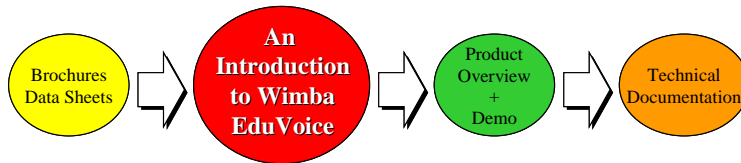


Voice and Online Pedagogy:  
An Introduction to  
**Wimba Voice Tools**

# 1 Document Scope and Audience

Wimba Voice Tools allow students and teachers to learn and teach in the most natural way of all – with voice. Faculty can easily add synchronous and asynchronous vocal collaboration into their course management systems (CMS). All a learner or instructor needs is a computer with a microphone and speakers, and an internet connection.

Horizon Wimba has a wide range of marketing brochures and data sheets which provide a high level overview of the company and its products and services. Horizon Wimba also provides comprehensive low-level technical documentation. This document, along with associated demonstration capabilities, is positioned to fit between the two extremes and provide more technical detail to the non-technical faculty audience who wish to understand the product, operation and benefits, in more detail.



# 2 Voice, Communication, and the Internet

“The web will change everything”; this was the cry of a thousand internet start-ups in the 1990s, and indeed they have been proved largely correct. It is changing the way we work and play. It is changing the way we file our tax returns and pay our bills. It should come as no surprise therefore, that it is also changing the way we teach and expect to be taught.

The “online revolution” has affected the manner, but not necessarily the need, to communicate. Today, many people are as likely to browse and purchase items over the internet as they are to visit the showroom. If they have an inquiry, they may send an email, but if there is a major problem or conflict, most will still pick up the phone and talk! The need in the last example, it could be reasonably concluded, is to be confident that the intended message has been correctly received by the intended audience, something not easily achieved over the internet!

The problem here is that the words alone, so quickly and efficiently carried as text over the internet, rarely convey the whole story - in either direction! Research has proven that the actual words we use make up only a small percentage of conveyed meaning, accounting for less than 10% of the total impact on the listener [source: Albert Mehrabien 1969]. Non-verbal aspects of speech, such as tone, intonation, pace, timing, and periods of silence, all have a significant impact on the transfer of meaning. Tone alone can account for as much as 40% of the total impact on the listener!

# 3 The Promise of Online Pedagogy

The internet today supports very sophisticated multimedia capabilities, voice being just one of them. In fact, many would argue that this is one of the key factors contributing to its astonishing rise and success. The vocal component of multimedia, however, is typically uni-directional and not at all interactive, unless complex and expensive telephony solutions are overlaid. To truly fulfill its role as the communication medium of choice, the internet, or at least the technologies that exploit the internet, need to evolve and fully embrace the concept of dialogue. This is especially true for education, where not only the quality of the information transferred, but also the instructor/learner relation fostered through dialogue is so important.

The pedagogical proposition presented by Wimba is that it greatly enhances the virtual classroom through the addition of dialogue; Wimba provides the fundamental ability to access and share information vocally, to create the true and meaningful dialogue that is at the very heart of any learning environment. Through the support of dialogue within the context of the virtual classroom, Wimba offers a unique and powerful combination of pedagogical benefits;

<b>Improved Standard of Education</b>	Wimba Voice Tools increase access to and utilization of key resources as learners are no longer constrained by the physical availability of educational facilities, language laboratories, teaching or faculty staff.
<b>Incremental Capacity</b>	Learner numbers can easily and rapidly be adjusted as needed as there is no longer the constraint of physical capacity and operating hours.
<b>Broadened Learner Demographics</b>	Wimba Voice Tools connect to a greater demographic base of learners as there is no longer the constraint of location and operating hours; learners are free to study as and when they are available.
<b>Enhanced Learning Experience</b>	Wimba Voice Tools make possible the essential one-on-one dialogue between learners and key instructing staff, enhancing the educational experience for the learner, and the job satisfaction for the teaching staff.

## 4 Wimba Voice Tools - Product Overview

If you could simply, reliably, and affordably add a vocal dimension to your online classes, you could enable;

- **Lecturers** to lead interactive voice discussions and conferences in a live (synchronous) or prerecorded (asynchronous) environment.
- **Language instructors** to teach pronunciation, rhythm, stress and emphasis, recording listening exercises and coaching each individual learner as needed.
- **Business management and law professors** to annotate complex case histories and post discussion questions vocally.
- **Math instructors** to write out problems, narrate the solutions and answer learner questions vocally.
- **Learners** to organize self-study groups, and continue debating key aspects of the course outside the physical, or virtual, classroom

This list is endless, and in reality the list is just an extension of what you would normally expect to see in a traditionally taught environment except that all the exchanges take place online, anytime, from anywhere, with all the benefits and opportunities that the internet offers. These are exactly the activities that Wimba facilitates.

### 4.1 *Speaking and Listening*

Most written and pictorial education content can be found online in one form or another, and replacing it with a vocal format has little if any value; but most could be enhanced with voice. Just as in the traditional classroom the instructor would talk “around” the subject or text, online content can benefit from the additional layers or perspectives added by the experienced instructor, and the not so experienced learner.

#### 4.1.1 **Vocal Annotation**

**Pedagogical Objective:** To enable instructors and learners to complement written and pictorial content with spoken notes, comments, and observations.

**Pedagogical Tool:** Voice Authoring

At the heart of Wimba Voice Tools is the basic ability to record, store, publish and playback audio content. Voice Authoring consists of two “tools”, an audio recorder and audio player, which can be embedded into any web-based content. The learner simply clicks the play button to listen to the vocal annotation. Alternatively, the player can be configured to play automatically, useful for welcome messages or to give instructions for a particular assignment or assessment activity.

There are numerous obvious examples of where this could aid learning: annotating a complex mathematical formula in conjunction with the course text, providing an alternative or counter view on a particular theory or interpretation etc. For language learning too, there is an obvious requirement to support the spoken word, both as a means of learning and as a practical and fundamental language skill.

$$a_n(x) \frac{d^n y}{dx^n} + a_{n-1}(x) \frac{d^{n-1} y}{dx^{n-1}} + \dots + a_1(x) \frac{dy}{dx} + a_0(x)y = f(x),$$

The transition of all aspects of education to an online environment should also make education more accessible, for example, affording those with physical disabilities the opportunity to study from the convenience and safety of their own home. But the same physical disabilities that hinder actual attendance at an educational institution may also present significant challenges for use of Information and Communication Technologies, particularly the PC with its inherent reliance on reading from the screen and typing on a keyboard. Wimba Voice Tools offer the opportunity for a more voice-centric ICT solution for education, which could significantly improve accessibility in many circumstances.

## 4.2 Structured Discussion and Dialogue

Facilitating and encouraging discussion and dialogue among instructors, learners, and faculty staff, is considered both a key motivational factor for learning and a measure of its success. Wimba provides two tools specifically designed to encourage and support discussion and dialogue. Although both tools can be strictly administered and controlled by the instructor, the tools fulfill two subtly different pedagogical requirements; the first a very precise, structured, centrally managed facility, and the second a more free flowing communication “exchange”.

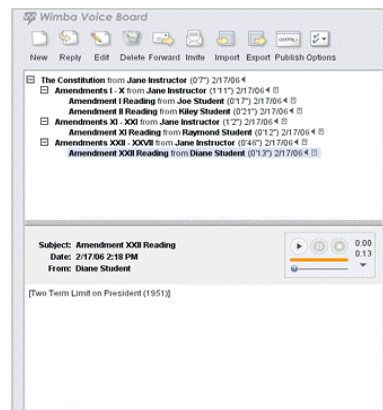
### 4.2.1 Structured Discussion

**Pedagogical Objective:** To facilitate structured, assessable, and repeatable dialogue between instructor and learner, under the guidance and control of the instructor as required.

**Pedagogical Tool:** Voice Boards

Wimba facilitates structured, assessable, and repeatable dialogue through the use of Voice Boards, threaded oral message boards in which users click on titles to hear messages and speak into a microphone to post responses. Instructors can post questions and audio exercises for learners to listen and reply to, and then evaluate responses and coach learners on a one-to-one basis as required. Similarly, Voice Boards can be utilised for instructor led general discussion forums, learner led self-help groups, faculty notice boards, technical support lines, etc. Voice Boards can be considered the oral equivalent of the classic text based bulletin board, only with Wimba we are talking about a true “chat” room!

The operation of a Voice Board is completely transparent to the user; it appears as just another resource within an LMS or standard web page. Instructors can post content to a Voice Board relating to a specific course or subject matter within a course. Threads are maintained according to subject, and filters can be applied to restrict the view available to individual or defined groups of learners (e.g., an instructor may want all learners in a group to view an aural exercise, but may not want individual learners listening to each others responses). Voice Board discussions can be archived for both manageability and future reference.



Voice Boards are a simple and effective way to build discussion forums and foster debate among instructors and learners, amongst learners, and within the faculty. They offer both the convenience of one-to-many communication (e.g. posting an exercise once for all learners to complete), historic context, and relational and educational benefits of one-to-one communications vocally, (e.g. learners raising specific problems and the instructor providing individual feedback/tuition); and without restrictions to the time or place of interaction.

## 4.2.2 Structured Dialogue

**Pedagogical Objective:** To facilitate simple, rapid, and free flowing Oral communication between learners and instructors, across the disparate IT/client systems typical of distance learning environments.

**Pedagogical Tool:** Voice Email

Whether used for pedagogical, administrative, or general communication purposes, the ability to simply and quickly exchange information with learners and faculty staff is an essential day-to-day activity. Email has become the defacto on-line communication format for such exchanges, but as a fundamentally text based media it has only limited pedagogical value. Now of course, if it was voice based....

EduVoice incorporates a Voice Email application, enabling the sender to distribute audio emails to one or more recipients in a similar manner to text based emails, just using voice! Recipients can easily respond with their own voice e-mail messages. The address fields within the Voice Email can be hidden or locked, enforcing response rules or restricting circulation as necessary. Again, the operation of Voice Email is completely transparent to the user; it works in conjunction with the institution's existing mail services and appears as just another resource within the LMS or web page. Users can include text, links and attachments, but have the added benefit of communicating vocally. Unlike email, however, this additional content is not "attached" to the email itself, which may limit attachment size and create unnecessary network "load". All vocal content is stored on a central server, where it can be properly managed, backed up, and accessed anytime, from anywhere, by any user with the appropriate "rights".



## 4.3 Real-time Communication

Sometimes you just need to speak to people in a "live" environment. This can either take the form of a group event, for example an instructor addressing a whole class, or peer-to-peer communication such as tutoring or responding to individual questions or issues. It is the free flowing exchange of ideas and opinions that has value, and to achieve this the dialogue needs to be synchronized such that each comment or proposition solicits an immediate and spontaneous response.

Asynchronous, or non real-time tools such as Voice Authoring, Voice Boards, or Voice Email are not appropriate for such exchanges as the vocal content is recorded, stored, and retrieved at some non-determined point in the future by the listener. Wimba Voice Tools include a simple to use yet extremely powerful synchronous (real-time) conferencing and messaging tool to manage these requirements.

### 4.3.1 "Live" Debate

**Pedagogical Objective:** To facilitate real-time group and peer-to-peer audio conferences to support lectures, discussion forums, and virtual "office hours"

**Pedagogical Tool:** Voice Direct

Wimba facilitates real-time "synchronous" dialogue through Voice Direct conferences. The conference works in half-duplex mode, which means that one person can speak at any given time and all the others listen. This greatly simplifies the end user audio processing and networking requirements for audio conferencing. All audio is distributed or "streamed" via the Horizon Wimba Server, which again greatly simplifies the audio and networking requirements, but also allows for centralized archiving and retrieval.

Participants request the microphone to speak, and then release it again to allow the next person to talk. The microphone can either be under the control of a chairperson, who will give the microphone to a particular user and has the authority to take it back, or the microphone can be automatically passed in the order

requested. The latter allows for a more informal, free flowing dialogue, more suited to an open debate or discussion. The former allows for a more structured meeting such as a lecture or presentation, where the communication process is centered around a specific individual or needs to be more controlled.

In parallel to the vocal communication, Voice Direct supports a text based “Instant Messaging” capability, which allows any participant to type questions, comments, or prompts to the group at any time, regardless of who holds the microphone. Unlike most simple messaging systems, however, these texts can also be archived along with the audio content.

Voice Direct sessions can be archived, either for future reference or as the basis for other online vocal content. Archiving can be turned on and off during the conference at any time, so if a particular conference introduces some new or interesting debate, archiving can be immediately turned on to capture the discussion in audio and text.

Archived content is stored in a chronologically threaded list and displayed within a standard Voice Board. Archived content is replayed by simply clicking on the relevant session, and because it is managed as a Voice Board, items can be easily exported or forwarded to other vocal systems. So for example, if during an online debate someone raised a question or introduced an issue that could not be dealt with properly at the time, the instructor could review the discussion later and forward that particular part of the session, along with any text messaging that occurred, via Voice Email to group as a topic for further debate at the next meeting.

## 5 Further information

Readers are encouraged to try Wimba Voice Tools and experience for themselves the capabilities of the product and the possibilities they present to the education community. Our website (<http://www.horizonwimba.com/>) hosts a range of technical documentation and demonstration facilities that enable anyone with an internet connection and a web browser to utilize the full range of Wimba tools. It also links to partners’ websites, where you can try Horizon Wimba’s solutions integrated with 3<sup>rd</sup> party applications, such as WebCT, Blackboard, Moodle and others.

If you would like further information or wish to comment on the pedagogical issues discussed in this document, or the technology that makes them possible, please contact your local representative on the numbers printed below.