

The Book is Talking to You – Using An Audio Version of the Course Textbooks to Support Learning

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ABSTRACT

The Open University of Israel's major study method is self-study using printed course-books. In order to address students' diverse learning needs, an audio format of a few course-books was also provided. A digital questionnaire was distributed to assess students' satisfaction, trace their studying performance and document the learning process. Having the course materials on a portable player meets students' needs to be efficient learners. Students with learning disabilities prefer to have the material in multiple forms. Audio-books may also facilitate the learning of students whose second language is Hebrew and of auditory learners who prefer verbal to written information modes.

INTRODUCTION

The Open University of Israel (OUI) is a distance learning institution, to which over 40,000 students are now enrolled. The OUI is opened to all those who wish to study. Enrolment does not require matriculation or any other certificate from another educational institution. Students can determine their own rate of progress and the OUI does not compel them to complete a uniform and prescribed program of study during a certain academic year. The OUI learning method and its policy provide conditions that meet the constraints of individuals who work, raise a family, manage a household or serve in the military. The open admission policy aims to open the world of higher education to all, irrespective of age, sex, place of residence or occupation, in order to enable every individual to realize his or her academic ability and work for academic achievements. Because of this policy, there is a significant diversity of age, experience, cultural background and socioeconomic status within the OUI's students' population, as well as a range of academic ability across students. The OUI invests great efforts to bridge the initial gaps and help the students to cope with its high academic demands.

As a distance education institution, the OUI's major method is self-study from printed materials. In most of the OUI courses, books comprise the core of the teaching and learning materials, and learning is

mainly text-centered rather than face-to-face. The new learning technologies the OUI have adopted, support the distance learning and address students' learning needs. The technologies enable extending the boundaries of the traditional teaching and learning methods, and are used for enhancing flexibility and diversity of teaching and learning modes. The OUI's Learning materials are mostly "one-made-for-all" and don't fit the students' diverse nature and needs. Like other higher education institutions [1], in recent years the OUI has also placed significant emphasis on issues relating to flexible delivery in the teaching methodologies, responding to an increasing awareness of pedagogical perspectives and the growth and diversification of the student population.

Efficient learners

Most of OUI students are juggling their studies with jobs and family commitments and are forced to manage their time effectively. As lack of time is one of the characteristics of the distance education students, they are particularly concerned with their efficiency of learning [2]. Most of the students consider the time they spend in a certain learning activity according to its cost and benefit [3]. Therefore students like the convenience of being able to listen to the learning materials when and where they choose, and often while they are engaged in other tasks [4]. The advantage of learning through audio-books, like this of using podcasting for learning – which is now becoming widespread in many universities – is the ease of subscription and the ease of use across multiple environments – over computer speakers, over a car stereo, and over headphones—all while the listener is walking, exercising, driving, travelling, or otherwise moving about [5].

Audio-books are fast becoming popular with today's busy lifestyle and there are a lot of free and paid audio books on the net, which can be easily ripped to mp3 for use on the audio player. Kate Anderson related to the m-learning project and said: "The concept of learning in a fixed place is being challenged by these new technologies. Although books and printed communication will still be fundamental to learning, to reach certain people—particularly the young who

have been put off by traditional education—we need to devise ways of reaching them using modes of communication that are familiar and fun. The m-Learning projects demonstrate how speedily the technology and content is moving to enable this to become the normal way of learning for many young people" [6].

Students with learning disabilities

For students with learning disabilities (LD), especially for those with reading difficulties, reading might be slow and not fluent, and processing printed information might be difficult. The learning time of distance students with LD is usually greater, they have more difficulty understanding the material and many of them need intensive support. Therefore coping with the large amount of textual material, included in a distance learning course, is a difficult and complicated task for these students. On the other hand, the advantage for LD students of learning from distance is the flexibility to learn at home, at their own pace, without being restricted to a rigid timetable as in face-to-face lectures.

Over the last several years speech synthesizer which can read texts aloud was developed. The software speaks the text to the user through a loudspeaker or earphones and simultaneously displays the printed page on the computer monitor providing a synchronized auditory and visual presentation of the text. It has been shown that the software helps students with attention disorders to attend better to their reading, to reduce their distractibility, to read with less stress and fatigue. It helped them to read faster and longer periods of time, thereby completing the reading assignments in less time [7]. It has been also shown that using reading software enhances the reading rate of adults with dyslexia, and enables them to cope with reading tasks [8].

Providing materials in a recorded audio format is a popular method in Libraries for the Blind making information accessible to persons who are blind or visually impaired. Recently many individuals with learning disabilities having difficulties in reading and processing printed information have also use audio format materials provided them by these libraries.

Based on this evidence we assume that book's audio format – alone or together with the printed book – can help LD students to overcome their difficulties. Easy access to audio books may lead to better performance not only among students with disabilities, but among those who "just need some extra help" in learning academic contents.

L2 students

For many of the OUI student Hebrew is their second language. Among them are students from the Arabic sector in Israel (which consists of 20% of the Israeli population) and new comers to Israel, mainly from the former Soviet Union and Ethiopia. We assume that audio-books can also accommodate these learners.

The process of reading and comprehending in one's native language is very complex, due to the myriad of factors that interact with each other. This process is much more complex in a second or foreign language. In facilitating L2 reading comprehension, presenting information in multiple presentation modes: visual form, auditory form, textual form or in combination of these presentation modes, plays an important role in text comprehension. A spoken text – an auditory form of presenting information – is perceived by the learner through a different perceptual channel than a written text. Studies have shown that collaborative effects of processing of verbal and visual information can enhance learning [9].

Learning styles

Students are different in their learning styles. A learning style is basically the preference or predisposition of an individual to perceive and process in a particular way, or combination of ways. Learning styles can be analyzed and understood in various ways. One of them takes into consideration individual preferences for absorbing and retaining material in an auditory, visual, or tactile manner [10]. When information technology is used thoughtfully in combination with instructional methods – keeping in mind differences in learning styles – technology can become a valuable tool in individualizing instruction for various learning styles [11].

The distance education traditional learning materials are uniformly presented with much less opportunity than in the classroom to optimize them to individual needs. Learning through written books is not the appropriate learning mode for auditory learners, who prefer verbal to written information. Technology can be used to present information in multiple formats– video clips, animation, graphics, audio files – to make instruction appropriate for independent or other learners who rely on visual and on auditory cues in learning [12]. Therefore we have reasons to assume that adding an audio version to the visual one can maximize the learning potential of each student.

METHODOLOGY

Digital audio books for six Social Science introductory courses have been prepared. To each audio book a detailed index has been added, according to the structure of the printed book, allowing the student to listen in a linear mode or navigate to sections within the audio-book. The audio-books are digitized to MP3 and WMA format and are available in the course website to allow the course students to download the files to MP3 players, or listen to them using streaming audio from their PC. The source of the books' audio version was the Library for the Blind, which had recorded, in an analog format, many of the OUI course-books for the sake of blind students and those with learning disabilities.

At the end of the 2006 spring semester, a digital questionnaire was distributed to the students via e-mail as well as via the course web-site to assess satisfactory, trace studying performance and document the learning process. Students' answers were anonymous, but the system provided the LD students answers separately, which enabled us to trace their performance. The system can also provide us with LD student diagnosis, showing his/her sort of learning difficulties, and we used it to find out to which difficulties the audio-books can help.

RESULTS

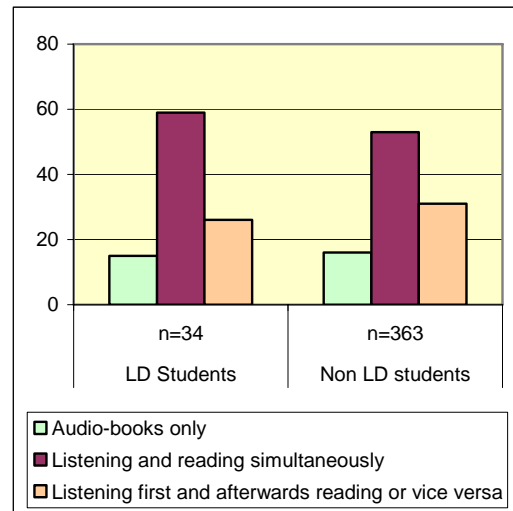
Way of using the audio-book for learning

Students were asked how they used the audio-books for learning. According to chart 1 almost all of the students (85%) use the audio-book (AB) in addition to the printed-book – simultaneously or one after the other.

The evidence that 59% of the students with learning disability (LD students) and 53% of the students without learning disability (non LD students) learned by listening and reading simultaneously (chart 1), indicates that using the audio channel together with the visual one helps the students in their learning. Therefore, learning by listening to audio-books doesn't seem to replace learning by reading, but rather extend and complement it. We assume that among the non LD students who used the two channels simultaneously there are students who have some difficulties in learning by the OUI's distance learning method.

Chart 1

Ways of using the AB for learning (%)



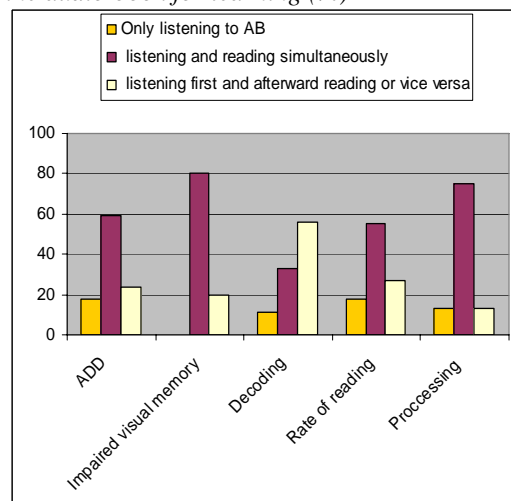
31% of the Non LD regular students and 26% of the LD students listened first and read afterward, or vice versa, showing that they used the AB to go over the learning material as a preliminary reading or for reviewing. From the survey's answers we learn that they used it for saving time, while driving, cooking and so on. Almost all of the students who used the AB noted that the flexibility of learning at the time and place convenient to them is the main advantage of the audio-books.

The third group is that of the students who used only the ABs, which consists of 15-16% of the students. We assume that among the non LD students of this group are the auditory learners who prefer learning by listening to reading.

Chart 2 shows the ways LD students with different difficulties used the audio-book for learning.

Chart 2

The ways LD students with different difficulties used the audio-book for learning (%)



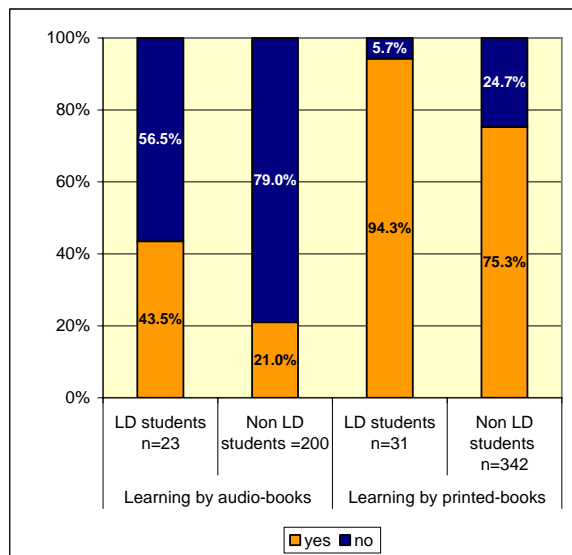
Most LD students preferred learning using the two modes together. The majority of those with decoding problems used it one after the other and not together. The group which used only the audio-books consists of students with attention disorders as well as student with all kinds of readings difficulties. Those with impaired visual memory didn't use it at all.

The learning techniques

We asked the students in what way the learning technique using audio-books and printed-books is different. Chart 3 shows that most of the LD students (94.3%) are used to marking important sentences and adding their remarks and summaries to the text while learning the printed course-book, but when they learn by AB only 43.5% used this learning technique. Among the regular students, 75.3% usually mark the text and add summaries and remarks, but in learning by AB only 21% used it. Students noted that in learning by AB they don't need to process the text because the AB helps them to absorb the material and remember it.

Chart 3

Marking texts and adding remarks during learning by reading and by listening, according to the answerer status (%)



Comparison between learning by audio-books and by printed-books

We asked the students to choose their preferred method for a few components needed for learning. The results presented in chart 4 help us to figure out if learning by listening contributes to students with the comprehension of the study material.

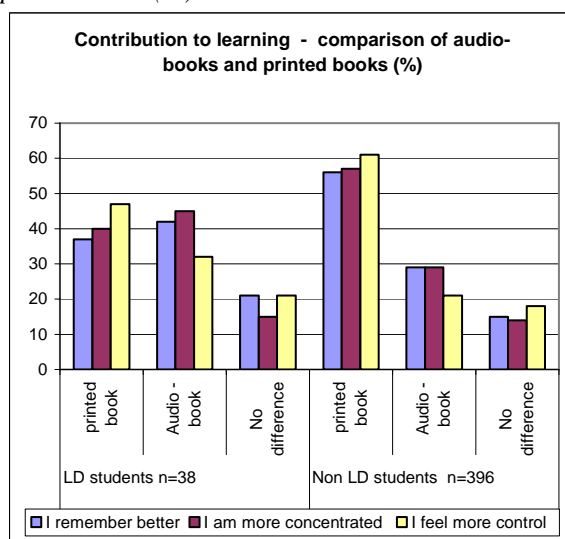
The majority of the non LD students (55-60%) feel that in comparison to audio-books, learning by printed books is better for their absorption, control and remembering of the learning material, and they concentrate better while learning. About 22-28% of them prefer learning by audio-books and the others don't feel any difference in their ability to learn using the two methods.

Among student with learning disabilities the preference of audio-books is clearer (chart 4). About 42-45% of them claimed that they are better absorb, remember and concentrate better while learning by audio-books, quite similar to the rate of students who prefer printed-books. But the students answers indicate that they feel more in control using the printed-books (47% compared with 32%).

However, most of the students in the two groups enjoyed using the audio-books more then the printed books (60%).

Chart 4

Contribution to learning - comparison of ABs and printed books (%)



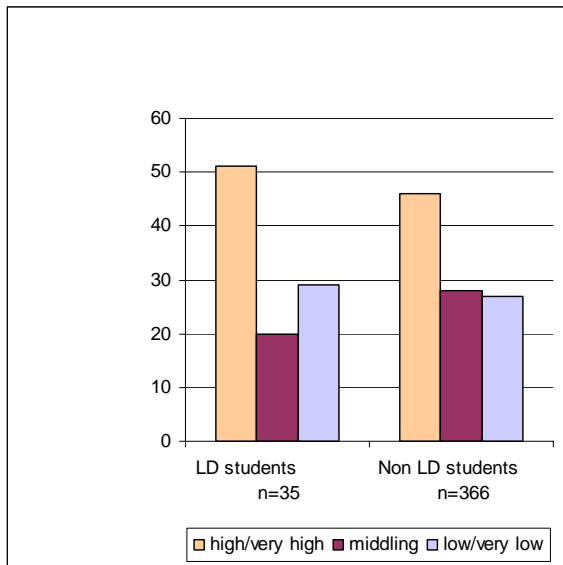
As learning by printed books is the OUI's main method, it has to take into account the students for whom learning by audio-books is more effective. We have to mention that these students have experienced learning by audio-books for the first time and the learning skills needed for learning through listening are different from those needed for learning through reading.

The contribution of the Abs for learning

51% of the LD students and 46% of the non LD students perceive the audio-books as a learning method which highly or very highly contributes to their comprehension (chart 5).

Chart 5

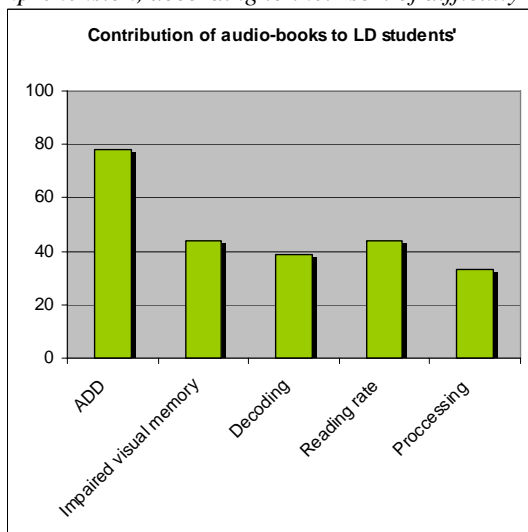
The contribution of learning by listening to the comprehension of LD and of non LD students (%)



We tried to figure out what difficulties the audio-books can help the LD students with. Chart 6 shows the contribution of audio-books to LD students' comprehension according to the sort of difficulty. We chose those students who claimed that the audio-books contribution rate is high/very high. The results indicate that Attention Deficit Disorder students (ADD students) benefit the most from learning by listening (78% of them). About 40% of the students with impaired visual memory and students with reading difficulties (in decoding and in reading rate) and 33% of students who have difficulties in processing, can be assisted by listening to the study material.

Chart 6

Contribution of ABs to learning disabilities students' comprehension, according to their sort of difficulty



Students' achievements

We compared the AB users' actual achievements to those of the non-users, and didn't find a significant difference. In spite of this result we have reasons to conclude that the audio-books help students who have difficulties in their studying at the OUI and the audio-books help them to better cope with them.

SUMMARY AND CONCLUSIONS

- Students like the convenience of learning whenever and wherever they choose. Many students noted that they have learned effectively by listening to the AB while driving to work, exercising, cleaning the house and so on. As time is one of the resources which the OUI students feel shortage of, saving it is very important for them (4).
- Many students claimed that they have difficulties learning at the OUI – learning disability difficulties and others. 57% of them expressed satisfaction from the audio-books. They feel that the audio-books help them to better comprehend and remember the study materials and therefore they have to invest less time in learning. We assume that among these students are those that Hebrew is not their first language, and it is not easy for them to read the masses each course demands. A further examination is needed for proving this assumption.
- Most of the students listened to the AB while reading the printed book or one after the other. It is seems that the AB is a supportive method and doesn't substitute the printed book. Students used the audio-books mainly for overview, for exercising and for reviewing.
- Learning by the AB is more passive than learning by readings. Most of the students are used to mark important sentences and adding their remarks and summaries while learning from printed books, but according to their answers when using the AB only about 1/3 of the non LD students and 1/2 of the LD students learned by using active mode. Some of them noted that by listening they remember the material better and their comprehension is better and therefore they don't need to mark the text and write summaries.
- Many of the students find that learning by listening to AB improves their material comprehension. Some of them concentrate better when learning with the AB. Among the LD students, 78% of the ADD students and about 40% of the students with reading difficulties said that the Abs improve their comprehension.
- Most of the students will prefer the printed books on the ABs, if they have to choose between the two modes. But there is a group of students for

whom the auditory mode of learning is significantly important. Among them are LD students – with ADD and with some reading difficulties – as well as a group of the non LD students (15%). We assume that among the students without LD that used only ABs are the auditory learners who prefer verbal to written materials. These students noted that they understand and remember the material better.

- For some of the LD students AB can replace the help they are used to getting from external sources.
- Most of the students who used the AB want this learning method to be available to them in other courses.
- Although we didn't find a significant difference in the course achievements of the audio-books users and non-users, we assume that without the ABs help, students have to make more efforts and to invest more time in order to reach the same achievements. Further study is needed in order to prove our assumption.
- The final conclusion: the printed book is the major learning method in the OUI, therefore the university has to take into account the group of students who need the auditory channel for learning. The audio-books can accommodate these students and all the others.

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