the work that goes on at the Apple House. It is a lifeline for hundreds of people. It must be allowed to continue and expand. There are so many people needing help and stammering does not have much national recognition. It is not seen as life threatening but it has certainly threatened my life and brought endless misery and pain, not just for me but also for my family.

ROBERT

Robert is in his forties with an active social life. He particularly enjoys playing squash and is enthusiastic about 'do it your self' and has done up his own cottage from a basic wreck. Personable, excellent company and a great sense of humour are words to describe him. He is delightful, popular

company amongst those who know him and takes a great interest in practical, creative activities such as cooking. Robert is kind, considerate and approachable. After studying architecture at university he diversified into a range of artistic and creative ventures. He earns a living from freelance commissions. This interview reveals some of the struggles involved in coming to terms with dysfluent speaking.

Question: Robert, what are your first memories about stammering?

Answer: I have no specific memories regarding talking, although I can't remember not stammering.

My recollections seem very hazy. Before the age of eight I was not conscious of my stammer. I can remember feeling very miserable about my speech when I was in my teens. I may have blanked out bad experiences because they were too painful. This is more likely than feeling my stammer was unimportant. After I was eighteen my speech became something of great significance in my life. I tried to avoid talking and to a large extent could get away with not speaking much, but going to college meant I had to communicate without help from parents, family etc.

I went to see a speech therapist when I was sixteen. In fact I was passed round several therapists. I remember two techniques I was introduced to. One was the *Edinburgh Masker*, which was supposed to block out the feedback mechanism so you didn't hear yourself stammer. The other was *prolonged speech*, when you had to make the sounds longer and the rhythm smoother. Neither of these methods did much good and certainly did not make me feel any better about my speaking.

Question: Robert, Do you see your stammer as an issue for Life?

Answer: The stammer is still present at times but I do not regard it as important. I do not like the periods when I am dysfluent but I cope with them and feel much more confident about my ability to communicate effectively. It is a matter of putting some balance into one's thinking. A stammer only assumes importance if you let it. After all, most other people only seem bothered about it if I am.

Question: Robert, how do you think about your stammer?

Answer: I'm not sure I can answer that one. I think I can cure the *problem* of my stammer - not the symptom itself. The symptom is something physically there which I have come to terms with and learnt how to cope with. The problem is how to live happily however one speaks. I tend to speak only when I have to. As a result I have learnt to listen and look and one positive aspect of my stammer is that I have become very observant. It's impossible to tell how I would have been had I not stammered.

Question: Robert, how has your stammer affected you most?

Answer: If I were to speculate I'd say the stammer has certainly affected my relationships with other people. It probably resulted in me pursuing solitary rather than group activities. I have not felt comfortable in company where others are not aware of my stammer. I don't know whether I am gregarious by nature as I have not given myself the opportunities to mix constantly with people. I like being with others, but am quite happy to be by myself.

It is not easy to live with a stammer and cope with the reactions of those around you. My family tried to help me in the way they felt was best but like most people they didn't always know what was the right thing to do. There is just so little general knowledge about communication difficulties so that people are uncomfortable about conversing with someone who has problems. Everyone ends up feeling embarrassed.

The stammer may have altered my field of academic pursuit. Not being articulate is seen as a definite handicap both by stammerers and probably by other people. I feel sure dysfluency has led me to be reactive rather than proactive. I have developed a career that minimises social contact with others whether this is due solely or in part to the stammer, I cannot say.

Question: What made you seek help for your stammer?

Answer: When I came up to Oxford I was feeling pretty desperate. I was on my own and did not think I could cope with my speech. It was a very depressing experience. I was lucky because the course had recently started at the Apple House and I was in the right place at the right time. Although I had not experienced much success with previous therapy, I felt there was no alternative but to give this course a go. My situation was bad and I had to try to do something about it.

Question: Robert, can you tell me how the Apple House course has helped you?

Answer: I did my first course at nineteen, followed by two others. The whole experience completely changed my life. It developed my maturity. I had to think for myself and reason about my stammer and come to a conclusion about how to manage the problems it brought. Practical help was available to control the stammer, but I did not need this as much as the help for myself and a change in attitudes and feelings. From being totally negative about everything I slowly turned this round to a positive view on life. The group aspects of the course are important. People together support and encourage and it is good to understand that others are going through similar agonies. We can help each other.

However, the exceptional aspect of the courses is Gerda herself. She has intuitive insight into our struggles. Her ability to sum up every individual accurately is amazing. She cares passionately about everybody and knows how to get them moving forward. *Success is built on self-belief* and Gerda

knows how to establish this in others. She encourages an active management, in which we are helped to think about our symptoms in a different way and where necessary live with them.

The first and most important thing to do for someone who stammers is to try and 'cure' the unhappiness and instill confidence. Most people who stammer think fluent speech will lead to instant happiness, but I think this is not often the case. It is easy to get temporary fluency and experience the euphoria of that. After a while, one discovers problems are still there even though one is talking better. It is then that the real 'cure' shows it has worked. Many people who stammer hang all their problems on their speech. I see stammering as being a bit like alcoholism - you can stop drinking but still be an alcoholic, but being one need not stop one from leading a happy life.

Question: Did the good things started at the Apple House continue for you?

Answer: Most definitely. Over the years things have gradually improved. When I attended my first course I was at rock bottom and felt quite desperate about the future. Life is impossible if you feel you can't communicate. I have had wonderful support, which has always been there. Without it I don't know what might have happened. I have been able to step forward and develop my talents as well as cope with my speech. I feel happy about this. I am now confident about solving problems and finding the support when necessary. If asked if I were cured I'd say 'Yes', in spite of the fact that I still stammer. The stammer no longer dominates my life - at least not any more than being bald does! Some people feel they can't live happily without a wig - for myself I don't care if I'm bald, or if I stammer.

JOHN

John is in his thirties and married with a teenage daughter. He is good looking, amiable and a confident communicator. Many actors would give their 'eye teeth' to possess his pleasant, resonant voice, which makes him lovely to listen to. Intelligence, thoughtfulness, humour and a readiness to share thoughts and feelings mean that John finds it easy to socialize.

He has made a successful career in a large industry and travels extensively, meeting a wide variety of personnel. Apart from technical expertise, effective communication is the most important facet of John's work. He has to continually inform others and negotiate with them, often giving presentations to large audiences. This role is stressful for anybody, but for John the agony is doubled or even tripled by having to work hard to control a long-standing stammer. This interview raises issues about the continual challenge of those who wrestle with putting thoughts into fluent speech.

Question: John, what are your first memories about stammering?

Answer: The first was a school play when I was about seven. One of my classmates said: "Don't do what you normally do with your speech, John". When I asked her what she meant she said I had the habit of repeating words. I felt deflated. It made me aware I was different from the rest. I became conscious of the way I was speaking and the fact that this was not acceptable.

When I was between 10 and 11 years my parents sought advice from our Doctor. He said: "Just leave him alone - he'll grow out of it". However, I didn't - I just got worse. My voice used to go up and down outside my control. It was weird. I used to repeat words as well as block on certain sounds such as d, t and p. I could never say 'chocolate'. When attempting to buy a bar, in the newsagents, I would end up with something else instead as I was fearful of making a fool of myself and bought what I could say! It was most frustrating - I ended up all the time with things I didn't want! That didn't make me feel good.

There is no family history of a stammer in my family so everyone was puzzled about my problem. My parents were anxious to help me and I was enrolled in a drama class. Although I enjoyed the speaking part I hated dancing around waving ribbons in the air. It made me feel such a prat. I don't think I was helped by any of the activities we did. However, it was not until I left school at 16 that I began to really worry about my speech. Then I became aware of how important communication is in the workplace and how necessary it is to speak well for job success. This realization rocked my confidence; although I made a very determined effort not to let my speaking problems interfere with my life. It didn't affect me going out with the girls!

Question: Do you see your stammer as an issue for life?

Answer: The answer to that has to be a "Yo" [yes and no]. Initially, I did not see my stammer as being an important issue in my life. I'm an outgoing character and I was determined it would not hold me back. However, pressure to succeed at work and pay the mortgage meant I had to be aware of the impression I was making on people. My speech was not helping to give others a favourable view of me. A vicious circle started, as the more I worried the more tense I became and my speech just got worse. I was afraid I couldn't control what was happening. Life became very difficult. After my first course at the Apple House the stammer went out of my mind, but 5 months later it returned. There was a little voice in my head calling me a stammerer, which became more prominent when life got difficult.

Question: John, how do you think about your stammer?

Answer: Before the Apple House course - I pictured my stammer as a *one-eyed ugly creature* that I hated and loathed, which came up from the deep and bit me on the bum just when I didn't want it to. Now, I regard it in quite a friendly way, although I still hate it. I have it under control rather than it controlling me and what I say. When I reflect on my stammer, I view it as a disturbance of *thinking* as well as *speaking* performance. My thoughts are tangled and will not unravel so that they can be voiced smoothly. A stammer is more than a disruption of speech rhythm as feelings and ideas lack a proper pattern as well.

Question: John, how has your stammer affected you most?

Answer: It made me feel lonely and isolated as if I was the only person in the world with this problem.

Until I came to the Apple House I had only met one other person who spoke like me. My stammer led to depressed moods preventing me enjoying parties and making small talk with others. As I've said, it didn't stop me going out with the opposite sex. I've had my fair share of girl friends in the past! However, my stammer made it difficult for me to keep happy and buoyant. It was a constant reminder that got me down.

Question: John, what made you seek help for your stammer?

Answer: In 1986, I was visiting the outpatient department of the hospital when I noticed a sign for speech therapy. I enquired at reception and got myself an appointment through my doctor. I attended the hospital clinic for individual therapy each week for one hour over three months. I found the treatment helped me to feel happier about myself. I was taught to read fluently out loud which gave me confidence in talking. Later, I had a personal counselling session at work and my boss asked me if I wanted to do anything about my speech. I felt angry and annoyed about the suggestion but did agree to inquiries being made. The firm contacted the Private Patients' Plan, but they had nothing to offer. I went back to my doctor who referred me to a speech therapist at my local hospital and as a result I was transferred to the Apple House.

As soon as I came for my assessment with Gerda, I knew that help was on the way because she was the first professional I had met who really understood what I was going through. At the start of the fluency course I was so angry with everyone and felt at the end of my tether. I could not perform well at home or work and did not want to communicate. Gerda made me aware of the fact that personal issues, speaking activities and thought processes are all related and have to be considered together for effective communication.

Question: John, can you tell me how has the Apple House course helped you?

Answer: The course was a last ditch attempt to sort myself out. It gave me a new lease of life. I felt reborn. There was hope for me again and I felt as though I could fly. The days were very hard work but there were strategies to make us strong. One that worked for me was the penny pieces. We were all given ten to keep, but had to surrender one if we fluffed our speech when it could have been avoided. I was so determined to hold on to mine - giving away a penny was like giving your soul away. I was not going to let that happen!

We were introduced to so many new ideas and techniques. It was hard to master them. Correct breathing, slowed speech, soft contacts, relaxation, inner peace and calm were all things to work at in order to assume control of ourselves in all situations. The course offered us a window of opportunity. The group allowed a powerful supportive bond to emerge and gave us chances to communicate with each other and experience a range of talking and reading activities in a relaxed and unthreatening way. This built confidence and the knowledge that we could think and speak coherently, saying what we wanted at the right time. One to one therapy is not a natural situation and often becomes too intense and threatening. The group experience is essential for personal support and practice.

By the seventh day of the course I felt I had cracked my problem speech. I knew what to do and how to achieve the performance I wanted. The Apple House provided the perfect solution to my difficulties - a total communication approach with ideal therapy input. The person who leads the course is most important in the way they offer:

all the time you need to speak without rush
commitment that entails going out of their way to help
friendship alongside professional expertise
help, at any time, if you need it in a bad patch

The therapy gave me choices - to explore and analyse myself and take out the bad bits of my speech and me and throw them away. I was left with what I liked. After the course I had developed huge self-esteem and peace and calm within myself. It gave me the means to sort out all my other problems. It was as though the mists in my head had lifted and I no longer considered myself as a stammerer.

Question: Did these good things started at the Apple House continue for you?

Answer: I was fine for seven months and then I hit a bad patch with some personal difficulties that I had to cope with. However, I was determined to crack my problems. 'The monster' had been in charge of me for 25 years, and I desperately wanted to reverse that situation. I returned to the Apple

House in 1993 to repeat the course. I started to take on board the idea that I must look after myself if I was going to care for my speech.

The key is to adopt a slow and steady life-style and keep tensions in check. Diet and exercise are important and the ability to relax and keep calm. I found that Hypnotherapy and Neuro-Linguistic Programming dealt with my negative feelings. I was taught to visualise my anger, change its shape, colour and texture and turn my bad feelings into good ones. I now do self-hypnosis every day. It brings a fantastic aura - a feeling of lightness - as if a big weight has been lifted off you. My stammer is now under control. I am a fluent speaker with an occasional stammer, rather than a stammerer with little fluency. I have made a friend of the stammer and stopped punishing myself. It is a huge relief to have reached this stage.

HELEN

Helen is in her thirties and married with a teenage daughter. Vivacious and attractive, she enjoys life, which is refreshing and exhilarating. Helen is certainly tremendous fun, and keen to involve others in having a good time. She is compassionate and caring, having a positive influence on others. In the past, Helen trained as a dress designer and still undertakes commissions. She is investigating a future in media presentation now that her speech has improved. This interview reveals some of the early influences affecting speech development.

Question: Helen, what are your first memories about stammering?

Answer: I first remember stammering at kindergarten, when I was three years old. Others teased me by mimicking what I said. This was a bad time in my life. My mother had been run over by a tram and had had three toes chopped off. She was six months in plaster and I had to take over the chores at home. I peeled the potatoes, made the beds and cleaned the house, even though I was just a small child. This put a big burden on me and I can remember being upset and I suppose worried. My speech was full of hesitations and others noticed this and gave me more grief. My childhood was not happy - quite the reverse. I had a very unkind stepfather who constantly taunted me and was physically cruel. My half-sister did not have any communication problems. Life was a great deal easier for her. No one really understood me as a stammer was unknown in the family history and my relatives did not know how to deal with it and consequently with me.

When I was six years old my mother took me to see a speech therapist. She told my mother not to worry about my speaking. I would grow out of the problem. This was no help at all as I just grew into it. My hesitations turned into blocks. I sometimes could not get out words at all. So much for the professional advice of speech therapists!

Question: Helen, do you see your stammer as an issue for life?

Answer: Until I attended the Apple House the answer would have been 'Yes'. Now I've conquered my stammer - as if by magic it has disappeared. I never knew when it would pop up and it was so perverse. Sometimes I couldn't say certain words, at other times it was vowel sounds, words with 's' or double consonants like 'dr'. It made life very difficult as I didn't know when the 'stammer hit squad' would descend.

It is quite amazing, as the stammer was with me for so long and was the only blight in my life. Since marrying my present husband, life has been wonderful. I have a fantastic partner, a beautiful, talented daughter and a lovely home. I am able to indulge the pursuits I enjoy - riding horses and regular retail therapy! Now life is perfect - the stammer has flown away - I've said 'goodbye' to it. It's like getting rid of an irritating mother-in-law!

Question: Helen, how do you think about your stammer?

Answer: I think about it with *hate*. It's a strong word, but no other will do to express my emotions. I feel complete revulsion and detestation for the stammer. It is so unnerving to stammer and one is always worried about the response of others to dysfluent speaking. You just cannot relax and enjoy life as talking comes into everything that happens. Speech difficulty is a huge burden to carry through life. It doesn't attract the support and interest of some other problem areas. If you speak differently people think you are a dumb brain. No wonder some people get very depressed about it. One of the chaps on the course I did at the Apple House has experienced terrible bouts of depression. When I think about it, I feel so angry that I was told that I would grow out of my speech problems. This was the opposite of the truth. My stammer gave me the feeling of only having one leg. I was like someone in a wheelchair - fairly handicapped. Now that I can speak without stammering it is as though I've grown another leg and can go out now and wear short skirts!

Question: Helen, how has your stammer affected you most?

Answer: At school my academic performance was held back. It was impossible for me to read out in class and I was regarded by others as 'a sad little creature'. I just took this label around with me. I had the most horrible childhood and having a speaking problem was a final nail in the coffin. In spite of this 'baggage' I carried around I was able to keep going. My life has made me tough and determined. I grew up and trained as a dress designer and ran a successful business. However, if it

wasn't for my speech problem I think I would have pursued a career on the stage. Now that my stammer is under control I am exploring the idea of TV presenting and am having a meeting with a director shortly regarding a chat show.

Other than my speech I have always felt happy with myself. I am gregarious, witty and able to relate to people whatever their background.

Question: Helen, what made you seek help for your stammer.

Answer: The stammer has been the only fly in my ointment. Everything else is fine. I felt that if I could conquer the stammer I would die happy! I spoke to my Doctor about this and she got in touch with the Speech Therapy Service. It was so fortunate that I was able to get a place on an Apple House course before Gerda goes. Fate and fortune were on my side.

Question: Helen, can you tell me how the Apple House course helped you?

Answer: There are many things that I learnt but these are the most important:

I stopped 'circumnavigating' in order to get round difficult sounds or words. For example, I remember an incident at the railway station when I had to ask for a ticket to Reading. I just couldn't get the word 'Reading' out and expressed it as 'the county town of Berkshire'. This was something I constantly did to minimize the stammer, but now I do not have to do this.

I have buried ghosts. I associate a great many unpleasant incidences regarding my stammer with my cruel stepfather. All the bad feelings have been exorcised since the course.

I have learnt to listen. I have discovered that no two stammers are the same. Until I had been on the course I had never met another person who stammered. It was a revelation to find so many others with similar difficulties. There is so little public awareness of speech difficulties.

I have learnt to control my speaking by slowing down my speech and being aware of how to use the voice. This is very useful; especially when I am tired as I can switch into a mode of speaking that brings fluency.

I have learnt to read out aloud to others. This is something that has bugged me since school days and it is so exciting to have achieved success. Although I haven't been able to read to others I have always managed to read stories to my daughter. Now I can do both!

I found the group situation on the course very good for support, providing an audience for the variety of speaking activities we undertook. What has been most important, though, is Gerda, herself. She is the most amazing person. Her total belief in my ability to conquer my speech problem has been the key to my success. The techniques were much less important. Gerda's ability to sum up people is unique. She knows which bell to press to get the right response from everyone. There is something quite extraordinary about her. It is her, as a person, rather than anything else that is important for the course participants. She makes us feel worthwhile individuals - she gives us a respect that we haven't received from people before. I am surprised at how many of the course participants have had such rotten experiences and unfeeling responses from those who should know better.

Question: Did the good things started at the Apple House continue for you?

Answer: So far so good. I feel very confident about the future. As I said before, I feel I've conquered my problem and so I will die happy. I hope to be around for sometime yet to make good use of my fluent speaking skills!

3. Discussion

Qualitative researchers regard transcripts as an excellent resource, which professionals can use to examine their own and each other's practice. It is so important to listen to what clients say and understand how they feel because by doing so one has the opportunity to reflect on the direction of therapy and research that is suggested by their views. By refusing to begin from a common conception, as in quantitative research, of what might be wrong in a setting, we may be most able to contribute to the identification both of what is going on and of how it may be modified in pursuit of desired ends. By concentrating on what is close to hand we recognize that experience is not more or less authentic but is narrated in ways that are open to lively investigation. Helen says that: '*My life has made me tough and determined*'. This courageous response shines through all the interviews. The four respondents have suffered since children, because of dysfluent speech, and endured careless comments that undermined their self-image. Yet somehow, all were able to survive and develop successful lives, although at great personal cost. The depth of despair is evident in all accounts, which reveal similarities and differences in responses that can be commented on in light of other quantitative data collected and the questions that this information poses for further investigations.

Similarities in interview data

The scripts reveal the following similarities:

All suggest previous treatment had not worked. (Was this because it was initiated by others or not meeting important needs?)

All retain early memories of their stammers at the primary school stage (Is age of onset related to success of treatment?)

All four cases sought out the Apple House treatment themselves. (Was this a crucial motivating factor for their success?)

The Apple course was deemed successful because it dealt with the person before the stammer. (How does this emphasis compare with other participants' views and other interventions?) **In the questionnaire survey to a cohort of 200, 81 per cent expressed course satisfaction with 89 per cent in the 7-10 high satisfaction range.**

Three reveal relapses in fluency after the course and the necessity to keep up demanding practice. The fourth had only just completed the course so was not in a position to review this. (Does this highlight the need for specific support strategies?) **42 per cent of the main cohort were still dysfluent and unhappy about this with 65 per cent satisfied with their present communication abilities, rating 15 out of 20 abilities above a 50 per cent satisfaction level .**

The course gave self confidence, choice of techniques and support (These cases availed themselves of support opportunities after the course – is this a vital factor?) **66 per cent of the main cohort expressed greater confidence after the course; 30 per cent felt they had learnt to adapt techniques satisfactorily and 20 per cent viewed support as important for them.**

The 'therapist' factor was seen by all four to be crucial. (How important is this issue to success and is this a more important factor than the intervention method?)

These common issues throw up questions that point the way to further research and reflection regarding therapeutic intervention. They suggest we need more precise information on why interventions work that will involve aspects such as motivation, timing and type of intervention, the therapist factor as well as follow up strategies. Some of these issues suggest a quantitative approach would be useful. For example, for those deeming their intervention successful - how many were self-referrals? The importance of the client choice of technique and the therapist factor are issues for reflection and interpretation in qualitative ways. The quantitative data demonstrates how some of these differences are generalized to the whole population.

Differences in data

Differences in the data are summarized below:

Two participants see their stammer as a life issue and the others answer with a 'Yo' (yes and no!) because they feel it is now in the background rather than the foreground of their lives. (Is this issue related to degrees of fluency achieved and maintained?)

The stammer is viewed in idiosyncratic ways. (Does this point to different interventions?) The main cohort data shows 442 ways in which the course helped them and 115 ways that it did not - demonstrating the large range of needs and views expressed in this population.

Three view the stammer affecting social relationships most whilst two suggest academic progress. (Does this suggest that social interaction is given strong focus in therapy?)

There were different reasons expressed for seeking referral that encompassed personal and professional needs. (Do these suggest a different focus in intervention according to specific needs?)

Although the data suggests more similarities than differences, the issues that do vary pose important questions for both treatment and further investigation. How people think about their stammers is revealing. John has a *visual* image of a 'one-eyed ugly creature'. He describes it as a monster that constantly attacks in a vicious manner. Paul regards his stammer as feeble and cowardly. This is a *feeling* image, but attributed to the stammer rather than himself. Helen expresses her thoughts in terms of herself, communicating her *own* strong *personal* hate and revulsion. There is a more *subjective* view expressed here, describing how *she* feels in response to the stammer, in contrast to the *objective* views of the male respondents. Robert thinks of the stammer as a *symptom*, which is a very clinical description, showing an ability to detach the subject of dysfluency from the 'self' and examine it in an analytic way.

Gerda Wilson suggests this difference in thinking and feeling about dysfluency has implications for the ways one deals with the problem. John's description indicates that he might be a strong *visualiser*. It is perhaps significant that he finds neuro-linguistic programming and hypnotherapy, which rely on visual imaging, as useful techniques in dealing with his problems. Therefore, tapping into the various *thinking and communication styles* of clients is a vital ingredient to the success of any management techniques. This supports a view that participants need techniques that suit the different processing, representing and organizing capacities they demonstrate.

Comment

The participant interviews were set up in a structured way to allow comparisons between subjects and allow real life experiences to illuminate the quantitative data gathered from a questionnaire survey and pre and post intervention measures. Because of problems with ethics committees, regarding the interviews and data protection, these had to take place after the main cohort survey and pre and post intervention course measures. This was not ideal as the interviews would have been useful pointers to survey questions. Responses of interview participants are constrained by the nature of the questions which are narrow, arbitrary and selective, although the structure was guided by the concerns of clients and the views that were commonly aired in a focus group discussion on stammering. Although there are weaknesses in the introspective comments from the researchers they do pose a set of questions regarding intervention and further research that is client-led and reflects their specific concerns.

In summarising this evidence, one is aware from such qualitative data of the awful misery that people with stammers have to endure, just because the people they mix with do not understand how to cope with this difficulty in everyday transactions. In schools, teachers often do not include students who stammer, in oral activities, so making their situation worse by not giving them the chance to develop thinking and communication skills. Speaking aloud, in a large class, can be a fearful experience, but there are ways around this with pair or group speaking/reading activities, which give practice without making the problem of dysfluency so obvious. This is an important issue as the questionnaire data, from 200 course respondents, indicated that formal speaking produced the most problem and received less attention than informal aspects of communication in therapeutic and education programmes (Sage, 1998).

These case studies demonstrate, that in spite of negative learning experiences and an initial lack of success in reducing the stammer, it is possible to progress academically and achieve good jobs in life. It is evident that a stammer may prohibit one from pursuing a career that depends on constant speaking, such as lecturing or television presenting. However, most people have to adjust their aims because of circumstances and the group exhibits an ability to do this effectively.

Paul and Robert were participants in the early stages of the Apple House courses. Their development and attitudes are not remarkably different from that of John and Helen, who have been attendees in the last ten years. Stammering is a miserable affliction for everybody, but can be coped with successfully if there is personal motivation and effective professional support.

Case histories are commonly taken by therapists as background information to make decisions on intervention. Using a structured format, demonstrated in this example, it is possible to compare data across populations to provide not only guidance for treatment but pointers to possible research directions.

So what is revealed from client accounts that might influence the direction of practice and research?

5. Implications of the data for research and practice

Cognitive and communication management

The statements of respondents confirm they are a category with as yet no clear medical diagnosis of their problems and consequently suffer from being pushed from pillar to post throughout their lives in the hope of finding something that will alleviate symptoms. They have been over-investigated and over-treated. Active management is indicated to deal with a range of difficulties, apart from speech, using a fresh approach and different attitude. The method that worked for this group demonstrates cognitive therapy in three clear steps. The *first* is acknowledging the client's problem. The *second* is identifying the factors that perpetuate the symptoms, which include disordered physiology (such as breathing), misinterpretations of bodily sensations, abnormalities of mood/attitude, unhelpful coping behaviours and social stresses. The *third* step is to make a management plan that targets the *most important* of these factors for the particular client.

For example, the respondents benefited from help to combat fears (hypnotherapy and NLP), coaching to tackle speaking activities, help with social relationships and employment difficulties, arising from dysfluency. Clients need to think of their problems in different ways and where necessary live with them. Medical science cannot always guarantee to explain symptoms, which may not always be treated successfully in conventional ways. Comments from case participants suggest a strategy that assesses how much symptoms affect life and how they can be coped with to enjoy living. The move to more holistic approaches targets the person and their varying and changing needs, suggesting cognitive approaches which span several different specialties, including psychiatry, psychology, general medicine, education and career advice, as well as speech and language therapy. They require people to cross professional boundaries, which present training and practice procedures do not facilitate. These are high-level policy and practice issues that if tackled will save money for the health, social and educational services, preventing persistent misery for clients. We need to research professional skills to assess whether they match client needs. For example, the most common need identified as not met by the course was guidance and practice in communicating in formal settings, as in giving a speech or

running a meeting. Do therapists view this activity as their role or remit that they could competently carry out? If not whose job would this be?

The questionnaire to 200 course participants, in another part of the research, reveals a wide range of problem areas with 18% stating they have difficulty understanding large amounts of spoken information; 39% suggesting they have problems in pronunciation and 40% revealing their struggles in expressing spoken ideas clearly and in order (Sage, 1998). John, one of the case studies, elaborates on this:

'When I reflect on my stammer, I view it as a disturbance of thinking as well as speaking. My thoughts are tangled and will not unravel so that they can be voiced smoothly.'

Non-verbal difficulties are also apparent, with 37% reporting problems with eye contact, 36% feeling they do not use adequate facial expressions to support word meaning and 37% suggesting inadequate use of their voice when speaking expressively (Sage, 1998).

Such remarks are suggestive of a multi-level involvement in communication activities. Some of the available analytic acoustic and linguistic computer programmes may be effective in developing a more detailed profile of an individual's behaviour to help with the speech and language aspects of the problem. Onslow et al's (1992) studies have been useful in pinpointing acoustic changes in the speech of adult clients who stammer, after they have received treatment. Similarly, electroencephalographic studies of the brain, positron emission tomography and magnetic resonance imaging, allow us to track the electrical activity in the cortex and follow the moment-to-moment changes in neuronal movements, so giving a reliable picture of the mind's workings. Comparing what happens in the brain when people are fluent and dysfluent indicates an important step forward in research. It may enable us to target management more precisely. When a person becomes a non-stammerer it seems as if they assume a new identity. Changes occur which must be possible to identify. Why is it that they are, on average, fluent for 75% of the time? Looking at their periods of fluency may be just as useful as examining dysfluent phases. In depth study of a number of cases, investigating such issues, may precipitate new directions in management and provide a clearer understanding of the pattern of fluency and non-fluency in speaking.

A more detailed profile of the client's profile of thinking, language and social behaviour, therefore, would enable a clearer understanding of how these facets alter after treatment. It may be possible to isolate core elements in behaviour and target them in different ways. For example, is one stress reducer such as NLP or hypnotherapy more effective than another for clients showing particular profiles? Are some components more suited to self-organised learning than others? If so how can they be usefully supported? Breathing techniques seem more difficult to acquire than slow speaking. Do these need a particular follow-up? Would video/audio/written guides be useful in the post course phase? Looking at such issues may help to decide more precisely those that benefit from certain approaches and those who do not. This high-level expertise on the part of therapists is only acquired over time so that structured decision-making tools are important to develop.

Normal appearances in social interaction

Problems that people with stammers face lie not just in the individual's biological and psychological make-up but in the mass we commonly refer to as *society*. Interaction between members of society is maintained on the basis of '*normal appearances*', (Goffman, 1971) which are images and actions, which we, as individuals, commonly recognise as standard for the context. These '*normal appearances*' include the correct demeanour towards other people, style of dress and the acquisition of smooth, competent speech.

It is the maintenance of these '*normal appearances*', which produces stammering. For example, dysfluency to many elicits an uneasy response, not because they are ashamed of their speaking, or concerned about the opinion of others, but in particular situations, such as interviews, people who do not stammer will judge by *appearances* and not by the *content* of the person.

Rosenhan's (1973) study; '*On being Sane in Insane places*', demonstrates the ways in which people are required to conform to the pressures of society. He placed a number of students in mental hospitals and found they soon acquired characteristics of the mentally ill, demonstrating the pressures that '*normal appearances*' place on us in any given context. This is further elucidated in Lemert's (1972) research on the coastal Indians of the North Pacific. Amongst these people, Lemert found that oral communication was the most highly regarded skill in that society. Anyone with a stammer was heavily chastised and jeered. In one case, the dysfluent person was banished from the group.

Although our society does not show this harsh response to stammering, it still fails frequently to judge people on their merits and tends to sympathise with those who are dysfluent or refuses to acknowledge their worth. Respondents tell how they have been laughed at when they repeat sounds or block on words. In trying to keep up '*normal appearances*', Travers (1994) maintains they are '*strange to themselves*' in order to be recognised as competent communicators. We present ourselves to people

in such a way that this information is meant to influence how they view us. In the society we have evolved, any blemish or disability is best concealed.

Coping with these social pressures is often more of a problem to those who stammer than the difficulty itself. Robert suggests in the interview: *'People are uncomfortable about conversing with someone who has problems. Everyone ends up feeling embarrassed'*. We are required to confront ourselves with thorny questions of social expectation if we are to be competent in communicative exchanges. People who stammer have to realize that what they offer others is merely an interpretation. Successful therapy must focus on issues of social expectation and help clients become effective interactants with others in spite of stammering responses that might occur in exchanges with them. Society, too, must become more informed about communication and know how to respond helpfully to those who display difficulties. Good communicators are aware of the needs of others and how to interact successfully with any individual. That many of us fail suggests we all have communication problems. For this reason, the data points a need for more research on social interaction in people who stammer so that this aspect becomes targeted in therapy. Intervention needs to focus more on both formal and informal social activities to build awareness and expertise of how to handle situations.

Brain activity

An emerging body of literature, mentioned in the introduction, resulting from brain scanning techniques, increasingly supports impaired cortical connectivity which might underlie timing disturbances between frontal and central brain regions (Sommer et al., 2002). It also accounts for the variability factor, which is the key to understanding the stammering phenomenon. Feelings and emotions fluctuate, sometimes for no apparent reason, and therefore provide a possible rationale for changes in the fluency/non-fluency pattern. If this is the case, it becomes clear that a 'cure' for stammering is presently unlikely, although proposed surgical interventions of Fox (1996) and his associates hope to achieve this. The presence of affected family members, as in Paul's case, in the interviews, suggests a genetic influence and Professor Webster of Brock University, reports an incidence of two-thirds from his own research. It is unlikely that stammering is inherited in a simple fashion. Currently, a multifactorial model is proposed but we do not know whether a certain genotype leads to dysfluency or only represents a risk factor with other environmental factors necessary for its development.

However, the above explanation of brain activity does suggest it is possible to control its function successfully. Management would have two elements:

1. Reducing right brain activities by which in turn mean less interference with the left hemisphere supplementary motor area.
2. Counteracting the inefficiency of the left hemisphere by controlling speech motor movements by slowing down and simplifying utterances to bring them within the capability of the system. Delayed auditory feedback and frequency-shifted feedback have helped speech control, suggesting the development of prosthetic aids for stammering (Howell, 2004).

Thus, not only is the brain the origin of behaviour, but behaviour is the origin of brain function. Therefore, although thinking results from brain exertion, thinking itself affects it. In a similar way, not only do our feelings and emotions emerge from the activity of our brains, they also change its operation.

Following on from this, when we consciously manage speech movements, by regulating their speed, controlling breathing and voice, the left-brain activity is, in effect, checked. Similarly, when we reduce fear and anxiety by either differential relaxation, meditation, hypnotherapy or positive self-talk, our right brain is adjusted. Thus, techniques that alter and control negative emotions and regulate speech, impact on our brains by *balancing hemisphere activity*. Although, there may be a propensity to operate in a way that results in stammering, it is suggested that this may be overcome, to a large extent, through voluntary control methods, although Paul reports that this is *'very demanding and often a discouraging process, needing immense and continuous effort'*.

According to the current view, the first task of therapists is to help a person *believe that they can speak fluently* and then show them how they can achieve this through an alteration in the way they speak. This is followed through with a range of opportunities to develop communication skills and control techniques. Underpinning this sequence of management is the understanding of how each person thinks and operates which affects how the messages and methods are constructed to suit each client's mental schema.

Although, this theory of right-brain interference with left-brain speech action suggests control management, the resulting pattern of speaking is very different to the norm. In a contrived, easy situation where a person does not feel the stress of communicating in a weird new wonderful way, fluency may come easily. However, in the hurly burly of everyday situations where there is tremendous pressure to conform to the speaking format used by others, the use of controlled techniques generates immense stress that is likely to send the right-brain activity soaring sky-high! The net result is a canceling out between enhancing the capacity of the left-brain to resist interference and perpetuating it.

This is where the problem lies for some people, such as Paul, trying to grapple with control techniques. The carry over of slow, smooth speech to normal discourse is difficult and people become dragged back into the old stammering routine by the force of social pressure. However, one hopes that as we come to understand the mechanism that is at work in fluency and dysfluency more clearly, we will be in a stronger position to convince those who stammer, that methods controlling emotions and speech action can work effectively, bringing success if there is faith and fortune in the support available.

These are personal points of view from someone who does not stammer, or at least not more than is normally acceptable. All of the interview participants mention the problem of controlling and maintaining speech rhythms. The strength of these views would be a strong reason for relapses when other life concerns take priority. They are a reason for considering other approaches to fluent speech such as relaxation techniques.

The therapist factor

The comments of interviewees, supported by the large cohort survey, indicate that the *therapist factor* plays a major part in successful outcomes for clients in helping develop optimism and enthusiasm in clients. If this is the case, is the method of intervention crucial or will any approach work just as well? This influence is as personal as fingerprints and as indefinable as success. The person who stammers undergoes the most terrible pain and misery. To get through this they need faith in the therapist as well as themselves. They may know the therapist is excellent and they are worthy people to be helped but knowing is not believing. Only faith will get the stammerer through the labours and discouragements of treatment. This faith is based on the fact that the therapist and client together are capable of anything and everything that will bring eventual success.

Comments from respondents testify to the unique therapy powers they have experienced at the Apple House. One respondent suggested that when he stammered it was like a carpet whisked away from under his feet. After attending the Apple House he found a *magic* carpet of glorious hue that could take him safely wherever he wanted to go! This conjures up an image of excitement, pleasure and the sheer delight of being free to do what one wants. Another likens his stammer to having a huge, black, gaping hole always in front, threatening to swallow and consume him. After the Apple House course, this image was replaced by a picture of walking on warm sand, in a gentle breeze as free as the air and as happy as the birds. Several commented on the fact that the course, for them, was *not* about fluency but *learning to live* happily and successfully. The experience for many was like Paul's road to Damascus, a complete turning point in life (Sage, 1998).

The ambience of a course context has to be just right and is so vital, as it sets a tone of courtesy, respect and importance for those attending. Participants are given the best because they are the best. This message is evident as soon as you step through the threshold and experience the hospitality and care that is accorded each individual. Respect for the person is essential, because it is so evident, from accounts of their experiences, that those who stammer are ridiculed regularly in their lives. The media reinforces this. When asked to think about stammering one's mind frequently turns to the image of 'Arkwright' in the programme: 'Open All Hours', trying to pronounce 'Granville'. The intention is for the audience to laugh, but unfortunately stereotypical images are created of those who are dysfluent that distort the truth. The therapist has a vital role in turning a bad situation around but we need to research whether professionals feel they have the training and support to sustain the high commitment needed to ensure successful treatment.

In conclusion, the subject of stammering is a complex interplay of physical, psychological and social phenomena. The case studies focus on one approach that emphasizes the need to attend to the person before his/her speech, with cognitive as well as communicative management that crosses disciplines and demands skills that take time to acquire. Recent brain studies suggest structural abnormalities and hemispheric interference, which support strategies that cope with fear and teach speech control.

Words from interviews gives a picture of a client that bare numbers cannot reveal, and allow one to think laterally, although there is the danger of empathizing with people and becoming mirrors of their experiences. Numbers remain immensely important in establishing the frequency of an event but as we have seen in political domains are not always examples of truth and certainty. The important thing is that the authenticity of qualitative data cannot replace validity and reliability and all investigations must be disciplined and chosen for their purpose.

The following issues provide a final summary of those that arise from the interview data and allow us to consider basing research and practice on client priorities:

1. Identifying and classifying biological and psychological differences between fluent and dysfluent speakers, including social interaction firmly on the agenda.
2. Looking at periods of fluency as well as dysfluency in those who stammer to contribute more insights.
3. Focusing on aspects that should be treated and *how*, *when* and *where* to establish and evaluate management.

4. Implementing techniques and procedures more judiciously to suit individual communication and learning styles as well as personal interests, preferences and needs of clients.
5. Eliciting the important outcomes for each client and investigating how improvements can be supported and maintained to decrease the possibility of relapses.
6. Comparing clients who are successful with those who are not to yield important data.

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RESEARCH COMMENTARY ON SAGE

On reaching the parts that quantitative researchers cannot: Commentary on Sage, R. (2004) “How interviews with adults who stammer inform research directions”

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Abstract. The issues raised by Sage (2004) are discussed from the perspective of qualitative research in general. While highlighting the importance of this approach to the examination of practical issues, some ways in which the approach could be taken forward in this application area are discussed. **Keywords:** Qualitative approaches to stuttering.

A quick glance at the ever-growing number of new books, journals and articles on qualitative methods makes it patent that the attitudes of social and psychological researchers have ‘softened up’ somewhat to the soft end of the knowledge industry. One clear marker of this is that the British Psychological Society, in their wisdom, insist that a recognized Psychology Degree must involve instruction in qualitative methods. As a social psychologist with some interest in qualitative research techniques I am, naturally enough, positively inclined towards arguments in support of their use. I am especially enthusiastic about work that demonstrates the *practical* benefits that can flow from a qualitative investigation.

But the flip-side of this feel-good story of increasing presence is a story of decreasing value. The joy of the growing acceptability of qualitative research is thus mixed with a certain worry about standards. This combination, of course, is all too familiar in other domains of life, and I do not hesitate to call it *inflation*. In this context, qualitative researchers are obliged to reflect critically upon the quality of their own work, and that of others. In doing so, however, it quickly becomes apparent that clear guidelines for the conduct and reporting of qualitative research, where they exist, are woefully inadequate. In a classic text on discourse analysis, for example, we are informed that the analytic process is “like riding a bicycle”! (a description destined to confuse the more literal minded of our colleagues). Joking apart, there is some merit in such refusals to prescribe, since more directive instructions typically succeed in removing performance anxiety only at the risk of defeating the object of the research. Insisting upon procedures for testing diachronic reliability (the stability of a finding over different time-periods) when one’s aim is phenomenological description, for instance, might be counterproductive. Ensuring that one’s data speak directly to a clearly stated hypothesis, to give a second example, might be poor advice if “over the course of the study one discovers what the research is about” (Sage, 2004). It must be acknowledged, therefore, that a certain amount of anxiety is included in the price the qualitative researcher must pay for their valued ‘softness’¹.

On reading Rosemary Sage’s paper “How interviews with adults who stammer inform research directions” I experienced exactly the combination of joy and worry described above. I find articulating the ‘positives’ the easy part, and so will start with them. The aims of the research are clearly stated and highly commendable. The research, that is, was designed to inform a research and practice agenda of direct relevance to those who stammer. Given 50% relapse rates following intervention, there is a clear need to do something deceptively simple and astonishingly rare in scientific circles: to talk to the clients about what they consider their problems to be and about what they find helps them. Naturally, compared to high-tech research programmes deploying PET, FMRI and other state-of-the-art technologies, this research agenda cannot help but to appear somewhat antiquated. Nevertheless, as Sage’s research illustrates, this natural attitude towards big-science should not bewitch us into forgetting that phenomena such as stammering are never just mechanical faults of the human biological machine. People that stammer are also beings that are thoroughly implicated in the complex networks of communication that make up our social worlds. Further, they are conscious psychological beings with self-identities, biographies and anticipated futures. Stammering and its perpetuation are invariably wrapped up in these complex and variable social and psychological circuits of communicated and uncommunicated meaning. The most direct way of discovering how – even in the 21st Century - is to listen, in a disciplined way, to the stories of those who stammer.

These stories, as Sage discovered, contain both shared and unique elements. Each of the four participants, for example, describe having suffered since childhood as a result of negative self-images reflected by the careless or cruel comments of others. The stammer hence takes on social meaning for interlocutors in a range of contexts (from the family to the school, to the work environment). The Goffmanian theme of the stigmatization that follows difficulty in maintaining “normal appearances” in everyday social interaction is hence of general analytical relevance. Further, for each participant, the stammer comes to occupy a salient and problematic place in self-identity, lending it significance well beyond the physical dimension of dysfluent speech production. Alongside these shared or general themes we find, as would be expected, unique and particular experiences and issues. Hence although Robert’s stammer is doubtless salient to his identity, he describes it in a relatively objective way compared to the “one-eyed ugly creature” of John, the “feeble and cowardly” attribute of Paul and the revolting and hateful object of Helen. ‘Subjective’ information such as this is directly relevant to an acknowledgement of the actual nature of the client’s problem and provides access to factors that contribute to its perpetuation (such as strategies for avoiding ‘problematic’ situations).

Having indicated my appreciation, I will now turn to my worries. First and most significantly, the paper under consideration contains no analysis section. Instead, the transcribed interviews are presented un-analyzed, but for the fact that material considered irrelevant has been cut out. Thus, apart from a little analytical work presented in the discussion section (the comparison of thematic similarities and differences for example), this is a qualitative report without a qualitative analysis. This is somewhat surprising given that much of the content of the introductory sections are devoted to debates around analysis. One wonders about the value of discussing, for instance, the three stages of Glaser and Strauss’s (1967) famous *grounded theory* procedure, which concern a laborious process of coding and categorizing the transcribed data into an elaborately interconnected conceptual network. In sum, although Sage clearly recognizes the inability of data to “speak for themselves”, she appears content to abandon her transcripts to a life without representation. *In principle*, of course, this is a defensible procedure. A logical extension of the imperative to avoid imposing researcher categories onto data is to not impose researcher categories at all. But I would expect to see at least a justification for such a radical ‘analysis free’ methodology.

Second, to my mind researchers have a duty to report as clearly and simply as possible exactly what they did in a study and why, and to ensure that the introductory material is relevant to these concerns. I consider it neither useful nor clear to have 4 separate and fairly lengthy sections dealing with extremely general and controversial issues of methodology. Perhaps I am merely expressing an idiosyncratic foible, but it seems to me that qualitative methodologists are acquiring an unfortunate tendency to evangelize, to define what they do negatively (as above all *not* quantitative), and to indulge in interminable quasi-philosophical meanderings. Taken together, these constitute a syndrome that threatens to obscure the signal of their participants’ expressed viewpoint with the noise of largely unnecessary epistemological discussion. Discussions of positivism, emotionalism and constructionism, for instance, are surely only relevant if they demonstrably inform the research project. Why discuss the inter-relationships of verbal to non-verbal behaviour, the contingent nature of interaction and the multiple functions of language if none of these themes are used analytically to make sense of the data?

Third, under the header ‘Method’ we find a discussion of the chosen technique of data collection: a structured interview. This, in its place, is an appropriate technique. However, Sage presents this choice as if it somehow guaranteed the validity and reliability of the results, which naturally it does not. Citing Sellitz et al (1964) in support, she states: “Even more important for reliability... was the need to follow standardized protocol for their delivery”. Insisting that interviewers present questions in an inflexible order and stick to the exact wording of a pre-formulated question, in no way ensures the reliability or validity of a qualitative study, although it might make cross-interview comparisons more straightforward. In fact, such a structured approach *can* hinder validity, since it leaves no room for the kinds of qualifications, embellishments, illustrations and clarifications that routinely occur in interview settings.

Finally, if Sage really believes that the “structured design” can “give the procedure validity and reliability” then one wonders why she endorses Silverman’s (2003) observation concerning the “*need to go beyond my questions in various unforeseen ways so as to obtain the sort of answers I wanted*”. This seems particularly important given the stated aim of discovering what the research is about through the process of doing it. In part this confusion over reliability and validity is attributable to a curiously behaviouristic notion of the need to “achieve equivalence of stimulus conditions to prevent bias”. In fact, an interview question is poorly understood as a ‘stimulus’. One cannot ensure, for example, that a proposition is understood in the same way by different people simply by repeating the words in the same order. This applies especially when one is dealing with deeply ambiguous questions such as “Do you see your stammer as an issue for life?” Paul, for example, quite legitimately interpreted this as meaning ‘an issue that will be with me for life’: “My stammer is part of me - and I

have accepted that it will be there forever”. Robert, by contrast, interpreted it to mean a ‘life issue’: “Initially, I did not see my stammer as being an important issue in my life”. Talk of the “equivalence of stimulus conditions” is seriously misleading in this discursive context. It serves merely to provide a false impression of scientificity, and to obscure the real issues of reliability and validity.

Although there are several other critical issues that could be discussed, including transcription style and sample size, I think enough has been said to indicate the need for a more careful consideration of design and analysis issues in qualitative research of this nature. Having said that, thanks are due to Rosemary Sage for opening the door to a qualitative exploration of the meaning of stammering, and for providing glimpses into a “‘deeper’ understanding of social phenomena than numbers can provide”.

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AUTHOR'S RESPONSE TO COMMENTARY

Response to Paul Stenner's commentary on 'How interviews with adults who stammer inform research directions'

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In his response to Sage (2004), Paul Stenner (2004) affirms his belief in the value of theoretically informed research that 'demonstrates the *practical* benefits that can flow from a qualitative investigation', whilst acknowledging that guiding principles tend to be double-edged. While asserting the benefits, he suggests we should be aware of the possible costs in 'a certain worry about standards'. In the context of the article he infers that the fabled Emperor has been discovered without his clothes! His discomfit arises from four related tendencies, listed below:

1. A failure of analytic nerve, in that the client interviews are merely descriptive and exploratory with the remainder of the article reading like abstracted empiricism. It is a 'qualitative report without a qualitative analysis'.
2. The attempt to identify qualitative research with 'informal' interviews. Unlike quantitative researchers, it seems the aim is 'to indulge in interminable quasi-philosophical meanderings'.
3. The use of data extracts which support the writer's argument, without any proof that contrary evidence has been reviewed. The attempt to downplay such issues of validity and reliability in research and to replace them with other criteria like 'authenticity' from reproduced 'experience' is misguided.
4. A belief that a particular partisan moral or political position determines how we analyse data and what constitutes a 'good' piece of research.

In answer to these arguments, I propose the following. The treatment of data depends on the *purpose* and in this case the interviews were to *animate* the quantitative information collected in other parts of the study and to *reflect* on issues that could guide future research and practice. The presentation of real stories makes issues meaningful unlike quantitative research, which turns the phenomenon into a 'black box'. The interviews should not be viewed as competitive with the quantitative work. The proper relationship is a division of labour, in which the interviews seek to answer 'how' and 'what' questions and then pass on these findings so that causes and outputs of the identified phenomena ('why' questions) can be studied. As such, the use of analytic induction methods or other appropriate methods for validating studies (constant comparison, deviant-case analysis, comprehensive data treatment or perhaps appropriate tabulations) does not seem necessary. The Hansei (reflective) method, although considered as 'philosophical meanderings' would be the best fit for the purpose.

Second, although the interviews can be useful, there is a need to justify departing from the naturally occurring data that would be possible from observing someone who stammers in real situations. The structured interview allowed a situation where participants were required to consider the 'what' and 'how' of their stammering situation which is unlikely to have happened naturally. The standard nature of the questioning enabled comparisons both amongst the four case studies and the main data. Ambiguous questions are useful in allowing similarities and differences to emerge (Adler, 1995) and the equivocal nature of our language means that any question can be criticised for lack of clarity.

Third, the relevance of issues of validity and reliability means we cannot be satisfied with telling convincing stories. What people say in answer to interview questions does not have a stable relationship to how they behave in naturally occurring situations. Ultimately, all methods of data collection are analysed 'qualitatively' in so far as the act of analysis is an interpretation, and therefore of necessity a selective appraisal. In this research, the data were triangulated with quantitative information and respondent validation, although by counterposing different contexts this ignores the context-bound and skilful character of social interaction. Objective truth, thus, may be impossible, but generalisability can be increased by combining qualitative and quantitative measures of populations and purposive and theoretical sampling, which is demonstrated in the methodology of this study.

Finally, there are the value positions in the choice of research topics and in the discussion of the findings. My position as a practitioner was that research did little to illuminate the realities of practice and now as someone who tries to do research I see the value of a range of methodologies in trying to answer complex questions. For example, in Britain we have relied on quantitative methods to examine pupil potential, which has resulted in a move from selective to comprehensive education but not to a rise in academic standards. In Japan, qualitative approaches, using the Hansei (reflective) method, have been used alongside scientific modes with more effect for understanding the nature of achievement, as the Japanese have reached the top of the TMMS tables for student attainment and have remained there consistently in contrast to our own children who are well down the league. A study of Japanese research makes one aware that their philosophical reflections (even though meandering in their analogue thinking style!) have brought greater insight into the process of learning and teaching than we presently witness in the British system.

There are other statements I could challenge, such as criticisms of the sections of methodology and the reasons for the examples selected. However, I think all the issues are answered with a brief discussion of a relevant dialogue in David Lodge's novel *Nice Work*. This book is about the relationship between Robyn (a university cultural studies lecturer) and Vic (a manager in an engineering firm). In a tale of the 1980s, when free market economics suggested that universities were to be judged in terms of their contribution to industry, Robyn spends time with Vic in order to understand the workings of industry and commerce

Robyn has given a risqué reading of the cultural symbolism of a cigarette advertisement. Vic treats her analysis as unnecessary jargon. In the extract, below, Vic speaks first:

V: Why can't you people take things at their face value?

R: What people are you referring to?

V: Highbrows. Intellectuals. You're always trying to find hidden meanings in things. Why? A cigarette is a cigarette. A piece of silk is a piece of silk. Why not leave it at that?

R: When they're represented they acquire additional meanings. Signs are never innocent. Semiotics teaches us that.

V: Semi-what?

R: Semiotics. The Study of signs.

V: It teaches us to have dirty minds, if you ask me.

Vic and Robyn talk past each other. He does not understand what she is doing. To Robyn, the world of industry has no sense and no morality. In the end of the book, however, they do achieve a dialogue between the academic and the real world.

A dialogue, although hard to achieve, is the aim of the article using interviews of four people who stammer. In practice, this may mean people will have to give a little. Some will have to give up their suspicions of research, which is not based on statistics and refuses to define either the topic or its treatment in terms of any obvious problem. In turn, qualitative researchers will have to demonstrate (obviously to higher standards!) how their work can be both valid and insightful.

In developing a dialogue, quantitative researchers will have to discard their belief in the stupidity of acting in ways that are 'deceptively simple' and common sense and be prepared to divide their labour. Equally, qualitative researchers need to address the scream of 'emotionalism' and commitment to 'real experience' and accept criticisms calmly for reflection on how the obvious weaknesses of the softer approaches can be minimised.

I am grateful to Paul for beginning this dialogue and although I felt he 'damned with feint praise', none of us have the monopoly of the truth and all arguments can be counter argued, which challenge us to constantly strive to improve what we do.

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CONTINUING COMMENTARIES ON ‘CAN THE USAGE-BASED APPROACH TO LANGUAGE DEVELOPMENT BE APPLIED TO ANALYSIS OF DEVELOPMENTAL STUTTERING’ BY C.SAVAGE AND E. LIEVEN

How Useful is the Usage Based Approach to Stuttering Research?

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Abstract. Savage and Lieven (2004) argue that a usage-based (UB) approach to language acquisition may provide insights into developmental stuttering. In this commentary, we discuss the predictions and proposed benefits of this approach as applied to stuttering research. **Keywords:** Developmental stuttering, generativist accounts, usage-based theory.

1. How Useful is the Usage Based Approach to Stuttering Research?

Savage and Lieven (2004) propose that the usage-based (UB) approach to language development provides a framework within which one can (a) account for the onset and origin of developmental stuttering, and (b) make specific predictions regarding the distribution of speech disfluencies. In specific, the authors hypothesize that the onset of speech disfluencies in young children is coincident with the development of more abstract syntactic representations or schemas. As a result, stuttering may be viewed as ‘a “side effect” of the increased demands that (the reorganization of grammar from lexical schemas into abstract schemas) places on the child’s processing system’ (p. 90). In the remarks that follow, we will comment on the predictions and proposed benefits of the UB approach when applied to stuttering research.

2. Predictions of the UB Approach

Savage and Lieven (2004) claim that the usage-based (UB) approach and traditional generative models of language development make different predictions regarding the age of stuttering onset, as well as the loci of disfluencies. Specifically, the authors argue that while generative models would predict the age of onset of disfluencies to coincide with early word combinations (i.e., around two years of age), the UB approach predicts that disfluencies would occur at the point at which children are believed to develop abstract syntactic representations (i.e., around three years of age). Second, the two approaches are claimed to differ in terms of whether disfluencies should necessarily coincide with abstract syntactic boundaries.

It is far from clear, however, that traditional generative models make any such predictions. Ironically, the very distinction between linguistic competence and linguistic performance that the authors propose to dispense with (see p. 86), but then implicitly reintroduce as part of their approach (see p. 92) is exactly what renders generative models immune to their criticism. To be sure, the theory of Universal Grammar, which is a theory of linguistic *competence*, has nothing specific to say about *performance* issues such as the nature of real-time speech production. In the end, therefore, the presentation of the UB approach as an alternative to a generative straw man is rather disingenuous, especially given the fact that the UB approach does seem to make some real and potentially interesting predictions.

3. The Relevance of the UB Approach to Stuttering Research

On a general level, the UB approach suggests that stuttering begins to occur ‘at points of vulnerability in language development when the system is under strain through an advance in acquisition of a linguistic skill’ (p.83). In this respect, the UB approach does not seem to differ much from other types of capacities and demands models, which generally posit that speech disfluency patterns are associated with increases in demands or trade-offs in the acquisition of language (e.g., Crystal, 1987; Starkweather, 1987; cf. Just & Carpenter, 1992). On the other hand, the UB approach offers a potentially interesting and independently motivated rationale for the fact that stuttering tends to develop around three years of age (well documented exceptions notwithstanding; see Bloodstein, 1995); a fact that remains mysterious on many other accounts.

On a more concrete level, the authors identify several areas in which the UB approach may contribute to fluency research. First, the UB approach introduces an independently motivated unit of speech analysis, the 'slot-and-frame' schema, which offers the prospect of accounting for the loci of speech disfluencies. The authors also propose that the tools of the UB approach could be used to determine whether the underlying syntactic and phonological representations of children who stutter differ from those of children who do not stutter.

At present, however, it is difficult to see what concrete advantages would come out of adopting the tools offered by the UB approach. In their discussion of the EXPLAN model (Howell & Au-Yeung, 2002), for example, the authors propose to replace the 'theoretically suspicious' phonological word (Au-Yeung, Howell, & Pilgrim, 1998) with the 'empirically derived and psychologically real' slot-and-frame schema. However, as things stand, it is hard to escape the impression that the slot-and-frame schema is but a mere notational variant of the phonological word. Similarly, the authors emphasize the need to properly assess potential differences in syntactic and phonological representations between children who stutter and children who do not stutter. Here again, however, the authors do little more than tell us that such questions *can* be investigated using the approach they advocate. As for the benefits of adopting the UB approach over other traditional psycholinguistic methods, convincing evidence has yet to be offered.

In the end, what the authors manage to accomplish in their target article is to (a) present a lengthy and detailed account of the evidence supporting their approach to language acquisition, (b) present a short overview of research on developmental stuttering, (c) end with a series of promissory notes on the potential virtues of their approach and its relevance to developmental stuttering, all of which remain to be confirmed, and finally (d) gratuitously reaffirm throughout the article their dislike of 'clumsy' generative approaches to language and language development.

In this sense, the authors do seem to have answered the question they raise in the title of their article 'Can the Usage-Based approach to language development be applied to analysis of developmental stuttering?' As for the real and much more interesting question of whether anything new can be learned about developmental stuttering once one adopts the authors' perspective, we still have no idea.

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Production Approaches to Stuttering

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Abstract. It is proposed that a usage-based approach to language learning might help explain why learners begin to stutter around the age of three. However, it is not clear how this proposal is explanatory, and why phonologically grounded proposals are dismissed out of hand. In fact, prosodic structures include higher-level language production units such as phonological phrases and phonological utterances, making these ideal units to investigate in a developmental model of language production that could apply to adult stuttering as well.

Keywords: Developmental stuttering, usage-based theory.

1. Savage and Lieven (2004, hence, S&L) suggest that problems of child stuttering may be best addressed by considering a usage-based approach to language learning. This framework assumes the children have little productive syntax before the age of late 3 or 4, where 'syntax' is used to mean productive use of verbs in multiple syntactic frames, or used with different tenses. The fact that the onset of stuttering around the age of 3 seems to coincide with the possible onset of syntactic productivity is then taken as evidence of children's difficulties with the emergence of productive syntax.

2. There are several problems with this proposal. The first is that adults stutter too, yet they presumably have productive use of grammatical morphemes and verb argument structures. It is therefore not clear how a purely developmental proposal to these phenomena can account for the adult facts.

Second, if children only begin to access productive syntax around the age of 3 or 4, we might then expect ALL children to go through a stage of stuttering. However, although children (and adults) commonly exhibit some false starts in everyday speech, most are not classified stutters. Thus, although increased grammatical complexity may present challenges for language production, it is not clear that usage-based approaches to these issues provided an explanatory theory for why stuttering should occur.

Third, S&L provide no evidence to support their claims, and few suggestions for how to test their proposal. Furthermore, given that stuttering typically appears on grammatical function items or at the onset of words, it is not clear how a usage-based approach to stuttering is relevant, since children are generally producing pre-lexical grammatical function items like articles around the age of two, and have an extensive vocabulary by the age of three.

3. Another problem with S&L's proposal is the lack of willingness to consider possible alternatives, dismissing issues relating to prosodic words (PWs) as 'theoretical', even though they were developed to capture the structure of language (e.g., Selkirk 1984, Nespor & Vogel, 1986). However, there is a large and growing literature on children's development of PW structures, all of which is grounded in the same longitudinal corpus 'usage-based' data that S&L advocate (e.g., Fikkert, 1994; Pater, 1997; Demuth & Johnson, 2003). Much of this research shows that frequency effects in the input help explain the course early syllable and PW development (Levelt, Schiller & Levelt, 2000; Roark & Demuth, 2000), and that this is closely tied to the emergence of certain grammatical morphemes (e.g., Demuth, 2001; Lleó, 2001). Much of this research also shows that, as the complexity of larger, phonological phrases and phonological utterances increases, children's accuracy with PWs often regresses. In effect, there is a close connection between phonology, morphology and syntax, especially when it comes to early language production (cf., Demuth, 1996).

4. One possibility that might account for why only some children stutter, and why only a subset of these continue to stutter into adulthood, might have to do with the speed (or slowness) of lexical processing, including lexical access. As children become more fluent around the age of three, using a larger vocabulary and more complex syntactic constructions, this probably increases language processing demands, placing a strain on the production system. Much more research involving on-line lexical access and language processing abilities in both normally-developing and stuttering adults and children is probably needed to explore these issues more fully. Some of this has been done in exploring the language abilities of children with specific language impairment (SLI). I agree with S&L that a good developmental model of language production might help provide some clues as to problems stuttering. But an appreciation of both the theoretical and empirical issues regarding prosodic phonology and morphology, and how these play a role in both developing and adult production systems, should not be dismissed without serious investigation.

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AUTHORS' RESPONSE TO CONTINUING COMMENTARIES

Can the Usage-Based Approach to Language Development be Applied to Analysis of Developmental Stuttering?

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Abstract. The authors offer a response to commentaries by Julie Anderson & Julien Musolino and Katherine Demuth. They first clarify their position and then address the issues raised. The authors acknowledge that they do not provide conclusive answers, but they suggest that their paper provides an opportunity to open a dialogue among child language and childhood stuttering researchers that includes the contributions of the UB approach.

Key Words: Usage-Based Approach, slot-and-frame schema, phonological word.

We were pleased to receive responses from Anderson & Musolino and Demuth to our article (Savage & Lieven, 2004). Both raise important issues which need to be addressed. After briefly clarifying our position, we attempt to address the major issues raised, but we are certainly far from being able to give definitive answers.

The Usage-Based (UB) approach considers abstract representations as developing out of usage. Initially, representations are local and lexically-specific (i.e. not abstract). These representations remain available while, during development, more complex and more abstract representations build up. A child's early linguistic representations may constitute very lexically-specific slot-and-frame patterns, that cut across the abstract syntactic categories of syntactic theory, for example if *want* and *to* are fused together in 'wanna X'. Determining what these representations are is an empirical issue, not a linguistic one. In so far as they do not vary between speakers this will result from the lexical statistics of the spoken language that children hear. In so far as they vary between speakers, this will depend on particular properties of the input that children hear and what they as individuals take from it. Our position is that the empirical evidence provides more support for this approach than for the idea that children possess abstract linguistic representations from the outset of language development. In addition, the evidence suggests that while different aspects of children's linguistic representations start to generalise and become more abstract at different points in time, there is a major change in the representation of argument structure around the end of the third year. Here we are indeed at odds with a Generativist approach. From a UB perspective competence and performance are not radically distinct, as they are in Generativist theory. Anderson and Musolino (2004) are wrong, however, in suggesting that competence accounts within the Generativist tradition have nothing to say about performance. Whatever one's view on whether they should have something to say, there is a long and interesting literature of attempts to account for performance facts in terms of competence theory (notably, for example, Valian's 1986, 1991 performance limitations theory).

Our article was an exploration of the possibility that the UB approach might have something to offer to the understanding of stuttering. As we understand it, the evidence suggests that when young children stutter they tend to do so on function words, whereas adults stutter on content words. We suggested that this might be due to the different nature of the linguistic representations that young children have compared to those of adults (less paradigmatic and more syntagmatic would be one way of thinking of it). The evidence also suggests that stuttering tends to onset at around 3;0, around the time when we suggest that children are moving from item-based usage to more abstract usage.

As a stand alone hypothesis, the UB theory is incomplete. Of course we recognise that a full explanation for stuttering will need to account for its persistence into adulthood for some speakers and for the fact that not all children are diagnosed as having a stutter. However, if there is an increase in disfluency by most children around the age of 3;0, then the question is why this persists for some children and not for others. We were attempting to suggest where such an increase in disfluency might come from and thus to shift the question to asking how it persists and whether this relates to the nature of the linguistic representations that children who continue to stutter have. To be specific, there are three possible explanations for the high recovery rate for childhood stuttering: 1) All CWS represent the most disfluent end of a continuum of normal disfluency and their stuttering only persists into adulthood if a further change in their speech abilities occurs during adolescence (i.e. the EXPLAN model, Howell & Au Yeung, 2002); 2) CWS fall into two groups, with those who later recover representing the disfluent end of the normal fluency curve and those whose stutter persists representing

a subset who had a qualitatively different speech processing system from the start, but which was obscured by the 'floor' effect of normal developmental disfluency; 3) All CWS have a qualitatively different speech processing system from the start, but some genuinely recover with age and some do not. In our article, we proposed that the EXPLAN model of Howell and Au Yeung (2002) could be combined with the UB approach to provide a useful theory of developmental stuttering, but of course this is only one possibility. There are other explanations that could also be valid. For example, even if our approach is part of the answer, there is, as both replies indicate, clearly going to be an interaction between whatever linguistic representation the child has and how this interacts with speed of access in production.

It may be, as Anderson and Musolino (2004) state, that our proposal appears not radically different to that of the 'phonological' or 'prosodic' word and we may well not have done sufficient justice to the developing research in this field as Demuth (2004) states. However, what we were attempting to contrast was the difference between our 'item-based frames' and the notion of phonological words as assembled by attaching function words to their heads at the phonological level. There is room here for a fruitful dialogue particularly in relation to the work on early syllable development and the emergence of grammatical morphemes cited by Demuth.

What remains finally are the two critical questions that must inform the study of language development and, we would argue, the attempt to understand the causes of stuttering: (1) the nature of children's linguistic representations and how they change (2) a developmental model of language production. For us, as UB theorists, these two are much less separate than they are for theorists from other persuasions.

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**CONTINUING COMMENTARIES ON ‘INVOLVEMENT OF
SOCIAL FACTORS IN STUTTERING: A REVIEW AND
ASSESSMENT OF CURRENT METHODOLOGY’ BY A.
FURNHAM AND S. DAVIS**

**Social Factors in Stuttering: A Call for Rigorous,
Accountable and Timely Research**

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Abstract. Furnham and Davis’ (2004) article presents a much needed review of studies examining the role of some of the social and affective factors in stuttering. They also present a summary of some of the methods used in social psychology and recommend their use in studying this multifaceted disorder. Our commentary highlights some of our currently published and unpublished research examining these issues, the need for more interdisciplinary research, especially in psychology and speech language pathology, and some questions for consideration.
Keywords: Stuttering, social factors.

Comments on Furnham and Davis (2004)

There is little to argue with the background information that sets a stage for multifactor models in stuttering development and maintenance. The authors acknowledge the behavioral and motor components of stuttering while recognizing the critical nature of the social components. They assert that social and emotional factors need to be more carefully examined if they are to be understood/accepted in current and emerging models of stuttering.

Being strong advocates of the multifaceted theories and interdisciplinary research, we find this review provides a needed background for understanding this line of inquiry and also the potential pitfalls and challenges researchers may face in designing and conducting important studies in this area.

The review does need clarification of the intelligence factor in the pre-school and start-of-school area. Currently it leaves the reader with the impression that intelligence studies suggest that “CWS score significantly lower on intelligence tests than do fluent controls.” As pointed out by Guitar (1998), these studies were confounded by poor subject selection and lack of control groups. For example, “the Andrews and Harris study is plagued by the fact that a number of children in their sample were retarded, which would have depressed the mean IQ of the stuttering group” (p. 29). A more recent study suggests there is no difference between school age CWS and matched fluent groups (Nippold, Schwartz, & Jescheniak, 1991). There are a number of earlier studies that provide data suggesting that PWS, employers, co-workers, university students, teachers, counselors, administrators, etc. agree with the negative stereotype of stuttering in children, youth, and adults. The two quoted studies should be placed in the context of all of the research literature on negative attitudes and should also be replicated before conclusions such as “there seems to be a difference between the way children perceive PWS (less intelligent) and the way adults perceive PWS (more intelligent).”

It was very interesting to see in the review of personality traits, especially neuroticism and extraversion, and the authors’ suggestion that these factors “both as main effects and in interaction, relate to speech fluency and stuttering.” We think it is extremely important to ensure that researchers clearly define the differences between “perceived” negative descriptors, anxiety, neuroticism, extraversion, etc, and the “actual” trait or state as measured by the most current, up to date, empirically tested, valid and reliable psychological, physiological, or both measures. We applaud the authors suggestions about the use of regression models, longitudinal data, control groups and adequate samples.

The article proposes areas of research for expansion in the arena of attitudinal research across the life span to include different age groups. Research in social psychology focuses on attitudes and behaviors of individuals through various developmental stages, children, adolescents and adults. The call for this type of research in stuttering is long overdue and could answer questions about social, affective factors but also the behavioral components of the disorder. Some of our colleagues in the United States are currently conducting these types of critical studies at the University of Illinois. Again, it is difficult to argue with the numerous ideas raised for continued research in this area

including models using planned reason and severity of stuttering. Some studies have examined the impact of stuttering severity (Collins & Blood, 1990) using the acknowledgment tactic and found it to be an important variable in perceptual studies. We were intrigued by the authors' suggestions to study the social and affective factors/impact in different social situations. For instance, we reported (Blood et al., 2001) that adolescents who stutter had significantly poorer perceptions about their own communication competence, especially in group discussions, interpersonal conversations, and with strangers when compared with students who did not stutter. How would the authors suggest researchers address studying these multiple factors in different social situations? We also feel that a strong need exists to replicate current data and determine the extent these perceptual studies parallel real life situations.

A recent study which supports the temperament review (although using a different model) is now available (Guitar, 2004). His article on acoustic startle responses and temperament in 14 adults who stutter and 14 who did not stutter concluded that individuals who stutter may "as a group, have a more reactive temperament than nonstutterers" (p. 238). Do the authors support the use of mixed designs using both psychological and physiological data collection and analyses? And do these designs have more strength to showcase the role of social factors?

In the area of school and adolescence, the authors suggested diary methods to collect data. We found this a difficult method to use with school-age students, even when they were provided with electronic beepers to remind them to rate their perceived "bullying" and record their perceptions. Compliance notwithstanding, this is an important research tool that could shed new light on perceptions of perceived or actual aggressiveness in the school yard, recreational activities or board room. Recently we published a study on perceived communicative competence, self-esteem and vulnerability to bullying of 53 adolescents who stutter and 53 control participants (Blood & Blood, 2004). Adolescents who stutter (43%) were at a significantly higher risk of experiencing bullying than were adolescents who did not stutter (11%). The majority of adolescents who stutter (57%) rated their communicative competence as poor. However, 72% of the adolescents who stutter scored within one standard deviation from the mean on the self-esteem measure. Students with both low self-esteem and perceived poor communicative competence were more likely to be victimized by bullies. The links among social factors including perceived stigma, self-esteem, perceived communicative competence, social anxiety, bullying, temperament, etc. need to be researched more fully. We support the authors' final suggestions about the need for control groups, larger, more representative samples, more carefully designed studies and the use of more appropriate methodologies for data analyses.

The social factors surrounding adulthood issues focus primarily on employment, presumably due to page constraints. We have completed some work in this area. The caution about sensitivity to discrimination by employers and potential evaluators is especially pertinent in this line of inquiry. Do the authors have models that examine this more covertly from their body of social psychology literature that could be shared with readers? We would also be interested in the authors' ideas about examining other social factors in adults in areas such as relationships (social, dating, marriage), perceived life stressors, life satisfaction, etc. The research is extremely limited. Although researchers have invested heavily in the prevention, early detection and treatment of stuttering, for millions of individuals it still becomes a chronic life-long problem requiring necessary skills for coping and adapting. We think that other models in social psychology examining epilepsy, asthma, diabetes, obesity which may have similar trajectories from childhood could provide potent models for adaptation.

We agreed with the authors that increasing in a systematic and rigorous manner the impact and relationship of social and affective factors in stuttering across the life span is extremely important. The articles shed important light on some of the potential challenges and methodological issues, but also the critical need for more interdisciplinary and transdisciplinary research teams.

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**Commentary on "Involvement of social factors in stuttering:
A review and assessment of current methodology"
By A. Furnham and S. Davis**

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Furnham and Davis (2004) should be commended for their thorough overview of the methods and findings that relate to the role of affective and social factors in the assessment of children and adults who stutter. I wish to comment on two issues discussed in their fine article. One relates to the assessment of the speech-associated attitude of children and adults who stutter and the other on their emotional reaction to particular speech situations.

In the section on preschoolers and school-age children, the authors mention that the Communication Attitude Test (Brutten, 1984; Brutten & Vanryckeghem, 2003a) has been shown to be a reliable and valid test for assessing the speech-associated beliefs of children. Indeed, research with the Communication Attitude Test (CAT), which has been translated into more than 10 languages has consistently shown that the speech-associated attitude of children who stutter is significantly more negative than that of their nonstuttering peers. Moreover, the extent of this difference, which was found to be present at the age of six (Vanryckeghem & Brutten, 1997), suggested that the between-group difference might be present at an even earlier time period, one closer to the time at which stuttering has its onset. This highlighted the need for early detection of mal-attitude toward speech. Indeed, as Furnham and Davis (2004) have pointed out "An instrument capable of determining the communication attitudes of children close to stuttering onset would be useful in several areas" (p.115). In this regard, as Davis and Furnham (2004) have already mentioned in their "authors' response to commentaries", a preschool-kindergarten version of the CAT has recently been designed. Research with this self-report test, the KiddyCAT, (Vanryckeghem & Brutten, 2002, 2004; Vanryckeghem, Hernandez & Brutten, 2001; Vanryckeghem, Brutten & Hernandez, 2004) has been shown to distinguish the speech-associated attitude of normally fluent children, as young as three, from that of youngsters who are incipient stutterers. As such, it has served to put aside Conture's (2001) concern as to whether a "self-report questionnaire procedure could be readily and reliably administered to preschool/early elementary school-age children (between 2 and 7), the age period when most children actually begin to stutter" (p. 72). Indeed, research has shown the KiddyCAT to be a useful differential diagnostic tool for use with preschoolers. The apparent utility of the KiddyCAT is currently spawning further study of its reliability and validity.

Furnham and Davis (2004) also reported that their "preliminary searches indicate that no empirical work has been conducted examining the anxiety levels of children who stutter when compared to fluent controls" (p.118). Nevertheless, it should be noted that Brutten and colleagues (Bakker, 1980, 1995; Brutten, 1973, 1981a,b, 1982; Brutten & Janssen, 1981; Ezrati-Vinacour & Levin, 2004; Hanson, Gronhøvd & Rice, 1981; Vanryckeghem, 1998, 1999; Vanryckeghem & Brutten, 1998; Vanryckeghem & Verghese, 2004) have, over the last couple of decades, published research on the Speech Situation Checklist (Brutten, 1965a,b; Brutten & Vanryckeghem, 2003a,b), a state test specifically designed for use with children and adults who stutter. The Speech Situation Checklist (SSC), an internally consistent (Brutten & Vanryckeghem, 2003a,b; Ezrati-Vinacour & Levin, 2004) self-report test procedure, that is part of the Behavior Assessment Battery (Brutten & Vanryckeghem, 2003a,b), makes it possible to investigate both the extent to which various speech situations evoke negative emotional reactions and speech disruption. The results of various SSC studies (Brutten & Janssen, 1981; Brutten & Vanryckeghem, 2003a,b; Trotter, 1982, 1983; Vanryckeghem & Verghese, 2004) have shown that both the emotional and dysfluency scores of grade-schoolers and adults who stutter are significantly higher than those of people who do not stutter. Notable, too, is the finding of a high and statistically significant correlation between the negative emotional and speech disruption reports of children and adults who stutter (.82 and .87, respectively) (Brutten & Vanryckeghem, 2003a,b). The latter points to a meaningful link between the emotional and behavioral displays of youngsters and adults who stutter. In addition, it should be noted that self-reports of children and adults have been shown to significantly correlate with the extent to which stuttering has been observed to occur (Guitar, 1976; Vanryckeghem & Brutten, 1996).

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AUTHORS' RESPONSE TO COMMENTARIES

Involvement of social factors in stuttering: A review and assessment of current methodology

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1. Introduction

The authors are gratified for the continued interest in their target article and are pleased to be able to respond to these further commentaries. We also note that the commentaries were again appreciative of the review and that the commentators supported the importance of social factors in stammering research. The authors welcome a further opportunity to respond to a few points made by the commentators.

2. Blood & Blood (2004a)

We are appreciative of the in-depth and thoughtful commentary provided by Gordon and Ingrid Blood. The present authors would like to make a few general comments on points raised in the commentary before addressing specific questions posed by these commentators.

When discussing personality traits, Blood and Blood (2004a) stress the need for researchers to clearly define the difference between "perceived" negative descriptors and the "actual" trait or state. We agree that the difference between attributed traits - that is the rating of others - and self-described traits should be emphasised. Social psychologists are interested in robust measures of biologically based traits like extraversion and neuroticism. The present authors were interested to hear about the problems encountered when diary methods were used in an attempt to collect data from school-aged children (Blood & Blood, 2004b) but agree with the commentators regarding the importance and utility of the method in future research.

In our target article we suggested that the impact of social and affective factors should be studied in different social situations. Blood and Blood (2004a) asked us to suggest how we think this could be accomplished. We know that language production is often a function of situation (Yaruss, 1997). Empirically one could differentiate between specific situations; - formal versus informal; intimate versus official; stress provoking versus non stress provoking. Social psychology could provide a typology of social situations. It is our belief that various aspects of stuttering are highly situation specific but it is not clear how the situation affects speech production. Further interactions between specific situations and aspects of stuttering could be explored. For instance, does the prevailing situation affect fluency equally across words of different levels of difficulty? In particular, are words that score highly on Brown's (1945) factors that index linguistic difficulty, more likely to be stuttered in situations that provoke anxiety when compared to less difficult words? Other factors that are known to affect fluency such as speech rate and conversational style could also be investigated.

Blood and Blood (2004a) cited an article by Guitar (2004) that used acoustic startle response as a measure of temperament and raised the question in connection with this study about our position on the combination of psychological and physiological data collection and analysis. The present authors give their unequivocal support to the use of both psychological and physiological data when investigating the role of temperament (and other social factors) in stuttering. There is a biopsychosocial model of personality (Sarafino, 1994) that indicates these factors are inseparable. It is our position that all good research in this area has to adopt this stance.

In response to Blood and Blood's (2004a) questions regarding social factors concerning stuttering in adulthood, we are not aware of models in social psychology that allow more covert methods of examining these factors. However we are pleased to share some areas of research from social psychology that could be used to explore the influence of social factors on the lives of adults who stutter. These topics have usually been investigated using carefully worded questionnaires.

Employment

In our target article we stated that negative stereotyping can lead to role entrapment and/or limited career choices for minorities and people with disabilities and that the same could apply to people who stutter. It might be useful to investigate if adults who stutter make a positive choice to take up hobbies or embark upon careers that avoid or minimize spoken communication. We stated in the target article that, to our knowledge, there were no studies investigating the extent to which speech disfluency influences selection criteria used by potential employers.

Relationships

Do adults who stutter find each other and begin relationships? An investigation of the how and why people who stutter choose their partners would be useful to researchers and clinicians.

Negative stereotyping

An in-depth study investigating what lay people think are the causes, consequences and cures for stuttering would go some way toward explaining the negative stereotypes of people who stutter held by people who do not stutter.

3. Vanryckeghem (2004)

The importance of reliable measurement of the speech-associated beliefs of preschool children was stressed in the target article (Furnham & Davis, 2004) and acknowledged in the authors' first response to commentaries (Davis & Furnham, 2004). The work being undertaken by Vanryckeghem and her colleagues and by Howell's group at University College London will help to clarify the source of the negative speech-associated beliefs found in older children who stutter. Are attitudes implicated in the onset of the disorder, or are they present as a result of subsequent negative experiences associated with speaking?

The present authors acknowledge the excellent work carried out by Brutton and colleagues in investigating state anxiety in children who stutter - the extent to which various speech situations evoke negative emotional responses. The relationship between emotional and behavioural displays of people who stutter is mirrored in other areas of social psychology. The debate concerning public speaking phobia has one school of thought advocating the teaching of public speaking skills while another proposes anxiety reduction techniques. Clearly communication problems cause anxiety which, in turn, can lead to a vicious circle. The question then becomes what is the optimum point to intervene. Should clinicians concentrate on anxiety reduction assuming it will improve fluency or should the emphasis be on speech techniques assuming fluent speech would reduce anxiety?

The authors would be pleased to hear of any empirical work that addresses underlying trait anxiety in children who stutter. Miller and Watson (1982) indicated that high levels of anxiety in adult PWS were restricted to communications situations. Does the same apply to children who stutter?

Conclusion

The authors are pleased to have had the opportunity to address the points and questions raised in the commentaries on their target article 'Involvement of social factors in stuttering: A review and assessment of current methodology'. It would seem that the two aims of the paper have been met. The commentators were appreciative of the review of the methods and findings of previous research into the role of social factors in stuttering and were supportive of the integration of methods and issues from social psychology into stuttering research.

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RESEARCH DATA, SOFTWARE AND ANALYSIS SECTION

Effectiveness of frequency shifted feedback at reducing disfluency for linguistically easy, and difficult, sections of speech (original audio recordings included)

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Abstract. Frequency shifted feedback (FSF) induces fluency when presented to speakers who stutter. This study examined whether FSF was more effective at removing disfluencies on easy or on difficult sections of speech (where difficulty was defined with respect to utterance and word length). There were more disfluencies on the difficult sections than on the easy sections. There were significantly fewer disfluencies under FSF than in normal listening conditions (indicating that FSF improved fluency). There was no interaction between difficulty of material and type of feedback when disfluency rate was used as the dependent variable, suggesting that targeting FSF on easy sections of speech is as effective as targeting it on difficult sections. The original audio data are provided in this report and can be used by readers to check for themselves the characteristics of voice control that alter when FSF is delivered. **Keywords:** Frequency shifted feedback, stuttering.

1. Introduction

Howell (2004) reviewed the development of prosthetic aids that alleviate stuttering that use delayed auditory (DAF), or frequency shifted (FSF), feedback (Howell, 2004). The now extensive literature on the fluency-enhancing effects of these forms of altered auditory feedback indicates unequivocally that they improve the fluency of people who stutter during the time in which the altered sounds are played. These effects appear to be involuntary. Consequently, it has been suggested that they differ from conscious strategies that speakers who stutter can adopt to improve their fluency such as by changing speech rate (Saltuklaroglu, Dayalu & Kalinowski, 2002).

People who have read reports about the fluency enhancing effects of FSF and DAF a) want to know more about how these altered forms of feedback affect people who stutter, b) those who stutter may wish to try the effects for themselves, and c) speakers who stutter and researchers alike want to know how immediate the effects of an alteration are and whether DAF and FSF vary in their effectiveness on different types of utterance. *Stammering Research* is able to address each of these issues, a) by providing access to audio samples of stuttered speech under FSF in a similar way to the speech produced in normal listening situations described by Howell and Huckvale (2004) (see Appendix A for details how to access data from the current experiment), b) by making trial software widely available that readers can use to produce DAF and FSF effects to try out or to research with (Joukov, 2004), and c) by publishing studies that report on the effectiveness of FSF on different types of material (current article). The effectiveness issue is examined in the current study by varying the difficulty of words and seeing how FSF affects sections of speech that differ in difficulty. This simulates the different levels of difficulty individual speakers experience on utterances.

Knowing the effects of intermittent presentation of FSF is important because continuously presenting such sounds has certain drawbacks. Thus, a) FSF noises are distracting and, because of this, may affect speech control, b) the altered sounds give the listener an extra dose of noise which may cause noise trauma, and c) when prosthetic devices are worn in everyday situations, they may prevent users hearing sounds that alert of danger (such as approaching buses or shouted warnings). In all these cases, it is advisable to limit presentation of FSF (or altered sounds in general). Besides these essentially negative motivations for limiting exposure to FSF, there is one potential positive advantage to intermittent presentation. If FSF is presented intermittently according to prescribed schedules, it may be possible for users of prosthetic feedback devices to be gradually weaned away from using them (Howell, 2004a). This argument is based on the concept of partial reinforcement schedules from the animal learning literature (Reed & Howell, 2001). Partial reinforcement refers to the observation that animals continue to make responses they have learned for longer if the reward for that class of response

is presented intermittently (see Reed and Howell, 2001 for a discussion of partial reinforcement in relation to the effects of FSF). Thus if FSF acts as a way of eliciting a response (leads to fluent speech here), and if the FSF is presented only on a proportion of episodes on which speakers experience disfluency, according to the partial reinforcement findings the fluency that results may be maintained for longer. Since this reduces disfluency rate, subsequently the FSF would need to be presented less often to achieve the same level of partial reinforcement and enhancement in fluency. This process would operate continuously requiring less and less FSF-presentation. In this way, it might ultimately be possible to discard use of FSF altogether. There is little evidence in the literature about what happens when altered feedback is presented intermittently, but what there is suggests that the alterations are effective at eliciting fluent responses (as required in the above account) even when exposure is limited. Thus, Howell, El-Yaniv and Powell (1987) investigated presenting FSF just at syllable onset or through the entire syllable. They found that presenting FSF at onset alone was as effective as presenting the sound throughout the syllable. Howell (2004) also discussed the Hector aid that produced a buzz as feedback when speech rate was too high. Informal reports suggest that this was effective at maintaining fluency. The fact that there is selective feedback (the buzz occurs only when speech rate is too high) makes Hector another form of intermittent feedback.

To summarize, more needs to be known about the effects of limiting exposure to FSF and its effectiveness in affecting fluency in these circumstances. In the current study, sections of speech that were linguistically easy or difficult and the effects of presenting intermittent feedback on sections at specific levels of difficulty were established. Difficulty was varied by increasing sentence length (Logan & Conture, 1995; Silverman & Bernstein Ratner, 1997; Yaruss, 1999) and duration of words (Brown, 1945) in the difficult text relative to the easy text. FSF was presented on the easy or difficult sections according to a prescribed schedule. The intention was to see whether switching FSF on while the speaker produced an easy section of speech was as effective as switching FSF on while producing a difficult section of speech where effectiveness was specified in terms of reduced time to read a section and/or a reduction in number of disfluencies on that section.

Method

Participants

Fourteen children who stutter took part in the study. Their ages ranged from 9 to 18 years, with a mean age of 14.52 years. There were 11 males and 3 females and individual details (gender and age) are given in Table 1.

Table 1. Details of participants

ID	Gender	Age
0075	Female	16y 10m
0097	Male	18y 2m
0100	Male	17y 0m
0104	Male	16y 4m
0119	Male	15y 7m
0123	Male	15y 0m
0127	Male	13y 9m
0392	Male	9y 2m
0395	Female	13y 4m
0818	Female	14y 11m
0876	Male	14y 9m
0880	Male	15y 3m
0990	Male	10y 10m
1017	Male	12y 5m

Materials and procedure

There were two experimental texts (these are given in Appendix B). The experimental texts included four test sections each of approximately 50 words. In each text, two of the sections were difficult and the other two were easy. The difficult sections had long sentences (Logan & Conture, 1995; Silverman & Bernstein Ratner, 1997; Yaruss, 1999) and long words (Brown, 1945) compared to the easy sections. The difficulty of the specified sections was checked statistically by independent t test (the four easy sections were compared with the four difficult sections). The difficult sections had significantly longer sentences ($t(6) = 3.175, p = .019$) and words ($t(6) = 4.859, p = .003$) than the easy

sections. The number of content and function words and words starting with consonants and vowels (Brown, 1945) were also checked to ensure that they did not differ significantly in incidence between easy and difficult sections in the two texts (in neither case were these significant). Thus, of the factors examined, only sentence and word length differed between easy and difficult sections (and these were both longer in the difficult sections).

In each text, there was a point where an easy section changed to a difficult section and another point where a difficult section changed to an easy section (the order in which easy-difficult or difficult-easy appeared was counterbalanced between the two texts). The experimenter switched FSF on or off at these transition points as prescribed in the design. The coextensive difficult plus easy and easy plus difficult sections were separated by a buffer zone approximately 20 words in length which was always presented under normal listening conditions (not included in the analyses) and each text also started and ended with another buffer of about 20 words (also spoken under normal listening conditions). Each text was read twice by each participant and across readings the sections on which FSF occurred were reversed across the two readings. With the counterbalancing, participants read each easy and difficult section in the two texts, under two feedback conditions (normal listening and FSF) (i.e. a 2 levels of difficulty x 2 texts x 2 feedback presentation condition design). The counterbalancing also minimized the chance of adaptation and fatigue effects affecting the results.

Feedback conditions and recordings

The participant sat in a sound-treated cubicle. FSF was produced by a Digitech S400 effects processor set to produce a half octave shift down in frequency. The input to the Digitech was by a Sennheiser condenser microphone and the altered sound was replayed over Sennheiser HD250 linear 2 headphones. Speech output was also relayed to a loudspeaker outside the sound-treated cubicle which the experimenter used to monitor the speech to determine when to switch between normal and FSF listening conditions. Speech was recorded onto computer using a second Sennheiser condenser microphone at the same time as the participant read the texts.

Analysis

The time taken to read each 50 word section was measured using Cooledit software. Speech was replayed to locate the disfluencies in each 50 word section using this same software package. Disfluencies that were counted included segment, part-word and word repetitions, segmental and syllabic prolongations, extraneous sequences (mostly glottalic sounds involving stricture in the glottis) excessive aspiration and pauses longer than 100 ms. The accuracy of the transcriber was assessed previously against a second trained transcriber on eight similar recordings to those collected here to estimate inter-judge reliability. 96% agreement on inter-judge fluency judgment was obtained on all words giving a kappa coefficient of .92 which is higher than chance (Fleiss, 1971).

Results

The mean times to read the easy and difficult sections under normal listening (NAF) and FSF are given in Table 2 separately for each of the texts.

Table 2: Reading time statistics for each text (in column 1, 1 is the Kate text and 2 is the Alice text presented in Appendix B) for the easy and difficult 50-word sections within a text (indicated in column 2) when spoken under normal (NAF) or FSF listening conditions (column three). Mean times (in seconds) are given in column four and standard deviations in column five.

<i>Text Used</i>	<i>Passage Difficulty</i>	<i>Feedback Used</i>	<i>Mean Time (seconds)</i>	<i>Standard Deviation (seconds)</i>
1	Difficult	NAF	32.11	21.04
1	Difficult	FSF	25.86	11.57
1	Easy	NAF	23.36	19.14
1	Easy	FSF	19.21	5.76
2	Difficult	NAF	30.14	21.13
2	Difficult	FSF	30.10	29.21
2	Easy	NAF	24.96	15.53
2	Easy	FSF	19.11	6.37

Inspection of Table 2 shows that for both the texts, the mean times taken to read difficult sections are greater than the mean times taken to read easy sections. It also appears that the mean times taken to read sections under FSF are less than the mean times taken to read sections under NAF. These impressions were examined statistically using a repeated measures analysis of variance (ANOVA) with factors text (two levels – Kate and Alice), difficulty (two levels – easy, difficult) and feedback condition (FSF or normal listening). There was no significant main effect or interaction with the text

factor, which shows that overall the two texts led to similar performance. The effect of difficulty of text section was significant ($F_{1,27} = 15.11, p = .001$) supporting the impression that easy sections were read quicker than difficult sections. There were no significant effects of feedback type (main effect or interaction), which suggests that FSF did not significantly reduce the time taken to read the easy or difficult sections relative to normal listening.

The next question examined was whether FSF and text difficulty affected disfluency rate. The data are presented in Table 3 in the same way as with the timing data (Table 2), except this time mean number of disfluencies and the associated standard deviations are given in columns four and five.

Table 3. Disfluency statistics for each text (in column 1, 1 is the Kate text and 2 is the Alice text presented in Appendix B) for the easy and difficult 50-word sections within a text (indicated in column 2) when spoken under normal (NAF) or FSF listening conditions (column three). Mean number of disfluencies are given in column four and standard deviation in column five.

<i>Text Used</i>	<i>Passage Difficulty</i>	<i>Feedback Used</i>	<i>Mean Number of Disfluencies</i>	<i>Standard Deviation</i>
1	Difficult	NAF	5.61	4.28
1	Difficult	FSF	3.82	3.73
1	Easy	NAF	3.37	3.50
1	Easy	FSF	1.71	1.47
2	Difficult	NAF	4.24	4.19
2	Difficult	FSF	3.34	2.90
2	Easy	NAF	3.39	2.76
2	Easy	FSF	2.95	3.04

It appears from Table 3 that more disfluencies were made on difficult sections than on easy ones and that there were more disfluencies under normal listening than under FSF. A similar 2x2x2 repeated-measures ANOVA was carried out on the data as was conducted on the timing data. There was a significant effect of difficulty of a section ($F_{1,27} = 15.02, p = .001$) which showed that there were more disfluencies on the difficult sections. There was also a significant main effect of feedback ($F_{1, 27} = 4.15, p = .05$) that showed FSF reduced the number of disfluencies relative to normal listening. There were no interactions, nor any effect of text type.

Discussion

Linguistically difficult sections led to increased reading time and disfluency rate relative to linguistically easy sections. FSF did not have any effect on reading time in this study, but did reduce number of disfluencies relative to normal listening. Some reduction in reading time under FSF would have been expected from the literature (Howell, 2004) and corresponding sections produced under normal listening and FSF all showed reduced reading time under FSF (Table 2). It is not apparent why no statistical effect was found here though it is possible that other ways of varying difficulty (e.g. using a high proportion of content words or material with high levels of phonological difficulty) might have had more impact. Alternatively, more fine-grained timing analyses might reveal differences between normal listening and FSF. To this end, the data are available for anyone to examine these or other hypotheses (Appendix A). The decrease in disfluency rate under FSF is consistent with what has been reported previously in the literature (e.g. Howell et al., 1987).

The lack of any interaction between task difficulty and feedback condition (either when time to read the passage or number of disfluencies were examined) indicates that FSF is equally effective on easy and on difficult material: Switching FSF on decreased disfluency rate by the same amount as the increase that occurred when FSF was switched off, there was no differential change depending on linguistic difficulty. The restitution of baseline disfluency rates when FSF was switched off is also apparent if the recordings of the data used in these analyses are listened to (Appendix A – while listening to these recordings, Saltuklaroglu et al.'s 2002 claim that these effects are involuntary can also be checked). Thus FSF has an intermittent effect in controlling disfluency rate making it suitable for use as a fluent response elicitor that can be used for partially reinforcing and, potentially, establishing long term effects of fluency, with FSF (Reed & Howell, 2002). This possibility remains to be investigated.

Terms and copyright conditions for the use of the audio data (See Appendix A for access information).

The data and software are freely available to anyone for research and teaching purposes. If the data and/or software are used in publications, theses etc., users have to a) notify Howell (p.howell@ucl.ac.uk), b) acknowledge the source in any publication by referencing this article, c) include an acknowledgement that data collection was supported by the Wellcome Trust.

Acknowledgement. This research was supported by the Wellcome Trust.

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Appendix A – Data description

This Appendix contains an indication where UCL's archive of recordings of speakers who stutter speaking under FSF are located and how they can be accessed.

There are 14 speakers and four recordings per speaker making 56 files in all. Recordings are in SFS format (see Howell & Huckvale, 2004 for a description). The four recordings for a speaker were for the two texts (Kate and Alice) and two readings of each text. Filenames start with a four figure code that identifies the speaker (e.g. 0075), followed by underscore, recording number (r1-r4), underscore, text (1=Kate, 2=Alice), underscore and four letters representing feedback sequence on the 50-word sections (n=normal listening, f=FSF)

The 56 SFS speech files can be accessed and downloaded from:

<http://speech1.psychol.ucl.ac.uk/feedbackdata.htm>

The speech data whose release is described in this appendix are
© 2004 Peter Howell, University College London.

Appendix B – Texts used in the experiment

Kate

Kate witnessed the robbery of a woman's handbag. The police were called and had arrived to ask her some questions.

(Difficult) Mrs Mcalpine please could you give us a clear and accurate description of the thief including any unusual distinguishing characteristics. Please be careful not to omit any critical details as these are probably the most important features that will help us to track down and arrest and hopefully prosecute him.

(Easy) Of course. he was a young man. probably aged between fifteen and twenty. He was wearing a blue tracksuit. He had brown hair and was wearing a cap. The cap was also blue. He was about six foot tall and he was wearing yellow trainers with blue stripes on them.

The policeman carefully wrote down the information Katie had given him and then looked up to ask her another question.

(Difficult) Could you describe exactly what you witnessed. Again be extremely careful to mention every single detail however small. We need detailed information about exactly what happened so that we can determine what to do next. Your witness account is very important to our investigation so be as accurate as possible.

(Easy) I had just bought a cup of tea. an old lady was in the queue behind me. She ordered a drink. I went to sit down. The lady opened her bag to get her purse. All of a sudden the young man behind her snatched her bag and ran off.

Kate answered more questions before the police moved on to the next witness. She hoped they would catch the thief.

Alice

The following conversation is between Alice and her teacher, Mrs Jones. They are talking about what they did at Easter.

(Easy) I went to the fair. And then I played with my friend. We got some candy floss and some toffee apples. They were nice and sweet. And then we went on the ferris wheel for ages. It was so fun. It was the best fair I have ever been to.

(Difficult) That sounds particularly enjoyable Alice. I'm sure you had a wonderful time especially as it was your birthday. Were you given many exciting presents by your family and friends? Did any other unusual or surprising things happen or do you remember anything else that you want to tell me about?

Alice wrinkled her forehead as she tried to remember the best parts of her birthday. Then she nodded, and said:

(Easy) Yes. I got lots of great presents. My mum gave me a hamster. He is so cute and soft. I called him Andy. I also got a ball that he can run around the house in. He looks funny when he does that. And my dad gave me a kite.

(Difficult) That's terrific. I adored my pet hamster when I was about thirteen. My favourite game was to hide hundreds of tiny pieces of his food all around my bedroom and then allow him to scurry about and discover where they all were before he gobbled them all up incredibly quickly.

They both laughed. It seemed they had lots in common, even though Mrs Jones was a teacher and Alice

RESEARCH DATA, SOFTWARE AND ANALYSIS SECTION

Trial software for frequency shifted and delayed auditory feedback

Serge Joukov,
Artefact, LLC

<http://www.artefactsoft.com>

Abstract. The purpose of this article is to indicate how access can be obtained, through *Stammering Research*, to software which allows speakers to try out the effects of delayed auditory feedback and frequency shifted feedback for a free trial period. **Keyword:** <http://www.artefactsoft.com>

1. DAF/FAF Assistant Documentation

The fluency-enhancing effects of delayed auditory feedback (DAF) and frequency shifted (or altered) feedback (FAF) have been reviewed recently by Howell (2004). Howell, Davis, Bartrip and Wormald (2004) have also described and provided demonstrations of the fluency enhancing effects of FAF. These articles may have prompted readers of *Stammering Research* (particularly those who stutter) to try out the effect of FAF and DAF for themselves. In this article, software that produces these effects is described that is available for a free trial period of 7-10 days. The software runs on a PC (there is a pocket version that is also described below).

The DAF/FAF Assistant application requires a Windows compatible computer. The application supports Windows 95 (R), Windows 98 (R), Windows ME (R), Windows 2000 (R), and Windows XP (R). The application will not run on Windows NT (R).

The application requires Microsoft DirectX software component to be installed on your computer. Most likely the DirectX is already installed on your computer and you do not have to install it separately. (See installation section below how to check if the DirectX is installed.)

The application requires a sound card that supports full-duplex mode under DirectX. Most of the modern sound cards do support this mode. If your sound card does not support full-duplex mode under DirectX you can either obtain updated drivers from the sound card manufacturer or consider upgrading your sound card.

The application requires headphones and a microphone. It is recommended to use a headset that combines stereo or mono headphones and a microphone. The headset with stereo headphones provides better DAF and FAF effects but they are bulky and it is difficult to use them when you are talking on the phone. The headset with mono headphones is better to use with the phone and it usually provides sufficient DAF/FAF effect to enhance fluency. These headsets are readily available in any computer store (e.g. RadioShack, Best Buy, etc.). See example below:



Installation

There are several steps that have to be performed to install the DAF/FAF Assistant software application. Download the setup.exe file from the ArtefactSoft web site using the following link to download the program: http://www.artefactsoft.com/downloads/daf/1_1/setup.exe. Copy the file to any temporary directory on your computer.

Execute the setup.exe file by double clicking on it. This will launch the installation program. The installation wizard will guide you through the installation process. You will have to accept the license agreement, select the destination directory and specify whether or not you wish to create the desktop icons for the application. If you are not sure what to enter in the installation wizard screens then just press the “Next” button on every screen and the program will be installed to the default directories. After the program is installed you can either delete the setup.exe file or save it in case you have to reinstall the program.

Connect your headset to the computer and run the DAF/FAF Assistant. If you have the registration key then press “Enter Key” button and type your registration information. If you don’t have the registration key then press “OK” button. You can register the program and enter the registration key later.

Press the Start button and make sure that you hear your voice when you speak. Try making different settings for the Delay and Frequency Shift and check your voice is changed correspondingly. If you hear your changed voice then you have successfully installed the DAF/FAF Assistant.

If you start the application and get the error message “Could Not Initialize DirectX” then you will have to install the DirectX component on your computer. Open the following link <http://www.microsoft.com/windows/directx/downloads/> and follow the instructions to download and install the latest version of the DirectX. You will have to reboot the computer after you have installed the DirectX.

If you start the application and get the error message “Could Not Create Record Buffer” then you most likely have a sound card that does not support full-duplex mode. If the sound card does not support full-duplex mode you can either try to find updated drivers from the sound card manufacturer or consider upgrading your sound card.

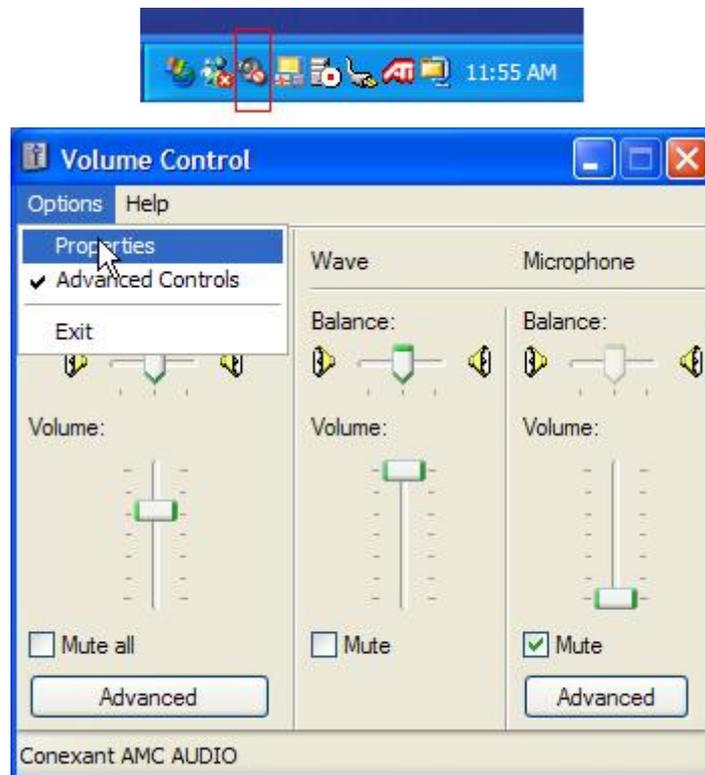
If you started the application and did not have any error messages but still you do not hear your voice or you hear your voice without any delay or pitch shift then you have to adjust your sound system settings. (See: [Configuring sound card.](#))

The [FAQ](#) section on <http://www.artefactsoft.com> contains additional information on errors.

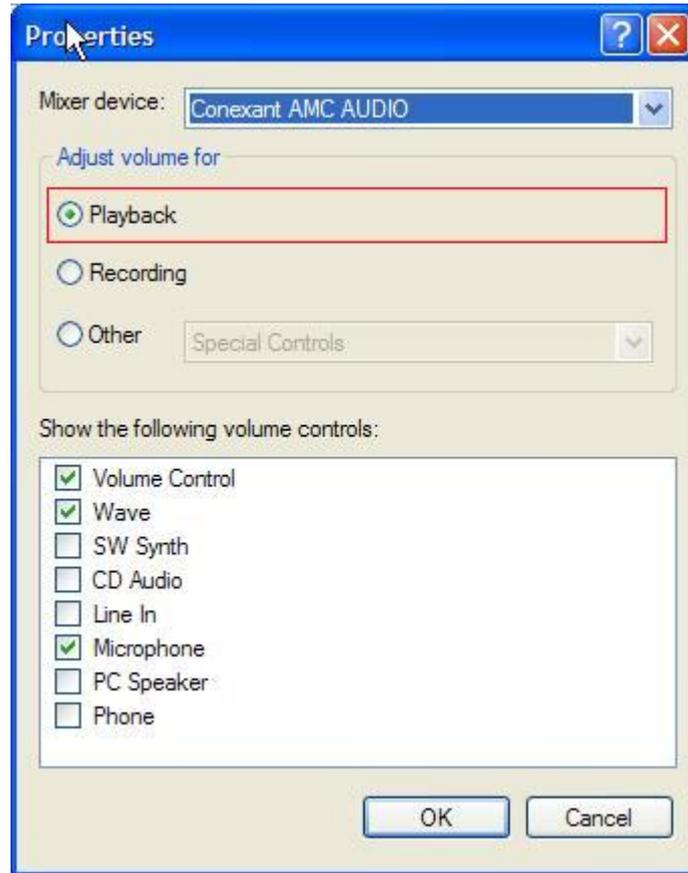
Configuring the sound card

The following screen images were taken from Windows XP (R) operating system. If you are using different operating system your screen may look different.

To configure the sound card parameters find the “speaker” icon on your computer toolbar. It is usually located in the right bottom corner of the screen. Double click the “speaker” icon and it will open the Volume Control dialog window.



Click on “Options|Properties” menu item. The properties dialog window will be opened.



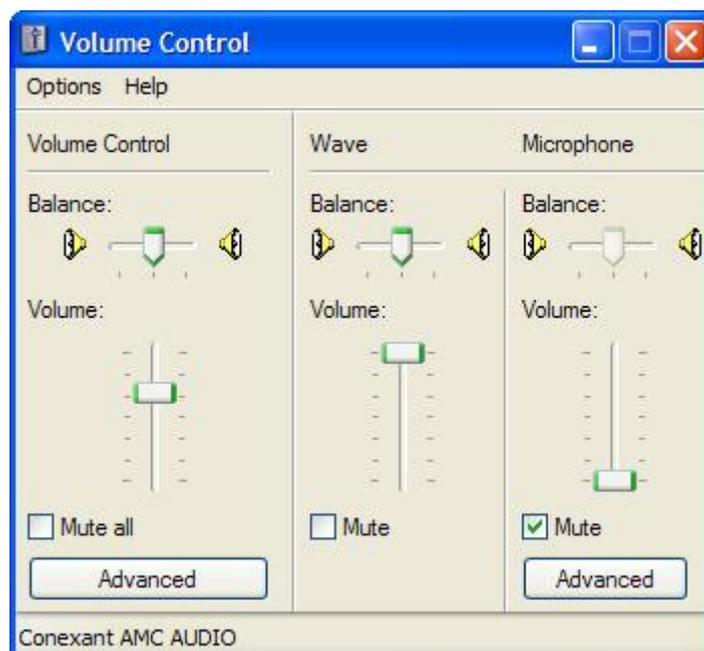
There are two groups of settings: for **Playback** control and for **Recording** control. You will have to check or adjust both of them.

Configuring the Playback Settings

On the Properties dialog window (see picture above) select “**Adjust Volume For Playback**”.

Make sure that “Volume Control”, “Wave”, and “Microphone” items are selected among the others in the “Show the following volume controls:” list. You can have several other items selected here which is normal.

Click OK button. This will close the Properties dialog window and will update the content on the Volume control dialog window.

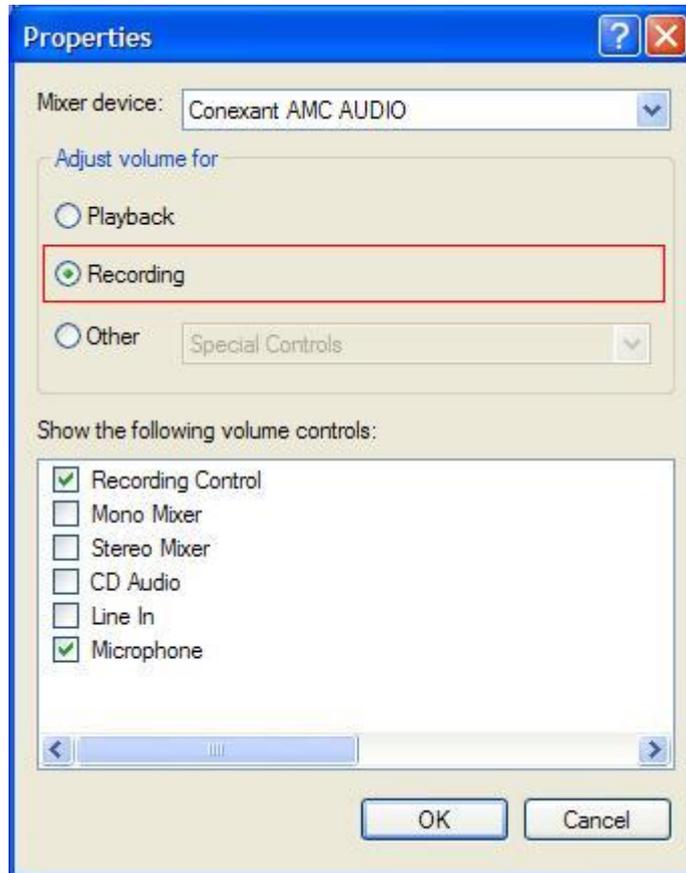


Make sure that you have the following setting in the Volume control dialog Window:

Volume Control	Volume set near MAX (this is your master volume control. Adjust it to have comfortable sound volume)	"Mute all" is UNCHECKED
Wave	Volume set to MAX	"Mute" is UNCHECKED
Microphone	Volume set to MIN	"Mute" is CHECKED

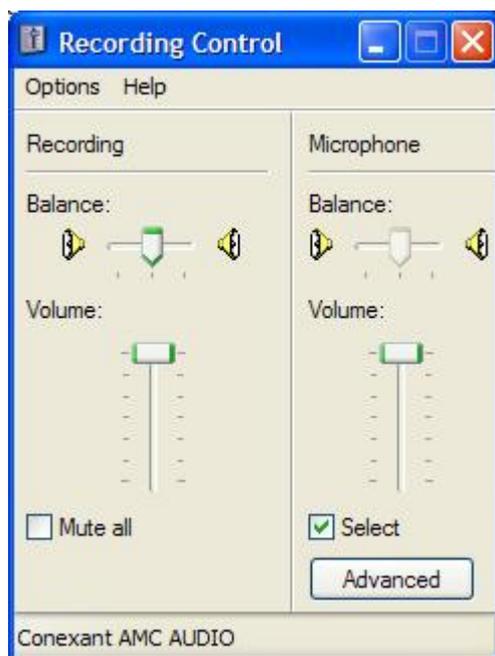
Configuring the Recordings settings

Click on the “Options|Properties” menu item again. The properties dialog window will be opened. On the Properties dialog window select “Adjust Volume For Recording”.



Make sure that “Recording Control” and “Microphone” items are selected among the others in the “Show the following volume controls:” list.

Click OK button. This will close the Properties dialog window and will update the content on the Recording Control dialog window.



Make sure that you have the following setting in the Recording Control dialog Window:

Recording	Volume set to MAX	"Mute all" is UNCHECKED
Microphone	Volume set to MAX	"Select" is CHECKED

Removing the program

To uninstall the program go to the Start | Programs | DAF FAF Assistant and select "Uninstall DAF FAF Assistant" item. This will remove DAF/FAF Assistant from your computer.

Using the program

You can start using the DAF/FAF Assistant with basic reading exercises. Set the delay value to 50-70 ms and the frequency pitch shift to +/-5 and start reading aloud. You should see noticeable speech improvement. Several researches show that short delay (approximately 50 milliseconds) and/or a moderate frequency shift (approximately one-half octave) immediately reduce stuttering about 75%. Try to work with different delays and frequency shifts to find the optimal values that provide the best fluency for you.

When you are comfortable with the basic reading skills you may want to start experimenting with DAF/FAF Assistant in many different situations. Try to use it when you are reading to someone, speaking with close friends or family members, talking on the phone, doing public presentations.

You can create your own schedule of exercises or contact your speech-language pathologist to discuss the possible ways of incorporating the DAF/FAF techniques into your speech therapy.

If you feel that you need professional speech therapy advice please consult with your speech-language pathologist

The DAF/FAF Assistant interface is simple and intuitive. There are three gauge controls that are responsible for setting the Delay, Frequency Shift, and the Volume. The Delay has the range of 40 ms to 220 ms. The Frequency Shift has the range of -10 to +10 which corresponds to +/- one-half octave. These intervals are widely used in DAF/FAF speech therapy.

The DAF/FAF Assistant automatically saves configured Delay and Frequency Shift settings when you close the program and restores these settings back when you start the application.

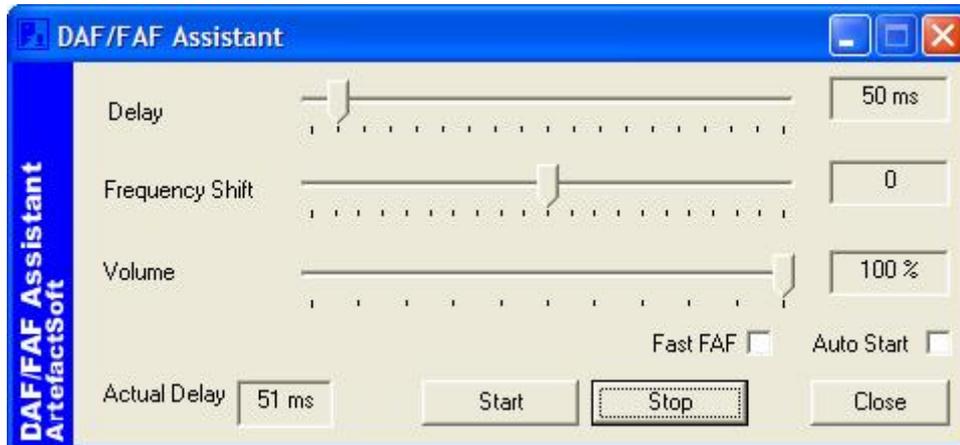
The Start and Stop buttons turn on and off the sound playback.

The Fast FAF checkbox when set turns on the simplified frequency shifting algorithm that can work better on less powerful computers. The standard frequency shifting algorithm (Fast FAF is OFF) provides better sound quality but requires a more powerful processor.

The Auto Start checkbox when set will automatically start the sound playback when you start the DAF/FAF Assistant. You may use the Auto Start feature to simplify the launching of the DAF/FAF Assistant. The Windows (R) operating system allows users to assign a shortcut key to the DAF/FAF Assistant. So when the user presses the assigned key (e.g. F10) it will launch the configured

application. In this case you can start the DAF/FAF Assistant and start the sound playback immediately by simple pressing the assigned shortcut key.

The Actual Delay displays the current delay value computed by the application.



The DAF/FAF Assistant can run in the background or when it is minimized. So you can work in another application and still have the DAF/FAF sound playback on.

2. Pocket DAF/FAF Assistant

Overview

The Pocket DAF/FAF Assistant is a software application that implements two altered auditory feedback techniques: Delayed Auditory Feedback (DAF) and Frequency Altered Feedback (FAF) also called Frequency Shifted Feedback.

Requirements

The software application requires handheld (Pocket PC) computer running Windows Mobile 2003 for Pocket PC operating system.

For better performance the application requires external headphones and microphone (if available).

Pocket PC selection

The software does not use any proprietary feature of any Pocket PC vendor so it is expected that the software will work on any Pocket PC running Windows Mobile 2003 for Pocket PC. The following handheld computers were tested and are compatible with the application:

HP iPAQ h5555 (recommended)

HP iPAQ h4155

HP iPAQ h2215

Toshiba Pocket PC e400

Toshiba Pocket PC e800

Artefact would be very grateful if you let them know about any Pocket PC device that is compatible with the Pocket DAF/FAF Assistant software and is not on this list yet.

Headphones and microphone selection

Most of the currently available Pocket PCs do not have external microphone input. The only exception is HP iPAQ h5555. This device has input connections for both external headphones and external microphone.

The following headphones and microphone configurations can be used:

For models that support external microphone (HP iPAQ h5555) use external headset (microphone and headphones). You can use either a special headset that is designed for iPAQ (see examples below) or use any standard cell phone headset and purchase a special adaptor (see below). (Recommended)

Use external headphones and internal microphone. Most of the handheld devices have sensitive internal microphones that are able to pick up your voice quite well.

Use Bluetooth (wireless) headset. The Bluetooth headset allows you greater flexibility because it does not use any wires but can degrade the sound quality. Please make sure that your Pocket PC supports Bluetooth connections (most iPAQs do).

Use internal speaker and internal microphone. When using this configuration please set the volume to low otherwise your microphone will pickup your delayed voice creating echo effect with lots of distortions

Please note that different Pocket PC devices have different size of headphone jacks. Currently there are two standards 2.5 mm (cell phone headset standard) and 3.5 mm (computer audio jack standard). It

is sometimes easier to take your Pocket PC to the computer department store and try different headsets on the spot.



This adaptor can be used to connect your 2.5 mm This headset can be used directly with the iPAQ standard cell phone headset to 3.5 mm input h5555. It includes headphone for one ear and a connection of iPAQ h5555. This adaptor is microphone. The adaptor has 3.5 mm jack and is available at: <http://www.plantronics.com/ipaq> available at: <http://www.plantronics.com/ipaq>



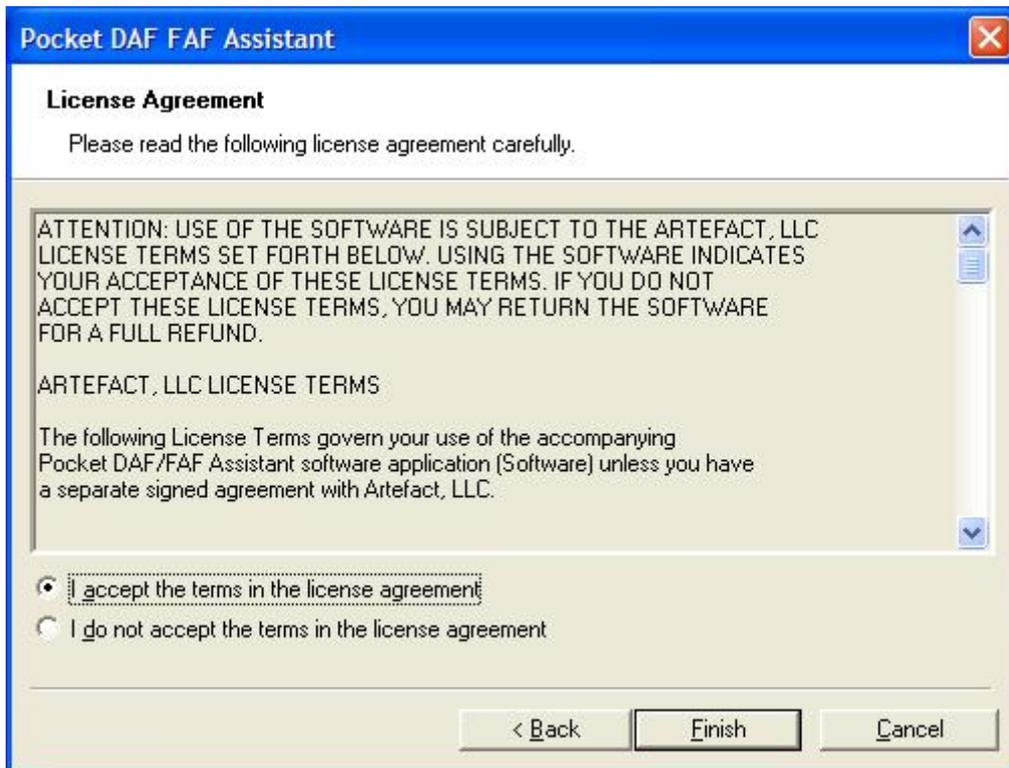
For Pocket PCs that do not provide external Bluetooth (wireless) headsets are compatible with microphone input you can use any computer the application. compatible headphones.

Installation

To install the software you have to connect your Pocket PC computer to the desktop PC (or laptop) using ActiveSync software that comes with the Pocket PC. When ActiveSync connection is established run the Pocket DAF/FAF Assistant installation program:

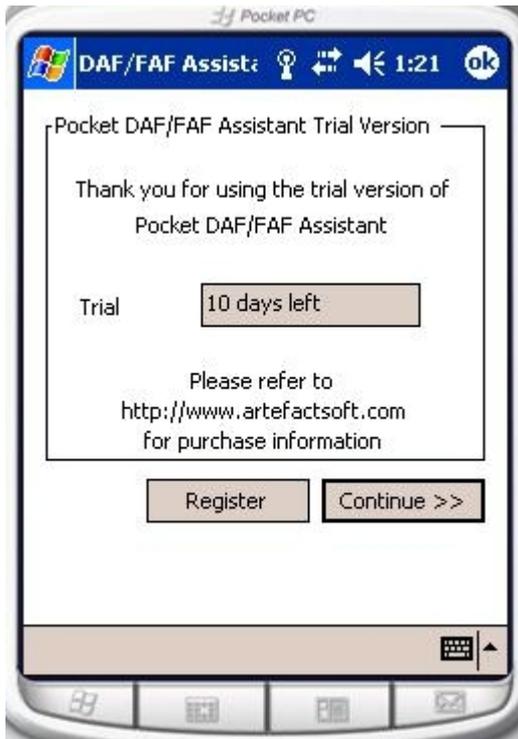


Press 'Next' button to continue.



You will have to accept the license agreement and press Finish button.

Follow the instructions from ActiveSync software. Wait until installation process is completed. Now you can disconnect your Pocket PC from the desktop computer. You will find the Pocket DAF/FAF Assistant icon in the Programs folder of your Pocket PC.



When you start the application from your Pocket PC you will see the trial version information message. If you have registration key please press Register button and enter your User Name and Key. If you wish to continue with the trial version please press Continue button.

If you press the Registration button either from the trial version information window or from the main application window the following registration dialog will appear. Please enter User Name and Key that you received when purchased the software and press OK button.

Removing the program

To uninstall the Pocket DAF/FAF Assistant connect the Pocket PC to your desktop PC (or laptop) using the ActiveSync software. From ActiveSync application select Tools->Add/Remove Programs menu item. Select Pocket DAF/FAF Assistant item in the list. Press Remove button.

Using the program

The program is used in the same way as the DAF/FAF assistant.



The Pocket DAF/FAF Assistant interface is simple and intuitive. There are two gauge controls that are responsible for setting Delay and Frequency Shift. The Delay has the range of 50 ms to 250 ms. The Frequency Shift has the range of -10 to +10 which corresponds to +/- one-half octave. These intervals are widely used in DAF/FAF speech therapy.

The DAF/FAF Assistant automatically saves configured Delay and Frequency Shift settings when you close the program and restores these settings back when you start the application.

The Start and Stop buttons turn the sound playback on and off.

The Register button allows you to enter your registration name and key. When the software is registered this button is hidden.

Warranty Disclaimers and Liability Limitations

The DAF/FAF Assistant and any and all accompanying software, files, data and materials, are distributed and provided "AS IS" and with no warranties of any kind, whether express or implied and you hereby assume the entire risk of using the Software. This disclaimer of warranty constitutes an essential part of the License.

Any liability of Artefact, LLC will be limited exclusively to refund of purchase price, if any. In addition, in no event shall Artefact, LLC or its owners, principals, shareholders, officers, employees, affiliates, contractors, subsidiaries, or parent organizations, be liable for any indirect, incidental, consequential, or punitive damages whatsoever relating to the use of DAF/FAF Assistant, or to your relationship with Artefact, LLC.

In addition, in no event does Artefact, LLC authorize you to use DAF/FAF Assistant in applications or systems where DAF/FAF Assistant's failure to perform can reasonably be expected to result in a significant physical injury, or in loss of life. Any such use by you is entirely at your own risk, and you agree to hold Artefact, LLC harmless from any and all claims or losses relating to such unauthorized use.

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[Electronic devices and stuttering treatment. By Judy Kuster.](#)

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ABSTRACTS OF REPORTS FROM BSA VACATION STUDENTSHIPS 2004

The Family History of Stuttering in Recovered and Persistent Groups

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The fact that stuttering runs in families has been recognised for a long time and has led to substantial research about the role of a genetic component to the disorder (e.g. Howie, 1981; Kidd, 1980; Kidd 1984). Although there is ample evidence that a substantial proportion of people who stutter will recover (Andrews & Harris, 1964; Johnson et al, 1959; Sheehan & Martyn, 1970; Yairi & Ambrose, 1992) there has been little research into the family history of recovery and persistence. The Speech Research Group at UCL has follow up data on a group of children that were first seen when aged approximately 8 - 10 years. The children are now teenage and have been classified as persistent or recovered using multidimensional criteria. This study examined data from the families of 54 of these children (32 persistent and 22 recovered) and from families of 16 control children. Analysis indicated support for the idea of a genetic component and found that a positive family history of stuttering in 67% of children who stutter compared to 37% of control children. Analysis indicated that recovery or persistence is not transmitted genetically with equal numbers of recovered and persistent relatives being found in the families of the recovered and persistent groups of children who stutter.

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Do children who stutter have word finding difficulties?

Khibza Hussain, Samaira Khan, Peter Howell and Stephen Davis
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Stuttering is usually reported to occur in children from age two upwards and by this time the child has usually acquired some language. This study investigated if there was anything about the way language develops that lead some children to become stutterers and other not to become stutterers? The study used the tip-of-the-tongue (TOT) phenomenon to examine language development in young children. People in TOT state know they know a word but cannot recall the word. Using a computer based technique this study was able to establish whether children in TOT state know anything about the word (and to confirm exactly what information they are able to report). Data from twelve children who stutter and 59 children who do not stutter were analysed. Analysis of the data indicated little difference between the groups in the ability to report information about words in TOT state.

Bilingual issues in stammering intervention: an exploratory study

Samina Ghazi and Robin Lickley
Queen Margaret University College, Edinburgh

Bilingual issues in intervention for childhood stammering are relatively unaddressed in the literature but are in need of basic research to support and increase the knowledge-base necessary to inform Speech and Language Therapists. SLTs working in Bilingual Services with dysfluent children have reported many problems in implementing interventions. This is not only because of an inability of the service to cope with a wide variety of languages, but can often stem from differing cultural backgrounds. So far, most of the issues raised can only be aired anecdotally, as there is no research data to support any claims. This pilot project begins to explore some of the issues, in a case study of one bilingual children who stammers. The Bilingual Service at Yorkhill NHS Trust in Glasgow has a large caseload of bilingual children who stammer, and it is there that data for this project was gathered.

This study examined the speech of a 6 year old bilingual boy from Glasgow in both English and Urdu. The boy's parents were both born in the UK and both Urdu and English are spoken in the home.

The boy took part in 4 recording sessions with the first author, each of around 25-30 minutes and each involving a variety of games with description and discussion of pictures. The language used in two sessions was English and in the other two, Urdu. The language samples were transcribed and annotated for dysfluency using signal processing and annotation tools (SFS: Howell & Huckvale, 2004). Word counts, utterance lengths (in words and syllables) and tokens and types of dysfluency were analysed

A total of 1524 words produced by the child were transcribed (983 English, 541 Urdu). These yielded a total of 386 dysfluencies (205 in English and 181 in the Urdu dialogues).

The analyses indicate that, unlike Mean Length of Utterance (MLU: English 4.3, Urdu 3.8 syllables per utterance), overall dysfluency rate (in stammering events per hundred syllables: %SS) was much higher in Urdu than English (25.3 vs. 18.4 %SS). Types of dysfluency were relatively similar in both the languages except for *blocking*, which was noted in Urdu utterances only. There were consistencies in the *repetition* and *prolongation* of some sounds despite the differences and inconsistencies in both languages. A variety of dysfluent hesitation sounds were also observed in both languages. Predictably, word-initial dysfluencies were most common but word-final dysfluencies were also found in both languages.

For this child, it appears that there may be a negative correlation between his ability in the two languages and dysfluency rates – his dysfluency rate was higher in the language in which he seemed slightly less proficient (Urdu). Despite this quantitative difference, qualitatively, the child appeared to be dysfluent in more or less the same way in the two languages.

The study as a whole also highlights some of the complexities of the problem of handling bilingual cases in a Speech and Language Therapy clinic. One of the main issues is that the standardised clinical tests that are available for assessment of the speech and language abilities of children are not necessarily adaptable to children who speak a non-standard accent of English (in this case Glaswegian) let alone to those who are also bilingual. For example, the rough comparison of MLU between the languages is at best only indicative, given that there is no norm available for the child's Urdu dialect, let alone a Glasgow bilingual version of the dialect, nor for the child's dialect of English. Additionally, it is clearly impossible to view the 'bilingual population' as anything other than extremely heterogeneous. Initially, 4 children were recorded for the study, each with different linguistic, educational, social and cultural backgrounds and with a resultant variability in the child's exposure to and proficiency in their languages (3 of the children did not display any stammering behaviour in the recording sessions).

Any more extensive study must pay heed to all of these factors.

Reference

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PRELIMINARY CONFERENCE ANNOUNCEMENT

**Department of Psychology
and**



**THE CHARACTERISTICS AND ASSESSMENT OF STUTTERED SPEECH
Monday June 27th 2005**

A workshop reporting and comparing analyses of stuttered speech from UCL's
Archive of Stuttered Speech (UCLASS)

UCL's Archive of Stuttered Speech (UCLASS) is available on line at
<http://speech1.psychol.ucl.ac.uk/index.htm>. This is an extensive database (about
150 speakers). A conference is being organised which will provide tutorials on
different analysis techniques that can be employed with these data and to report
and compare results of analyses of these data.

Analyses will include (but not be restricted to):

From textual material:

**Pragmatic analysis
Semantic analysis
Syntactic analysis
Morphological analysis
Phonological analysis
Phonetic analysis**

From audio data:

**Formant analysis
Voice pitch analysis
Rate analysis
Articulatory analysis
Perceptual assessment
Automatic recognition of disfluencies**

9. 00a.m.-.6.00p.m.

Department of Psychology, University College London, 26 Bedford Way, London
WC1H 0AP

Registration details will appear in the Volume 1, issue 4 of *Stammering Research*
(available on-line from December 31st, 2004 at <http://www.speech.psychol.ucl.ac.uk>)
where details of the conference website will be announced.

7th Oxford Dysfluency Conference

St Catherine's College, Oxford University, 29th June - 2nd July 2005

Sponsored by the Michael Palin Centre for Stammering Children

The organisers invite you to participate in the Seventh Oxford Dysfluency Conference, which will take place at St. Catherine's College. It provides an ideal opportunity to meet with people from all over the world who share an interest in dysfluency. In the past delegates have come from many countries, including France, Germany, Holland, Belgium, Israel, Eire, Croatia, Japan, Sweden, the USA, Norway and of course Great Britain.

Keynote speakers already confirmed include:

- | | |
|--------------------------------------|------------------------|
| ■Walt Manning (Memphis) | ■Mark Onslow (Sydney) |
| ■Scott Yaruss (Pittsburg) | ■Nancy Cox (Chicago) |
| ■Ruth Watson (Illinois at Champaign) | ■Sue Block (Melbourne) |
| ■Hans Georg Bosshart (Ruhr) | ■Trudy Stewart (Leeds) |

Registration will start on Wednesday, 29th June and the conference will end at 5pm on Saturday 2nd July. There will be an optional tour on Friday afternoon.

If you would like to attend the conference, present a scientific paper, run a workshop, or exhibit a poster please express your interest by contacting:

The Michael Palin Centre for Stammering Children, Finsbury Health Centre, Pine Street, London EC1R 0LP, UK Tel: +44(0)207 530 4238.

Or emailing Dave Rowley (De Montfort University): dtr@dmu.ac.uk

You will then receive further information as it becomes available.