VANESSA

A System for Council Information Centre Assistants to communicate using sign language

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Contents

1   Executive Summary

This Deliverable consists of software to facilitate communication between assistants and their deaf clients in Council Information Centres (CIC's) or similar environments. A signing avatar conveys the signed information in British Sign Language (BSL) on a screen facing the client. A text version is also displayed.

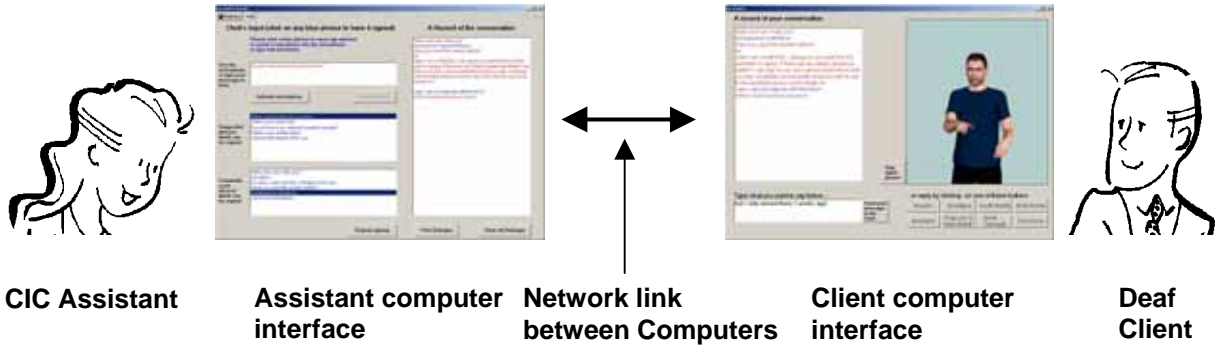The outline system is shown in Figure 1 below.

| CIC Assistant | Assistant computer interface | Network link between Computers | Client computer interface | Deaf Client |

Figure 1

Input from the assistant can be via a microphone or it can be typed in as text using an assistant screen interface. Both inputs are processed by comparing them with a statistical language model which is able to suggest the nearest matching phrases the system has available for signing. These are displayed for the assistant. The preferred phrase can then be selected and signed for the client. If none of the phrases are appropriate, text alone may be sent.

The assistant's screen also allows the assistant to receive communication back from the client either in the form of typed text, or via a selection of responses presented to the client for them to choose from.

Two records of any dialogues are possible. Firstly, in the form of a print out of the dialogue which the client can take away with them, and secondly a file which logs all events that have taken place in the course of an interview. The latter has the advantage that it allows use of the system to be reviewed and improved. In particular, it can highlight frequently-used phrases for which no signed version is available. New signs for such phrases could then be created and added to the system.

Signs are created synthetically for the system. The signing has to be accurately described in HamNoSys notation, and this is then transcribed into a form of XML called SiGML which can drive the avatar. Phrases vary from those used in general conversation, such as "Hello, how can I help you?", through to specific sentences relating to form filling, for example "You will need a passport sized photo of yourself to send with the form".

VANESSA has been developed from a prototype Tool (D2.5) as a partnership effort between UEA, the RNID and Norfolk County Council. A working version was installed in the CIC in the Forum in Norwich in August 2004.

Additional software has been included as part of the Deliverable to demonstrate that VANESSA can be easily modified to translate into other spoken languages as well as sign language. There is also an application that allows new content to be added. If required, such additions may be made in multiple languages.

The main Report below includes details under the following headings:

Background
Interface Design
Hardware
Software and Functionality
Content creation
System Installation in Norwich
The Phrase Maintenance Application
The Language Application

Appendices also included are:

VANESSA Installation instructions
VANESSA Users' Manual
A list of phrases available for the Norwich VANESSA
Language Application installation instructions

2 Background

Deaf people experience communication difficulties every day of their lives because the majority of hearing people do not know sign language. When, for example, a deaf person needs assistance with filling in complicated forms, the information can be complicated, and writing it down quite laborious. Moreover, many people who have been profoundly deaf since birth do not have particularly good reading or writing skills. It must be remembered that sign language is their first language, and (in the UK) English is their second. VANESSA is an attempt to make communication in assistance environments easier for hearing and deaf people alike.

It was always the intention that VANESSA (Voice Activated Network Enabled Speech to Sign Assistant) should build upon the TESSA system, developed for the UK Post Office as part of the European-funded ViSiCAST project [Cox et al, 2002]. TESSA helped Post Office Clerks to communicate with their deaf customers. However it had two significant limitations:

i)   Speech was the only method by which Post Office clerks could activate the system. Although the system's speech recognition was mostly accurate, if it did not recognise a particular phrase, the clerk would have to resort to pen and paper, or rudimentary signing, since the large majority of clerks did not know any sign language themselves. The speech recognition software also required users to 'train' the system for 30 minutes to 1 hour before use for optimum results.

ii)   There was no way, beyond signing and/or pen and paper, by which deaf clients could communicate back.

The Tool (D2.5) developed as the prototype for VANESSA, sought to address these limitations by including text as an alternative method of communication, and letting the client communicate back using either text or button choice selections. This was agreed after discussion between the UEA and the RNID. Further refinements were also made as the VANESSA system evolved from the Tool.

As the Clerk-Deaf Client scenario exists in many different environments, it is valuable to build a Speech-Enabled Transaction Support Tool, for which the only change necessary is the phrases and signed content. VANESSA achieves this by means of the Phrase Maintenance Tool, also included as part of this Deliverable.

It was also considered important to keep the code strictly modular to allow for other developments, such as translation into a spoken foreign language rather than avatar-signed language. A second system, included as part of the software for this Deliverable, demonstrates this flexibility by allowing the user to switch from sign language translation to French. The French is spoken for the Client using a text-to-speech synthesiser.

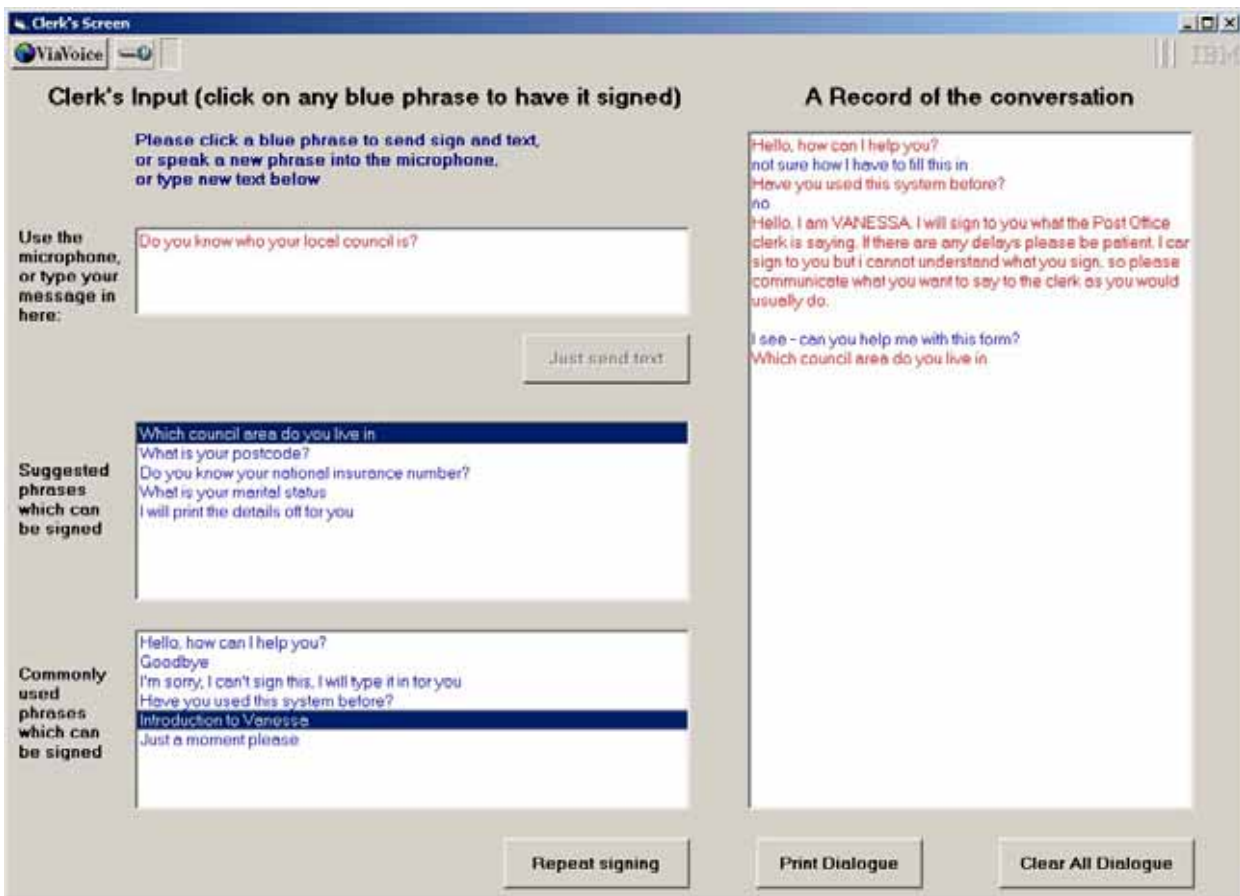## 3 Interface Design

The Assistant Interface is shown in Figure 2

Figure 2

The screen design is the result of discussions between UEA and the RNID. It was agreed that the interface should be as simple and easy to use as possible, and this meant that boxes were removed, or altered from those in the Tool D2.5. All input control is grouped at the top left, text and signs to send at the bottom left, and the output on the right. At every possible stage, event messages and guidance are displayed in blue at the top. All controls are clearly labelled.

Boxes and buttons are enabled and disabled according to the current stage of progress in communication. This acts as a guide to what an assistant is able to do at any point in time. The whole screen is disabled while the avatar is signing for a client to indicate to the assistant that they should wait before sending any further messages.

The Screen consists of 4 boxes and a number of control buttons.
Starting at the top left, there are 3 boxes from which phrases can be selected for signing by clicking:
        The *Input* box is where the assistant types any text input.
        Suggested phrases to sign (refreshed after each new text or speech input). These can be clicked to send a signed version together with corresponding text.
        Commonly used phrases which can be signed directly just by clicking on them, without text or speech input first. Any phrase which is selected for signing will also be displayed as text in the assistant and client *Record of the Conversation* boxes.

In fact, the *Record of the Conversation* box on the right displays a text version of all messages which are sent or received during the course of a conversation. The style is similar to that of an internet chat room interface. Assistant messages are displayed in red and Client messages in blue.

The buttons activate various functions:

Repeat Signing makes the avatar sign the previous sign again. This button is disabled if the last message sent was text-only. The client also has a *Sign Again* button.

Just Send Text sends the text version *only* to the client's screen. This button is only enabled after signable phrases for any text input have been displayed, to encourage the assistant to use a signed phrase if at all possible.

Print Dialogue sends the entire contents of the *Record of Conversation* dialogue box to the default printer for the system.

Clear All Dialogue clears the *Record of Conversation* box and also triggers end of session routines.

Activate microphone button to start the speech recognition software A short silence terminates recognition, and recognised speech is then processed to find matching phrases to sign. The speech which has actually been recognised is displayed at the top left of the screen as a reference.
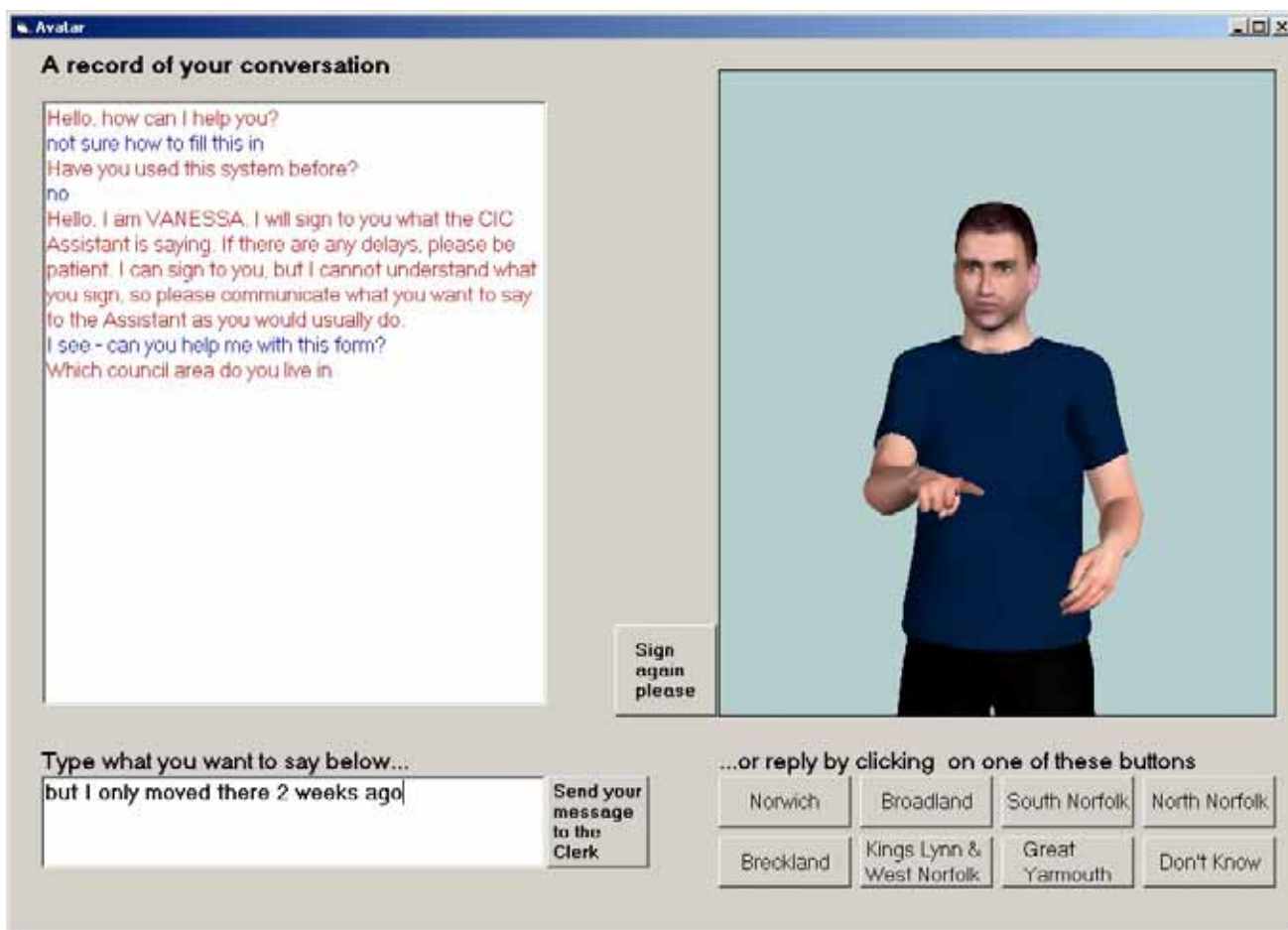

Figure 3

With the Client Interface (Figure 3) the dialogue box displaying the complete conversation, and corresponding exactly with the assistant's dialogue box, is displayed on the left, together with an input box where a client can type in a message. To allow clients to prepare their messages carefully, text is not sent until the *Send your message to the clerk* button is clicked.

The *Sign again please* button allows clients to repeat the signing if they wish, or they can of course ask the assistant to do it.

The Avatar signs all signing selected by the assistant. When a text-only message has been sent by the avatar indicates this, by pointing to the Dialogue Box to her right.

Selection buttons for client selection. When a message requires particular responses, these are displayed as choices as labels on the buttons below the avatar. For example, the last message signed in Fig 3 was "Which local authority area do you live in?" and the accompanying "Norwich, Broadland, South Norfolk" etc were displayed for selection at the same time. The buttons have labels and are selectable only when particular responses are possible. The avatar points to the buttons, indicating the client that they may use the buttons to reply. Selected choices are also displayed as part of the dialogue sequence

4 Hardware

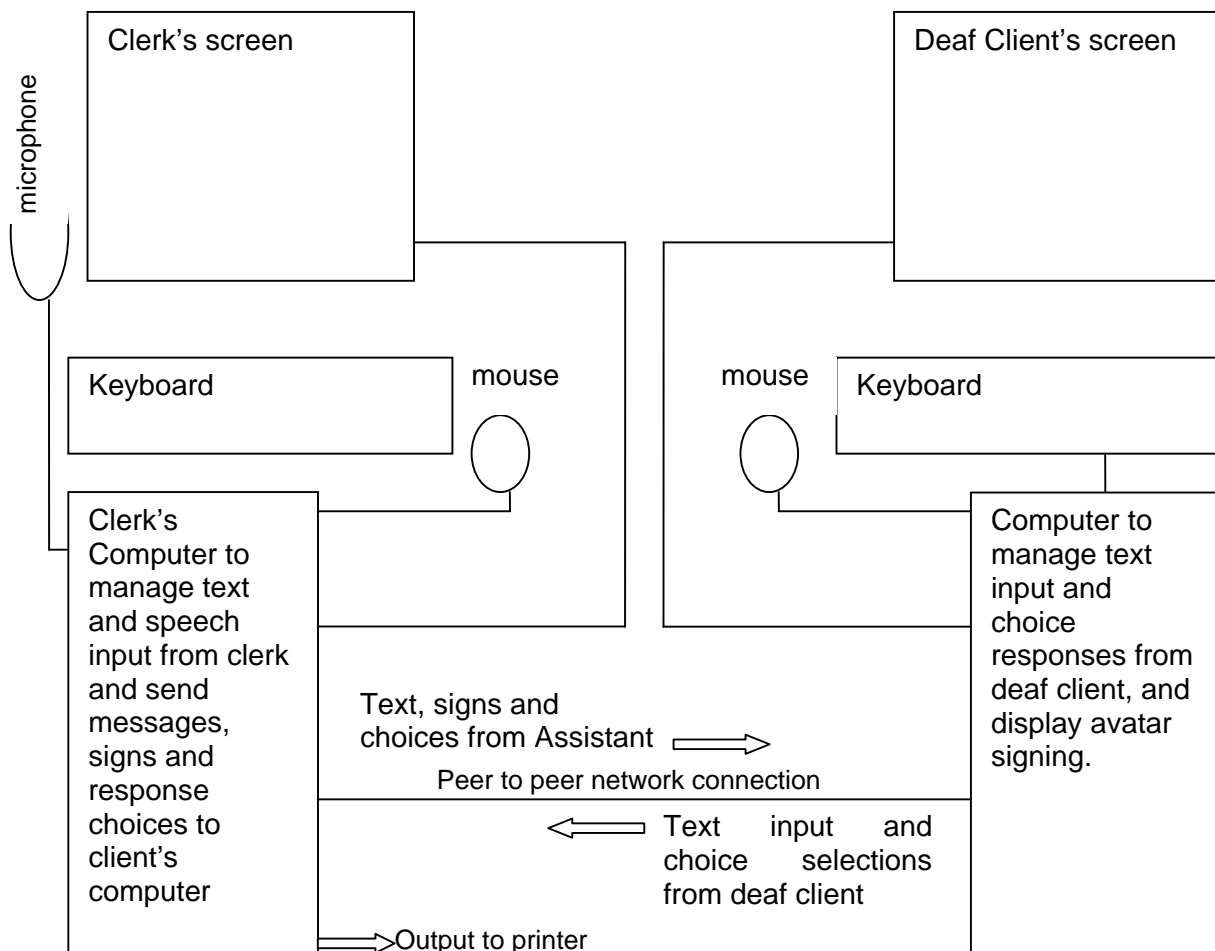The basic hardware arrangement is described in Figure 4.

Figure 4

4.1 *Hardware for the assistant:*

A computer running the assistant software module, together with screen, keyboard, mouse and microphone. It was decided that the microphone should not be a headset, rather it should be next to the assistant's screen on the desk and with an on-off control. Headsets do not encourage use of a spoken system as was found with TESSA.

The assistant's computer is connected via a network connection to the client's computer to display any text dialogue, signing, and reply choices for deaf clients.
It is also connected to a printer, so that a print out of a particular dialogue can be given to a deaf client if required.

4.2 *Hardware for the deaf client:*

A much higher specification computer to allow good quality graphics for the avatar rendering. An NVidia GeForce4 graphics card and 512K RAM were used. This computer is networked to the assistant's computer. It has a keyboard and mouse to allow a deaf client to type in text, or select response choice, and send it to be displayed as part of the dialogue.

Software and Functionality

Software

VANESSA was written in Visual Basic 6, incorporating ViaVoice modules for the speech recognition. The forms and classes maintain a strict modularity, so that the Tool can be adapted easily to a 2-computer system. They are:

ClerkScreen – The form for the main assistant interface and controls. The ViaVoice component and methods are included here.

ClientScreen – The form for the main client interface and controls. The Avatar component and methods are included here.

ClerkPort and *Client Port* – Class modules to deal with transfer of data between Assistant and Client virtual machines. Both use Winsock components. When received, commands are relayed from these modules

Dictionaries – A class module to build look-up tables which can be referenced to match text or speech input to existing phrases for which signs are available.

Recogniser – A class module to match text or speech input to existing phrases for which signs are available

A text file, PhrasesToSigns.txt contains a list of phrases available for use, together with references to SiGML files to enable the avatar to sign them. This is a single phrase sample:

```
!What is your marital status
      Are you married, cohabiting, separated, divorced or single
      I need to know if you're married or not
      Have you got a partner
      I need to know what your marital standing is
      Are you living with someone, married or divorced
      Are you cohabiting or actually married
$married, cohabiting, separated, divorced, single
#<sigml> <signing_ref uri='iTakeMugG' format='SiGML'/> </sigml>
```

The line starting with "!" is the canonical phrase. The other similar phrases are alternatives used to build the language model and thus improve the quality of speech recognition.

The line beginning with "%" indicates that there is a list of response choices which should be displayed on buttons for the client to reply with.

The line beginning with "#" is the SiGML file (or files) which should be signed if the phrase is selected.

An improvement to the system could be to replace this text file with XML. In this way, new tags could be added easily to further enhance VANESSA's use. Information in the application already passes across the network connection in the form of XML, so modification to the system would involve little more than altering the GUI, and adding any additional functionality.

Finally, the SiGML animation files are stored on the Client's machine to drive the avatar as required.

4.3   Output

A log of all events is written to Results.txt, so that use of the system can be monitored. It means the system can be enhanced by noting phrases which are frequently used, but for which no signed version is available. These signs could then be created and added to the system. Other improvements could also be made to the system based on the way in which it is used. This is a short sample of the output:

```
Log of Session
Date: 18/06/2004
19:33:50    Program launched
19:33:50    Session Started
Events:
Log of Session
Date: 18/06/2004
19:34:03    Program launched
19:34:03    Session Started
Events:
19:34:18    Speech Recognition used
19:34:21    Speech recognised
19:34:21    Recognised phrases displayed
19:34:24    Suggested phrase selected    COULD YOU PASS ME YOUR ID
19:34:48    Recognised phrases displayed
19:34:48    Text Recognition used
19:34:50    ListBox choices Displayed    WHICH LOCAL AUTHORITY AREA DO
                                         YOU LIVE IN
19:34:50    Suggested phrase selected    WHICH LOCAL AUTHORITY AREA DO YOU
                                         LIVE IN
19:34:55    Client ListItem selected     South Norfolk
19:35:01    Clear Dialogue
19:35:01    Session Ended

19:35:04    Program shutdown
```

Output can also be made in the form of a printout of the dialogue from the Assistant's *Record of Conversation* window. This could be useful for dates, times, phone numbers etc for the client.

5 Content Creation

5.1 Phrase selection

The first stage of creating a list of phrases to be available in sign language for the Vanessa system was to identify the types of enquiries that are most commonly received at Council Information Centres. This was achieved by interviewing CIC staff, and by the staff completing questionnaires about enquiry types and phrases that they felt were commonly used. In addition, records from enquiry logs were accessed, and these gave additional, objective information about enquiries dealt with over a period of time.

The range of enquiries dealt with at CIC's is very broad. While some are simple, such as requests for forms, others are very complex and can involve the staff member taking a detailed case history, reading paperwork and making phone calls in order to try to resolve complicated issues. Early on in the development of the Vanessa system, it was decided that it was impractical to try to list phrases that could assist with all enquiries. In particular, the needs of the more complicated enquiries are impossible to predict, so the phrases for these cannot be made available.

Three different groups of phrases were selected for inclusion. First, a selection of general phrases, second, phrases to help with filling in simple forms, and third, phrases to support dialogue to book a sign language interpreter. The third group of phrases is especially important for CIC's because of the complexity of many of the enquiries. This will mean that if the assistant or client feels unable to go ahead with the enquiry because of communication difficulties, the Vanessa system will offer them support to set up a meeting in the future with a human aid to communication. The phrases that were selected for use in the system are listed in Appendix C.

5.2 Translation from English text to virtual signing

The accuracy of the translations from English to BSL is key to the success of this type of system. Translations were carried out by a qualified Deaf relay interpreter. Their translations from English to BSL were recorded on video.

Next, the signs needed to make the phrases were notated using HamNoSys, and stored in the BSL lexicon. The editor software was then used to build the signs into phrases and to add in non manual features. All signs and phrases produced were verified by two signers, to ensure their quality.

6 System Installation in Norwich

The Vanessa system was installed at the Forum CIC in Norwich city centre. One of the existing assistant's computer terminals was set up with the assistant's software, and an additional computer was put in place for the Deaf client side.

Council Information Centre staff were given training once the system had been installed. All staff members had previously received deaf awareness training, provided by their employers. As such, a brief deaf awareness 'refresher' session was incorporated into Vanessa training, rather than a full deaf awareness course. Next the staff had to go through the ViaVoice software voice recognition training process. This involved reading out set phrases into the computer microphone, to enable the ViaVoice software to learn the speech style of each individual. This part of the training took around an hour for each person. Finally, the group was trained in how to use the Vanessa system. The functionality was explained, and they each had a chance to run through different types of interactions using the system.

7   The Phrase Maintenance Application

In order that additional signs may be added, a Phrase Maintenance application is provided. This simply updates the phrase list, and requests the names of the SiGML files for the sign language equivalents. Additions can be made in either sign language or French (see VANESSA Language Application below), or both.

The interface first prompts for a new phrase. The application then searches for any similar phrases, to check if VANESSA already has the phrase, or something similar. If the phrase is not already in the system, it can be added, together with the name of the SiGML file containing the signed version.

The GUI is shown below (Figure 5).

Figure 5

The Application is standalone, and can be installed in any chosen directory. However, it does of course require that PhrasesToSigns.txt and PhrasesToFrench.txt are both present in the C:\Program Files\eSign\Vanessa\text directory. For demonstration purposes, if these files are not already present, they will be created.

8 VANESSA Language Application

The VANESSA Language application was written to demonstrate that translation would be possible on the system not only into sign language but into other spoken languages as well. French was selected as the spoken language because it was reasonably well understood by the developers and because it was easy to find a French translator to translate the phrases.

This application requires that a text-to-speech synthesiser is installed. The Euler software was chosen as it is freely available for research purposes. It uses the Mbrola speech engine developed by Thierry Dutoit et al at the Faculté Polytechnique de Mons, together with a French database for the actual phonemes used. Installation instructions for the demonstration Vanessa Language Application, including Mbrola are included here as Appendix D.

On starting the program, a preliminary window is displayed (Figure 6) prompting the user to input the name of the Client computer. As this is a demonstration, the target machines are not known. Furthermore, for trial purposes, it is possible to run the system on a single machine and this can be achieved by typing in the name of the local machine.
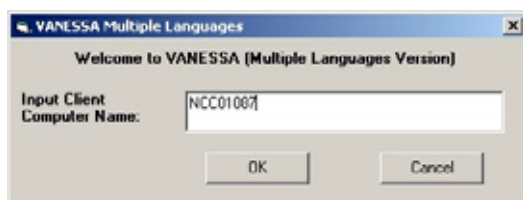

Figure 6

The Vanessa Language interface is not dissimilar to that used for the sign language version. The only difference on the Assistant's screen is the inclusion of a drop-down selection of the language. Hence it is possible to switch back and forth easily between two languages (Figure 7). When French is selected, the instructions on the Client interface also change to French versions.
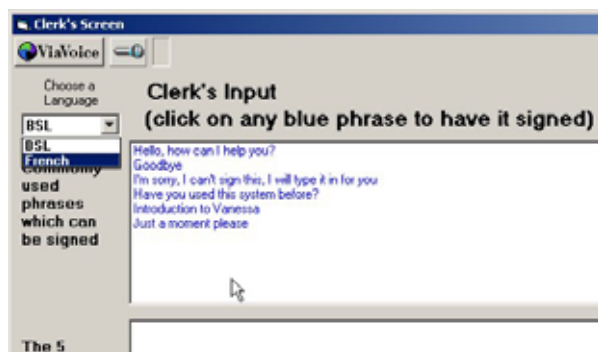

Figure 7

Operation of Language VANESSA is similar to the sign language version, except that translations are spoken in French, rather than signed. If this application were to be further developed, it is envisaged that talking head technology would replace the signing avatar on the screen facing the client.

Updates to the phrases can be made to both French and Sign Language in parallel, using the Phrase Maintenance program. If either French phrase, or sign filename are missing, the application prompts to make sure that both are not required, and then the relevant text file(s) is updated.

Bibliography

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(2003) Kennaway, J. R., *Experience with and requirements for a gesture description language for synthetic animation,* Paper submitted to the Gesture Workshop 2003, 5th International Workshop on Gesture and Sign Language based Human-Computer Interaction.

(2002) Cox, S.J., Lincoln, M., Tryggvason, J., Nakisa, M., Wells, M., Tutt, M., Abbott, S., *TESSA, a system to aid communication with deaf people,* Proceedings of ASSETS 2002, Fifth International ACM SIGCAPH Conference on Assistive Technologies, pp 205-212

VANESSA

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MANUAL

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For help on any issue to do with VANESSA, please call Judy Tryggvason on:

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Contents

Introduction and Overview

VANESSA is a system to enable a Council Information Centre (CIC) Assistant to communicate using sign-language with a deaf or hearing-impaired client. The VANESSA system is shown in overview in Figure 1. The CIC assistant speaks into a microphone or types in text, and his/her speech is automatically recognised and matched with signed phrases the system has. A phrase can then be selected by the assistant and automatically signed by the VANESSA avatar, a virtual human animation.

As yet, the system does not understand any signs made by the client, but clients also have their own interface so that they can type in text or reply to questions asked by the assistant, from a selection of buttons.

The vocabulary that VANESSA uses has been selected with advice from CIC assistants. At present, VANESSA has a vocabulary of 100 different phrases, which can be divided into the following topics:

General and Directions   Form Filling   Interpreter Booking

All the available phrases on the VANESSA system are listed as Appendix A.

Of these, separate phrases allow the inclusion of dates and times.   This allows assistants to insert variable amounts or days. For example, they could say "I have booked an Interpreter for 10am on Friday 21st May".

An assistant is not restricted to speaking the exact words of the phrases listed in Appendix A. Given a particular spoken or typed phrase, the system will suggest the nearest matched phrases it has and from these the assistant can then select the phrase they wish to be signed.

The speech recognition is provided by a state-of-the-art speech recogniser, **ViaVoice**™, made by IBM.   Recognition is effective with a range of microphones, voices and accents, however, for optimal performance, it is essential to train the system for a particular voice.

Specialists from the RNID have created the synthetic sign animation for VANESSA and the RNID have also helped by evaluating the system. The avatar itself was developed by Televirtual (Norwich).
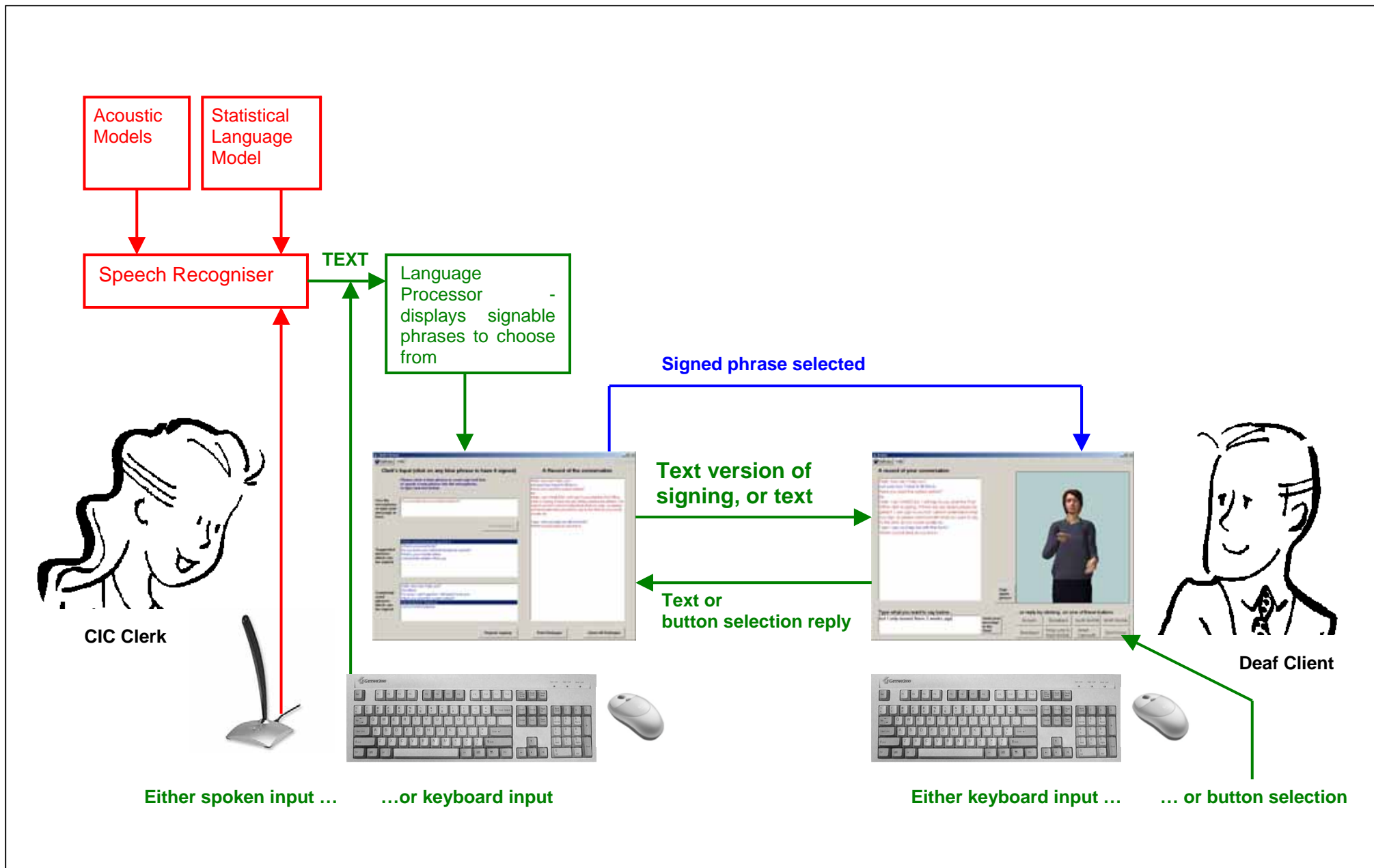
Figure 1: Overview of theVANESSA System

Voice Training

It is important to train the speech recogniser on any microphone/voice combinations that will be used to run the system. Training is best done in the environment in which VANESSA will be used. However, if this environment is too noisy, there may be difficulties. The system is trained by reading four pieces of text, provided by ViaVoice, to the recogniser.   The reader's voice is then analysed. Training should take about an hour. You may use the system without training at all, but the speech recognition accuracy will be significantly reduced. You will need headphones to do the training.

Getting started

To train a new user for the system, follow the instructions through to the end of the Voice Training section. Your system will have all the required elements, although it may not look exactly the same as the pictures here.
Throughout these instructions, 'click' means left-click your mouse button.

Select Start menu with the left mouse button, move the cursor up to Settings and across to Control Panel and click to bring up the Control Panel window.
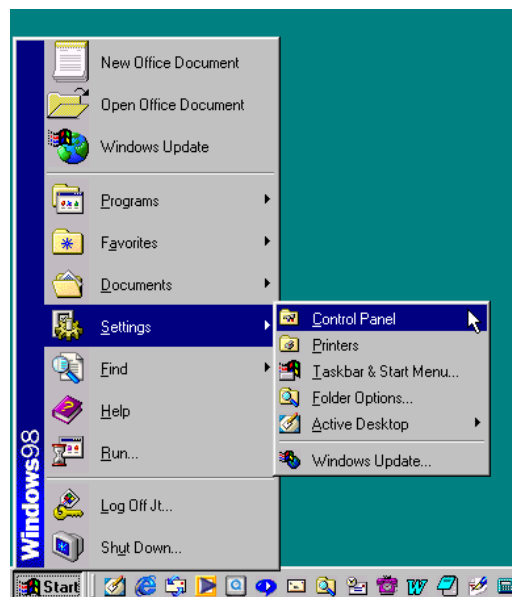
Double click on the IBM Via Voice Options icon:

IBM
ViaVoice
Options
Icon
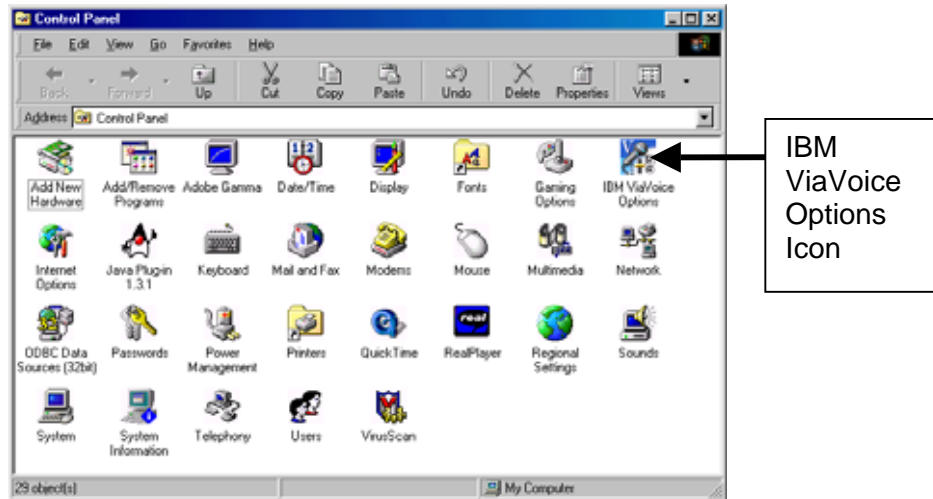
1. This brings up a box titled **IBM ViaVoice Options**.
    Click on the button at the top labelled **Add User,** which starts the User Wizard.
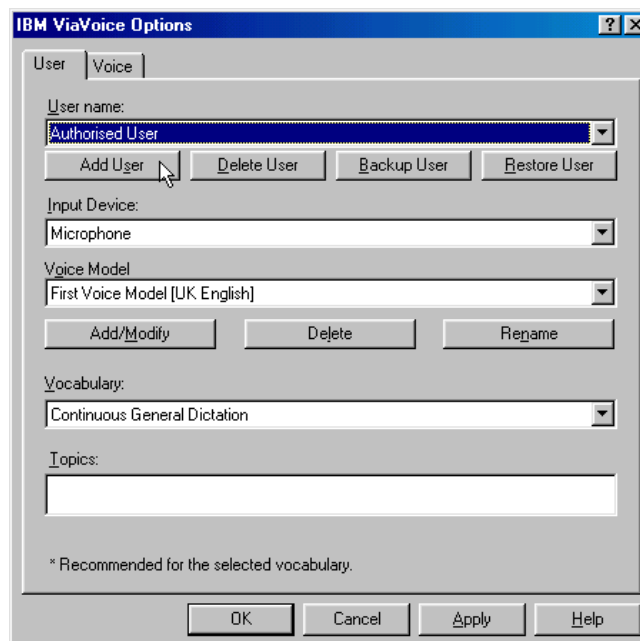
2. It then displays **Welcome to User Wizard** page.
    Fill in the name of the User being trained in the **User name box**. The name should include
    no spaces.
    Make sure the **Device box** is set to Microphone.
    Ignore the other two fields for now.
    Then click **Next**.

Setting up your headset

The User Wizard is a sequence of pages which take you through all the procedures required to perform various user functions. You will need to plug earphones into your computer.

Most of the User Wizard instructions should be clear to follow on screen. You will probably only need to refer to this manual occasionally as you proceed.

The step descriptions here (in bold face) match the titles of the User Wizard pages.

1. **Setting up your Microphone** explains that you must set up your microphone level. before the system can be used. Click **Next**.

2. **Setting up your Audio Components** gives you two choices:
    > to set up for a new microphone
    > adjust the audio levels (for you this means your earphone level).

    If the system has been used before it is not absolutely necessary to set up for a new microphone, but will give a new user the opportunity to learn how near to the microphone they should speak.

    If you are sure you want to skip setting up the microphone:
    > Click in **Adjust the audio levels** so that a black dot indicates it is selected.
    > Click **Next**.
    > Go to instruction number 7 below.

    If you are not sure:
    > Click in **Set up the microphone** so that a black dot indicates it is selected.
    > Select **USB Audio Device** in the Input box
    > Click **Next**.
    > Continue with instruction 3 below.

3. **Gathering information**: select (with black dots):
    > Microphone: **Other**
    > Sound output: **Yes**
    > Click **Next**

4. **Connecting the headset speaker**: Check connections if this hasn't already been done

5. **Connecting the microphone**: Check that the microphone is plugged into a USB port on your computer if this hasn't already been done.
Click **Next**

6. **Adjusting the headset**: As you have a desktop microphone, this is not so important. However, please note that you should speak into the microphone from a distance of between 3 and 4 inches (around 20cm) for the best results.
A microphone which is positioned incorrectly will result in significantly poorer speech recognition performance.
Click **Next**
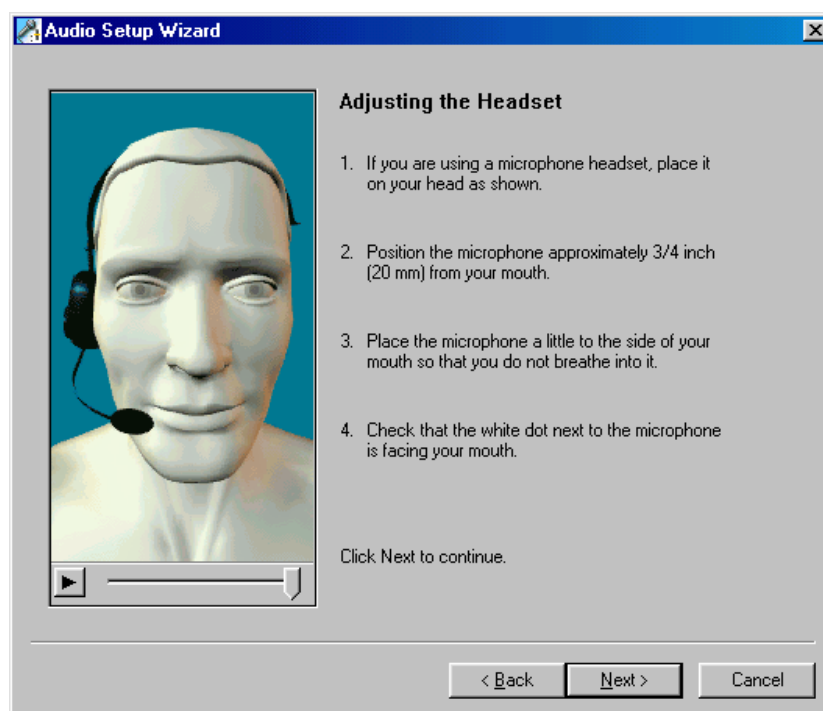
Testing the audio playback: You will only be using this facility to listen for error alerts while you are reading to create your speech file, so it is sufficient that you can hear the music through your headphones. Once you are satisfied click **Next**.

Testing your microphone

1. **Testing the Microphone** allows ViaVoice to assess the level of background noise in the room.
Make sure the green light on the microphone is switched **On**, and then click **Test**, and **keep silent** until the **Continue** button appears

2. Click **Continue** and say (as it says on the screen) "I am testing my microphone setup by reading this sentence"

You should get a message **Microphone test successful**.
If you don't, ViaVoice proceeds with a troubleshooting sequence. Follow that.
If you still can't get **Microphone test successful,** call the helpline number at the front of this Manual.

3. **Signal Adapter?**: select (with black dot) **No**
Click **Next.**

4. **Microphone connection complete**: Click **Next**.

5. **Adjusting the microphone level**: Click **Start** and then read the paragraph displayed until you hear the tone and the paragraph is greyed out. You might have to read the paragraph more than once.
You should get a message **Your audio quality: Excellent**.

If you do not and you get a message like "Your audio quality: fair or poor" then click on **Fixing poor audio quality.** Some of the suggestions for fixing poor audio quality you may be able to fix yourself. Click **OK** when finished. If in doubt, call the helpline number at the front of this Manual.

Creating a personal voice model

This will can take up to an hour (although you can pause the Wizard at any time if you need to), so ensure you have time available. You will need to use the headphones to hear any audio alerts.
You should also ensure that you have a floppy disk so that you can make a safe backup of your voice model at the end.

1. **Creating a personal voice model**.
Read the descriptions why and how you should do this.
Click **Next**

2. **Creating my personal voice model**
   ViaVoice creates your voice model by analysing a series of texts which you read.
   As you read, ViaVoice helps you keep your place by turning the text grey. There is always a little delay before this happens, just keep reading.
   If ViaVoice loses track of where you are reading, you will hear an audio alert. Resume reading at the word which has been highlighted in blue.
   Note it is not *just* the blue word ViaVoice doesn't understand, it needs you to restart reading *all the text* from that point

3. Click **Start** and read the first page of text.
   If you need to stop at any time, click **Pause** and then **Resume** when you want to start again.
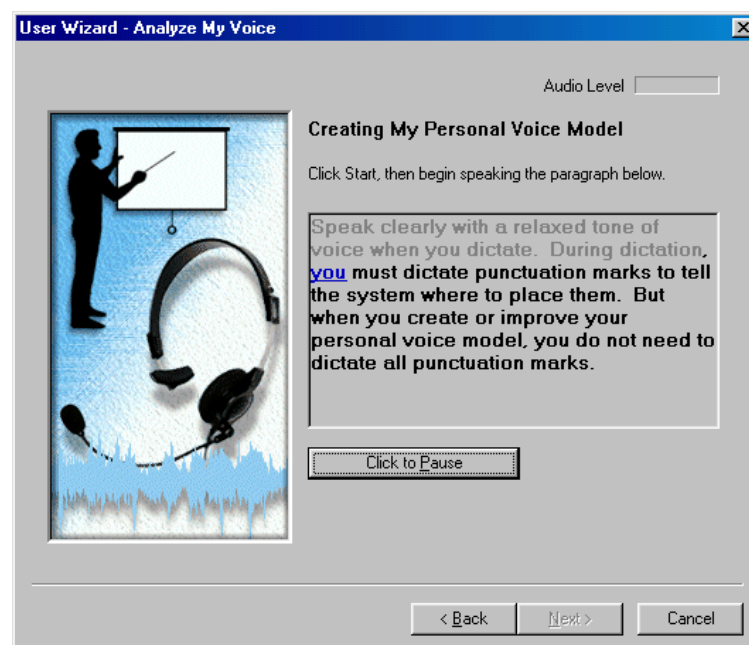
4. When you have finished, ViaVoice processes your speech and tells you when it has finished.
   Click **Next**.

5. **Choosing a Story**
   You can choose whichever of the four texts appeals to you first. Notice that the estimated times they take to read vary. Single-click on any of the titles to display a little bit about the text.
   When you have made your choice, make sure it is highlighted and the click **Next**.

Click **Start** and start reading. Once you have finished a page, the text goes to the next page automatically. Don't worry about making mistakes, ViaVoice is surprisingly tolerant!
If you need to stop at any time, click **Pause** and then **Resume** when you want to start again.
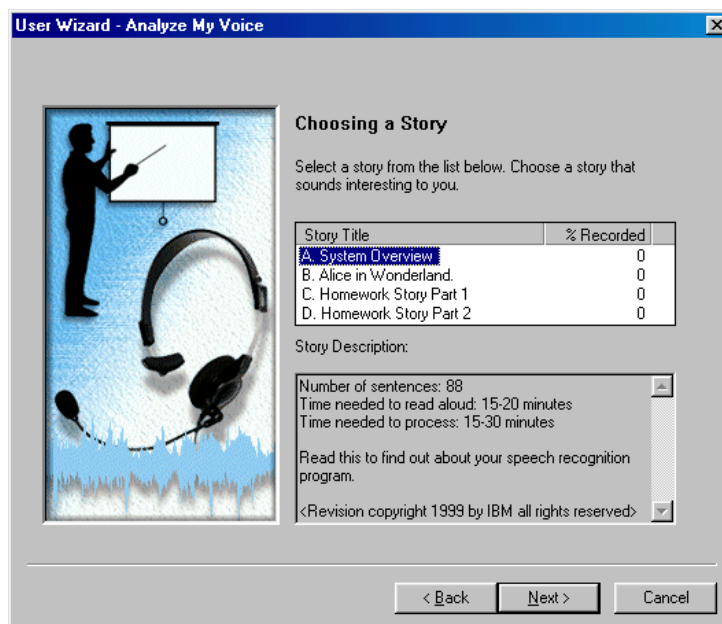
6. **Story finished**: At the end of a story, ViaVoice asks you if you want:
    ViaVoice to analyse what you have read or
    To continue by reading another story.
    Select **Continue Reading** and repeat steps 5 and 6 for the other three stories.

    *(You can analyse at this point, but it will entail saving the results, and then restarting the Wizard later to modify your existing voice model. **Only** select **Analyse** if you want to read the rest of the stories at a later time and you are comfortable using this kind of computer software. See **Changing Users**)*

7. At the end of the fourth story, click **Analyse** at the **Story finished** prompt

8. **Processing my recorded voice** monitors the progress of the processing.
    Although the estimated time for processing is around 15 minutes for each story, for machines of the type you are using, it is much less. **Each story will take around 2 minutes to process**.
    Click **Next** when it has finished.

Analyse my Documents gives you the option to read additional relevant texts.
Select (with a black dot) **No, I don't have any documents to analyse**.
Click **Finish**.

You should now back up your voice model (see next section).

Backing up a personal voice model

1. **IBM ViaVoice Options** box.
    It is advisable to back up your newly created voice model at this stage in case your file becomes corrupted, or you need to use it on another computer.
    You will need one formatted blank floppy disk to do this.
    Click the **Backup User** button

2. **Backup for User ******
    Type in any **Backup description** you want, but the name of the user, and maybe the date, is best. It is OK to use spaces in what you type.
    Click the **Backup** button and wait a few seconds.
    The little animated computer and folder icons are displayed while the disk is being written.
    You may remove the disk when the **IBM ViaVoice Options** box reappears.

3. **Label your disk and set the record-safe slider in the corner to 'open' to prevent the disk being overwritten.**

4. Before you leave the **IBM ViaVoice Options** box, it is advisable to ensure that the name of the person who will next be using VANESSA is in the **User name** box. You can change the name by clicking on the down-arrow at the right hand end of the **User name** box. Then, highlight and click the name you want so that it appears in the User Name box.

5. Once the right name is in the User name box, click **OK** at the bottom.

YOU HAVE NOW FINISHED VOICE TRAINING FOR THIS USER.

Using voice models

There are four possible starting points from which you could want to use a voice model:

- You are a **new user** of VANESSA who wants to train their voice for the system.
  In this case, just follow the instructions in the **Voice Training** section.

- You are an **existing user** of VANESSA who wants to **re-train** the system, perhaps because you are using a different microphone.
  In this case, follow the instructions in the **Voice Training** section as for a new user, but enter a different username (say, fred2) and train as though you were a new user.

  Your previous training files will remain on the system should you wish to use them, but you should make a separate backup disk for the new username.

- You are an **existing user** of VANESSA who wants to **continue training** a voice model after a break.
  In this case follow the **Change Users** procedure, and once the required user is in place, click **Add/Modify**.
  This brings up the same User Wizard described previously in **Voice Training**.

  Type the name of the user in the **Voice Model** box.
  Click **Next**.
  Follow the instructions from the appropriate sections in the **Voice Training** section.
  Select **Adjust audio levels** to avoid going through the entire microphone setup procedure.
  Choose the story(ies) you have not yet read and read it (them).

  Backup your enhanced voice model.

- Your are an **existing user** of VANESSA and you wish to change to your voice model so that you can run the system after someone else has used it.
  In this case follow the **Change Users** instructions.

Change Users

To change users first bring up the **IBM ViaVoice Options** box as described in **Getting Started** section of **Voice Training**.

1. If your user name can be selected from the drop down **User name** list then do so. (Notice that your name may not be immediately visible on the list; you may have to scroll

   the up/down arrows to find it.)
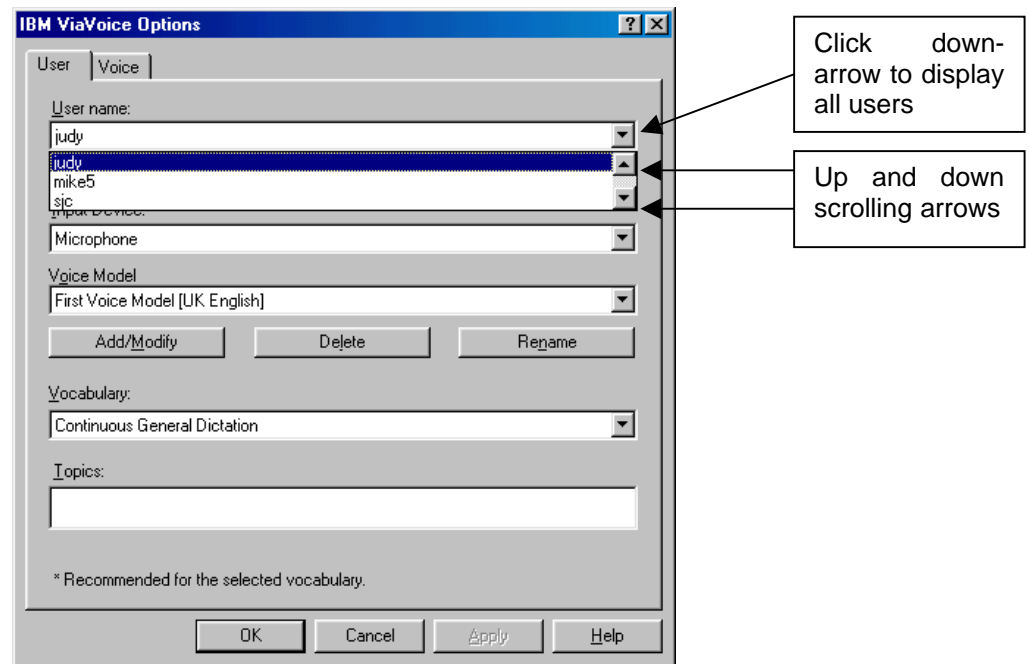
2. Otherwise restore your old files from your floppy disk by putting your disk in the drive and then clicking the **Restore User** button.

3. Make sure the user file is the one you want, then click **Restore.**
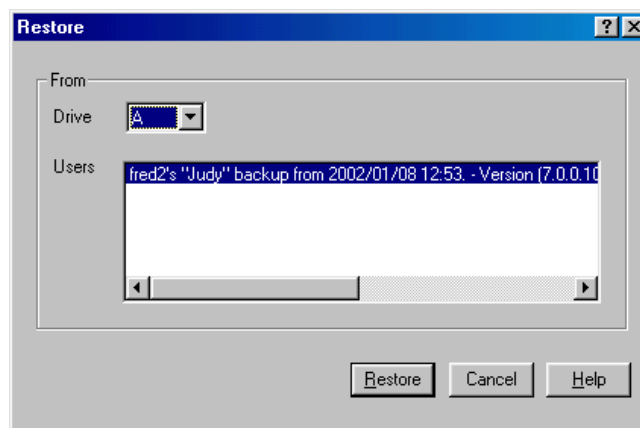
4. Once it is restored, set the **User name** box in the **IBM ViaVoice Options** box to the name of the user you want, using the arrows at the side of the box as described above. Click **OK**. You are now set up to run VANESSA with the changed user voice model.

Starting VANESSA

Once you have installed the system and completed the voice training, you are ready to start using VANESSA.

The system uses two computers with two monitor screens:
1. For the client, to display the signs in sign language using the avatar, together with a text version in the dialogue box, and sometimes some buttons to use to reply.
2. For the assistant, to display the speech that has been recognised, the list of phrases from which the assistant can select one to be signed, and a dialogue box.

You need to check that both screens are running at the correct resolution. For VANESSA this is 1024 x 768. This is usually the default resolution, but to check you need to follow the procedure below for each screen in turn.

Starting up the system

Switch on both computers. Right click anywhere blank on desktop of the Assistant's screen (the plain blue/green screen), to display a small menu.
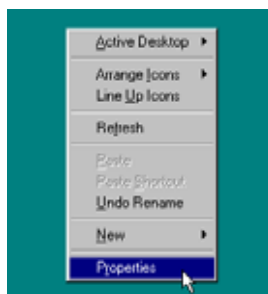
Move the cursor down to Properties and left-click on it to get the **Display Properties** window.
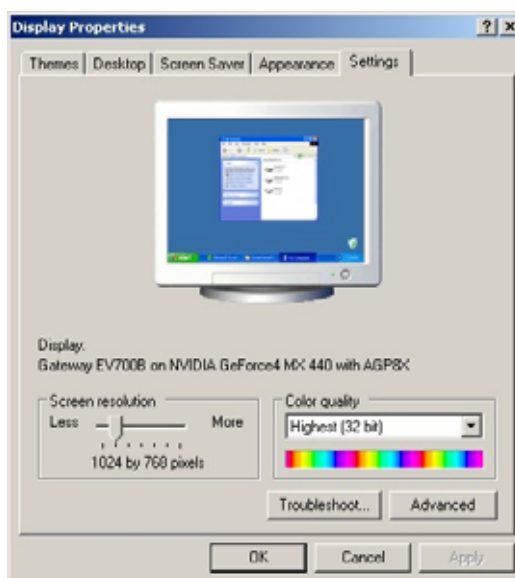
Click on the **Settings** tab at the top. You should see a picture of the screen, a slider bar and some colour quality controls.
Ensure that the resolution for the screen is correct by checking that the **Screen resolution** slider bar is set at **1024 by 768** pixels. If it is not, hold the left mouse button down when the cursor is over the slider bar and drag it to the correct resolution.

Repeat the exercise for the Client's screen.

Start VANESSA by going to the Client's computer and double-clicking the VANESSA icon on the Assistant's computer desktop:

VANESSA

After a brief delay, the VANESSA window with the avatar for the Client will appear.

Go to the Assistant's computer and double click the VANESSA icon on that desktop. Again, after a brief delay, the Assistant's window will appear.

It is not essential to start up the Client VANESSA first, but if you start the Assistant VANESSA first, it may mean you get a reminder on the Assistant's screen telling you that you need to start the Client VANESSA. If you see this, just click OK. The reminder is repeated about every 10 seconds.

If your computer is already switched on, you may leave other programs running while you run VANESSA, although it may be slow to start and to run if your other applications use a lot of your computers resources. Programs like Internet Explorer or Microsoft Word will not usually cause a problem.

Arranging the display

Now you should arrange the two displays, labelled **Clerk's Screen** and **Avatar** (the **Clients' Screen**) on the two monitor screens.

You may move the windows, and maximise or windowise them to suit, but it is recommended that you use most of the screen for your displays.

Stopping and restarting VANESSA

To **exit** the VANESSA system at any time, simply click on the **x**'s in the top right hand corner of **both** screens.

Click both the X's to exit the VANESSA system

To **shut down** the computer and switch it off:

Exit the VANESSA system (see above).

Click **Start**, and then click **Shut Down**… (Windows 2000) or **Switch Off** (Windows XP)

In the **Shut down Windows** box, click a black dot into the **Shut Down/Switch Off** selection

Press **OK**.

To **switch on** your computer, just press the button on the front of the computer and wait. It will take up to a minute to reboot.

When you see the desktop with the **Start** button in the bottom corner, restart VANESSA as described in the **Starting up the system** instructions

If everything goes wrong

Hopefully, VANESSA should never go wrong, but no system is perfect. It is very difficult to anticipate such problems. The suggestions here should cover most circumstances, but if you do find there are problems you cannot solve after trying the appropriate procedures here, or you unsure, call Judy Tryggvason on the numbers at the beginning of the Manual.

1. If: the VANESSA program crashes or
            you can't make the cursor move or
            the program is not behaving correctly and you can't **exit** the VANESSA system as described on the previous page

you can restart the computer.

Press the following keys on the computer keyboard in sequence and keep holding the three of them down together: **Ctrl   Alt   Delete**
When you get a window with 6 button options box, click the **Shut Down…** option.

After a few seconds, this switches the computer off.

Switch your computer on again using the button on the front .
Sometimes as the computer starts it will begin to check your hard disk using a program called **Scandisk**. It will say you can stop this if you want to. It takes a several minutes to check the complete disk. You can press **Escape** or **x** to stop it, although you do risk not repairing damage that may have been caused to your system in the course of the crash.

Wait until the desktop appears with the **Start** button in the corner. This may take up to a minute. Now you can restart VANESSA as described in the Starting up the System instructions.

2. If this is not applicable or will not work (this is the very last resort):
Switch the computer off using the button at the front.
With some computers this is not just a simple click, you have to hold it down for five seconds to make it switch off. A light on or near the switch should tell you when your computer is switched off.
Switch it on again.
Wait until the desktop appears with the Start button in the corner.
Now you can restart VANESSA as described in the **Starting up the system** instructions.

Using VANESSA

The Assistant's Screen

ViaVoice control button. You do not need to use this.

Action/Status. In blue, indicates what clerk should do and when VANESSA is signing. Also indicates when ViaVoice has not understood a phrase

Microphone indicator shows green when the microphone is active

Text recognised by the ViaVoice speech recogniser is displayed here

Type in Text And press return. VANESSA will then suggest phrases like it which can be signed.

Suggested Phrases Lists the VANESSA phrases which are the closest match to speech that has been recognised, or text typed. Click on a phrase to have VANESSA sign it

Activate microphone button. Click with mouse to activate and then talk

Clerk/Client Dialogue Box Displays all dialogue between the Clerk and the Client; Clerk in Red, Client in Blue

Very common phrases The Assistant does not have to say or type these. Just click on them to have VANESSA sign one

The Assistant's screen is divided into a number of separate areas as described above. To use:

EITHER   1. Click on Activate microphone
  2. Say your phrase
  3. Click on your chosen phrase in **Suggested phrases** – and VANESSA signs it

OR   If you can see the phrase you want on the screen, click on it and VANESSA will sign

  it.

OR   Type in (some of) what you want to say, to see if VANESSA has a similar phrase to sign.
  If it does, you can then click on your chosen phrase to have it signed,
  Otherwise click the **Just send text** button to send a text version without signing.

Commonly used phrases which can be signed

Very common phrases like **Thank you** or **Just a moment please**, you don't even have to say or type (although you may). Just click on the chosen phrase displayed in the **Commonly used phrases which can be signed** box and VANESSA will sign it.

You can tell if VANESSA is signing from the **Action/Status area**, where it will say:
VANESSA is signing to the customer. Please wait

Spoken phrases

To make VANESSA 'hear' you, just left-click on the large **Activate microphone** button which activates the microphone for you to speak. Make sure the microphone is switched **on** (green light on the base of the microphone stand)
(*This is useful because it allows you to speak independently to other people in the office etc., and it stops the system from trying to recognise background speech in the information centre at times when you are not speaking to a deaf client.*)

VANESSA knows to stop recognising after you finish speaking a phrase. You will see the **Activate microphone** button become active again when this happens.

Once you have spoken, the speech recogniser works out what it thinks you said, and displays the five closest matching phrases to that, which VANESSA has. These phrases are displayed in the **Suggested phrases which can be signed** box.

Choose the phrase you want from this list by clicking on it, and VANESSA will sign it for the client. You can tell if VANESSA is signing from the **Action/Status area** at the top, where it will say: **VANESSA is signing to the customer. Please wait**

You don't have to say the exact words of a phrase VANESSA has stored in order to get your phrase recognised. VANESSA will suggest up to 5 phrases she has which may suit your needs. Even if you are not sure if she has any phrases to do with, say, directions in the library, just say 'library', and VANESSA will show you the phrases it has.

If you can't see the phrase you want displayed try saying it more clearly, or in a different way. (You'll get to learn what works best for you with practice). You can use the text recognised by ViaVoice at the top of the screen to help you work out what the system is having trouble recognising. Just saying it louder won't necessarily work, it may just distort the microphone input and make things worse.

If you can't get a phrase displayed even after successive tries, you always have the **please bear with me for a moment** and **I'm sorry I cannot sign this I will type it** to click on in the **Commonly used phrases which can be signed** box. These are signed without you having to say anything.

Typed phrases

VANESSA treats phrases which you type in just the same way. It displays up to 5 phrases it has which may suit your needs. Press return to make it start searching for the phrases.

Phrases that use variable quantities

These will be fully implemented soon. In the meantime, if you have a phrase such as "I have booked an Interpreter for 21st May at 3pm", you should select the phrase as "I have booked an Interpreter for" in the usual way and then type in the date and time, and click the **Just send text** button

The Clients' Screen
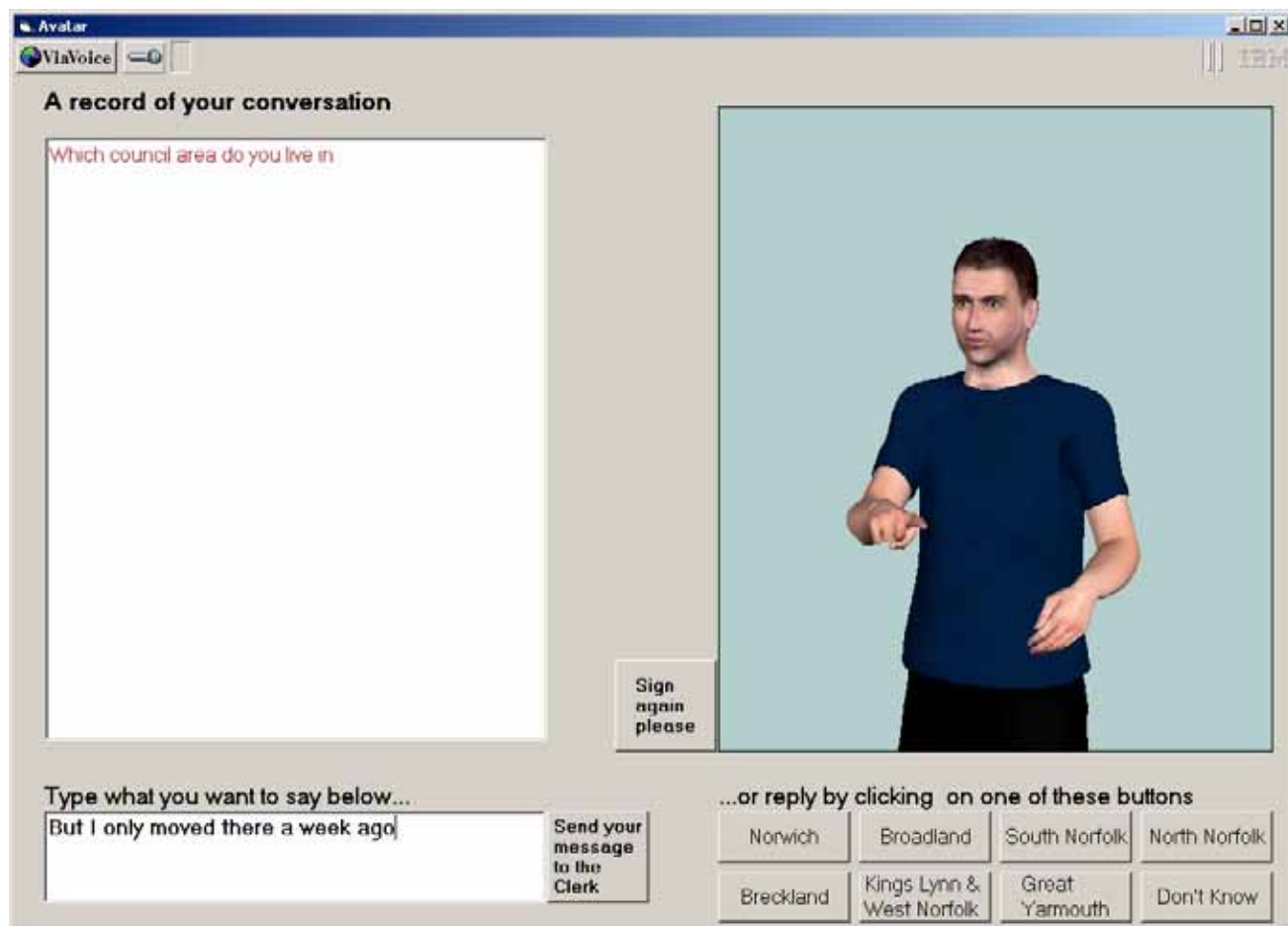
The Clients' Screen consists of six parts:
- the **Signing Avatar**
- a **Record of Conversation Box** to display a written version of the sign, or any text-only communication from the CIC Assistant, and any replies the Client makes
- a **Text Input Box** for the Client and
- a **Send your message to the Clerk Button**.
- a **Sign again please Button** so that the Client can have a sign repeated if they did not understand it the first time.
- a **group of Buttons** displaying a selection of replies on a group of buttons to choose from. When these buttons are not in use, the **…or reply by clicking on one of these buttons** message disappears, together with any writing on the buttons themselves, and the buttons are disabled.

While you are working, you will not be able to see the Clients' Screen because it will be facing away from you. But a message on the Assistant's Screen:
<div align="center">**VANESSA is signing to the customer. Please wait**</div>
 will tell you when the avatar is signing. Buttons on the Assistant's screen are also disabled for the duration of the signing

Appendix 1: Phrase List for VANESSA

Phrases are listed here under the 3 category headings which are used in the VANESSA system:
General phrases
Interpreter booking phrases
Form filling phrases

Currently 31 phrases are planned, and the number of phrases will be increased in due course. A new extended list will be available at that time. Any phrases in red may not be available when the system is first launched, although they will be added shortly. Future developments will allow variable phrases, such as dates and times, to be included in phrases.

REMEMBER: This list is for reference purposes. You do not have to look up a particular phrase here to use VANESSA. If you want to know what phrases are available to do with, for example, Local Councils, just say into the microphone or type "council", and all the available phrases which contain those words will be displayed for you to choose from.

General Phrases

Sorry, that was the wrong sign.
Please bear with me for a moment.
Would you please type the information you want to tell me into the box on your screen?
Thank you.
You're welcome.
Congratulations!
I am sorry to hear that.
I'm sorry you've had to wait.
I'll just go and check for you.
I'll just phone them for you.
I'm waiting in a queue on the phone line.
I've been put through to the wrong department so I'll have to try to phone again.
No one is answering the phone.
I'll try calling a different department.
I'll just look on our computer system and see if the information you want is there.
Just a moment, I'll go and get you the form
Just a moment, I'll get you a leaflet.
Please bear with me while I look that up.
Would you like any help with that?
That's yours.
Keep that in a safe place.
Is there anything else?
This service is free of charge.
Which council area do you live in?
(Possible answers: Don't know, Breckland, North Norfolk, South Norfolk, Great Yarmouth, Norwich, Broadland, Kings Lynn and West Norfolk.)
What is your enquiry about?
How can I help you?
What is your name?
Please type that in the box for me, so that I can see the spelling.
Can I have your full address please?
What is your postcode?
Could you fill this in please?
I will write the details down for you

I will print the details off for you

I'm sorry I can't help you.

We can't do that here I'm afraid.

I will give you the address to go to for that service.

There seems to be a problem with our equipment.

I'm afraid we don't have a copy of that form available to give you at the moment.

I'll get you a form to fill in.

Do you need any help with filling in the form?

For enquiries about adult education you need to go to their counter. It's in this building – go out of the library and turn left.

For enquiries about tourism you need to go to their counter. It's in this building – go out of the library and it's on your right.

For enquiries about the library services you need to go up to the first floor in the library. The desk is straight ahead of you.

For enquiries about internet access you need to go up to the first floor in the library. The enquiry desk is straight ahead of you.

For enquiries relating to Norwich City Council you need to go to their building. Leave the Forum building and turn left. Cross the road, and it's straight ahead of you.

I recommend you go and talk to the Citizen's Advice Bureau at St Vedast House, 5-7 St Vedast Street, Norwich.

You will need to contact the Inland Revenue. Their office is at Nelson House on Prince of Wales Road, Norwich.

You should go and enquire at Norfolk Deaf Connexions.

You can go and ask at the job centre. Go out of the Forum, turn right, and the JC is located on the corner.

The Heritage Library is upstairs on the second floor of the library. You can take the stairs or the lift.

The Second Air Division Memorial Library is on this level, past the childrens library on the right.

The childrens library is on the right, just past the lift.

Interpreter phrases

Would you like me to book an interpreter for you?

I'll phone INTRAN now, and see what availability there is.

When would you like to have the meeting with the interpreter present?

There is no interpreter available for that date/time.

The next available appointment is (date/time).

Would you be able to attend on (date)?

Would you be able to attend at (time)?

The meeting will be held here at the Forum. (other possible locations are the offices of the councils: Breckland, North Norfolk, South Norfolk, Great Yarmouth, Norwich, Broadland, Kings Lynn and West Norfolk)

We will pay for the interpreter – it will not cost you anything.

This booking confirmation letter gives all the details about the appointment you have just made.

Please can you give me your name, address and other contact details?

Please call the number on the booking letter if you need to cancel or change the meeting.

Interpreter bookings are two hours long.

The interpreter's name is (name)

We are booking the interpreter through INTRAN. We have a contract with them to provide interpreting services throughout the county.

Form Filling phrases

For help with filling in your Housing and Council Tax Benefit form, I recommend you go and visit Norfolk Deaf Connexions.
I need to see two forms of identification.
You will need to send the form back yourself.
I can send the form in for you.
Can you sign against the changes please?
You keep that section.
You have to send in that section.
Do you know your National Insurance Number?
Could you pass me the supporting documents?
Please write firmly and clearly in a black or blue pen, in block capitals.
Can you sign it please?
You need to put your address here.
Just write 'not known' in that space.
The address is on the form.
What was your maiden name?
I need to see proof of your identity.
You will need a passport sized photo of yourself to send with the form.
I need to see proof of all capital, savings, investments, bank and building society accounts.
I need to see proof of your childrens' savings.
I need to see statements for at least the last two months.
Your building society book needs to be updated
Please show me your last (2 or 5) payslips.
Are you paid weekly or monthly?
I can give you a form for your employer to fill in, that you then need to bring back to me.
Please show me your accounts for the last financial year.
Please show me your recent payslips for your private pension.
I need to see recent letters about your state pension.
I need to see recent letters about your state benefits and allowances.
Please show me up to date evidence of your rent and tenancy. This might be a rent book, rent receipts, tenancy agreement, or a letter from your landlord.
I will make copies of your documents so we won't need to send the originals.
I need to see the original documents, not photocopies.

Appendix 2: Using VANESSA with Deaf Clients

- Look at the deaf person on first meeting them maintain eye contact and say hello.
  (you might like to learn the sign for good morning/good afternoon yourself, by watching VANESSA).

- Ideally, the first phrase spoken should always be 'Have you used this system before?'
  (This will be one of the phrases in the 'Commonly used phrases which can be signed' section).

- When speaking to the voice recogniser or typing in text, always look at your own screen. Do not look at the deaf person when you are talking or typing – this will confuse them and they will not know whether to look at your face or at the signing screen.

- If the deaf person indicates that they have not used the system before then the introduction to the system should be played (this will be one of the phrases in the 'Commonly used phrases which can be signed section, titled "Introduction to VANESSA").
  If the deaf person indicates they have used the system before then the transaction can continue without playing the introduction.

- Just before you click on a phrase to have VANESSA sign it, indicate to the deaf person that the phrase is about to be signed (i.e., point at the Avatar screen).

- If the deaf person does not understand a signed phrase, they can press their own 'Sign again please' button. If they indicate to you that they don't understand the signing, indicate to the deaf person that the sign is about to be repeated and click the Repeat Signing button.

  You might learn the signs for "don't understand", "repeat" and "again").

- If the voice recogniser does not correctly recognise the phrase you have spoken click the Activate Microphone' button and try again. If the voice recogniser does not recognise the phrase after 3 attempts then you could click on the phrase 'Sorry, this cannot be signed, I will type it in for you' and have VANESSA sign it, before resorting to typing in the text and then clicking the 'Just Send Text' button.

- If you can't find a phrase on the system then you can just send the text, but remember a signed version is greatly preferred by deaf people. So use VANESSA's signing whenever you can. When you send text without signing to the Client's screen, the avatar will sign briefly to indicate that the communication is text only.

- Look at the deaf person and say and sign goodbye (wave of hand should take no learning).