

Teaching English as a Foreign Language to Visually Impaired Students: Teaching Materials Used by Teachers of English

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ABSTRACT

The purpose of this study is to identify the teaching materials used by teachers of English as a foreign language who work with visually impaired students. This is part of a more extensive research conducted for a doctoral dissertation. The 80 participants of the online survey and ten of whom also took part in semi-structured interviews in the field shed light on the teaching materials and the technological support they use when teaching these students. Difficulties in tracing or producing the materials were also explored, along with the related concerns of the teachers. Most of them stated that they had no knowledge of instructional materials that are especially used for visually impaired students. Moreover, the majority of the teachers reported that even the basic teaching materials for visually impaired are hard to find, create or use. Most of them indicated that they use a cd player and computers when teaching this student population. Additional findings, recommendations, limitations, and suggestions for future research are provided.

1. INTRODUCTION

As a growing number of countries implement policies that require the teaching of English to all children start in elementary schools, the purpose of the study is to identify important factors related to the teaching materials of English as a Foreign Language (EFL) to blind and visually impaired students in Greece. The information obtained from this study will be extremely valuable to the field of special education and foreign language education since there is a critical lack of research related to the needs of educators who teach either second or foreign languages to these students attending primary and secondary schools. Since most of these teachers receive their education through foreign language departments and typically do not receive preparation in special education, the findings of this study will inform us of their needs and consequently will guide us to develop appropriate

professional development efforts that will meet their expressed needs. While the study has been conducted with EFL teachers in Greece, it is expected that the results will have application to other second and foreign language contexts where blind and visually impaired students are being educated in language learning.

According to the current Greek PL 3699/2008 of Special Education (Article 6: Attendance), students with disabilities and special educational needs can attend the following program options for special education services: the general school classroom with or without parallel support teachers, especially organized and appropriately staffed integration classes functioning within the general and vocational schools and following a common and specialized program, a specialized group program or an individualized program. When the above options are not feasible because of students' special educational needs, their training is provided in special education schools, in residential schools for the blind or as homebound instruction.

In Greece the special education teachers who wish to work in a special education school, in integration classes or in parallel support classes according to the current PL. 3699/2008 must have either a degree in English Language and Literature with a minimum three-year proven experience in special education, or a year-long seminar of four hundred hours, a Masters or a PhD and all should be in the field of special education. A prerequisite for teaching students with visual impairments in these contexts is the special education teachers' certified knowledge of Braille (PL. 3699 / FEK 199 / 2.10.2008, Article 20: Qualifications, paragraph 1.4). However, the above qualifications do not constitute mandatory criteria for general education teachers who work with students with visual impairments. Therefore, general education teachers who hold these qualifications could either have a three-year experience in special education or they could receive the aforementioned formal training in special education, or none of the above.

The role of the Greek Pedagogical Institute includes among others the design of teaching and other support materials for the education of students with disabilities and the design and support of training programs in

special education (PL 3699/2008 on Special Education, Article 14). Most recently, the biggest part of the responsibilities of the Greek Pedagogical Institute has been undertaken by the Institute of Educational Policy. Moreover, the Γ6/596/18-11-87 decision of the Greek Ministry of Education has officially established a working group of teachers for the adaptation of textbooks for students with visual impairments, a project which until then belonged to the informal and private initiatives (e.g. unofficially conducted by some teachers in the KEAT Special School for the blind in Athens) [1]

Additionally, in the Ministry of Education a department has been founded, which is responsible for textbook adaptations in Braille for blind students and enlarged formats for students with low vision. The appropriate staffing of the department has also been determined (PL 3699/2008 on Special Education, Article 34, paragraph 3). Moreover, nowadays the organization, coordination and implementation of textbook and electronic teaching materials production and distribution to all public primary and secondary education in the country has been undertaken by the Institute of Computer Technology and Publishing (ITYE- Diophantus) (PL 3966/2011). As part of the textbook production and distribution, the adaptation, publication and distribution of textbooks in Braille format and fonts appropriate for students with low vision is included with high priority. Also, the library and printing departments of the "KEAT" State Special School for the blind in Athens have been working since 1984 and the special teaching aids workshop since 1999 [2]. The contribution of the above institutions in the field is nowadays still very much appreciated.

However, teaching English as a foreign language to visually impaired students in Greece is hindered and very limited in terms of teaching materials and methodology [3]. The modern approaches and methodological principles of teaching a foreign language are based on visual teaching materials, which are still not accessible to students with visual impairments [4]. To a great extent, teaching materials in Greece are not adapted for visually impaired students or lack supportive listening materials [3].

Moreover, due to shortage of accessible educational material to visually impaired students, these students are taught English orally. This modality is not always successful in helping them to follow and understand the flow of the learning process [5] [4] [6]. Additionally, there is lack of a differentiated curriculum for the education of blind students in EFL [3]. However, efforts are made in order to shape EFL teaching and evaluation needs of special social groups in the multilingual and multicultural European Union. At the same time, the differentiation of instruction and the development of special educational material are both a necessity and a responsibility of modern education. Such educational materials support the student's access to information and social integration. The request for Universal Design in Education (Universal Design or Design for All) reflects the existence of an education that provides equal learning and assessment opportunities for all students through differentiated learning environments, tools, training materials and supporting services. In this way, the

educational practice will contribute to removing barriers from universal access to information and knowledge, through the appropriate variations, adaptations, customisations so as the special needs of the students can be met [7] [8] [9] [10].

According to the Greek differentiated curricula for students with visual impairments these students should have access to: a. the written material: in Braille, large print and audio format, b. three dimensional or haptic teaching aids, c. visual information presented in class, d. digital teaching material and e. a variety of assistive and computer technology equipment [3]. Additionally, Torres and Corn [11] and Levak et. al [12] report necessary adaptations of educational materials and of the classroom environment so that visually impaired students' performance can be improved within a class of sighted peers.

Among the materials and technological support related to teaching EFL to students with and without visual impairments are included: school textbooks, extracurricular materials, felt tip pens, bookstands and slantboards, CD players, audio recordings, the internet and general education software.

Additionally, materials and technological support adapted to meet the needs of students with visual impairments are specialized for these students and help them to access, recycle and obtain the taught information or function. Teaching materials for students with visual impairments involve books in large print (for partially sighted), books in Braille (depending on the visual acuity of the students), Braille materials, large print materials, large print machines and embossers, bold-lined paper, CD players, audio recordings and the digital educational material which is especially designed to be accessible to these students. Supporting teaching materials for these students include colored acetates, magnifiers, telescopic aids, tactile objects, tactile construction sets and models (three-dimensional representations), tactile maps, tactile images PIAF, tactile images Thermoform, closed Circuit Televisions (CCTVs), tactual books, adapted EFL materials, differentiated consolidation materials, audio books, systems rendering text to synthetic speech, reading software, magnifying software and software adapted for visually impaired students [5] [13].

Kouroupetroglou [14] argues that computer technology is essential for the access of students with visual impairments to a variety of educational materials within and outside the classroom. Computer technology for these students and their teachers involves scanners, printers and embossers, reading software (through text-to-speech systems), magnifying software, software for transcribing text in Braille, closed circuit televisions (CCTVs), Braille displays, digital talking books, talking browsers and web accessibility protocols and principles. Additionally, communication systems between smart boards and computer technology are necessary for the rendering of the material which is presented to the rest of the class [14].

Presley & D'Andrea [15] also provide an overview of the assistive technology tools, that is the wide spectrum of software and electronic devices that are designed to enable students with visual impairments to access print

and electronic information in a variety of formats, as well as to produce written communications and materials. The latest technological tools for the education of this student population include touch tablets with synthetic speech, which verbally describe the material, while the student touches it [16] and modern microcomputers, that help with the recording and the reproduction of information in an accessible format for these students (e.g. Braille n 'Speak, BrailleLite, see Papadopoulos, 2005, pp. 80-283, for a detailed description). Indeed, the contribution of BrailleLite particularly to foreign language teaching has proved to be important by modern research [17]. Also, Polichronopoulou [18] makes reference to modern systems of Augmentative and Alternative Communication (AAC) for students with visual impairments, such as Nomad, with which the student is presented with the visual material in high resolution.

Students with visual impairments should also be supplied with educational aids that appeal to them (such as embossed images, magnet and other boards, haptic material for the new vocabulary and for constructions, maps, shapes, talking clocks, talking lenses, puzzles, mascots etc.). In addition, educational aids can also be constructed with haptic materials of different haptic textures or with the use of tactually discrete levels. Furthermore, apart from the audio and tactile stimuli the need and value of providing different flavor and olfactory stimuli for students with visual impairments is manifested. In these ways the exclusively oral and verbally descriptive form of teaching is avoided and the experiential and multi-sensory approach to learning is reinforced, which are two key pillars of these students' education [19] [20] [21].

Teaching visually impaired students with the variety of new technology instructional means necessitates training teachers in adopting them [22] [23] [24] [25] [26] [27]. A lack of knowledge of assistive technology for students with visual impairments [26] and their families [28] [27] [29] is also highlighted, which leads to the restriction of the educational choices and to the fragmentary nature of the educational use of technological tools.

2. METHOD

The study uses a mixed method approach (both quantitative and qualitative research methodology) and adopts a pragmatist position. The aim of the enquiry was descriptive and correlational and belongs to the naturalistic kind of research [30]. The research purposes posed by the research questions are the ones that define which approach should be adopted [31] [32] [33] [34]. Having taken into account the research questions and their purpose a mixed method approach was followed using both the quantitative and the qualitative paradigm by triangulating the findings generated from the questionnaires with those from the interviews. Methodological triangulation, as this process is named, is about the use of two or more methods in a research [31] [32][35] [33]. When employing triangulation, the emphasis is placed on seeking corroboration between quantitative and qualitative data [36] [37]. With such a

technique, validity and reliability are boosted and the weaknesses of each method are counterbalanced by the strengths of others [33].

The research design employed in this study is a two-level survey of the census of English teachers who had been working with visually impaired students in Greece in the 2013-2014 school year using two research tools: a. an online questionnaire and b. semi-structured interviews with selected individuals. The research and its procedures were in accordance with the ethical standards of the University of Athens (Department of Primary Education), as well as with the Ethics Committee guidelines of both the Greek Ministry of Education and the Institute of Educational Policy in Athens. Following the overall ethical model and framework of the above institutions the research plan was approved with protocol number 6449/Γ6.

The following research questions were investigated with the above tools:

1. What are the materials and technological support that English teachers working with this student population affirm they use? Which of them are related to teaching EFL and which are differentiated for students with visual impairments?
2. How do the educational qualifications of the teachers influence their choices of teaching materials and technological support?
3. How do the teaching experience in the general student population and the teaching experience in supporting students with visual impairments affect the teaching materials and technological support they use?

2.1 Participants

The target population involved all teachers of EFL who were currently working with visually impaired students. Rather than selecting a fraction of the population (sample) in the study design, every effort to include everyone in the census inquiry part of the study was made. This was essential in order to obtain accuracy since the field of inquiry was limited [38]. The necessary sampling frame (source list) to count and identify the population was located through the department of Special Education in the Ministry of Education and was proved to be to a great extent representative of the population. Survey requests were communicated to a total of 102 EFL educators who were employed in public and residential schools nationwide. The census respondents to the questionnaires were 80 teachers of EFL. Ten (10) of them were selected and took part in semi-structured interviews (second research tool) to describe their instructional practices, materials, challenges, experiences, training and training needs when teaching English to visually impaired students. Regarding the interview sample, a non-probability sampling procedure was followed. Particularly, the ten interview participants were purposively chosen (purposive sampling) [30] [33] [32] on the criterion that they constitute a typical or representative sample of the whole census, as reflected upon their answers to the questionnaires. Therefore, a

wide variety of perspectives was depicted illuminating the research questions at hand.

2.2 Instruments

The information collected through the online service and the interviews constitute the data for the study. We developed the survey and the interview questions from instruments that have been previously used by other researchers after conducting a review of the literature in the field [39] [40] [41] [5] [4] [42] [43] and following established recommendations for survey research [30] [31] [32] [35] [33] [34]. The researcher's 6-year old experience teaching EFL to visually impaired students proved to be valuable for this research. The instruments were field tested with five individuals, one of whom used screen-reading software for completing the survey. In addition, the instruments were reviewed by professionals in the fields of visual impairment and English language learning to substantiate the content validity of the research instruments.

The 21-question survey entitled "Teaching English as a foreign language to visually impaired students: teaching practices, tools and English teacher education" was designed to be self-reporting and was divided into 6 parts: demographics, teaching practices, teaching tools, needs-challenges, teacher education and support. Two cover letters explaining the study and its aims, as well as the research ethics were also included in this survey. Moreover, friendly reminders were sent to the teachers in order for them to participate in the research. In addition, an electronic word processor format, a large print and a Braille version of the survey were available upon request. Interview questions were also developed according to the items of the survey. Interviews were gathered to trace overlapping or divergent information between the quantitative and qualitative findings and highlight the subtleties of teacher experiences. More in-depth descriptive data were added in this way from the ten (10) teachers. Only the information related to the research questions is used for this article.

2.3 Data analysis

The data collected from the survey were analyzed using descriptive and inferential statistics. For the quantitative data analysis, the data were exported from the online survey platform and converted to the Statistical Package for Social Sciences (SPSS. V18.). Firstly, a descriptive exploration of the data was conducted. Then, the method of inferential statistics, which employs the two independent samples T-test was applied to our data. Specifically, comparisons in the averages of the responses have been conducted concerning educational materials that teachers use depending on their qualifications, their years of teaching experience in general education and their years of teaching experience supporting students with visual impairments.

The external reliability of the survey was assessed with the test – retest method in a period of two (2) weeks and a sample of 20 participants. The correlation was found to be statistically significant (Pearson $r = 0,4532$,

$\text{sig} = 0,000 < 0,05$). The internal reliability of the variable sets comprising the question which was related to the teaching materials was measured with the use of Cronbach's alpha. Cronbach's alpha was 0,645. The researcher had studied the survey answers of the 10 participants that would be interviewed and in the interviews the researcher tried to search for commonalities, reasoning, enrichment and deepening in areas that the survey could not shed light on. All interviews were recorded and transcribed for analysis. The data were then studied carefully searching for emerging constructs, themes and patterns to describe the research questions (interpretive analysis) [44] [45]. During the interview, the data were informally analyzed and after the interview the researcher maintained a personal diary system to record thoughts and interpretative schemes arising after each interview, so as to give clarity to the emerging patterns or themes. The themes were then distinguished not only by their frequency of occurrence (quantitative criterion of content analysis), but also by their prominence in the understanding of the processes behind the actions and opinions of teachers (qualitative criterion of textual analysis). The answers were converted into systematic categories defined by units of meaning. The evolved units of meaning were constantly compared, while searching for similarities, differences, further illustrations and explanations [46].

3. RESULTS

3.1 Demographics

The demographics of the interview sample were representative of the survey population. The majority of the participants work in general education without any teacher support (by a specialized vision teacher) (57.5%) and have a general teaching experience ranging from 7 to 23 years and a teaching visually impaired students experience from >0 to 8 years. Only 30% of the teachers has certified knowledge of Braille and 36,6% has attended a seminar or holds Masters degrees on special education. The rest of the respondents have never received any training on special education and visually impaired students.

3.2 Teaching Materials

Survey respondents were asked to indicate the teaching materials they use when teaching visually impaired students and to rank the difficulty they face to develop or obtain the material on a 5-item Likert scale. Survey data indicated that the majority of EFL teachers stated that they had no knowledge of the following materials: PIAF images (63.3%), Thermoform images (61,3%), magnification software (56.3%), software adapted for visually impaired students (51.3%), telescopic aids (51.3%), reading software (50%), general education software (48.8%), colored acetates (46.3%), tactile construction sets and models (46.3%), English books for the blind by the Greek Pedagogical Institute (46.3%),

tactile maps (44.3%), Braille materials (40.5%), tactile books (40%), bookstands and slantboards (40%), bold-lined paper (35.4%), English books for the visually impaired by the Greek Pedagogical Institute (35%), audio books (35%), tactile objects (35%), magnifiers (32.5%) and differentiated consolidation material (31.3%).

In addition, the majority of the teachers in the survey considers the difficulty of acquisition or production of the following materials to be very high or high: tactile maps (35.5%), bookstands and slantboards (31.3%), English books for the visually impaired by the Greek Pedagogical Institute (28.8%), differentiated consolidation material (27.6%), tactile structures and models (27.5%), audio books (26.3%), English books for the blind by the Greek Pedagogical Institute (25%), colored acetate (25%), tactile books (23.8%), adapted EFL materials (22, 6%), telescoping aids (22.6%), reading software (22.5%), software adapted for visually impaired students (20%), Thermoform images (18,8%) and PIAF images (17.7%).

The results of the interviews confirm and enrich the survey data on the teaching materials. Specifically, no teacher indicates in the interviews the use of colored acetate, bookstands and slantboards, magnifiers, telescopic aids, tactile maps, images Thermoform, tactile books, bold-lined paper, magnification software, general education software and adapted for visually impaired students software. In contrast, all 10 teachers who participated in the interview affirmed using recorded audio material and a cd player, regardless of the workplace, experience or training in education of students with visual impairments they have received. Furthermore, 8 teachers reported that they use and provide their students with large print material. In addition, 5 of the 10 teachers who participated in the interviews indicated that they use Braille material, adapted EFL and differentiated consolidation material. The common feature of these teachers is that they do not work in the general classroom setting, but in smaller groups of students or on a one-on-one basis. The characteristics that differentiate them are the educational experience and training they have. The other five teachers are solely based on the school textbook without deviating from or varying the activities.

Regarding the English books for blind and partially sighted students produced by the Pedagogical Institute, 4 out of the 10 teachers interviewed know and print the textbooks if this is not done by the responsible operating bodies. These 4 teachers said they all have relevant expertise, technological support, training, awareness and teaching experience in teaching students with visual impairments and work outside the general classroom setting. Five out of the 10 teachers who do not use these materials are mostly unaware of the existence of these books or where to find them and note that they can only magnify them or use an oral method to teach visually impaired students.

3.3 Inferential statistics

In terms of the inferential statistics the following findings were revealed. Firstly, teachers who hold qualifications different from Master's degrees in Special Education, choose a smaller variety of materials and technological

support when teaching visually impaired students than teachers who do not hold these credentials. However, there are no statistically significant differences found in the averages of the responses to the instructional materials used by teachers who hold Master's degrees in special education and those who do not possess the specific formal qualification.

In addition, teachers with certified Braille knowledge use less materials compared to teachers holding other qualifications. Moreover, teachers with certified Braille knowledge use English books for the blind by the Greek Pedagogical Institute ($t(35) = 3,494$, $p = 0,001$), tactual books ($t(36) = 2,937$, $p = 0,006$), Braille material ($t(40) = 2,618$, $p = 0,012$), as well as bookstands and slantboards ($t(34) = 2,082$, $p = 0,045$) significantly less than those who do not possess this qualification.

Moreover, teachers who have more years of experience in general education use less telescopic aids, audio recordings and software adapted for visually impaired students. Also, teachers who have more years of experience supporting students with visual impairments use less English books for the blind by the Greek Pedagogical Institute.

4. DISCUSSION

4.1 Teaching materials

The gathered interview data support the results of the survey responses. The results might indicate the following: a) most materials are specialized for the needs of students with visual impairments, b) most teaching materials do not exist at schools, c) teachers are not trained or aware of designing the teaching materials themselves or tracing them, d) teachers do not have the time and resources to find or create these materials and feel overwhelmed to do so by the curriculum, e) secondary school teachers may not feel they need some teaching materials because not all of those meet their students' needs (e.g. some haptic materials are not used in secondary education, because the concepts taught at that stage are not concrete, but abstract), f) the high cost of materials in some cases (e.g. reading software), g) the failure of the operating bodies to disseminate information and to train teachers and h) the necessity of specialized workshops, which will produce teaching aids.

It is apparent that teachers tend to expect materials to be provided to them. There is also a widespread belief among them that they are not aware of materials and do not possess them. In addition, there is lack of information, training and awareness on behalf of the teachers about the existence and availability of school textbooks for the needs of blind and visually impaired students. Furthermore, teachers feel that it is not their responsibility to seek and provide school materials to students. They may have difficulty in assuming additional responsibilities for the student with visual impairments, when they already feel overwhelmed by their classes which consist of students with different educational needs.

Consequently, not enough attention is paid to literacy and teachers seem to inevitably and solely base their

teaching on an oral approach. This approach makes the visually impaired student a passive receiver of messages. Four out of the ten teachers who participated in the interviews know and print the books for the blind students in case they are not provided with them by the responsible institutions. These four teachers have relevant expertise, technological support, training, awareness and teaching experience in visually impaired students and work in small groups or one-on-one, outside the general classroom setting. Specifically, teachers who teach outside the general classroom setting, in small groups or one-on-one, have also more opportunities and time for adapting materials, that is they try more and succeed most of the times in providing materials in accessible formats for their students.

Moreover, it is concluded that the teachers do not support the involvement of the sense of touch in the learning process of students with visual impairments, although the literature suggests that haptic materials are necessary teaching aids for these students [19] [20].

Our results regarding the materials and technological support are in accordance with the studies conducted by Milian and Ferrell [40] and Conroy [5] which show that the modification and adaptation of materials pose a challenge for all teachers, which is even a greater one for those who have been trained to teach students with visual impairments. Our findings are also consistent with Conroy's study [5] in which teachers emphasize the difficulty they face in tracing the right materials for teaching EFL to these students. Moreover, our results agree with those of Topor and Rosenblum [47]. In their research most English teachers often regard accessibility of the teaching materials, their level of difficulty and their significance when teaching students with visual impairments as the most important characteristics of the teaching materials. Furthermore, our research leads to similar conclusions to Araluce's [4], which highlights the difficulties faced by teachers to adapt their teaching materials for these students and affirms that perhaps the excessive workload of teachers does not allow them to invest the time needed to receive relevant training or to adapt instructional materials in order to meet the needs of their students. The same researcher believes that in most special schools, problems related to adapting the material are significantly reduced. However, Araluce [4] generally evaluates the procedures required as costly, time-consuming and hardly feasible by teachers, whether they are qualified for these students or not.

The problems posed by the highly visual nature of the books during English courses in relation to the production of accessible material are identified in the Conroy's [5], Araluce's [4] and in our study. Additionally, Araluce [4] argues that modern visual teaching materials prevent the full inclusion of students with visual impairments in mainstream schools. Moreover, she stresses the need for materials aiming at the cognitive and emotional development of the students and the holistic activation of multiple types of intelligence.

Furthermore, in many of our research interviews teachers consider the material provision in any accessible format to be a special education teacher's duty or the responsibility of the Ministry of Education and its

respective bodies. In Araluce's [4] research however, it appears that the material adaptation is the specialized peripatetic teacher's role, with the collaboration of both the general classroom teachers and of the special educational needs coordinator of the school. The opposite is observed in Conroy's [5] research, since in only two cases it is indicated that the Braille material is produced by the special education teacher. In all other cases, the general education teacher or the teacher's assistant adapted the Braille material, but in Greece there is no practice or policy of teaching assistants.

The results of our research regarding the teaching materials used by teachers are partly consistent with those of Conroy's study [5]. Specifically, Conroy's study [5] concludes that most teachers use frequently tactile objects (N=52, 78.8%), audio recordings (N=49, 74.2%), Braille materials (N=47, 71.2%) and large print materials (N=45, 68.2%). However, in our research the teachers reported facing more difficulties in using tactile materials, Braille materials, tactile books and magnifiers. These materials are indicated to be used at a greater extent by teachers in Conroy's research [5] and we presume that these materials can usually be found in American schools.

However, in Conroy's [5] and Araluce's [4] studies it is also noted that there is an extreme difficulty in finding appropriate tactile materials to facilitate the proposed adaptations for the course. Furthermore, a tactile material library is proposed, which will provide teachers with the appropriate material for each English course. The need for such a library is also expressed in our own research. The importance of using real objects is also reflected by the participant teachers in Topor and Rosenblum's study [47] as one of the most effective practices for teaching these students.

Moreover, it is well documented that the activities which involve sensory materials are not only accessible to students with visual impairments, but they also motivate and benefit all students [48] [4] [10] [21]. This item reflects the principles of universal design for all. Moreover, Topor and Rosenblum's study [47] emphasizes the importance of experiential learning and multi-sensory approaches which constitute the key principles of teaching these students. Also, Araluce [4] stresses the fact that these activities contribute to students' desire for learning, the development of their autonomy and self-confidence, as well as the promotion of their social interactions.

4.2 Inferential statistics

We would expect that more qualified teachers would be more familiar with the use of the most teaching materials. However, such a result was not found in our research as there are no statistically significant differences in instructional materials among teachers who have a Master's degree in special education and those who do not. Moreover, teachers with different qualifications report they use fewer materials on a statistically significant level. This may mean that teacher training leading to the obtaining of most qualifications is of an introductory and theoretical level and does not enable

them to use more teaching materials. Also, these results may be related to the teachers' absence of practical experience in tracing or producing material. Additionally, the results may confirm the absence of materials. Perhaps the biggest problem is found to be the lack of materials and not the gaps in teachers' education or experience. The lack of these materials perhaps is even more important for teachers who are knowledgeable about teaching materials and recognize their value in the provided education [40] [5]. Relevant research confirms the difficulties in finding the material and its absence from schools [40] [5] [4], as well as the lack of teachers' education and experience as far as technology is concerned [49] [50] [23] [24] [51]. Hence, university preparation programs should enhance specialized training in assistive technology used by the visually impaired [52].

Teachers having a certified knowledge of Braille may use the English books for the blind by the Pedagogical Institute, tactual books, Braille material, bookstands and slantboards significantly less than those who do not possess this qualification because they may follow oral teaching or because they may not be aware of or they may not possess these materials. Also, the use of the majority of these materials necessitates extra teaching time in class, which is impossible when teaching in the general classroom. The lack of teaching time affects the teachers' choices in the special education classroom as well, since each student with visual impairments has special needs.

The fact that the more teaching years teachers have in general education, the less they use telescopic devices, audio recordings and adapted software for visually impaired students is perhaps related to the lack of the above materials, the lack of teaching time, as well as the burnout syndrome of teachers. It also confirms the importance of the information dissemination and teachers' lifelong learning for the use of high or low technology tools.

The fact that the more teaching years teachers have in supporting students with visual impairments, the less they use the English books for the blind by the Pedagogical Institute is surprising. Perhaps it indicates that most experienced teachers resort to oral teaching due to lack of teaching time. In this way, students can keep up with the rest of the general class or teachers are able to meet the diverse needs of visually impaired students in the special class. Many researchers in the past have stressed the value of oral teaching for these students [53] [54] [48] [55] but others emphasize the interrelatedness of all skills and acknowledge their importance when teaching visually impaired students [56] [6] [13] [5].

4.3 Limitations of the research & Suggestions for future research

In this study there were several limitations. For instance, the critical lack of relevant research and literature at national and global level was a factor that had made it difficult from the start to investigate significant factors of the subject. The teaching experience of the researcher, as well as reports from other key professionals in the field

offered data which directed mainly the interest and orientation of this research.

The research tools that we used were the survey and interviews with teachers. Perhaps it would be useful to conduct field observations in the classroom of the teachers who teach English learners with visual impairments, in order to assess the quality of their programs, the services offered and to verify our results. However, this was very difficult to be implemented, because the researcher would have to move to other Greek cities apart from Athens and there was no funding available. For these reasons, we used the survey and interview research tools.

Additionally, the study revealed the need for further future investigation to identify the teaching materials (on different levels, in different formats, with different content, in different types of educational settings and in different parts of Greece) used by students of English as a foreign language and how students acquire knowledge about assistive technology in Greece. Another suggestion for future research is the following. There is a great need to gather information about school performance of students with visual impairments in EFL. According to their academic performance and the exploration of the difficulties of these students, appropriate instruments and tools of teaching and assessment in EFL for these students on a national level could be designed.

5. CONCLUSIONS

The conclusions drawn from the survey data and the qualitative analysis of the open responses to this question are: (a) The constant need of teachers is that students with visual disabilities have equal access to books and material choices as their sighted peers, (b) the specialized equipment for students with visual impairments is in most cases very expensive or time-consuming for the conditions of a real lesson in school, (c) teachers should first exhaust the simple possibilities for material production or acquisition and make use of their own strengths and simple materials, rather than wait to obtain specialized materials, (d) teachers who work in the general education classroom setting use less materials and were found to be less knowledgeable about materials addressing the needs of visually impaired students.

Given the heterogeneity of the group of students with visual impairments and the nature of the educational problems they face, schooling has to create conditions of differentiated instruction. The conclusions about the teaching materials help us to identify the fact that there are accessibility issues in teaching materials which limit both the teaching and the learning potential of this student population.

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