Cap Stone Project

Alternative TEFL Teaching Methods
for Dyslexic Students

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Keywords

Special educational needs, inclusion, differentiation, pedagogy4love, 3Dlexia, TEFL, mind mapping, augmented reality

1. Introduction

While in many countries education still remains a privilege, it is, in fact, considered one of the human rights, constitutionally assured for all without any discrimination (United Nations, n.d.). Its importance lies in that quality education guarantees the development of wholesome human being. It has the ability to drastically improve life-quality, providing many otherwise unavailable opportunities. Access to information in different fields of knowledge and our literacy skills exert considerable influence on our personal growth and professional development. Moreover, in today's world, the ability to speak an additional language rather than be only educated in maternal language is perceived as a significant commercial asset, as well as a good investment in children. It enhances their chances of attaining their desired professional position and allows them to communicate internationally. This trend, in time, resulted in the foreign language teaching requirement forming an integral and compulsory part of the educational system (Nijakowska, 2010).

However, even in first world countries, inequality in education continues as the current educational system does not offer a lot of support for learners with special educational needs[1] (SEN), being set up in favour of students who can conform to the norm. With lack of interventional methods implemented in the current school system, the present study aims to explore the field of the most current and little investigated teaching methods and tools used to aid SEN, particularly dyslexic students in their successful language learning as they strive to achieve their educational and professional goals in life. This study aims to bridge the gap of previous studies focusing on earlier educational methods and instead, investigate the effectiveness of recently developed methods using the technology available to teachers in the 21st century.

2. Literature review

Some learners study new languages with effortless ease, others struggle significantly with foreign language acquisition. Despite the reasons why one may fall behind in language learning are many, there is one group of students who struggle with this task in particular. In many countries, these are viewed as to have learning disabilities. They display difficulties with the acquisition of literacy-based skills (dyslexia), writing (dysgraphia), sustained attention (ADD[2] and ADHD[3]), motor skills difficulties (dyspraxia), or Asperger's syndrome, causing social interaction problems (Kormos and Smith, 2012). These learners experience failure after failure in their general education and language learning, resulting in both low academic performance and social, emotional and behavioural problems serious enough to stigmatize their adolescence and even adult life (Pappa, 2016). Despite the teachers' general attitudes towards the inclusion[4] of the SEN students in their classrooms have been slowly improving over the years (Thomas, 1985; Bishop, 1986; Hayes and Gunn, 1988; Marchesi et al., 1991; Pastor and Jimenez, 1994;

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[1] Special Educational Needs is a legal term. It describes the needs of a child who has a difficulty or disability which makes learning harder for them than for other children their age. (Nidirect, n.d.)
[2] Attention Deficit Disorder
[3] Attention Deficit and Hyperactivity Disorder
[4] Inclusive education – also called inclusion – is education that includes everyone, with non-disabled and disabled people (including those with "special educational needs") learning together in mainstream schools, colleges and universities (The Alliance for Inclusive Education, 2020).

as cited in Padeliadu and Lampropoulou, 1997), and the word 'difficulties' in the description of these students was replaced with less negatively labelling 'differences', the truth remains that even in today's education, not all students have equal opportunities for learning as the declaration of human rights suggests they should.

In recent years, awareness of the presence of SEN learners in the schools has been increasing and researchers are working tirelessly to develop learning tools including techniques and materials to help these students. Despite this, teachers themselves often feel they lack the necessary pedagogical tools to accommodate SEN students in their classrooms (Kormos and Smith, 2012). They are also not sure of the nature of their students' additional educational needs (Smith, 2008, as cited in Kormos, Csizér, and Sarkadi, 2009; Schneider, 2009). English as a foreign language can be challenging to learn and inappropriate teaching methods can create further barriers for the SEN learners (Daloiso, 2017). A common trend in ESL[5] education has been to exclude especially dyslexic students from L2[6] learning on the grounds of the language attainment being considered beyond their abilities (Kormos and Smith, 2012). However, Schneider (2009) argues that it is the way foreign languages are traditionally taught in public schools that is actually setting SEN students who need explicit, direct and metacognitive instruction, to fail. It accommodates only for 'ideal students' who take advantage of their language acquisition device and lean on universal grammar which allows them to acquire foreign languages relatively easily. As education slowly changes, its attitude towards SEN students provides an understanding that given the right opportunities enhanced with effective pedagogical tools, these students can perform just as well as other learners and excel even in areas previously considered unattainable for them such as ELS learning.

The present study addresses the difficulties dyslexic students face, as well as the strengths they can draw on from this learning difference. Furthermore, it explores the so far carried research addressing their learning needs and adds new data to the research pool in the hope of aiding the future development of effective teaching practice. Dyslexia is the main focus of attention in this study as it is determined to be one of the most language-based learning difficulties with staggering 5-17% of the population suffering from it (University of Michigan, 2020).

2.1. Defining dyslexia

Precise understanding of dyslexia, a term first used in 1889 interchangeably with 'word blindness' (University of Michigan, 2020) is no easy matter as no single definition has been collectively agreed upon. Its descriptions differ throughout various governments, school districts, educational authorities, and different organisations. However, the following key points are endorsed repeatedly, validating their importance in the understanding of what dyslexia really is. They highlight dyslexia as a processing difference which can affect cognitive areas that may include phonological and visual difficulties, attention problems as well as short term memory problems when instructions are being received. Additionally, they note a divergence in performances of dyslexics in different areas of learning (Reid, 2004).

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[5] English as a second language
[6] Second language learned

Four factors can help provide a deeper understanding of dyslexia. That is the neurological or brain basis, behavioural, cognitive or learning basis and lastly, educational and environmental learning experiences. Please see Figure 1.
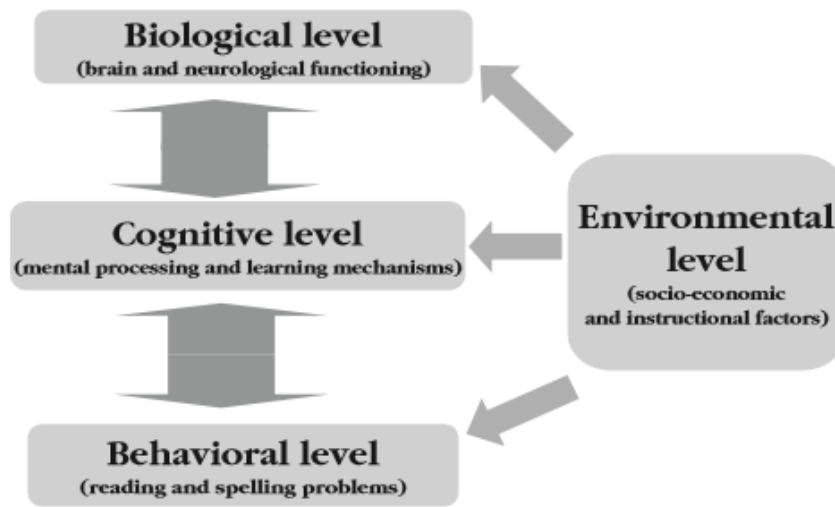
Figure 1: Diagram illustration of different levels of dyslexia
(Kormos and Smith, 2012, based on Frith, 1999).

Substantial evidence has now been provided indicating dyslexia to be neurological in its origin. Connections in the brain required for information processing develop differently in dyslexic children, therefore students with this learning difference may find types of processing tasks, such as those involving written language and oral instructions, more challenging (Reid, 2007).

With this understanding, dyslexia can be successfully defined as 'a processing difference experienced by people of all ages, often characterised by difficulties in literacy. It can also affect other cognitive areas such as memory, speed of processing, time management, coordination, and directional aspects. There may be visual and phonological difficulties and there is usually some discrepancy in performances in different areas of learning' (Reid, 2003, as cited in Reid, 2004:17).

2.2. Characteristics

Dyslexic students experience differences in the speed and style of their processing, in how information is processed and the strategies they need to learn effectively compared to other learners. Dyslexics often possess good listening comprehension skills. Therefore, good auditory comprehension in combination with poor decoding skills tend to be a reliable indicator of dyslexia (Reid, 2007).

Additionally, students with dyslexia can have problems with short term and working memory which translates into difficulties with remembering information. In a school or work setting, the individual's recall of oral instructions will be affected, particularly if more than one instruction is presented simultaneously. Therefore, if individuals with dyslexia are to succeed

in a learning environment, it is crucial for the teacher to provide only one instruction to follow at a time (Reid, 2004).

The full scope of challenges dyslexic learners face in different areas of learning are succinctly highlighted in the following poster:
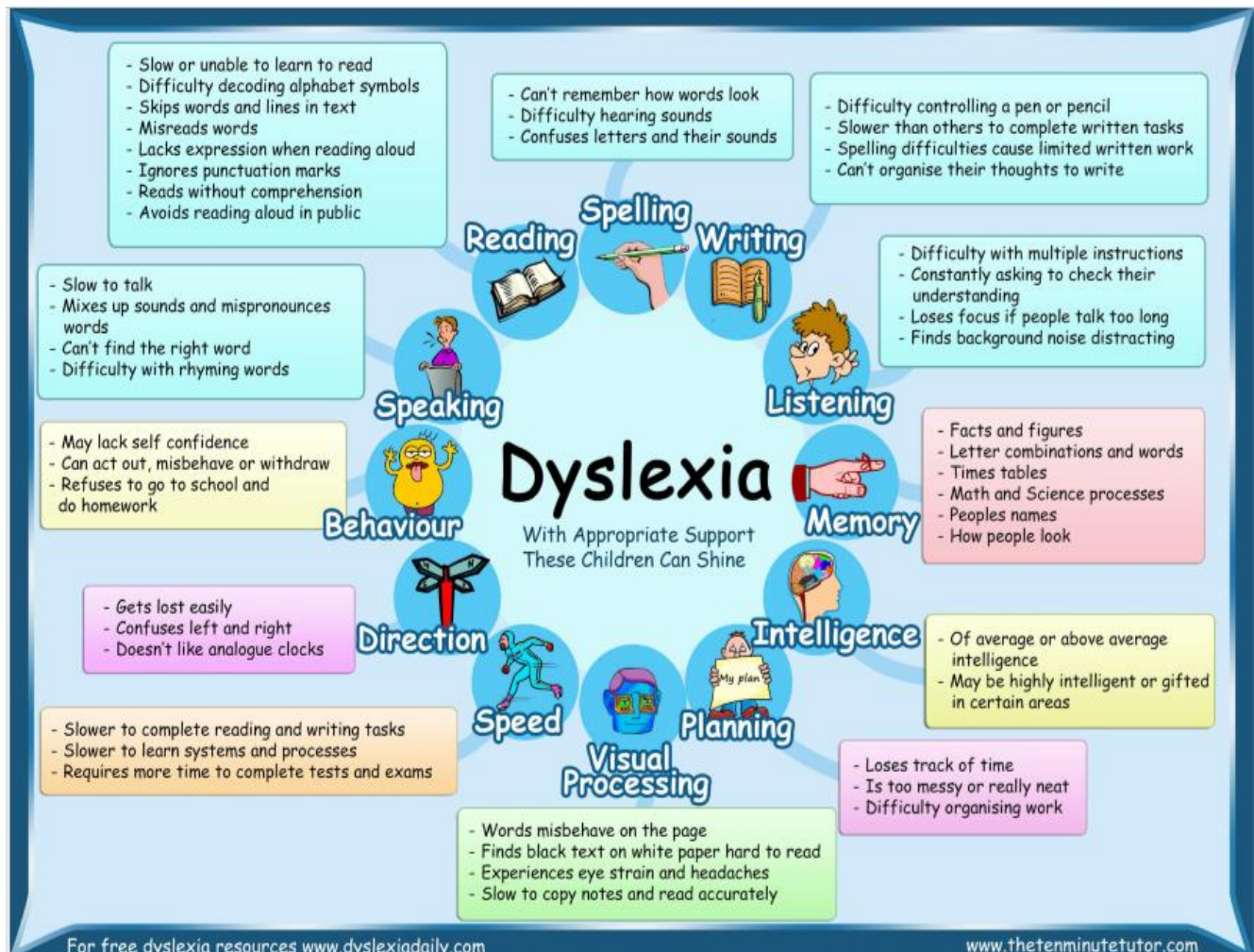
Figure 2: Dyslexic Challenges Poster
(https://www.dyslexiadaily.com/dyslexia-poster-free-download/)

Teachers' attitudes with regards to integration and inclusion of SEN students in mainstream schools have been shaped over the past 20 years as the topic has been discussed on an unprecedented level. Despite making education 'inclusive' is a part of a broad human rights agenda, many teachers worldwide still feel considerable reservations about supporting the movement (Avramidis & Norwich, 2002). As Forrlin (1995) and Padeliadou and Lampropoulou (1997) asserted, SEN educated teachers are much more accepting of SEN children and generally more open to the idea of inclusion. The same attitudes were also detected in a variety of Greek mainstream and SEN teachers (Avramidis & Norwich, 2002).

For both teachers and parents, it is imperative to understand that each dyslexic individual is different and might not display all the characteristics of the learning difference and to remember that dyslexia is a learning difference, not a disability. This is why dyslexic individuals need to be offered a holistic type of education rather than the traditional analytic

approach. Since the obstacles dyslexic learners face have been discussed thoroughly, it is vital to equally recollect the strengths that the dyslexic mind has to offer in terms of both learning and life skills before moving on. Please see the following figure.
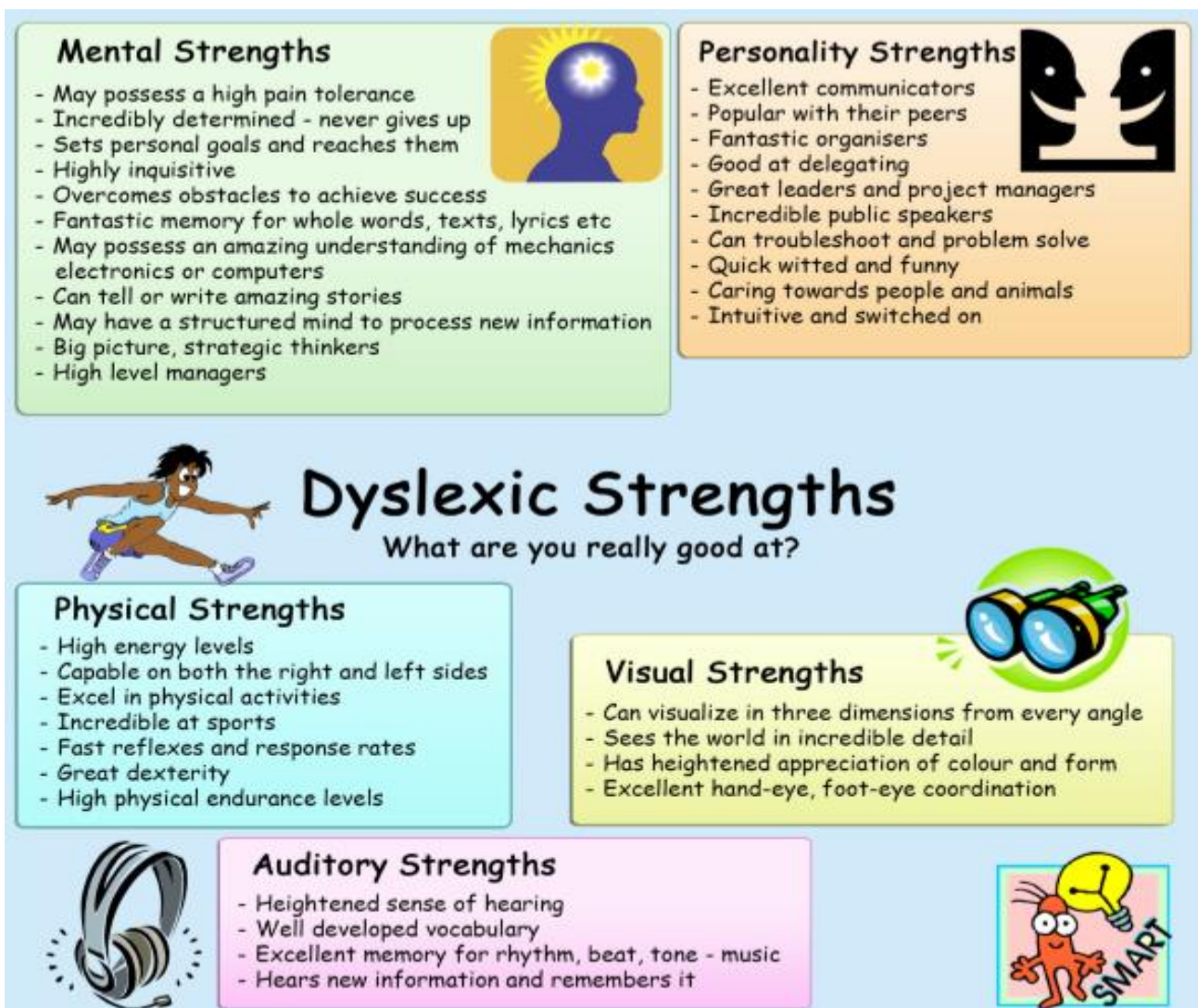
Figure 3: Dyslexic Strengths Poster
(https://www.dyslexiadaily.com/dyslexia-poster-free-download/)

2.3. <u>Teaching methods currently used in education to aid students with dyslexia</u>

Accessing curriculum comes with barriers for dyslexic learners, therefore, to approach the Zone of Proximal Development where they can learn most productively, it is vital that teachers provide access to it in different ways (Mitchell and Myles, 2004). In schools, learners are meant to prove their learning through presenting information in written word presentations. Additionally, the current schooling system heavily relies on verbal instruction giving and the students' ability to receive and process it. Both are the least suitable ways for visual learners such as dyslexics to receive or share information (Reid, 2004). "Students with dyslexia have different abilities and skills than other learners, and therefore they acquire the same knowledge in different ways", explains participant D647 in Kormos, Csizér, and Sarkadi's study (2009).

According to the research, dyslexics have right hemisphere learning preference (Reid, 2004).[7] 3D, right-brained visual learners such as dyslexics need to be taught in specific ways that will capitalize on their strengths and minimize their weaknesses (Reid, 2004; Halpert and Halpert, 2015). This suggests that in the education of the dyslexic brain, teachers and researchers have to focus on developing visuals and multi-sensory focused learning materials and activities which engage the student in visual, kinetic, tactile and auditory way as research shows this has a significant impact on the learning outcome because it provides a variety of memories related to the specific learning that students can draw upon during recall (Read, 2007; Nijakowska, 2010; Obaid, 2012), using holistic, personalised approaches and utilise all the technology available to them to ease and enhance learning.

2.3.1. Recommendations for learning

As stated by Crombie and McColl (2001), even for SEN students, second language learning depends greatly on the learners' attitude, motivation, learning style, and self-esteem, all of which can be greatly influenced by their teacher. On top of creating a calm and safe environment with transparent routines, clear directions (Kormos and Smith, 2012) and the atmosphere of inclusivity and equality (Harmer, 2015), eight principles for instruction have been suggested to aid the learning of dyslexic students (adapted from Schneider, 2009) in terms of intervention:

a. Learning is to be *multisensory*. Dyslexic students need to use all their senses in learning, in particular visual, kinaesthetic and tactile (Nijakowska, 2010). Because this is the most researched and agreed-upon part of working with dyslexic students, it will be described in greater detail. The method stresses evaluating the strengths and weaknesses of each individual learner (Reid, 2007) and providing personalised (according to their interests) and differentiated (according to their abilities) content where students, having a choice of appropriate tasks are provided with the sense of ownership and motivation for learning (Harmer, 2015). Crombie and McColl (2001, as cited in Reid, 2009:260) provide further practical suggestions to including different senses in learning by adding pictures to text, miming and gestures to words, using charts and diagrams to capture the essence of the bigger picture when introducing new concepts and using colours to highlight gender and accents with different colours for different purposes consistently (also Cimermanova, 2015). Grammar and language rules should be provided in written form for future reference and further study. Differently coloured overlays might aid students' reading when presented with printed text (Reid, 2004). A variety of specialised fonts are also available for teachers to ease the task of reading for their dyslexic students (please see Attachment 1). With regards to technology, there are many tools available for the dyslexics' aid. Along with digital pens with reading and scanning abilities, text-to-speech softwares such as Kuzweil

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[7] The right hemisphere is responsible for processing more holistic stimuli such as pictures and other visual information. The left hemisphere which non-dyslexics mainly use for solving problems presented at school and dyslexics commonly lack is responsible for focus on detailed information, and also language, reading, phonics, handwriting, locating details and facts, talking and reciting and following directions (Reid, 2004)

3000[8] and Microsoft Immersive Reader[9] are very useful (Cimermanova, 2015). Many apps downloadable to iPads can also aid the learning process (please see Attachment 2). Integral and much-recommended part of multi-sensory learning is also mind mapping. Mind mapping is a revolutionary note-taking technique first developed in 1970 by Professor Tony Buzan as a much-needed thinking and learning tool (Tony Buzan Learning Centre, n.d.) especially beneficial to the 3D visual dyslexic brain. It harnesses a range of cortical skills such as word, image, number, logic, rhythm and colour spatial awareness. According to Buzan, 'it is a powerful graphic technique which provides a universal key to unlocking the potential of human brain' (Buzan, 1960, as cited in Pappa, n.d, What is a Mind Map?) In this paragraph, mind mapping is described in more detail due to the understanding of its principles assisting the comprehension of the results of the present study. The following illustration describes the important features to consider during the mind mapping process which make the technique so visually appealing with information well organised and easily accessible.

Figure 4: The 'Mind Mapping Laws' by Tony Buzan Mind Mapping®
(Tony Buzan Learning Centre, n.d.)

Teachers can harness the powerful multisensory tool of mind mapping to cultivate their students' synthetic and analytic way of thinking on any topic while accommodating to a number of different learning styles.

b. Learning has to be *structured*, sequential and cumulative (Reid, 2007). The technique of scaffolding involves breaking tasks down into their component parts and sequences them from less to more complex to assure mastery (Schneider, 2009). It is very helpful to SEN students who often find it difficult to focus on task. It makes it easier for them

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[8] Kurzweil 3000. This robust system reads inserted texts and has an in-built thesaurus. As an advantage to ESL learners, it also possesses an in-built translator. It can be used for different types of brainstorming and also with mind-mapping tools (Kurzweil Education, n.d.).

[9] Immersive Reader is a tool which can improve reading comprehension and increase fluency for English language learners through enhanced dictation, focus mode, font spacing and short lines, highlighting parts of speech, syllabification, and more (Microsoft, 2020)

to succeed with smaller tasks, completing the work as a consequence (Harmer, 2015; Mitchell and Myles, 2004).

c. It is to be *metacognitive*. The educator is to model the procedures necessary for successful reading, writing, spelling, pronunciation in speaking, spelling and listening in a foreign language.

d. *Repetitive*. Students are to be involved in a variety of multi-sensory, understanding enhancing activities to practice as this helps them to apply new language concepts in test-taking and home study strategies correctly. Considerable reinforcement and repetition are necessary with dyslexic students due to short-term and long-term memory difficulties. Therefore, overlearning is essential for achieving automaticity (Reid, 2007).

e. *Explicit*. The teacher is to clearly model how to use desired language features to aid the students' understanding of the mechanisms characterising the proper use of the new language taught.

f. *Analytic/ synthetic*. Students have to learn how to analyse structural parts of language such as sounds, syllables, words, and sentences and synthesise them back together in meaningful compounds. In other words, learners need to learn to understand the language's syntax.

g. *Diagnostic*. To receive the highest possible satisfactory results in tests or examinations, students with learning difficulties should receive explicit instruction in test preparation strategies such as multisensory structured studying, mnemonic devices, mock examinations or time management. However, the most important seem to be proper test-taking modifications. Schneider and Crombie (2003, as cited in Ševčíková, 2012) suggest for instance extended time limit, providing a separate, distraction-free room, tests completed via computer or, depending on the severity of the particular processing difficulty, providing a scribe or a reader. With regard to the particular test tasks, cloze-tests[10] or matching tasks should be avoided because dyslexic learners rely heavily on context clues. Additionally, during the lesson time, teachers should informally assess their learners during the practice of new language concepts.

h. Lastly, learning has to be *prescriptive*. Evaluating the learner's needs and progress in the lesson, the teacher is to adapt instructions both during the lesson and in lesson planning for further teaching (adapted from Schneider, 2009).

For a more detailed description of how to aid dyslexic students in the language learning classroom, please see Attachment 3.

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[10] A procedure in which a subject is asked to supply words that have been removed from a passage as a test of their ability to comprehend text (Oxford Dictionary, 2020).

2.4. Research in TEFL methodology for students with dyslexia

The research in the field of dyslexia in English teaching has so far mostly focused on studying the linguistic and cognitive differences between SEN and non-SEN students (Ndlovu and Geva 2008; Sparks, Ganschow, and Patton, 2008, as cited in Kormos, Csizér, and Sarkadi, 2009). A Hungarian study, intended to focus on the learning experiences of dyslexic language students in order to make teachers aware of how dyslexic learners feel going through education and how the teacher's own attitude and behaviour can influence them. It concluded that in many parts of the world, EFL teachers rarely receive the knowledge and training necessary to be able to assist students with learning differences in their L2 acquisition (ibid.; Schneider, 2009, as cited in Reid, 2009). Both Kormos et al. (2009) and Ševčíková (2012) found teachers are largely unaware of the possible teaching techniques, methodology and materials they can use to help their dyslexic students and equally do not know that the assessment of their work should differ to that of their peers in the time provided for its completion and in content, depending on the severity of the learning difference. Researchers find that dyslexic foreign language students encounter many problems (Ganschow, Sparks, and Javorsky, 1998; Downey, Snyder, and Hill, 2000; Kormos and Kontra, 2008 and Sparks et al. 2008, as cited in Kormos et al., 2009). Outside of the difference in their processing speed, leaving them often behind the tempo of the class, their peers' response to the situation, either humiliating them (Pappa, 2016) or perceiving their additional support as an alibi for special treatment others do not get (Kormos et al., 2009). Teachers' negative attitudes and unsuitable teaching methods can also undermine learner's self-confidence together with the fear of written assessment, especially when the grading is spelling-focused. This can create a great deal of language learning anxiety in the students (ibid.; Houston, 2020). Differentiated instruction in learning and consistent, collaborative support of individual teachers and whole schools in systemic changes is the key to making curriculum accessible to all students, including students with SEN (Pappa, 2016).

O'Brien and Howard's research (2016) altogether challenges the current functioning of our educational system, designed over a century ago to face different challenges of a different world than today's learners live in and suggest that repurposing of education needs to take place to align with the good of individuals, humanity and the planet equally for transformative educational paradigms informed through scientific and medical research for global sustainability.

With students' feelings and teachers' expertise and attitudes explored, the research of the field of dyslexia in TEFL still faces more than one gap. More studies on language acquisition for SEN students are still required (Kormos et al., 2009). Equally, with the so far researched teaching methods for dyslexia largely not harnessing the power of the 21st century technological development in aiding SEN students, further research needs to be conducted on newly developed, holistic language learning methods utilising modern technology, exploring their productivity and if found effective, encouraging their use in more institution for the benefit of the maximum amount of learners. Despite different intervention programs and helpful teaching techniques and equipment have been developed, none of these encompass the need of the dyslexic brain for holistic input and way of teaching that would help each student understand such abstract concepts as, for example, learning the tenses of the English language. 'I Love Dyslexia' (ILD), an afterschool learning centre in Athens, Greece, has developed new techniques and educational paradigms with the vision to support both dyslexic and other SEN learners in becoming confident, autonomous learners and fluent English speakers, using knowledge and equipment available to the 21st century education.

2.5. 'I Love Dyslexia' learning centre's methods and approach to TEFL

'In the last decades, the world has changed in fundamental and profound ways. It is crucial that the role of education needs to be re-imagined to comply with the demands of the new global reality.' (Pappa, 2018). Recognising the lack of availability of functioning EFL[11] teaching methods for SEN students, this was the premise on which Aggeliki Pappa, the founder of ILD learning centre, developed an entire teaching system for teaching EFL to students with dyslexia and other learning differences. Passing international EFL certificates with 100% success rate, 'the centre's learners also report a significant rise in general school performance and emotional satisfaction, often after years of frustration.' (Varkey Foundation, 2018).

The centre's learning approach comprises from a combination of teaching techniques with learning tools and specialised software originally made for the learners of the centre along with augmented reality tools[12], interactive whiteboards and iPads, which are used and amended accordingly to meet the needs of each individual student (Pappa, n.d.). The Global Teacher Prize summed the centre's approach as one 'based on brain science, consisting of a synthesis of smart visuals, mind maps, funny mnemonics, and games to learn EFL skills in fresh and unconventional ways. It also includes socialising with native speakers, reflection on current affairs, drama, gardening and the use of technology' (Varkey Foundation, 2018).

The complete learning system is based on the paradigm of 3Dlexia[13] (please see Attachment 4), designed with the intention to empower students by being explicitly taught cognitive and metacognitive skills based on how their dyslexic brains learn, and to cultivate the whole brain simultaneously (Pappa, 2018), nurturing respect for all and cultivating virtuous, responsible, independent, emotionally intelligent, skilful individuals, who seek a joyful and meaningful life and vocation.' (3DLexia Paradigm, Attachment 4).

In order to develop the whole being of the student, the 3Dlexia approach applies a 'comprehensive, research-based curriculum that utilizes multi-sensory, project-based and differentiated teaching instruction techniques in addition to new technologies, neuroscience, mindfulness, and shelf awareness sessions as well as creative collaborative indoor and outdoor EFL workshops' (Pappa, n.d.). To achieve this goal, the ILD centre follows a set pattern of actions. For more details, please see Attachment 5.

With the view of exploring the unique learning techniques of the ILD centre and their impact on the achievements in English learning in students with dyslexia, the research questionnaires were designed to address the following research questions:

1) What are the students' perceptions of learning English at the beginning of their language journey, compared to a few years later when they have been through the programme?

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[11] English as a foreign language

[12] Augmented reality is technology that superimposes a computer-generated image on a user's view of the real world, thus providing a composite view. (Lexico, 2020)

[13] 3DLexia is a holistic, transformative, consciousness-based learning experience for the 21st century (Pappa, 2019). For more details see Attachment 1

2) Which one of the teaching techniques used the centre employs do the students deem most effective for their learning and why?

3) What are the teacher's perceptions of the effectiveness and impact of the language teaching techniques used in the centre on its students?

3. Methodology

3.1. Research Design

Considering the most effective way of measuring the centre's impact on English learning, the mean of reliable and easy to complete questionnaires was chosen. These contained both questions of qualitative nature to provide a deeper understanding of selected answers and also questions where the responses could be measured quantitatively for mixed methods effect (Cohen, Manion & Morrison, 2018). The research consisted of designing three types of questionnaires. One aimed at the recently started students of the ILD learning centre, another at long-term learners of the centre and the third at the teachers employed and trained by the establishment (please see Attachments 6, 7 and 8 for details). Convenience sampling method has been selected based on the criterion of participants being mostly local and physically present in the learning centre (Mackey and Gass, 2012).

3.1. Participants

The participants of the research were all students or employees of I Love Dyslexia learning centre situated in Athens, Greece.

All current teaching staff, 8 in total, volunteered to participate in the research, filling in the teachers' questionnaire. The informants were typically MA educated with a number of years of English teaching experience.

The centre's 20 participating students were divided into two categories, half of recently started learners with less than a year of study experience in the centre and the other half with more than 12 months of attendance, for some of them for a number of years. This way, the research was able to compare the presumed benefits of the centre's techniques over time, comparing the students' current skills with when they just started.

Student participants, all native speakers of Greek, were selected by the centre on the voluntary 'if interested' basis along with fitting the criteria of belonging in the categories of new students under 18, new students adults, long-term students under 18 and long-term adults, 5 in each category, to create a group of 20 participants, aged 10 to 58 years. 14 learners (70%) were dyslexic with the remaining 6 representing other learning differences.

Student participation chart

New adult students (5) | New under 18 students (5) | Long-term under 18 students (5) | Long-term adult students (5)
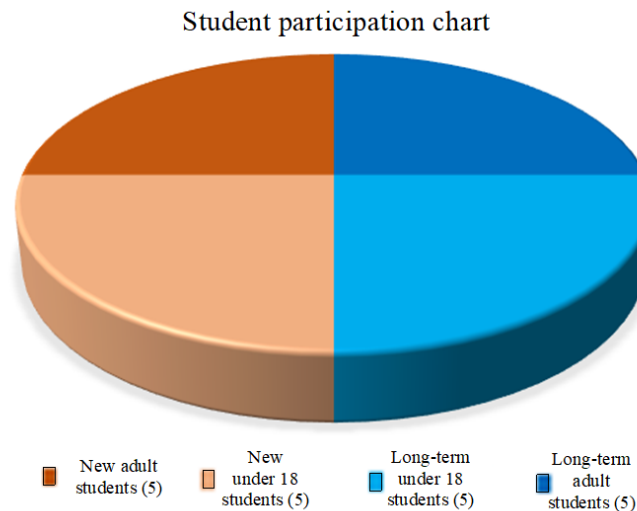
Chart 1: Participation of the ILD centre's students.

3.3. Ethical Issues

Ethical approval for the research has been obtained from the Ethics Officer at the Language and Linguistics Department of Essex University. All participants were assured of complete anonymity, confidentiality, and non-traceability through the Participants Information Sheet. The consent form, customised for adult participants and the parents or carers of participants under the age of 18, reassured the participation is voluntary and can be withdrawn at any point in the research with the collected data remaining anonymous. The data from the scanned questionnaires was stored securely in the researcher's possession on a password protected hard disk. For the purpose of data handling, the participants received pseudonyms.

3.4. Questionnaires

3.4.1. Design

Due to time restrictions, the desired retrospective longitudinal research was substituted by a simultaneous cross-sectional study. To address the research questions in full, three questionnaires were instead designed to compare the progress of newly started students with the learners who have been applying the ILD centre's techniques in their studies over a longer period of time. (Dörnyei, 2007). To answer the third research question and gain another perspective on the learning progress and the learning techniques themselves, one of the questionnaires was to be filled out by the centre's teachers, investigating the other side of the learning process. The students' questionnaires were translated into Greek to ensure consistency in the participants' understanding.

Open-ended exploratory questions were balanced with 5-point Likert scale questions amenable to statistical treatment and faster analysis and consequently coded for quantitative answers, allowing for comparisons across groups in the sample (Cohen et al., 2007:325).

Because the participants were randomly selected in the centre without the researcher having control over their age or education level, certain questions were relevant to older learners with higher achieved education while others were more specific to younger learners who could objectively compare their school experience to their learning in ILD centre since it was freshly on their mind.[14]

3.4.2. Administration and collection

Upon the questionnaires' arrival in the ILD learning centre in Athens, the study's participants volunteered to take part by signing the Participants Information Sheet and Consent Form prior to filling the questionnaires with the learners' parents signing where necessary. Consequently, the questionnaires were self- administered in case of the teachers. Depending on their confidence in the English language, students' forms were either self-administered or delivered by a present teacher to aid understanding or to help with the comprising of the answers in English. The completed forms and questionnaires were posted to the researcher for processing.

3.4.3. Data analysis

Upon arriving, the questionnaires were anonymised by receiving pseudonyms and for the students, further code was ascribed to every name for additional information about each informant as relevant to the outcome of the study. These codes were: N (new), LT (long-term), F (female), M (male), A (adult), J (juvenile-under 18). The Likert scale data from the questionnaires was systematically analysed using excel and where appropriate, charts were created to accompany the qualitative data in results. The answers to the qualitative, open-ended questions were extracted, analysed and compared together across the groups.

The original intention was to compare the opinions of the long-term and new students on the centre's techniques with the expectation of them pointing out and valuing different things as important and valuable to their learning. However, all across the board, disregarding their age or how long ago they started their learning at the centre, the students were giving rather consistent answers regarding their values and the learning tools and processes they enjoy. Considering this outcome, the data has been instead evaluated holistically where appropriate.

The answers from the questionnaires were divided into the following four themes which compared the ILD centre to public education in Greece, and described the most impactful techniques of the centre along with their perceived effect on the students' learning while also addressing students' confidence and the motivation for learning.

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[14] Therefore, in the students' questionnaires, the last question in the personal information section was a contingency question, serving as a sorting device to eliminate certain participants answering unsuitable questions (Cohen et al., 2007)

4. Findings

Dyslexia in public education and the ILD centre: Reflecting on public education in Greece when it comes to language learning, both long-term and new under 18 students repeatedly described their public-school education as unengaging, dependant only on the language workbook, lacking a variety of content and effective teaching methods. They portrayed their school teachers as 'distant' (Athanasios MNA). They did not feel respected by their educators, believing that they consider them lazy (Iakobos MLTJ). 'They feel like they don't actually need to teach anyone anything because they know all their students go to afterschool education to supplement their English' stated Tallya (FLTA). One of the students went to the length of describing her English teacher as 'aggressive' (Eurerpe FLTJ). Repeatedly, the teachers have been depicted as lacking the ability to explain things or find alternative ways to convey their message in a way their dyslexic students would understand, and some of them wouldn't even know what dyslexia is, much less how to support a dyslexic student (Iakobos MLTJ).

On the contrary, the learning in the ILD centre was described as more organised, focusing on the specific needs of the students, up to date with technology and using a variety of teaching techniques based on teachers understanding the needs of their dyslexic learners 'well' (Iakobos MLTJ). Learning life skills and the prominent use of technology was repeatedly remarked on as well as higher freedom of learning choices along with the possibility to 'participate in life-like tasks and beneficiary activities such as helping people in need' (Eurerpe FLTJ). In the centre, students commented on feeling respected by the teachers who are 'friendlier' and explain things in easy to understand way using technology and numerous learning techniques (Aminta FNJ, Basil MNJ, Olga FNJ, Charon MNJ, Callistus MNA, Eugene MNA, Eurerpe FLTJ, Helen FLTJ, Darius MLTA, Loikanos MLTJ, Iakobos MLTJ) This led the students to describing the learning atmosphere as more relaxed and pleasant and the learning itself as 'fun' (Eurerpe FLTJ, Argus MNJ) . Teachers' comments on this topic included noticing that their students often arrive from mainstream schools without knowledge of complete basics such as the English alphabet, even after years of learning the language (Adrianna). They uniformly agreed that the use of technology at the centre is what sets the centre apart from traditional teaching methods in public schools which are ineffective in the education of the dyslexic brain. 'While the use of 3D images, sounds, and fun activities provides entertainment for the students, it also allows to grasp concepts much faster, providing the luxury of taking the technology home for extra practice' (Demetria).

The teacher's understanding of the dyslexic brain and the problems their learners face in education and real-life comes from a thorough, 3-week initial training provided by the centre. Unanimously, all teachers rated their own learning experience highly on usefulness, stating that the training was packed with new information about the centre's holistic teaching approach, neuroscience of dyslexia as well as mind mapping and the use of the centre's numerous other innovative tools, resources, methodology, underlying theory, and teaching approaches (Carina, Dorcas, Zanthe). Despite all the educators had formal training in English teaching, they said they learned new things when it comes to English teaching, especially in terms of explicit instruction of phonics teaching[15] (Alixia, Tanith).

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[15] In general, the phonological structure of Greek words is transparent due to the predominance of syllables with consonant – vowel pattern which English contrasts with containing many words with consonant clusters such as in strength or splash which is confusing especially to dyslexic readers from a language which rarely follows

Following the training, the teachers marked their confidence in using the centre's techniques and resources equally high, having been guided step by step in using them (Adriana).

Equally, the teachers strongly believed it was important for the learners themselves to be educated in understanding the learning requirements of their dyslexic brains, saying that 'self-knowledge and self-awareness is the power that every student deserves to have' (Adrianna). The teachers commented that it allowed their students for the first time to understand the process of learning, take pride in it and responsibility for it, building up to studying autonomously. It also helps them grow self-confidence as they can see that despite what they were made believe in school, they are not stupid, they just need to use a different learning approach to their peers at school, accepting their uniqueness and realizing their strengths and abilities. They no longer feel like they are failing to adapt to conventional learning methods (Dorcas, Adrianna, Tanith).

Furthermore, all the teachers gave the highest score to the importance of Pedagogy for Love, holistic teaching approach the centre practices in order to value and educate the whole person of the learner rather than just educating the brain. The teachers noted that the teaching approach influences the way they speak to their learners, using non-labelling, encouraging and building language. It makes 'students feel welcome in class, cared for and confident that their educators have their best interest at heart. It makes students more confident in their learning' (Carina), 'respected, safe and motivated to learn' (Tanith) and it enables them to develop humanitarian skills, becoming aware of global issues that they can have their part in helping with (Dorcas).

With parental feedback being an integral part of evaluating each learning centre's success, the teachers have been asked about the parents' responses to the learning techniques and approaches used by the centre. The teachers reported that centre has received 'hundreds of messages from parents about their enthusiasm seeing their children not only learn English but also to go home and work alone for the first time in their life and be so happy every time they come to ILD. Generally, they see a transformation of their children who become better students at school too' (Adrianna). Parents 'have understanding that the school is not just another business but an institution that values their children's strengths' (Tanith). 'They feel grateful and happy to see their children to excel in the English language but also see their children have gained and applied life skills, they are more organised, responsible and have more humanitarian and respectful approach to life and people' (Dorcas).

Confidence for learning before starting at the ILD centre and now: As can be seen in chart 2, in the newly started students' category, the growth in overall confidence was noted in 60% of the respondents, and was more prominent in adults than in the under 18s. This percentage increased exponentially to 90% growth in long-term students across the board in both learning and using English confidence and overall confidence. In this group, all of the adults said their confidence grew since they started at the centre and 80% of the under 18s agreed.

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such patterns (Nikolopoulos, Goulandris and Snowling (2003) Therefore, learning the phonetics of English is one of the basics every learner starts with.

Confidence

New Students Under 18

Long-term Students Under 18

New Adults

Long-term Adults

Perceived confidence when started at the ILD centre
Perceived confidence now
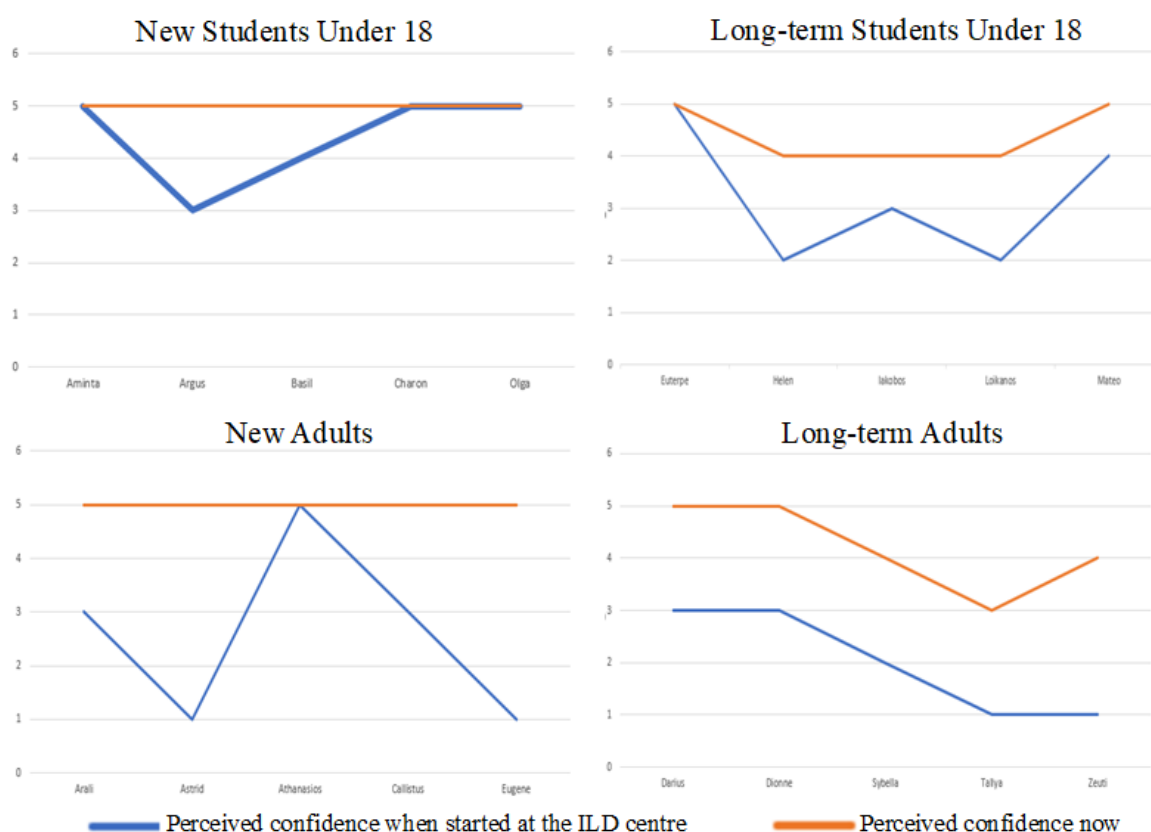
Chart 2: Growth in confidence in learning and using English as a foreign language in new and long-term students over time.

In motivation to learn, half of the newly started students increased motivation during their study in the centre and this number rose to 80% for the long-term students with the same patterns for adults vs. younger respondents. Please see chart 3 for details. In both cases, this was the result of the younger respondents feeling more confident and motivated about their learning and achievements from the very beginning, marking themselves higher on both confidence and motivation compared to adults, unlike in the rest of the data which was rather consistent across the age groups.

Motivation

New Students Under 18

Long-term Students Under 18

New Adults

Long-term Adults

—— Perceived motivation when started at the ILD centre —— Perceived motivation now
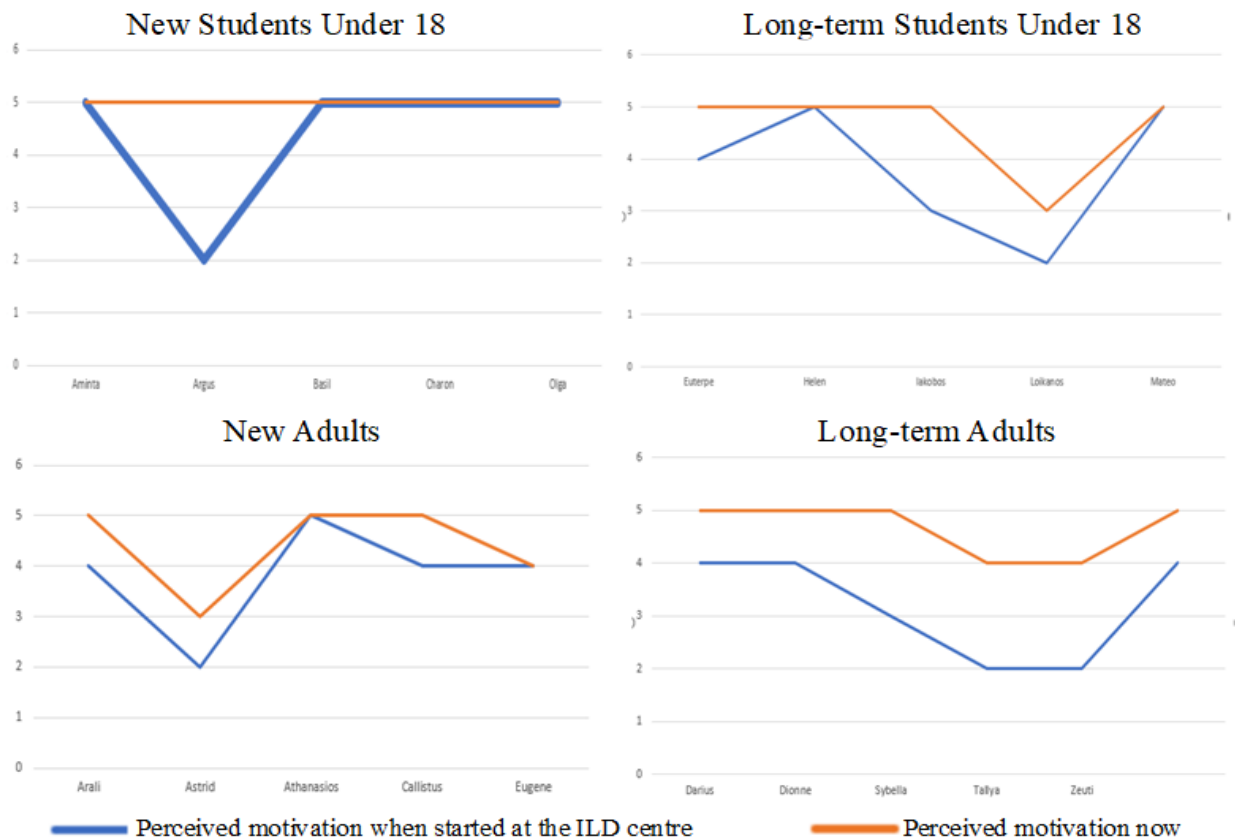
Chart 3: Growth in motivation for learning in new and long-term students over time.

The students who evaluated their confidence and motivation as higher now than at the beginning attributed their successes to feeling like the teachers care about them unlike in public schools (Argus MNJ) and to the teachers pitching the 1:1 lessons right according to their individual needs. The adults would say that their initial confidence was low due to how many times they failed before despite trying to learn English for a very long time and still not understanding it at all, which resulted in them being fearful and unable to learn (Callistus MNA, Eugene MNA, Zeuti FLTA). Seeing progress was a reoccurring reason for growth in English speaking, learning and in overall confidence. Their confidence grew with starting to see results from their learning at the ILD centre, being able to remember concepts such as grammar and apply them in their language production with results they can see both in the classroom and at work, communicating with their clients (Tallya FLTA, Basil MNJ, Callistus MNA).

Finally, allowing for both confidence and motivation to grow is the matter of peer pressure. Contrary to their experiences in school, where learners experience 'considerable humiliation from typical peers' which then often follows low performance of SEN students in public school (Pappa, 2016:49), 95% of students agreed that peer pressure was not their concern in the ILD centre at all. All long-term students and 9 out of 10 of the new students marked their feeling of peer pressure at the centre as 1, the lowest possible answer. This was attributed to the students working in similar age groups (since the evening workshops are split into workshops for adults, teens, and children with their separate contents).

Students stated that they 'don't feel peer pressure. In contrast, we all have common goals and we help each other.' (Callistus MNA).

Preferred learning settings and learning tools As can be seen from the charts below, considering their preferred learning setting, 80% of the students inclined towards finding 1:1 lessons with the teachers most beneficial. All teachers marked the importance of their 1:1 study sessions as most important with ascribing the second place of similar importance to the workshops, saying: 'a lot of the times, students with SEN do not invest time into self-study, 1:1 meetings and workshops benefit them the most. However, as they learn how to learn and gain confidence, they need to progress in their self-study too. In workshops, students also learn teamwork and acquire social and emotional skills; they are taught how to study, organize their time and weekly schedules – they become more autonomous learners for alone study time' (Adrianna, Dorcas). Tanith commented: 'I believe that each part plays a significant role in the holistic educational experience of the ILD centre! 1:1 lessons help students acquire grammatical phenomena, vocab + study skills while workshops tend to revolutionize the concept of language learning for them. Study time at the centre and at home helps them to fossilize acquired knowledge.' The importance of balance between the learning settings which each contribute differently to the overall learning experience was mentioned by 5 out of the 8 educators.
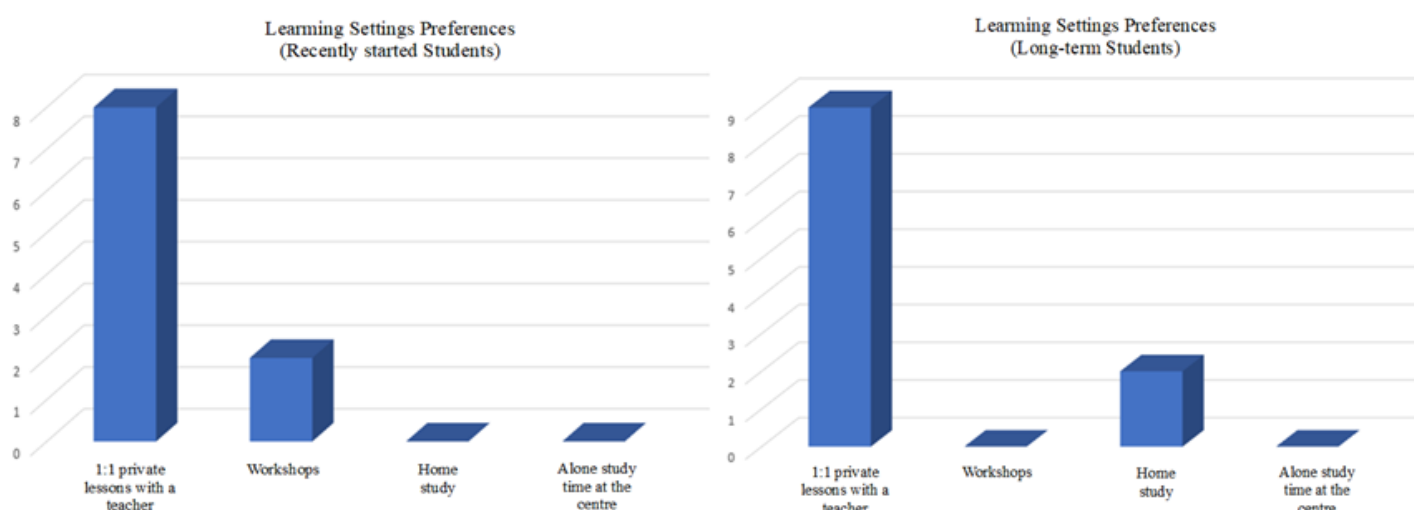
Chart 4: Learning setting preferred by new and long-term students respectively.

Expanding on the students' evaluation of the weekly workshops and which of their aspects they consider the most important and beneficial to their learning, students evaluated all these aspects almost equally important with the long-term students assigning higher importance to each aspect compared to newly started students. As can be seen from the chart below, students rated all aspects as of almost equal importance, with the use of technology in teaching slightly in lead. Long-term students assigned a higher value to all aspects compared to new students. Furthermore, on the topic of differentiation[16] in learning, 7 out of 8 teachers saw it as of utmost importance, remarking that involving the students in choosing learning materials allows them to develop ownership for their learning, choosing their tasks boosts motivation and higher level of maturity, confidence.

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[16] Differentiation means tailoring instruction to meet individual needs. Whether teachers differentiate content, process, products, or the learning environment, the use of ongoing assessment and flexible grouping makes this a successful approach to instruction (Tomlinson, 2000).

It also makes the students be more comfortable and therefore accommodates for enhanced cooperation on their side. Rather than just being passive recipients, they become active participants in the learning process (Alixia, Carina, Demetria).

Evaluation of the importance of each aspect of the
weekly workshops

■ Recently started students   ■ Long-term students
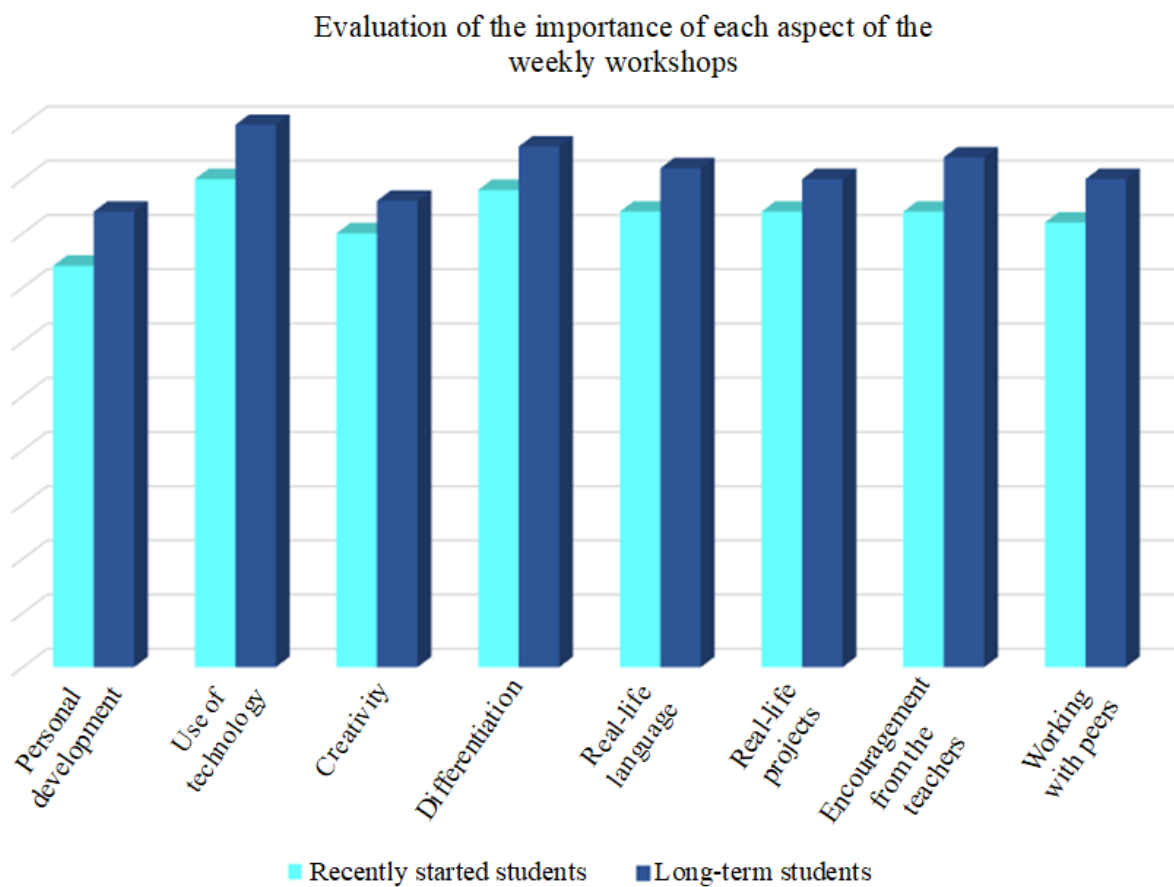
Chart 5: Weekly workshops aspects impact as deemed by the students.

As can be observed from the charts below, it is clear how much new students appreciate the technological part of learning in the centre as it far outweighs the rest of the tools. As for the long-term students, they seem to enjoy tasks which ultimately bring them closer to deep understanding and real-life use of their learning, placing equal emphasis on mind mapping (please see Attachment 9) and the use of authentic activities.

Preferred learning tool
(Recently started students)

Preferred learning tool
(Long-term students)
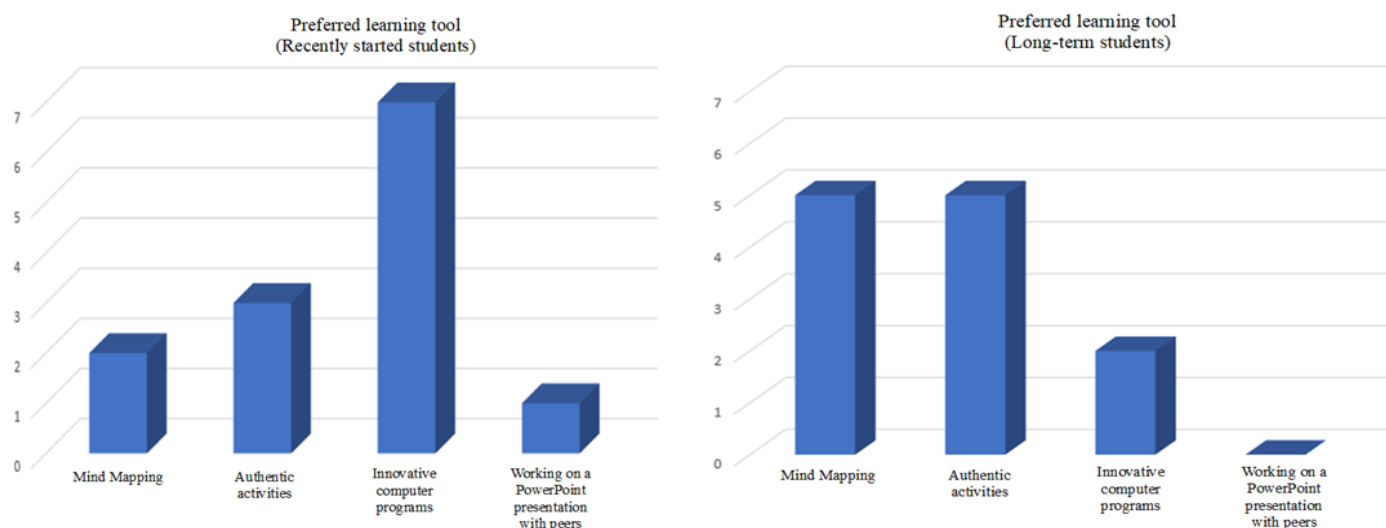
Chart 6: Learning tools preferred by new and long-term students respectively.

As previously mentioned in the teachers' comments, the centre's effort is to cultivate autonomous learning. One of the tools supporting this aim is online learning platform Edmondo[17] to connect with the students learning even at home. Students can engage in meaningful interactions with their classmates using the target language, upload homework, bring them together, strengthen critical thinking, and it gives them the opportunity to express themselves (Demetria, Dorcas, Tanith). Compared to the 70% of declared use on the side of the educators, 56% of new students and 68% of long-term students use the platform. Teachers further comment that mature students are better at using this independent learning tool than younger learners, which is confirmed in the results for new students in 28% of young and 84% of adult learners using it with a similar result of 48% vs. 88% respectively for long-term students.

Another highly evaluated technical tool used as the centre is the reading comprehension enhancing programme Immersive Reader (please see Attachment 10). The teachers evaluated the effectiveness of the program in their classes to 90%. They stated they use it with all students both in English and Greek very effectively because it is 'life-changing tool which allows to leave students' obstacles in reading behind' (Adrianna). It improves reading comprehension, increases fluency, allows for color-coding of words according to part of speech and lets them adjust the size of letters and number of lines to see at once. The students can also arrange rhythm of reading. All this brings a great improvement in the students' reading fluency (Carina, Dorcas, Eudora).

Mind mapping (please see Attachment 11) came in the teacher's evaluation as a learning tool as 95% effective. The teachers commented: 'it is a very useful visual representation of the desired information which makes learning both on paper and on the screen more understandable' (Demetria). 'It allows the students to organize information in their brain the way they need to, based on right hemisphere techniques' (Dorcas). The

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[17] Edmondo is an educational website that takes the ideas of a social network and refines them and makes it appropriate for a classroom. (Edmondo, 2020)

students have the chance to learn their grammar by associating the phenomena with something from their everyday life, something fun and easy to remember (Eudora) and all information comes on one page only. It makes grammar rules easy to remember. The visually representing information technology is familiar to the students, and the graphics make learning grammar, reading comprehension, life skills and mindfulness memorable (Zanthe).

Further resources for grammar teaching that have proven most useful to the centre's teachers as recorded by them have been interactive software such as augmented reality tools like Quiver[18] (please see attachment 12) which students themselves often referenced to as being both effective and enjoyable learning tool. Then online games, mnemonic stories that accompany each mind map addressing new grammatical phenomena and important part also plays kinaesthetic interactive learning. With phonics being taught to each of the centre's students regardless of the age to help them master reading, synthetic ways of learning are used. Using technology such as smart boards and 3D phonics with augmented reality tools are the students' favourite together with kinaesthetic learning such as writing phonemes and sounds into sand and letters related yoga poses. Kinaesthetic learning was another tool much appreciated and mentioned also by students along with the use of phonetic Legos, 3D alphabet letter resources (please see Attachment 13), multisensory activities, use of music and flashcards with stories behind each sound.

With regards to English workbooks being used as one of the centre's resources for learning, the teachers observed the importance of combining the printed book along with its digital interactive version. The book provides lots of practice opportunities for different EFL diplomas worked towards by some of the students. 'The difference doesn't lie so much in the workbooks but in the whole organisation of the lessons where the students' individuality is greatly taken into an account' (Alixia). 'They became ineffective in the primary and secondary schools because they are used in a traditional way without the use of technology, therefore, the workbooks become ineffective and less motivational for the learners' (Dorcas). 'While in the centre, they are only a secondary source. The students are exposed to such a plethora of activities that the workbook use seems just a small part of their weekly routine' (Tanith).

Skills deemed as most developed by the centre Overall, self-confidence was the skill considered as most developed across both new and long-term students (Chart 7). However, while for the new students, self-confidence was closely followed with almost evenly decreasing numbers across all the skills for writing, grammar, and speaking, in long-term students, self-confidence along with study skills were considerably ahead of any of the other skills. This phenomenon was commented on by the teachers. In long-term students, the educators said they observe their learners 'come out of their shells' and 'cease to hesitate in language production tasks – both written and oral'. Their confidence grows as well as their memory – retention of the information studied. They also notice students become more autonomous and able to organise their time management better and their overall study skills develop.

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[18] Augmented reality tool which brings 2D drawings or letters 'into life' in the 3D world through the use of the Quiver app.
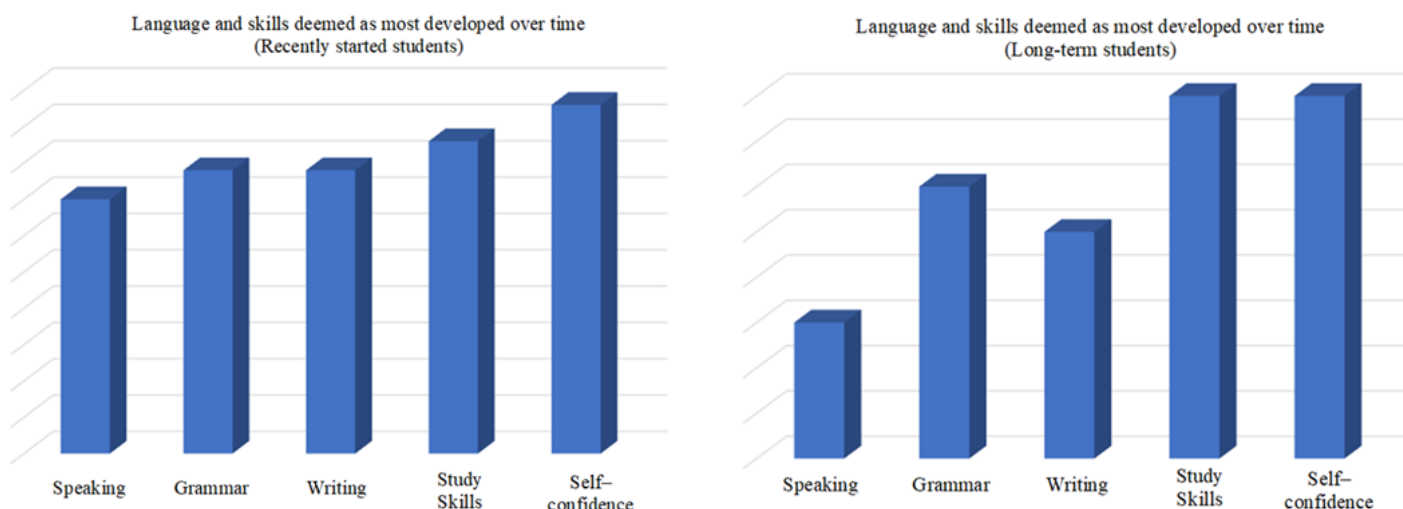
Chart 7: Language skills deemed as most developed over time in new and long-term students respectively.

5. Discussion

The current study, having explored the innovative methodology and tools of the ILD centre, shows students' engagement with their learning grows over time together with their self-confidence and motivation for learning. It compares the learners' opinions on their educational experiences in public schools and at the ILD centre. It explores their preferred learning settings and favourite features of the learning in I Love Dyslexia, as well as their teachers' opinions on the same matters for comparing both the delivering and receiving side of the spectrum. The research questions addressed:

1. *What are the students' perceptions of learning English at the beginning of their language journey, compared to a few years later when they have been through the programme?*

Contrary to expectations, there were no mayor differences between new and long-term students in their opinions on the centre and its learning techniques. In line with Padeliadou and Lampropoulou (1997), Kormos et al. (2009) and Pappa (2016) their description of studies in the public sector included rather negative views of their learning environment and the people in it. In contrast, they considered ILD centre as 'incomparable' (Eugene, MNA) and evaluated it with positive connotations.

It was noticeable that students in the groups of recently started learners and younger learners were generally answering in a briefer manner, which was ascribed either to their level of English if they just recently started learning or to their self-confidence in their answers. All across the board, students in all four categories evaluated their overall self-confidence as confidence as learners as growing with time compared to with when they started learning at the centre. Study skills and self-confidence was also what especially long-term students rated as the most important skills they gained over their time at the centre. This was in line with Pappa's research

(2016) finding that students, when introduced to suitable intervention techniques, thrived, felt safe about their learning environment and grew in confidence as well as in knowledge and academic skill. There was a significant difference between the new and long-term students' preferred learning tools. The new students seem to appreciate the innovative technology used at the centre, ranking it high above other tools the centre employs. While long-term students showed greater appreciation for the mind mapping techniques and authentic tasks, showing that with time, the innovation of working with technology wears out and instead, students prefer to work more extensively with tools which ultimately allow for a deep understanding of the studied concepts and for real-life-like opportunities to test their skills, moving towards becoming independent learners (Mitchell and Myles 2004) and using their skills to impact their life and the world around them, participating in humanitarian projects such as SOS4Love[19] or helping the refugees together with Aggeliki Pappa's other humanitarian projects.

2. *Which one of the teaching techniques used the centre employs do the students deem most effective for their learning and why?*

By large, out of the centre's learning settings: lessons with a teacher, group workshops, alone study time at the centre and home learning, the students favoured their 1:1 study time with a trained teacher, explaining they feel respected and encouraged by their teachers who understand how their brains work and adjust the lessons to their needs and learning pace. They repeatedly mentioned the virtual use of mind mapping and augmented reality technology as imperative to their understanding of difficult concepts such as grammar and in phonics, students highlighted kinaesthetic learning through listening to memorable stories connected to sounds and being able to play games such as writing the sounds in sand, etc. (Reid, 2007; Schneider, 2009 and Ševčíková, 2012), mentioning other techniques such as flashcards and 3D letters also. Especially in tackling grammar and other such language-related abstract phenomena, students repeatedly pointed to interactive mind mapping to be most beneficial due to its help to make links and connecting real-life images with abstract concepts in their minds. In the environment of group work during workshops, they evaluated the use of technology together with differentiated instruction to be most valuable to their learning, closely followed by personal development, creativity, real-life language, encouraging, positive language from teachers, real-life projects and working with peers, making clear that all these aspects play their own important role in their learning.

3. *What are the teacher's perceptions of the effectiveness and impact of the language teaching techniques used in the centre on its students?*

The teachers, educated in the neuroscience behind the dyslexic brain and the intervention strategies available to their students, emphasised the importance of positive, encouraging language and building mindset of Pedagogy4Love[20], as endorsed by Noels, Clément and Pelletier (1999, as cited in Kormos et al., 2009) and Reid (2007).

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[19] Students Organised Solutions launched in the United Nations with the vision to Educate, Inspire, Connect & Activate Students & Teachers Globally on SDGs Actions Supporting the UN Agenda 2030, while highlighting the urgency for #Pedagogy4Love in the world (Pappa, n.d. SOS4Love Project).

[20] Pedagogy for Love is based on cutting edge scientific research of the role of the heart intelligence in human growth. For full explanation, please see Attachment 5.

Unlike the students who showed clear preferences among the different learning settings, techniques, and tools, the teachers stressed that a balance between the 1:1 sessions, group and individual learning produces various skills and remembered the ultimate goal is to produce an independent, confident learner who knows how to best work around their learning needs. Despite highly valuing all the electronic tools such as Microsoft Immersive Reader and augmented reality tools like the Quiver app, in line with past research (Ševčíková, 2012; Cimermanova, 2015), mind mapping has proven another highly praised tool. It was considered fun and innovative, 'extremely useful' (Eudora), allowing students to easily understand even complex abstract concepts such as English grammar. Explicit phonics instruction has been commented on most when it comes to their training at the centre as something they have not come across neither in their previous education in TEFL, nor in their past work experiences in the teaching sector. They named a number of techniques the centre uses for phonics teaching, including songs and mnemonics, writing in sand for kinaesthetic learning, 3D alphabet and the use of Quiver and other iPad apps to practice writing of the sounds, board, and online games, phonetic Legos, sight words flash cards and more and remarked the students enjoy the variety of options for practicing and for choice. Differentiation was another important aspect of the learning as it enables the students to 'develop ownership of their learning through selection' (Alixia). 'It gives the opportunity to the students to participate actively in the learning, rather than just passively receiving information and they feel free to select from a range of activities those that match their interests and ways of learning.' (Zanthe).

Since the present study focused largely on dyslexia, future research could address which of the above mentioned or other innovative tools in the SEN education for ESL students suit most to students with other learning differences, differentiating clearly between each, and drawing recommendations for the educational sector from the data. Ideally, research needs to be conducted in how using the same techniques for all learners without difference would impact learning in public sector in general. It is my understanding that the same learning techniques and tools which benefit dyslexic and SEN students would greatly advance regular learners who would then be able to acquire new knowledge with ease. This would also narrow the gap in education with special educational needs no longer being 'special' because teachers themselves would be taught to teach using technology and techniques such as mind mapping and differentiation naturally, remodelling the current educational system to truly suit all without leaving teachers feeling overwhelmed and unprepared.

6. Conclusion

To conclude, it has been shown that when teachers are educated in the knowledge of how different types of brain function and learn and provided with effective strategies on how to help all of their students achieve their best, learners, including SEN students feel safe and accepted and grow into independent learners with their own voice. Despite no system or individual can ever achieve perfection, it is the duty of 21st century education to keep up with the needs faced by current learners when leaving to establish themselves in the job market, actually prepared for the demands made on them by their future employment. If education can change along with the demands made on learners by the world, inclusion in schools will be made complete and

students will be learning through ways which modern research considers most productive, rather than those set up over a century ago for learners facing different needs of a different world (O'Brien and Howard, 2016).

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Attachments

Attachment 1

<u>Fonts suitable for dyslexic readers</u>

In the digital world, researchers from various fields have taken notice of the different needs of dyslexic readers when it comes to fonts. The readers preferred good ascenders and descenders for certain letters such as b, d, f, h, k, l, t, g, j, p, q, y and all capital letters. They needed b, d and p, q to not be mirror images of each other but be well distinguished. Unsimilar forms for capital 'I', lowercase 'l' and number 1 were requested along with rounded g as in hand writing and enough space between letters such as rn not looking like m (e.g. in the word modern not looking like modem). These preferences lead to the development of a number of dyslexia friendly fonts, freely available on the internet, such as Lexia Readable, Open-Dyslexic, Dyslexie (British Dyslexia Association, 2015) with further guide on the sizes, colours of font and background and other helpful tips available online on the British Dyslexia Association website (https://www.bdadyslexia.org.uk/advice/employers/creating-a-dyslexia-friendly-workplace/dyslexia-friendly-style-guide).

Attachment 2

Please see the wheel of iPad apps retrieved from the sources below on the following page.

These representations are available from various web sites, but can all be downloaded from: http://apps4stages.wikispaces.com/AppWheels.

Version 1.0, November 2013 CALL Scotland, The University of Edinburgh.

CALL Scotland is part funded by Scottish Government. An electronic version of this chart can be downloaded from: http://bit.ly/1gqOszG

iPad Apps for Learners with Dyslexia/ Reading and Writing Difficulties

A circular diagram organising iPad apps by category.

Center categories: Memory, Organisation, Numeracy, Reading, Writing

Subcategories (inner ring): Reminders, Improving Memory, Information Gathering, Outlining, Mind Mapping, Mathematics, Calculator, Speech Recognition, Word Processing, Audio Notes, Note Taking, Word Predictors, Sentence Structure, Letter Formation/Handwriting, Scanning, Working with PDFs, Reading eBooks, Text to Speech, Creating Stories, Talking Books, Early Reading

Memory:
- Reminders: Forgetful, Reminders
- Improving Memory: Flashcards+, Remember the Milk, Memory Workout, My Secret Diary, Calendar
- Information Gathering: Pinterest, Safari, Navidys, Scoop It!, Web Reader, Lumosity, Brain School Training

Organisation:
- Outlining: Side By Side, Outline Pro, MagicalPad HD
- Mind Mapping: Popplet, Mind Mapper, SimpleMind+, Idea Sketch, Inspiration

Numeracy:
- Mathematics: Mathpad, MathPaper, MathBoard
- Calculator: Talking Scientific Calculator, Talking Calculator, Myscript Calculator, TalkCalc

Writing:
- Speech Recognition: Vlingo, Dragon Dictation, Siri
- Word Processing: CloudOn, Clicker Docs, Pages
- Audio Notes: Notability, iTakeNotes, AudioNote, SoundNote
- Note Taking: Evernote, Circus Ponies Notebook, Paperport Notes, MyScript Memo, Abilipad
- Word Predictors: WritePad, Co:Writer, iWordQ, iReadWrite, App Writer
- Sentence Structure: Sentence Builder, Sentence Maker, Clicker Sentences
- Letter Formation/Handwriting: Hairy Letters, Pocket Phonics, abcJoinedUp, Writing Wizard

Reading:
- Scanning: Into Words, CamScanner, Text Grabber, Prizmo
- Working with PDFs: iAnnotate, Adobe Reader, PDF Expert, ClaroPDF
- Reading eBooks: iBooks, Kindle, Blio
- Text to Speech: vBookz Reader, Voice Dream Reader, Speak Selection, Speak It!
- Creating Stories: Book Creator, Clicker Books, Story Creator, Our Story for iPad, Comic Life
- Talking Books: Word Magic, First Words Deluxe, Phonics Genius, ABC Reading Magic, Toy Story Read Along, The Three Pandas, Me Books
- Early Reading: Bitsboard

Attachment 3

For the students, multisensory strategies remain the most suitable for dyslexics' independent learning also, using techniques such as drawing bullet mind maps, posters, check lists, colour coding their learning, using mnemonics and visual memory pegs, index cards, planners and wall charts along with using different rooms in their house for learning different subjects (Hargreaves, 2012). For the best results in both learning and general organising skills, dyslexic learners should take full advantage of new technology and software (please refer to Attachment 2 for suggestions). Mind mapping, as mentioned, remains a powerful tool for students as it allows them to contextualise information and enhance comprehension through the selection of information to write down as key. It has proven as essential, especially for older learners when revising for tests or taking notes in their lessons in a way they can understand and remember. Mind maps are either hand drawn or created online using free softwares such as https://miro.com/mind-map-software or www.mindmeister.com/. Also available is an online community or parents and dyslexic learners using this technique to succeed in primary, secondary or tertiary education, accompanied with a step by step course on how to learn to organize information for mind mapping in one's learning (Darius Namdaran, https://bulletmapacademy.com/). An important aspect in the dyslexic learning is over-practice which means students should give themselves opportunities to receive the same information through various means, using different tasks such to learn the same thing in order for the brain to process and memorise the information adequately. It is important to make the learning engaging to prevent boredom and the decrease in motivation (Schneider and Crombie, 2003, as cited in Ševčíková, 2012; Reid, 2007).

Additional helpful tips for teachers can be found here:
- **Clarify or simplify written directions.** Some directions are written in paragraph form and contain many units of information. These can be overwhelming to some students. The teacher can help by underlining or highlighting the significant parts of the directions. Rewriting the directions is often helpful.
- **Block out extraneous stimuli.** If a student is easily distracted by visual stimuli on a full worksheet or page, a blank sheet of paper can be used to cover sections of the page not being worked on at the time. Also, line markers can be used to aid reading, and windows can be used to display individual math problems.
- **Highlight essential information.** If an adolescent can read a regular textbook but has difficulty finding the essential information, the teacher can mark this information with a highlight pen.
- **Provide additional practice activities.** Some materials do not provide enough practice activities for students with learning problems to acquire mastery on selected skills. Teachers then must supplement the material with practice activities. Recommended practice exercises include instructional games, peer teaching activities, self-correcting materials, computer software programs, and additional worksheets.
- **Simultaneously combine verbal and visual information.** Verbal information can be provided with visual displays (e.g., on an overhead or handout).
- **Repeat directions.** Students who have difficulty following directions are often helped by asking them to repeat the directions in their own words. The student can repeat the directions to a peer when the teacher is unavailable.

- **Maintain daily routines.** Many students with learning problems need the structure of daily routines to know and do what is expected.
- **Provide a copy of lecture notes.** The teacher can give a copy of lecture notes to students who have difficulty taking notes during presentations.
- **Use step-by-step instruction.** New or difficult information can be presented in small sequential steps. This helps learners with limited prior knowledge who need explicit or part-to-whole instruction.
- **Write key points or words on the chalkboard.** Prior to a presentation, the teacher can write new vocabulary words and key points on the chalkboard or overhead.
- **Use balanced presentations and activities.** An effort should be made to balance oral presentations with visual information and participatory activities. Also, there should be a balance between large group, small group, and individual activities.
- **Use mnemonic instruction.** Mnemonic devices can be used to help students remember key information or steps in a learning strategy.
- **Emphasize daily review.** Daily review of previous learning or lessons can help students connect new information with prior knowledge.
- **Design hierarchical worksheets.** The teacher can design worksheets with problems arranged from easiest to hardest. Early success helps students begin to work.
- **Change response mode.** For students who have difficulty with fine motor responses (such as handwriting), the response mode can be changed to underlining, selecting from multiple choices, sorting, or marking. Students with fine motor problems can be given extra space for writing answers on worksheets or can be allowed to respond on individual chalkboards.
- **Provide an outline of the lesson.** An outline enables some students to follow the lesson successfully and make appropriate notes. Moreover, an outline helps students to see the organization of the material and ask timely questions.
- **Place students close to the teacher.** Students with attention problems can be seated close to the teacher, chalkboard, or work area and away from distracting sounds, materials, or objects.
- **Encourage use of assignment books or calendars.** Students can use calendars to record assignment due dates, list school related activities, record test dates, and schedule timelines for schoolwork. Students should set aside a special section in an assignment book or calendar for recording homework assignments.
- **Reduce copying by including information or activities on handouts or worksheets.**
- **Allow use of instructional aids.** Students can be provided with letter and number strips to help them write correctly. Number lines, counters, and calculators help students compute once they understand the mathematical operations.
- **Display work samples.** Samples of completed assignments can be displayed to help students realize expectations and plan accordingly.
- **Use peer-mediated learning.** The teacher can pair peers of different ability levels to review their notes, study for a test, read aloud to each other, write stories, or conduct laboratory experiments. Also, a partner can read math problems for students with reading problems to solve.
- **Encourage note sharing.** A student can use carbon paper or a notebook computer to take notes and then share them with absentees and students with learning problems. This helps students who have difficulty taking notes to concentrate on the presentation.

- **Use flexible work times.** Students who work slowly can be given additional time to complete written assignments.
- **Provide additional practice.** Students require different amounts of practice to master skills or content. Many students with learning problems need additional practice to learn at a fluency level.
- **Use assignment substitutions or adjustments.** Students can be allowed to complete projects instead of oral reports or vice versa. Also, tests can be given in oral or written format. For example, if a student has a writing problem, the teacher can allow her or him to outline information and give an oral presentation instead of writing a paper.

The full list of activities and suggestions can be retrieved from:
https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwj
--uurr-HoAhX9RBUIHcA4A-
oQFjAAegQIAhAB&url=https%3A%2F%2Fugc.futurelearn.com%2Fuploads%2Ffiles%2Fe
9%2F1b%2Fe91b6a1c-ed72-41e0-bed8-
c014eab607bd%2FWays_of_accommodating_learners_with_dyslexia_in_the_foreign_langua
ge_classroom-4.pdf&usg=AOvVaw1HFtp4H67ftEhogZNbt3uC

Attachment 4

The Innovative 3Dlexia Paradigm K12 by Aggeliki Pappa

The 3Dlexia Paradigm is a revolutionary, transformative, holistic, consciousness-based paradigm, preparing and equipping students with highly complex skills for the 21st century to lead a sustainable future a joyful life. This dynamic paradigm consists of three inseparable, entangled components, including:

a) **the 3Dlexia Educational Philosophy**

b) **the 3Dlexia Cosmic Code Delivery Methodology**

c) **the 'π' Pi 3Dlexia Quantum Leadership Approach**

The 3Dlexia educational Philosophy is defined as a holistic, transformative, consciousness based, ecological, cosmic learning experience for the 21st century, driven by ethos, pathos, logos, leading a Quantum Paradigm based on Pedagogy for Love. Its mission is to cultivate skillful, compassionate, wise and joyful cosmic citizens, agents of change for a sustainable, peaceful and prosperous New Earth for All.

Holistic, transformative education: it refers to the harmonious three-dimensional entanglement of Emotional, Intellectual and Physiological trinity for transformative educational practice, cultivating *heart mind coherence* and growth of the whole child. In addition, it is enhanced by the use of cutting-edge inclusive Technology, Modern Science and inspiring Arts.

Consciousness based education: Consciousness refers to defining our reality in developing unique expansion of personal and cosmic awareness. It is related to the ability to think and

act in accordance with the quantum laws, nurturing well-being, happiness, inner harmony, higher self-awareness, creativity and gratitude. Additionally, self-confidence, moral reasoning and ethical behaviors are cultivated for a sustainable, peaceful world.

Love based Education or Pedagogy for LOVE: refers to a new Paradigm on education that moves from the outdated, fundamentally incorrect Newtonian, mechanical concept Man and the illusion of separateness in nature, to the new scientific, Quantum, wave like, *energetic* conception and self-image of Man, producing a shift in values conducive to human survival. The quantum conception of Man gives an enlarged sense of Self as Architect of an interconnective Universe. From such a new self-image must flow values that extend far beyond the confines of narrow personal self-interest. Quantum theory indicates that we are all, far more intricately than appearances indicate, facets of One universal process. Thus, according to the quantum conception of nature, the notion that any one of us is separate and distinct from the rest of us is an illusion based on misleading appearances. Recognition of this deep unity of nature and interdependence as appears on a quantum level, makes rational the belief that to act against another is to act against oneself.

In addition, Pedagogy for Love is based on cutting edge scientific research of the role of the heart intelligence in human growth. Throughout much of recorded history, human beings have understood that *intelligence*, the ability to learn, understand, reason and apply knowledge to shape their environment, was a function of head-brain. However, cutting-edge scientific research explains how and why heart activity affects mental clarity, creativity, emotional balance, intuition and personal effectiveness. Research indicates the heart is far more than a simple pump. The heart is, in fact, a highly complex information-processing center with its own functional brain, commonly called the *heart brain*, that communicates with and influences the cranial brain via the nervous system, hormonal system and other pathways. These influences affect brain function and most of the body's major organs and play an important role in mental and emotional experience and the quality of our lives. In this way, the core value and principle of *love* as the law of life, cosmic unification and infinite expansion - based in new scientific research on brain, quantum mind, consciousness, heart intelligence and the universe - is offered as the central pedagogical seed for evolving consciousness, deep experiential knowledge, complex life skills and wisdom, through education for sustainability and peace for the 21st century.

Ecological, cosmic education: it refers to a deep, purposeful education that moves from the simple acquisition of knowledge, to a new understanding of Cosmos and the New Enlarged Quantum Man, as it expands from ourselves, to a planetary and universal view. Ecological, cosmic education in 3Dlexia philosophy, nurtures respect for all and cultivates virtuous, responsible, independent, emotionally intelligent, skillful individuals, seeking a joyful and meaningful life and vocation.

Ethos, pathos, logos in education: it is adjusted from the Aristotelian Triangle of Ethos, Pathos, Logos definitions, to the purpose of the specific context. Thus, *Ethos is* defined as owner of your energy, being responsible to utilize it for the benefit of all people, environment and species. *Pathos* is the conscious choice for compassionate love and gratitude for all to reach enlightenment. *Logos, which means 'word' and 'reason'* in ancient Greek language, is defined as the balance of scientific reasoning and clear communication to express complex concepts and ideas to all people.

The quantum conception of Man, being based on scientific evidence available equally to all men, rather than arising from special historical situations and exploited by different social and

religious groups, has the potential of providing a universal system of values available and suitable to all men, without regard to the accidents of their origins, leading to new Paradigm on Pedagogy for Sustainably and Peace for the 21ˢᵗ century.

The process starts with meeting with the parents of the new student with the vision of obtaining information about family profile, student's general behaviour patterns and an update on his/ her special educational needs. Next, a meeting with the student is arranged where an evaluation of both their SEN needs and the level of their English language readiness, along with the exploration of their learning style and assets is assessed. The learner's self-awareness of their SEN and dyslexia is also enlarged by providing valuable information in the area. Consequently, the parents meet again with the designated SEN English teacher who informs them about the results of the assessments and introduces their child's personal intervention program designed based on the information acquired during the assessments. The program is always implemented cooperating with the parents who are frequently provided with specific instructions and guidelines. Now the student is finally ready to join the centre's learning life. Following their individualised learning program, the students learn in 1:1 multisensory lessons with their assigned teacher, attending lessons on weekly basis. In these sessions, the focus is on phonics for reading and pronunciation, grammar, any necessary gap filling in current knowledge of the language and eventually progression with more advanced grammar and language use. This is done through the use of various means, materials and technology to support each student's individual needs and to achieve their objectives. Furthermore, the students attend weekly workshops where they learn in similar age peer groups, cultivating their social-emotional skills and regaining self-confidence through art and experimental, often science related projects. Finally, should the needs or targets of the students change during their time in the centre, teaching objectives and tools are adjusted and changes will be discussed with the parents (Pappa, n.d., Course Design).

Attachment 6

Teaching Staff Questionnaire

Dear teachers, your experience and opinion matter and it will help me gain deeper understanding of the reasoning behind some of the students' answers. This will greatly benefit my research and I very much appreciate your time and thought put into your answers.

Participant data: Please tick one answer for each question.

Age:

☐18-25   ☐ 26-35   ☐ 36-45   ☐ 46-55   ☐ 56-65

Gender:

☐ Female

☐ Male

Please specify your achieved teaching qualifications:

☐ BA

☐ MA

☐ English language teaching qualification and other (please specify):

_____

How many years of experience do you have as an English Language teacher?

☐ 1-3 years   ☐ 4-6 years   ☐ 7-10 years   ☐ 11+ years

How many years have you worked in the 'I Love Dyslexia (ILD) Centre'?

☐ less than 1 year   ☐ 1-3 years   ☐ 4-6 years   ☐ 7+ years

1. What impact does Pedagogy4Love have on your students? On a scale from 1 to 5, please evaluate and describe in detail what impact does the way you speak to the students make.

I do not see any impact   1   2   3   4   5   It makes a big difference

_____
_____
_____
_____
_____

2. How important do you think it is for the students to learn that their brain works differently through the means of neuroscience (i.e. using unconventional learning techniques). Please evaluate and explain with some examples from your experience.

It isn't important   1   2   3   4   5   It makes a big difference to the students

_____
_____
_____
_____
_____

3. What non-traditional[21] resources and techniques work best for your students when it comes to phonetics and reading? Please provide some examples.

_____
_____
_____
_____
_____

4. What non-traditional resources and techniques work best for your students when it comes to grammar learning? Please provide some examples.

_____
_____
_____

---

[21] Traditional resources are considered to be conventional materials used in primary and secondary education, such as course books, work books and teaching methods.

5. How relevant is it for the students to be using English teaching workbooks, the technology and techniques tied to workbook use at the ILD centre?

Students do not find it helpful   [1] [2] [3] [4] [5]   Working with the text book in 1:1 lessons is very effective for the students

6. On the lines below, can you compare the effectiveness of working with workbooks at the ILD centre compared with your experience in a traditional setting, in Primary or Secondary education?

_____
_____
_____
_____
_____

7. How beneficial is each part of the holistic educational experience for the students' English learning? Please evaluate on a scale 1-5 with 1 being the least beneficial and 5 the most beneficial. You can explain your answers.

1:1 lessons with a teacher   [1] [2] [3] [4] [5]

weekly workshops   [1] [2] [3] [4] [5]

'alone study time' at the centre [1] [2] [3] [4] [5]

study time at home   [1] [2] [3] [4] [5]

_____
_____
_____
_____
_____

8. How important is 'differentiation' (having a selection of tasks the students can choose from) for the students? Please evaluate and describe.

Students do not care   [1] [2] [3] [4] [5]   It motivates the students greatly if they can choose their task

_____
_____
_____
_____
_____

9. Have you received any feedback from the parents in relation to the effectiveness of the centre's techniques when it comes to the paradigm and holistic approach to learning? If yes, can you please provide some examples?

_____
_____
_____
_____
_____

10. Did you find the initial training useful in terms of applying the materials, methods and approaches to it while teaching at the centre? If yes, please explain how.

Not useful   1   2   3   4   5   Very useful

_____
_____
_____
_____
_____

11. How confident do you feel as a teacher to use the materials, techniques and approaches the centre provides for facilitating each learner's unique learning needs? Please explain your answer.

Not confident   1   2   3   4   5   Very confident

_____
_____
_____
_____
_____

12. Please evaluate how effective you and your students find working with the online learning platform EDMONDO. If you are using the platform, please describe for what kind of tasks.

I never use it	1	2	3	4	5	I use it very often
My students never use it	1	2	3	4	5	My students work with it often
I think my students do not like the platform	1	2	3	4	5	I think my students really enjoy working with the platform

_____
_____
_____
_____
_____

13. Please evaluate how effective you and your students find working with Immersive Reader by Microsoft. Please explain.

Not useful   1   2   3   4   5   Very useful

_____
_____
_____
_____
_____

14. Please evaluate how effective you and your students find working with 3Dlexia MindMaps. Please explain.

Not useful   1   2   3   4   5   Very useful

_____
_____
_____
_____
_____

Thank you!

Long Term Students Questionnaire

Please answer all questions which require further comments in **English only**.
Παρακαλώ απαντήστε σε όλες τις ερωτήσεις που απαιτούν περαιτέρω σχόλια **μόνο στα Αγγλικά**.

The translation is only aimed to guarantee consistency.
Η μετάφραση απασκοπεί μόνο στη διασφάλιση συνοχής.

Participant data: Please tick one answer for each question.

Age:

☐ 6 -10   ☐ 11-17   ☐18-25   ☐ 26-35   ☐ 36-45   ☐ 46-55   ☐ 56-65

Gender:

☐ Male

☐ Female

How many years (and/ or months) have you been studying in the 'I Love Dyslexia (ILD) centre'?

☐ 1-2 years   ☐ 3-4 years   ☐ 5-6 years   ☐ 6+ years

In the ILD centre, do you only study English or do you study other subjects as well?
Please tick as appropriate.

☐ English

☐ Other (please specify):

_____

Please state your current status:

☐ Primary school student   ☐ Secondary school student   ☐ graduate (apolytirion[22])

If you are a **graduate** (apolytirion), please go directly to **question 5**.
Αν είστε απόφοιτος/ απόφοιτη πηγαίνετε κατευθείαν στην **ερώτηση 5**.

---

[22] School leaving certificate

1. How much do you enjoy your English classes at school?

Πόσο σας αρέσουν τα μαθήματα Αγγλικών στο σχολείο;

I do not enjoy them | 1 | 2 | 3 | 4 | 5 | I enjoy them very much
Δεν μου αρέσουν | | | | | | Μου αρέσουν πάρα πολύ

2. How much do you enjoy your English classes at the ILD centre?

Πόσο σας αρέσουν τα μαθήματα Αγγλικών στο ILD centre;

I do not enjoy them | 1 | 2 | 3 | 4 | 5 | I enjoy them very much
Δεν μου αρέσουν | | | | | | Μου αρέσουν πάρα πολύ

3. Is your teacher's approach at the ILD centre different than the approach of your teachers in public schools? If yes, please describe in what ways.

Είναι η διδασκαλία του εκπαιδευτικού σας στο ILD centre διαφορετική από την προσέγγιση των εκπαιδευτικών σας στα δημόσια σχολεία; Εάν ναι, περιγράψτε με ποιον τρόπο.

☐ Yes

☐ No

_____
_____
_____
_____
_____

4. What things does the centre do differently compared to the public school in terms of techniques, methods, workshops, etc.?

Ποια πράγματα είναι διαφορετικά στο centre σε σχέση με το δημόσιο σχολείο όσον αφορά τις τεχνικές, τις μεθόδους, τα εργαστήρια κ.λπ .;

_____
_____
_____
_____
_____

5. **How does your English learning experience in public schools compare to your English learning experience at the ILD centre?**

Πώς ήταν η εμπειρία σας με την εκμάθηση Αγγλικών στο δημόσιο σχολείο σε σύγκριση με την εκμάθηση των Αγγλικών στο ILD Centre;

_____
_____
_____
_____

6. What were your confidence and motivation in learning and using English as a foreign language like when you started in the ILD centre. With 1 being the lowest and 5 the highest. Please evaluate/ tick and describe:

Πως ήταν η αυτοπεποίθηση και το κίνητρο σας στην εκμάθηση και χρήση των Αγγλικών ως ξένη γλώσσα όταν ξεκινήσατε στο ILD centre. Με το 1 να είναι το χαμηλότερο και το 5 το υψηλότερο, παρακαλώ επιλέξτε και περιγράψτε:

Confidence / Αυτοπεποίθηση   1 2 3 4 5

Motivation / Κίνητρο   1 2 3 4 5

_____
_____
_____
_____

7. What are your confidence and motivation in learning and using English as a foreign language like now. With 1 being the lowest and 5 the highest. Please evaluate/ tick and describe:

Πώς είναι η αυτοπεποιθηση και το κίνητρο σας στην εκμάθηση και χρήση των Αγγλικών ως ξένη γλώσσα τώρα; Με το 1 να είναι το χαμηλότερο και το 5 το υψηλότερο, παρακαλώ επιλέξτε και περιγράψτε:

Confidence / Αυτοπεποίθηση   1 2 3 4 5

Motivation / Κίνητρο   1 2 3 4 5

_____
_____

_____

_____

8. While studying English as a foreign language, what do you feel that the ILD centre's programme is helping you with the most? Please evaluate on a scale 1-5 where 1 is the least and 5 the most developed.

Κατά την εκμάθηση της αγγλικής ως ξένης γλώσσας, σε τι πιστεύετε ότι το πρόγραμμα του ILD Centre σας βοηθάει περισσότερο; Παρακαλώ στην κλίμακα 1-5 αξιολογήστε με το 1 να είναι το λιγότερο ανεπτυγμένο και το 5 να είναι το περισσότερο ανεπτυγμένο.

My speaking skills / Τις προφορικές ικανότητες μου   [1] [2] [3] [4] [5]

My understanding of grammar / Την κατανόηση μου στην γραμματική   [1] [2] [3] [4] [5]

My writing skills / Τις γραπτές ικανότητες μου   [1] [2] [3] [4] [5]

My overall study skills / Τις συνολικές δεξιότητες μελέτης μου   [1] [2] [3] [4] [5]

My overall self-confidence / Την συνολική μου αυτοπεποίθηση   [1] [2] [3] [4] [5]

Other / Άλλο _____   [1] [2] [3] [4] [5]

9. To what extent were the following skills of yours developed by the ILD centre? Please evaluate with 1 being the least and 5 the most improved?

Σε ποιό βαθμό οι παρακάτω ικανότητες σας εξελίχθηκαν απο το ILD centre; Παρακαλώ αξιολογήσετε με το 1 να είναι το λιγότερο εξελιγμένες και το 5 το περισσότερο εξελιγμένες;

General study skills / Γενικές δεξιότητες μελέτης   [1] [2] [3] [4] [5]

Overall confidence / Συνολική αυτοπεποίθηση   [1] [2] [3] [4] [5]

Teacher's comments (for evaluation of the skills when the student first started):

Σχόλιο εκπαιδευτικού (για αξιολόγηση των ικανοτήτων όταν ο μαθητής/ μαθήτρια πρωτοξεκίνησε):

_____

_____

_____

_____

10. How would you describe your current English and study skills as compared to when you started attending the ILD centre?

Πώς θα περιγράφατε τις τρέχουσες ικανότητες σας στα Αγγλικά και τις δεξιότητες μελέτης σας σε σύγκριση με τις ικανότητες που είχατε μόλις ξεκινήσατε να παρακολουθείτε μαθήματα στο ILD centre;

No change   1   2   3   4   5   Hugely improved

Δεν έχουν αλλάξει   Έχουν βελτιωθεί σημαντικά

Teacher's comments (about the student's current study skills):

Σχόλια εκπαιδευτικού (για την τωρινή αξιολόγηση των δεξιοτήτων μελέτης του μαθητή/ της μαθήτριας).

_____

_____

_____

_____

11. What's your preferred method/ learning tool? Please tick one answer.

Ποια μέθοδο/ Ποιο εργαλείο εκμάθησης προτιμάτε; Επιλέξτε μια απάντηση.

☐ Mind Mapping / Νοηματική χαρτογράφηση

☐ Life-like tasks and activities / Δραστηριότητες που σχετίζονται με την καθημερινότητα (e.g. working on impactful projects, sharing opinions on a given topic online as part of lesson, creating QR codes for your works so everyone can access it, etc.)

☐ Using computer programs on smart boards and computers / Χρήση προγραμμάτων στον υπολογιστή ή στον διαδραστικό πίνακα (e.g. 3D alphabet on Quiver vision, smart reader program, etc.)

☐ Working on a PowerPoint presentation in a team / Δουλεύοντας σε μια PowerPoint παρουσίαση με συμμετοχή σε ομάδα.

☐ Other (please specify) / Άλλο (Παρακαλώ διευκρινίστε)

_____

12. In which setting do you think you learn the most? Please tick one answer.

Σε ποιο περιβάλλον πιστεύετε ότι μαθαίνετε περισσότερο; Παρακαλώ επιλέξτε μια απάντηση.

☐ Face-to-face lessons with your teacher / Μαθήματα πρόσωπο με πρόσωπο με τον/την δάσκαλο/α

☐ Weekly workshops / Εβδομαδιαία εργαστήρια

☐ Studying at home, using the online tools provided / Μελετώντας στο σπίτι, χρησιμοποιώντας εργαλεία που παρέχονται στο διαδίκτυο.

☐ 'Alone study time' at the centre / Μελετώντας "μόνος/μόνη" στο κέντρο

13. Please evaluate the importance of each of the aspects of your weekly workshops. On a scale 1-5, 1 is the least relevant and enjoyable and 5 the most relevant and enjoyable.

Παρακαλώ αξιολογήστε πόσο σημαντικό είναι κάθε κομμάτι των εβδομαδιαίων σας εργαστηρίων. Στην κλίμακα 1-5 αξιολογήστε με το 1 να είναι το λιγότερο σχετικό και ευχάριστο και το 5 να είναι το περισσότερο σχετικό και ευχάριστο.

Personal development – learning of mindfulness techniques such as meditation and breathing techniques etc.
Προσωπική ανάπτυξη - εκμάθηση επιμέλειας όπως είναι οι τεχνικές διαλογισμού και αναπνοής, κτλ.

1 2 3 4 5

The use of technology during the workshop such as computers, projector, working with phones, creating QR codes, etc.
Η χρήση τεχνολογίας κατά την διάρκεια του εργαστηρίου όπως ηλεκτρονικούς υπολογιστές, προβολέας , χρήση κινητού τηλεφώνου, δημιουργία κωδικών QR, κτλ.

1 2 3 4 5

Being able to be creative and use different art techniques where possible.
Να είσαι δημιουργικός και να χρησιμοποιείς διαφορετικές καλλιτεχνικές τέχνες όπου είναι εφικτό.

1 2 3 4 5

Being able to choose the task I want to work on, to keep me motivated ('differentiation').
Να μπορείς να επιλέξεις την εργασία που θέλεις να δουλέψεις για να σου δίνει κίνητρο ('differentiation').

1 2 3 4 5

Being challenged with texts and videos with real life language which might be slightly above my language level.
Να δοκιμάζεσαι με κείμενα και βίντεο με καθημερινή γλώσσα η οποία μπορεί να είναι σχετικά ανώτερη από το γλωσσικό σου επίπεδο.

| 1 | 2 | 3 | 4 | 5 |

Working on real life like projects such as presentations, evaluating YouTube videos online, projects for helping the refugees, SOS4LOVE project, etc.
Να δουλεύεις σε καθημερινά προγράμματα όπως παρουσιάσεις, αξιολογώντας βίντεο YouTube στο διαδίκτυο, προγράμματα βοήθειας προς μετανάστες (SOS4LOVE) project, κτλ.

| 1 | 2 | 3 | 4 | 5 |

My teachers' encouragement and setting an example in work ethics and expectations.
Η ενθάρρυνση του δασκάλου ως πρότυπο μίμησης επαγγελματικής ηθικής.

| 1 | 2 | 3 | 4 | 5 |

Working with my peers as a team.
Να δουλεύω με τους συμμαθητές μου ως ομάδα.

| 1 | 2 | 3 | 4 | 5 |

14. Do you feel any peer pressure whilst studying at the ILD centre? Please evaluate.

Νιώθετε πίεση από τους συμμαθητές σας ενώ σπουδάζετε στο ILD centre; Παρακαλώ αξιολογήστε.

I never feel peer pressure at the centre
Δεν νιώθω πότε πίεση από τους συμμαθητές μου στο κέντρο

| 1 | 2 | 3 | 4 | 5 |

I feel a lot of peer pressure at the centre
Νιώθω πολύ πίεση από τους συμμαθητές μου στο κέντρο

15. If you do feel peer pressure at the centre, please describe if this is a positive or negative experience for you.

Αν νιώθετε πίεση από τους συμμαθητές σας στο κέντρο, παρακαλώ περιγράψετε αν αυτό είναι θετική ή αρνητική εμπειρία για εσάς.

_____
_____
_____
_____

16. How effective do you find working with the online learning platform EDMONDO?
Please evaluate.

Πόσο αποτελεσματική πιστεύετε ότι είναι είναι η ηλεκτρονική εκπαιδευτική πλατφόρμα EDMONDO; Παρακαλώ αξιολογήστε.

I never use it Δεν την χρησιμοποιώ ποτέ	1 2 3 4 5	I use it very often Την χρησιμοποιώ πολύ συχνά
I do not like it Δεν μου αρέσει	1 2 3 4 5	I like the platform a lot Μου αρέσει πολύ η πλατφόρμα
It is not beneficial to my learning Δεν θεωρώ ότι είναι ωφέλιμη στην εκμάθηση μου	1 2 3 4 5	It is highly beneficial to my learning Θεωρώ ότι είναι πολύ ωφέλιμη στην εκμάθηση μου

Any other comments / Άλλα σχόλια:

Please provide any further feedback you would like to mention in relation to your learning experience at the ILD centre if you wish so.

Αν επιθυμείτε παρακαλώ αναφέρετε οποιαδήποτε περαιτέρω σχόλια σχετικά με την μαθησιακή σας εμπειρία στο ILD centre.

_____
_____
_____
_____

First Year Students Questionnaire

Please answer all questions which require further comments in **English only**.
Παρακαλώ απαντήστε σε όλες τις ερωτήσεις που απαιτούν περαιτέρω σχόλια **μόνο στα Αγγλικά.**

The translation is only aimed to guarantee consistency.
Η μετάφραση απασκοπεί μόνο στη διασφάλιση συνοχής.

Participant data: Please tick one answer for each question.

Age:

☐ 8 -12   ☐ 13-17   ☐18-25   ☐ 26-35   ☐ 36-45   ☐ 46-55   ☐ 56-65

Gender:

☐ Male

☐ Female

How many years (and/ or months) have you been studying in the 'I Love Dyslexia (ILD) centre'?

☐ 0-3 months   ☐ 4-6 months   ☐ 7-9 months   ☐ 10-12 months

In the ILD centre, do you only study English or do you study other subjects as well? Please tick as appropriate.

☐ English

☐ Other (please specify):

_____

Please state your current status:

☐ Primary school student   ☐ Secondary school student   ☐ graduate (apolytirion[23])

If you are a **graduate** (apolytirion), please **start** with **question 5**.
Αν είστε απόφοιτος/ απόφοιτη πηγαίνετε κατευθείαν στην **ερώτηση 5.**

---

[23] School leaving certificate

1. How much do you enjoy your English classes at school?

Πόσο σας αρέσουν τα μαθήματα Αγγλικών στο σχολείο;

I do not enjoy them
Δεν μου αρέσουν   [1] [2] [3] [4] [5]   I enjoy them very much
                                                              Μου αρέσουν πάρα πολύ

2. How much do you enjoy your English classes at the ILD centre?

Πόσο σας αρέσουν τα μαθήματα Αγγλικών στο ILD centre;

I do not enjoy them
Δεν μου αρέσουν   [1] [2] [3] [4] [5]   I enjoy them very much
                                                              Μου αρέσουν πάρα πολύ

3. Is your teacher's approach at the ILD centre different than the approach of your teachers in public schools? If yes, please describe in what ways.

Είναι η διδασκαλία του εκπαιδευτικού σας στο ILD centre διαφορετική από την προσέγγιση των εκπαιδευτικών σας στα δημόσια σχολεία; Εάν ναι, περιγράψτε με ποιον τρόπο.

☐ Yes

☐ No

_____
_____
_____
_____
_____

4. What things does the centre do differently compared to the public school in terms of techniques, methods, workshops, etc.?

Ποια πράγματα είναι διαφορετικά στο centre σε σχέση με το δημόσιο σχολείο όσον αφορά τις τεχνικές, τις μεθόδους, τα εργαστήρια κ.λπ .;

_____
_____
_____
_____
_____

5. **How does your public-school education ENGLISH LEARNING EXPERIENCE compare to your learning experience in the ILD centre?**

Πώς ήταν η εμπειρία σας με την εκμάθηση Αγγλικών στο δημόσιο σχολείο σε σύγκριση με την εκμάθηση των Αγγλικών στο ILD centre;

_____
_____
_____
_____

6. What were your confidence and motivation in learning and using English as a foreign language like when you started in the ILD centre. With 1 being the lowest and 5 the highest. Please evaluate/ tick and describe:

Πως ήταν η αυτοπεποίθηση και το κίνητρο σας στην εκμάθηση και χρήση των Αγγλικών ως ξένη γλώσσα όταν ξεκινήσατε στο ILD centre; Με το 1 να είναι το χαμηλότερο και το 5 το υψηλότερο, παρακαλώ επιλέξτε και περιγράψτε:

Confidence / Αυτοπεποίθηση [1] [2] [3] [4] [5]

Motivation / Κίνητρο [1] [2] [3] [4] [5]

_____
_____
_____
_____

7. What are your confidence and motivation in learning and using English as a foreign language like now. With 1 being the lowest and 5 the highest. Please evaluate/ tick and describe:

Πώς είναι η αυτοπεποιθηση και το κίνητρο σας στην εκμάθηση και χρήση των Αγγλικών ως ξένη γλώσσα τώρα; Με το 1 να είναι το χαμηλότερο και το 5 το υψηλότερο, παρακαλώ επιλέξτε και περιγράψτε:

Confidence / Αυτοπεποίθηση [1] [2] [3] [4] [5]

Motivation / Κίνητρο [1] [2] [3] [4] [5]

_____
_____
_____
_____

8. While studying English as a foreign language, what do you feel that the ILD centre's programme is helping you with the most? Please evaluate on a scale 1-5 where 1 is the least and 5 the most developed.

Κατά την εκμάθηση της αγγλικής ως ξένης γλώσσας, σε τι πιστεύετε ότι το πρόγραμμα του ILD Centre σας βοηθάει περισσότερο; Παρακαλώ στην κλίμακα 1-5 αξιολογήστε με το 1 να είναι το λιγότερο ανεπτυγμένο και το 5 να είναι το περισσότερο ανεπτυγμένο.

My speaking skills / Τις προφορικές ικανότητες μου   `1` `2` `3` `4` `5`

My understanding of grammar / Την κατανόηση μου στην γραμματική   `1` `2` `3` `4` `5`

My writing skills / Τις γραπτές ικανότητες μου   `1` `2` `3` `4` `5`

My overall study skills / Τις συνολικές δεξίοτητες μελέτης μου   `1` `2` `3` `4` `5`

My overall self-confidence / Την συνολική μου αυτοπεποίθηση   `1` `2` `3` `4` `5`

Other / Άλλο _____   `1` `2` `3` `4` `5`

9. What's your preferred method/ learning tool? Please tick one answer.

Ποια μέθοδο/ Ποιο εργαλείο εκμάθησης προτιμάτε; Επιλέξτε μια απάντηση.

☐ Mind Mapping / Νοηματική χαρτογράφηση

☐ Life-like tasks and activities / Δραστηριότητες που σχετίζονται με την καθημερινότητα (e.g. working on impactful projects, sharing opinions on a given topic online as part of lesson, creating QR codes for your works so everyone can access it, etc.)

☐ Using computer programs on smart boards and computers / Χρήση προγραμμάτων στον υπολογιστή ή στον διαδραστικό πίνακα (e.g. 3D alphabet on Quiver vision, smart reader program, etc.)

☐ Working on a PowerPoint presentation in a team / Δουλεύοντας σε μια PowerPoint παρουσίαση με συμμετοχή σε ομάδα.

☐ Other (please specify) / Άλλο (Παρακαλώ διευκρινίστε)

_____

10. In which setting do you think you learn the most? Please tick one answer.

Σε ποιο περιβάλλον πιστεύετε ότι μαθαίνετε περισσότερο; Παρακαλώ επιλέξτε μια απάντηση.

☐ Face-to-face lessons with your teacher / Μαθήματα πρόσωπο με πρόσωπο με τον/την δάσκαλο/α

☐ Weekly workshops / Εβδομαδιαία εργαστήρια

☐ Studying at home, using the online tools provided / Μελετώντας στο σπίτι, χρησιμοποιώντας εργαλεία που παρέχονται στο διαδίκτυο.

☐ 'Alone study time' at the centre / Μελετώντας "μόνος/μόνη" στο κέντρο

11. Please evaluate the importance of each of the aspects of your weekly workshops. On a scale 1-5, 1 is the least relevant and enjoyable and 5 the most relevant and enjoyable.

Παρακαλώ αξιολογήστε πόσο σημαντικό είναι κάθε κομμάτι των εβδομαδιαίων σας εργαστηρίων. Στην κλίμακα 1-5 αξιολογήστε με το 1 να είναι το λιγότερο σχετικό και ευχάριστο και το 5 να είναι το περισσότερο σχετικό και ευχάριστο.

Personal development – learning of mindfulness techniques such as meditation and breathing techniques etc.
Προσωπική ανάπτυξη - εκμάθηση επιμέλειας όπως είναι οι τεχνικές διαλογισμού και αναπνοής, κτλ.

1 2 3 4 5

The use of technology during the workshop such as computers, projector, working with phones, creating QR codes, etc.
Η χρήση τεχνολογίας κατά την διάρκεια του εργαστηρίου όπως ηλεκτρονικούς υπολογιστές, προβολέας , χρήση κινητού τηλεφώνου, δημιουργία κωδικών QR, κτλ.

1 2 3 4 5

Being able to be creative and use different art techniques where possible.
Να είσαι δημιουργικός και να χρησιμοποιείς διαφορετικές καλλιτεχνικές τέχνες όπου είναι εφικτό.

1 2 3 4 5

Being able to choose the task I want to work on, to keep me motivated ('differentiation').
Να μπορείς να επιλέξεις την εργασία που θέλεις να δουλέψεις για να σου δίνει κίνητρο ('differentiation').

1 2 3 4 5

Being challenged with texts and videos with real life language which might be slightly above my language level.
Να δοκιμάζεσαι με κείμενα και βίντεο με καθημερινή γλώσσα η οποία μπορεί να

1 2 3 4 5

είναι σχετικά ανώτερη από το
γλωσσικό σου επίπεδο.

Working on real life like projects such as
presentations, evaluating YouTube videos
online, projects for helping the refugees,
SOS4LOVE project, etc.
Να δουλεύεις σε καθημερινά προγράμματα
όπως παρουσιάσεις, αξιολογώντας βίντεο
YouTube στο διαδίκτυο, προγράμματα βοήθειας
προς μετανάστες (SOS4LOVE) project, κτλ.

[1] [2] [3] [4] [5]

My teachers' encouragement and setting
an example in work ethics and expectations.
Η ενθάρρυνση του δασκάλου ως πρότυπο
μίμησης επαγγελματικής ηθικής.

[1] [2] [3] [4] [5]

Working with my peers as a team.
Να δουλεύω με τους συμμαθητές μου ως ομάδα.

[1] [2] [3] [4] [5]

12. Do you feel any peer pressure whilst studying at the ILD centre? Please evaluate.

Νιώθετε πίεση από τους συμμαθητές σας ενώ σπουδάζετε στο ILD centre; Παρακαλώ αξιολογήστε.

I never feel peer
pressure at the centre
Δεν νιώθω πότε πίεση
από τους συμμαθητές
μου στο κέντρο

[1] [2] [3] [4] [5]

I feel a lot of peer
pressure at the centre
Νιώθω πολύ πίεση από
τους συμμαθητές μου στο
κέντρο

13. If you do feel peer pressure at the centre, please describe if this is a positive or negative experience for you.

Αν νιώθετε πίεση από τους συμμαθητές σας στο κέντρο, παρακαλώ περιγράψετε αν αυτό είναι θετική ή αρνητική εμπειρία για εσάς.

_____
_____
_____
_____

14. How effective do you find working with the online learning platform EDMONDO?
Please evaluate.

Πόσο αποτελεσματική πιστεύετε ότι είναι είναι η ηλεκτρονική εκπαιδευτική πλατφόρμα EDMONDO; Παρακαλώ αξιολογήστε.

I never use it Δεν την χρησιμοποιώ ποτέ	1 2 3 4 5	I use it very often Την χρησιμοποιώ πολύ συχνά
I do not like it Δεν μου αρέσει	1 2 3 4 5	I like the platform a lot Μου αρέσει πολύ η πλατφόρμα
It is not beneficial to my learning Δεν θεωρώ ότι είναι ωφέλιμη στην εκμάθηση μου	1 2 3 4 5	It is highly beneficial to my learning Θεωρώ ότι είναι πολύ ωφέλιμη στην εκμάθηση μου

Any other comments / Άλλα σχόλια:

Please provide any further feedback you would like to mention in relation to your learning experience at the ILD centre if you wish so.

Αν επιθυμείτε παρακαλώ αναφέρετε οποιαδήποτε περαιτέρω σχόλια σχετικά με την μαθησιακή σας εμπειρία στο ILD centre.

_____
_____
_____
_____

In the ILD centre, despite still also working with hand-drawn mind maps, a mind mapping virtual tool, the 3DLexia MindMaps has been created to convey the difficult features of English grammar to dyslexic students in 3D, visual, audio accompanied way with pictures with background stories to use as mnemonics and personalised learning features (Please see Attachment 11 for examples). Research carried out in the ILD centre has shown significant improvement in performance by students using the intervention of the multisensory mind mapping technology.
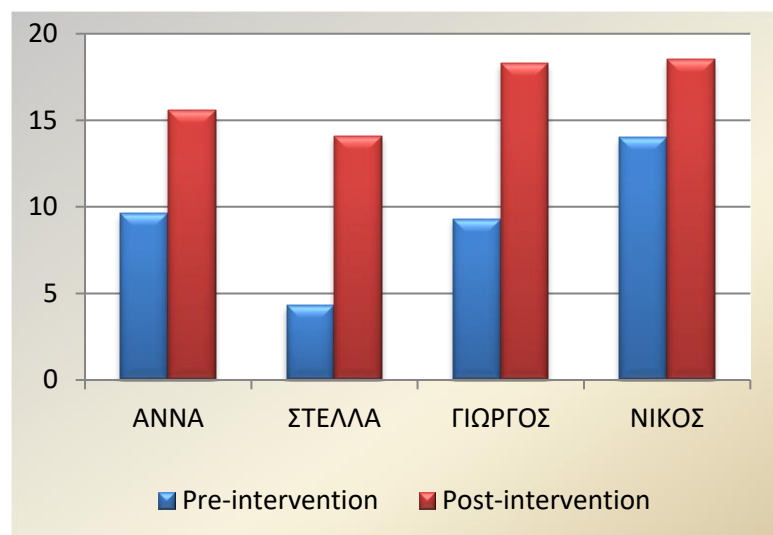
Figure 5: Pre- and post-intervention results for Anna, Stella, George and Nick, age 13-17 during a research on comprehension and attainment of a group of verbs in all the persons and tenses. With knowledge attainment grew also the students' memory and critical thinking which was showed in answering the post-intervention test questions.
(Unpublished research by Pappa, n.d.)

Attachment 10

Comparing of a regular text before and after the use of Microsoft Immersive Reader, changing background according to the individual preferences of the learner, alongside with spacing, font and highlighting different word groups in different colours. Pictures were taken at the ILD centre.
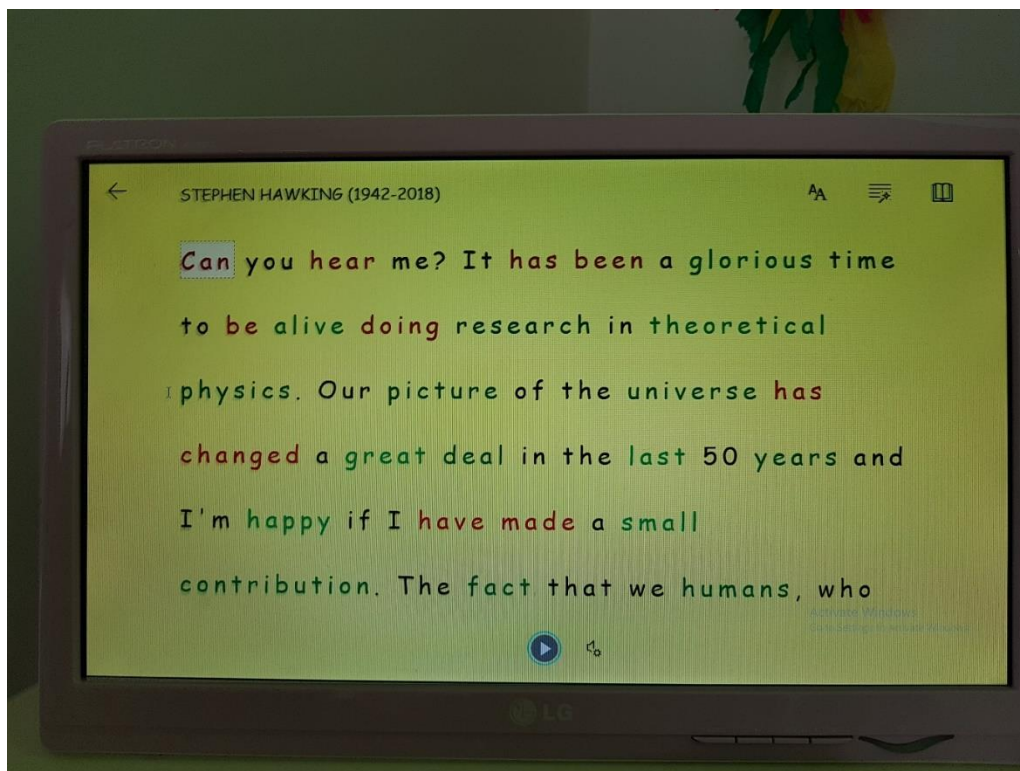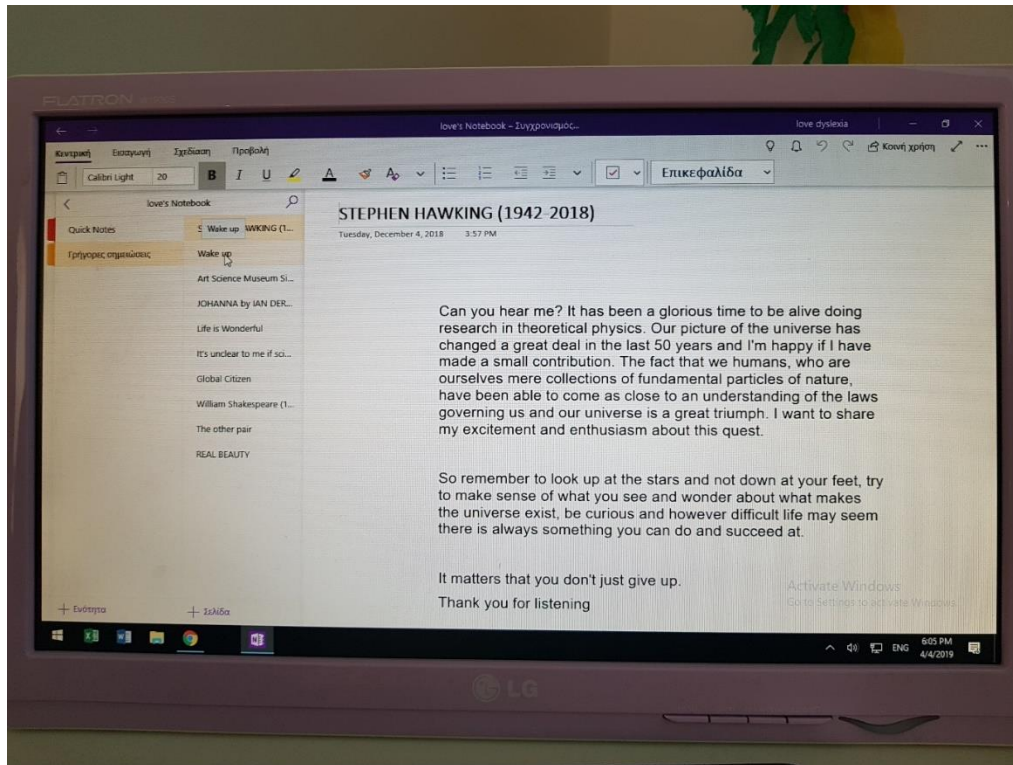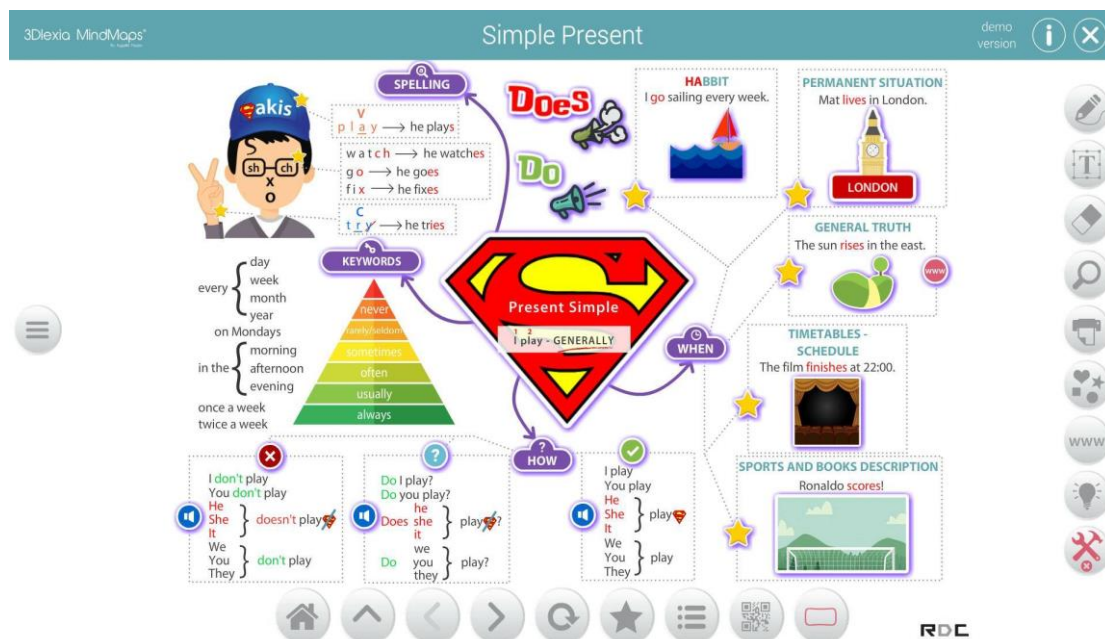
Attachment 11

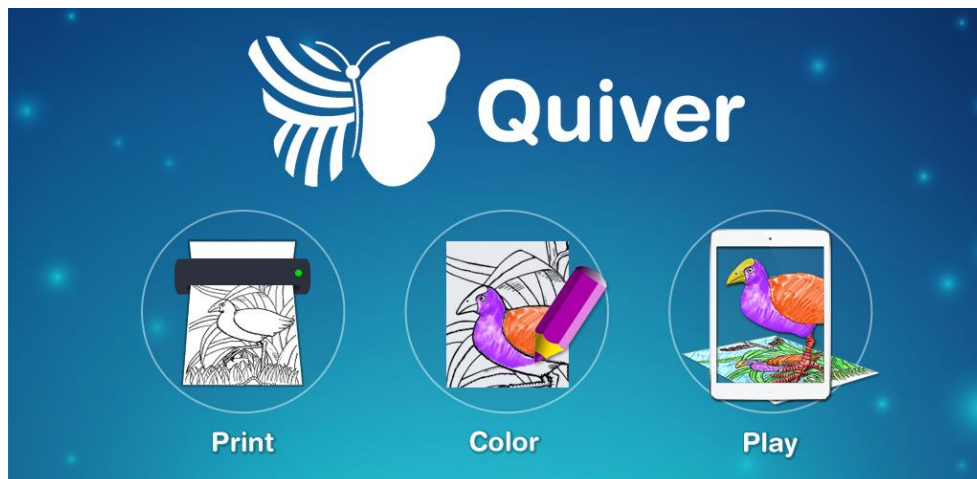Examples of Mind Maps designed and used by the ILD centre:
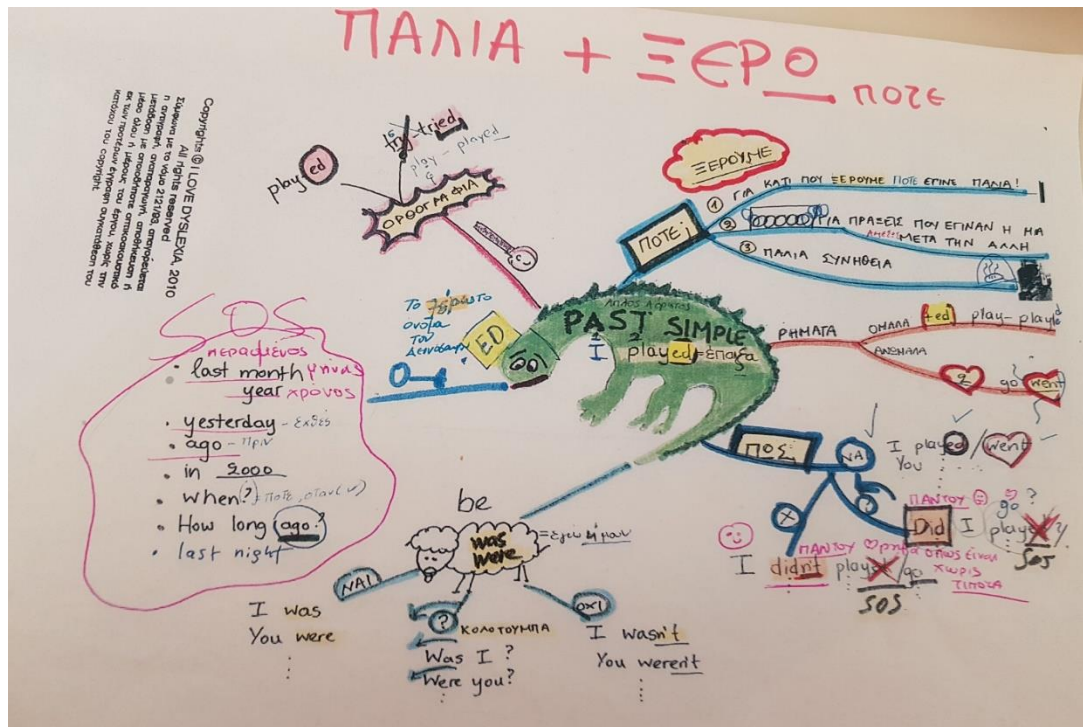
Example of Past Simple tense on a hand drawn Mind Map. Picture taken at the centre.

Example of Present Simple tense on a digitalised 3DLexia Mind Map. Retrieved from
https://play.google.com/store/apps/details?id=air.com.rdc.distribution.ILD

Working with Quiver with the use of technology turns 2D learning on special QuiverVision
sheets into 3D images the students can embrace
(http://www.quivervision.com/)
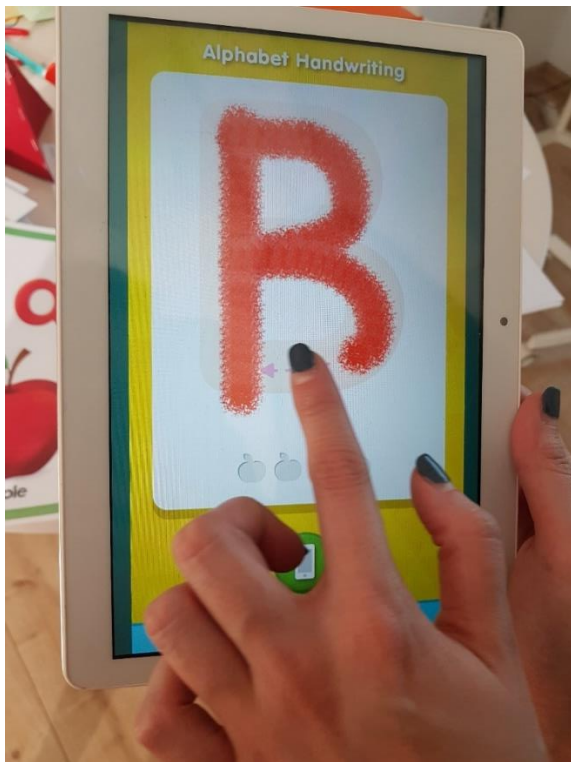
Using Quiver to make alphabet and phonics learning 3 dimensional.
Pictures taken at the ILD centre.

Attachment 13

Examples of 3D letters used for phonics teaching along with effective alphabet handwriting iPad apps.
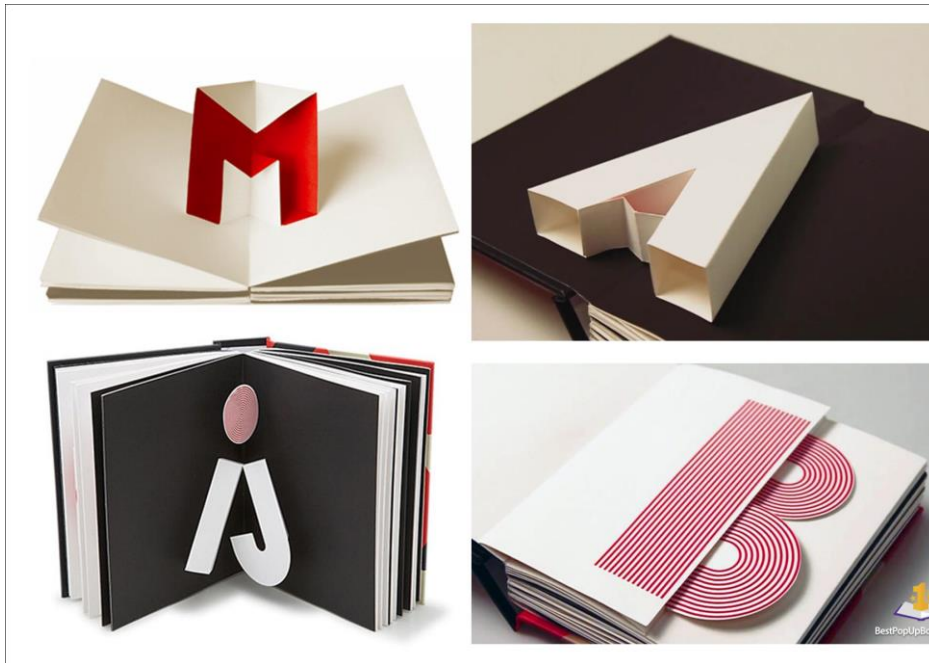
Marion Bataille (2008), ABC3D, New Milford: The Millbrook Press Inc

Picture taken at the ILD centre.