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Tsiaka Dimitra
Mantalovas Efthymios

**The multifaceted role
of teaching Music at School:
approaching other sciences through this art**

Abstract

It is generally accepted that over the last decade, despite the remarkable efforts made in the fields of Culture and Art, music has been largely eliminated at schools as Teaching Music has given its place to technology. Students are encouraged to study Computer Science and work on the Internet. Thus, they no longer have the time to study Art, and especially Music, which they regard as luxury and only practise it for leisure in their free time. This paper focuses on the usefulness of the Subject of Music and mainly on demonstrating how teachers can approach it in the most effective way. In a modern school, learning can be made easier and more enjoyable for all students if combined with notes or scales.

Keywords: Arts, Music, Science, Teaching.

1. Introduction

Teaching Music was an institution in the antiquity, as well as one of the most

important Subjects in Ancient Athens. It could still be of valuable assistance in every field of science and an innovative tool in the field of teaching and learning, which, under proper conditions and if carefully implemented, would bring positive results in educating students in both Primary and Secondary School. Our work focuses on the importance of Music in Education.

1.1 The objective of the task

The purpose of the work is to provide learning facilities. In particular, the lesson within the School will become more creative and comprehensible to students, but more organized and well-directed by the teachers. There are inexhaustible combinations and many combining levels of Art with Science that can give positive results to the education of young people. We will be limited to some of these key combinations and we will suggest ways to assemble Science and Music to inspire students' thinking and imagination, as well as guiding samples to the teachers of education. Another aim of this work is the use of appropriate teaching techniques or the modification of traditional teaching methods.

2. Concept clarification

2.1 Art

Art is a reality composed by the artist, the creator, with elements borrowed from nature, filtered through the artist's own personality, incorporating his characteristics. There have been many definitions of art through the ages, but what matters is that Art generally promotes beauty and creates human sensitivity. It can make one travel in time and space and helps provides an escape from the monotony of everyday life. Art is not only a source of inspiration; it is the result of inspiration too. It is a pleasant and creative pastime, as it can unleash hidden creative powers, trigger the imagination, release inherent callings and cravings of the soul. Thus, life acquires a new dimension, projecting the spirituality of existence.

2.2. Music

Music is the crown jewel of the Arts. It is the science of tunefulness, which uses sounds and the combinations thereof with the ultimate purpose of creating a pleasant and harmonious listening experience, that is, a melody. Music interprets a poetic text with rhythm and melodic successions and provides pleasure and exaltation to both the performer and the audience. It gives the listener's soul the feeling and the ideas that facilitate a more comprehensive understanding of the

poetic text, affecting the senses with the intense experience of the tune. It is a testimony of soul, experience, and knowledge. The word “music” has the same root as “muse” and is derived from the composition of two words “mountain” and “ja”¹ (goddess). Pythagoras was the first to support the scientific basis of Music and a philosophical worldview based on the belief that everything is governed by the harmony of numbers.

The definitions of Music by Arnold Schwarzberg and Stravinsky could be considered representative of the 20th century. They argued that Music is simply an imitation of nature, both external and internal. Its unique purpose is the restoration of acoustic performances, which are harmoniously connected with other senses². This is how Music connects with the concept of time.

2.3 Science

Science is the set of classified and verifiable knowledge, as well as research in strictly defined fields with specific and rational methods, such as observation, experiments, hypotheses and induction³. There are, of course, many definitions for science, but we are interested in seeing how science works through Art and especially through the Art of Music. Specifically, we are interested in approaching Art in a regulatory, systematic way, according to the rules of Science. Only then we will be able to see the identification of Art with science in its entirety. Better yet, instead of the identification, because identification is mere matching, the fulfilment of Science with the help of Art.

3. Theoretical Approaches to Art and Science.

3.1. The relationship between Science and Art.

The example of Music, which is at the same time Art and Science, is the most appropriate to study precisely the relationship between Art and Science. Both operate under a system of verification of what senses perceive. The phenomena or notes that make up the material of the artist and the scientist lead to sound conclusion through an organised and established system, otherwise we would not be able to overcome the deception of the senses.⁴ The artist plays with the elements that nature offers and shapes them in such a way that the people around him can enjoy the different aspects of the world and at the same time get a clear

1 Athens Publishing House (1998), Εκδοτική Αθηνών., *Μουσική*, Athens. p.15

2 Athens Publishing House (1998), Εκδοτική Αθηνών., *Μουσική*, Athens. p.18

3 Poper, K. (2011), Πόπερ, Κ., *Η ζωή είναι επίλυση προβλημάτων. Σκέψεις για την Επιστήμη, την Ιστορία και την Πολιτική*. Athens: Melani.p.p. 240-254

4 Ferguson, K. (2013), *Η Μουσική του Πυθαγόρα*. (transl.) K. Simos, K. Σίμος. Athens: Travlos. p.p.88-104.

picture of people, situations and relationships. Is it not precisely what the scientist needs to do in order to prevent the deception of the senses? Isn't every scientific hypothesis an artistic creation, which often seems to be a facet of reality so deformed that it resembles abstract art? And yet haven't some of these far-fetched scientific hypotheses, which resemble a scientist's mad artistic fantasies, made science soar up?

3.2. Historical Background of the Music Teaching, as an Art to educate the youth.

First of all, Pythagoras studied the holy texts of Egypt, the Hieroglyphics and tried to learn them. Through these texts, he learned about the numerical symbols, the decimal system and geometry in general, since the Egyptians had found a special way to measure their property. He also discovered the number $\pi = 3.14$, used to calculate with enough approximation the area of the circle and demonstrated that it was a number that brings harmony to nature. With this harmonious disposition he noticed that hitting a metal with objects of different volumes would cause different sounds. So he divided a harp string and noticed that the string would make the same sound, albeit one tone different when it is cut in two pieces. These were the first steps towards exploring the connection between Music and Mathematics.

Pythagoras was terribly curious, so he observed the star movements and the lunar cycles through the roof of the temples, learning how to connect them with the 12-month Egyptian calendar and the 365-day year. Once again Pythagoras connected Music with the movements of the stars and even advised the Babylonians to hit a sacred drum rhythmically during an eclipse. They set up a drum which they beat to send away the evil spirits hiding on the moon, while Pythagoras harmoniously connected the sound with his measurements. This reinforced ancient wisdom and the theory that Mesopotamia's mathematical astronomy was largely based on a body of observational data gathered for centuries in the temples⁵.

The word "Music" appears for the first time in the texts of Pindar, Herodotus and Thucydides⁶. Pindar taught and inspired athletes with Music. Herodotus, as a historian influenced by his own travels, describes the cultural phenomena of the places he visited with rich musical interest⁷, while Thucydides always brought music teachers along to his campaigns⁸.

5 Ferguson, K. (2013), *Η Μουσική του Πυθαγόρα*. (transl.) K. Simos, K. Σίμος, Athens: Travlos. p.p.43-50.

6 The first Olympian is dedicated to the Ieron, tyrant of Syracuse, 477-467.

7 Herodotus History, Ηροδότου Ιστορία: «Οι μνηστήρες ἔριν εἶχον ἀμφί τε μουσικῆς...»

8 Thucydides History, Θουκυδίδη Ιστορία: «Ὅτι και μουσικῆς ἄγων ἦν...»

Plato also relied on Pythagoras and his theoretical principles on the intersection of strings and astronomy and presented a complete philosophical programme with concepts that are very similar to the Christian religion and are therefore more understandable today, while his ideas are an excellent source for the cultivation of aesthetic seeds and rules on Art. Plato also mentions that Music, as an Art, is a reality that is composed by the artist, the creator, with elements borrowed most of the time from nature, but filtered through his own personality, incorporating his characteristics⁹. Plato was an idealist. On the opposite side, Aristotle considered the “pleasure” as the driving force of Art. He taught pleasure through drama and theatrical performance, calling it an imitation of human everyday acts. He did not have to divide the string to talk about Music. In his Politics, he talks about upbringing and educating young people with harmony and considers Music a reasoning line, a deeper way of thinking and learning¹⁰. Byzantine Music, starting from the early years of the Byzantine Empire following the prevalence of the Christian religion remains unchanged over the centuries. It was cultivated within the Eastern Orthodox Church as a written and artistic chanting art with classical and impressive works¹¹. It consists of an integrated eight-tone performance system. Byzantine Music, as an Art, is an autonomous musical culture and has been organised since the mid-10th century in a complete, self-contained and homogeneous notation system. Notation is the particular graphic system of Byzantine Music, which has experienced successive stages of development¹².

Immanuel Kant (1724-1804), in his philosophy of aesthetics produced a complete philosophical programme and considered Art autonomous from the rest of philosophy, while he embedded Music within space and time, considering it a game to educate young people¹³.

The end of the 20th century is full of views and positions on the Art of Music, drawing material from other sciences such as Literature, Sociology, or Psychology. The most prominent style of this century is symbolism, matching symbols with sounds. It also links language codes, that is, words, to those of Music, and in particular it considers sound as a sign of language while for music it is an end in itself¹⁴.

9 Plato State, Πλάτωνος Πολιτεία. (1975), *Άπαντα Αρχαίων Ελλήνων Συγγραφέων.*, Athens: Papyros p.p. 60-77.

10 Aristotle's Politics, 1337a33–1340b19, Αριστοτέλους Πολιτικά: *Η αγωγή που διαμορφώνει ελεύθερους πολίτες* (Ειδικότερα για την ανάγκη διδασκαλίας της μουσικής)

11 Antoniou, Sp. (2005), Αντωνίου, Σπ., *Θεωρία και πράξη της ψαλτικής Τέχνης*. Thessaloniki. p.p.24-27.

12 Joachim, A. (2013), Ιωακείμ, Α., *Θεωρία και πράξη της ψαλτικής Τέχνης*. Lamia, I.M.F.p.23.

13 Kant, E. (1976), Καντ, Ε., *Κριτική του Καθαρού Λόγου*, εισαγωγή, ερμηνεία, (trans) An. Giannaras (μτφρ.) Αν. Γιανναράς,. Athens: Papazisis, A22, a37.

14 Tombras, S. (1998), Τόμπρας, Σ., *Μουσική και σημειολογία*, Athens: Govotsis. p.p 57-58.

3.3 Music as a lesson in Primary and Secondary Education.

The Government's Gazette informs us about how many Music subjects are taught in Primary and Secondary Education:

- Φ.12 / 773/77094 / Γ1 concerning the "School Schedule of Primary Schools" and its amendment by ministerial decision No. Φ.12 / 773/77094 / Γ1 / 28-7-2006, (Government Gazette 1139/2006,) "Reformation of Timetable Schedules in Primary School" as in force following amendment by Φ.12 / 520/61575 / Γ1 / 30.05.2011 (Government Gazette 1327/2011, vol. B) ".

- Government Gazette 2449/2016 and No. 121072 / Δ2 / 22-07-2016 and Amendment by Min. Dec. Ref. No. 93381 / D2 / 07-06-2016 Y.A. (B 1640) on the "Schedule for the courses of the A, B and C classes of the Day Middle School"

- Presidential Decree 46/2016 - Government Gazette 74 / A / 22-4-2016 "Evaluation of students in General High School".

We can also compare the curriculums in Primary, Secondary or High Schools to those of an Art and particularly a Music School to gain a clearer picture.

1. Distribution of music classes per week, in Primary schools with at least 6 faculty posts:

Classes	A	B	C	D	E	F
Music	1	1	1	1	1	1

2. Also, the distribution of music classes per week in secondary school:

Classes	A	B	C
Music	1	1	1

As far as High Schools are concerned, Music is not taught.
Music Schools are an exception, where the situation is different.

3. The distribution of music classes per week in Music High Schools:

classes	A	B	C
Theory of European M.	3	3	3
European Music	2	2	2
Byzantine Music	2	2	2
Individual Mus. Inst. Class	2	2	2
Tabouras (Option)	1	1	1
Piano	1	1	1

Of course, the curriculum is specialised (and definitely better) in Music Schools.

We can conclude that the subject of Music is scarcely taught in General Education Schools. The class hours are very few and the way of teaching is incomplete. Students, if asked, don't feel that they have acquired the desired level in Music learning as the classes are short. They are mostly taught history of Music through ICT and advanced technology. They also practise and prepare for the two national celebrations with songs and poems in each case. Starting from the modern Greek School and especially State Schools, one could say that Music is a subject that children like but it is not taught as much as it should, while at the same time teachers do not have any specialisation in this subject, meaning that any examples of artistic expression and education are merely occasional and based on the desire of a few teachers who have the knowledge and will to introduce their students to the world of Art.

In Middle School, Music and Art are considered secondary and minor. The organisation of the few artistic events, concerts and theatrical performances is treated as a chore or as a waste of time. Student-driven theatrical and music-dance groups do not exist and are not encouraged.

Finally, in High School, the Subject is not taught because students in the last classes of Secondary Education are focused on their exams for Higher Education.

4. Teaching methods and their application in the classroom

Teachers cannot consider themselves and their lessons unique, nor strictly adhere to the facts in school books or advice given by the education ministry consultants. What drives progress, following the advance of civilisation and taking individuals further beyond is the invention of new ideas and the cultivation of creativity. Creativity is the “fuel of progress”, it brings forward the most proficient and more industrious, produces new ideas and eliminates the role of “automation” and “mechanisation”¹⁵. However, it is necessary to have positive growth conditions within the School so that the inherent tendency for innovation that students have turns into functional abilities, thereby ensuring its continuity over time.

The role of Music in teaching subjects and its implementation in the School curriculum is also a matter of originality, creativity and initiative. Teachers produce a remarkable number of high-quality and varied ideas within the particular time given and within the classroom.

Let's look specifically at how Music can be applied in School class and practice at the various levels of education:

15 Magnisalis, K., (1987), Μαγνήσαλης, Κ., *Δημιουργική στην Πρωτοβάθμια Εκπαίδευση*, Athens: Interbooks, p.50.

4.1. Primary Education

In **Primary Education** music is, for example, a tool that is very cost-effective for young pupils to acquire and understand knowledge for and it can also be applied in a variety of ways.

4.1.1. Music and play

Adults may feel uncomfortable with games, while children feel happy and, through exploration, learn new things. A xylophone or a metallophone can give thousands of new ideas to pupils. They can learn how to measure, to recognise symmetry and geometric shapes, to add and subtract, ascend and descend octaves, to use proportions and memorise and understand poetry in its simplest form. While listening to rhythmic pieces, it becomes easier for them to place themselves in space with respect to their classmates, to give colour and meaning to prose, to applaud or disapprove of a continuous and dull text, to scan the surroundings around them by measuring more easily the dimensions and to frame the lesson with music in order to achieve a better aesthetic result. The lesson, combined to a pleasant sound, prevents from feeling the routine, boredom and established pedantry. In this way, uniform exercises and processes that cultivate one-dimensional ways of thinking and behaviour are avoided¹⁶.

4.1.2 Music and the environment

This section includes the subjects of Physics, Geography, Environmental Studies, Social and Political Education in Primary School. In these areas, the educator must develop a suitable environment, cultivate all the mental processes of the students, adopt an atmosphere, inspire new techniques of producing ideas and understanding the subjects taught so as to satisfy the demand for diversity. Teaching out in nature can be a different way of approaching teaching-learning. Learning processes must be designed to mobilise students, explore and discover the natural environment on their own, generate new knowledge, evaluate their work, discuss their mistakes, make the necessary improvements, and result in the expected conclusions. And of course this can be done under the influence of melody. A bird singing is a melody and can give a different push to the inspiration and active engagement of the pupils in the learning process. Nikos Kazantzakis “Reporting to Greco” contains a relevant scene, where the teacher is struggling on his desk to make his students get a grasp of grammar and convoluted accent rules while the children ask him to stop the tedious lecture to listen to a bird

16 Bruner, J.(1996), *The culture of education*. London, Harvard university press p.p. 153-187

singing. For this reason, teaching must always be entertaining. Because humour is pleasantly surprising, it frees students from the “terrorism of absolute concepts”, from the spectrum of seriousness and associates learning with pleasure¹⁷.

4.1.3 Music and language

While preserving the texts and language contents of School Books, their approach and exploitation can be changed and tackled differently. It is good for young children to practice reading and understanding the melodious texts, mainly by combining them with music and harmonic nuances to cultivate all forms of “thinking” and to combine critical thinking with the aesthetic experience and at the same time to explore important works of art, to be chosen by the teacher. Surveys made with young students showed that this way of teaching is more about psychotherapeutic work and uses the arts for easy learning combined with pleasure.

4.2 Secondary Education

In Secondary Education, in particular in Middle School, Music could play a flexible role in learning and understanding lessons. It would limit the traditional School, opening up new perspectives in teaching with a wider prospect on the whole. This is because the small society of the class contains a mosaic of individuals with specificities, with differences and heterogeneity. The current curriculum and teaching method from the established School Books attempts to construct identical models of students with the same way of thinking and even an identical way of writing. We will try to overcome this using the Arts in general and Music more specifically in order to avoid the internal mechanism of memorisation and the grade-seeking attitude and by promoting innovation, originality, creativity and satisfaction from the production of a project which will please everyone and will be put to the service of society, which is the goal of a useful and appropriate education to keep up with progress.

4.2.1 Humanities and Music

The humanities include linguistics, literature, poetry, sociology, as well as history. The teaching of these subjects follows a particular teaching method and is based on the fragmentary reproduction of speech, cut off from imagination, invention and beauty, “but based on a combination of planned teaching and intellectual

17 Spink, J. (1990), Σπινκ, Τζ., *Τα παιδιά ως αναγνώστες*. Athens: Kastaniotis. p.55.

interventions”¹⁸.

Nonetheless, let us wonder, which works have been taught to children and have been remembered more, being also more comprehensible? They are those that have been attached to a melody, those that have been interpreted with notes or imprinted in some other visual art. The Nobel Prize-winning poems by Elytis and Seferis would not have been known to all students if Theodorakis had not sung them. The linear A and B writing systems would not have been known to students if they were not engraved on figurines or columns of Knossos. Historical events are also more understandable through the paintings of Eugene Delacroix, Nicholas Gyzis or Nikiforos Lytras.

One such good example memorised by children is when they are taught about Ancient Greek language in Middle School, in Lysias’ text “Sacrifice for the Country” (“Funeral Oration, 79-81”) they rely on the musical piece “Seikilos epitaph”. In this way the students better understand the project’s intertextuality, as well as the literary genre to which it belongs.

Besides, poetry and especially poetry attached to music in the broader sense shapes the ideas and currents of the each era and triggers profound changes and upheavals.

4.2.2. Sciences and Music

Music is an art that requires science. Through Mathematics, the intervals, tones, semitones, octaves, tonal harmony are measured. But does the opposite happen? Do Mathematics and Physics or Astronomy Need Music? Undoubtedly, we can agree that through Music or Art in general, it is possible to teach the above sciences more easily. John Scotus Eriugena solved problems with more ease in a sophisticated way that included numbers, ratios and musical intervals, drawing examples for his students from church instruments and other strings. John Scotus Eriugena also connected the sounds to the musical intervals and considered the sun to form an octave with Saturn when they are at the farthest distance apart, but as they began approaching each other, they form a fifth and a fourth when they are at the closest point¹⁹. Of course, at this point we could say that Mathematicians should know Music very well to teach this subject, or that Musicians should know mathematics very well, which is objectively difficult. We could say, however, that in a simple way and with the rhythmic repetition of the sound of a string, the knowledge that the circle or the guitar strings could be like fractions could be understood.

18 Vougioukas, A., (1985), Βουγιούκας, Α, «Τα νέα Αναλυτικά Προγράμματα και τα βιβλία για μαθητές και δασκάλους». *Επιστημονικό Βήμα του Δασκάλου*, ΔΟΕ, έτος 306, τεύχος 6, Athens. p.17.

19 Ferguson, K. (2013), *Η Μουσική του Πυθαγόρα*. (transl.) K. Simos, K. Σίμος, Athens: Travlos. p.337.

4.2.3. High School

In High School, there is no combination of courses and originality in teaching because the students' interest is focused on their exams to access Higher Education. Everything is so standardised that teachers do not take the risk to provide a diametrically opposed teaching, or even the slightest deviation from the standard. The exercises are prescribed, the texts and their interpretation a priori defined, the style and content of the answers prepared, even the absences and the time of attending the courses is also scheduled. Nevertheless, bright flashes of ideas escaping from established thinking can be found at this level of education as demonstrated when a chemistry teacher teaches his prospective students to learn symbols and chemical types with notes and music. Each chemical symbol corresponds to a note and each formula to a harmonious combination. It is an original approach to the lesson that gives students the opportunity not to lose time in sterile reckoning, but also to remember for the rest of their lives this Chemistry chapter. Another study with projective tests on scientists who already have a creative and accomplished body of work proved that intellectuals learned historical events and their dates in a harmonically melodious way with repetition to engrave them in their memories. Thus, Lucius Mummius, a Roman politician and military man who lived in the 2nd century BC and was known as "Achaicus", became a melody in the key of A because he was the first "novus homo" originating from the order of the commoners who won a surname for his military service and for the interest shown to the works of art and their value, famously telling sailors who undertook the treasure transfer from Corinth to Rome: "If you lose them or destroy them, you have to replace them." He finally built a theatre with improved acoustics and seats, according to the Greek model, making an important step in the progress of the Arts.

It is, however, known from evolutionary psychology²⁰ and from linguistics²¹ that learning in infancy and childhood comes from inductive reasoning, whereas in adolescence and youth, i.e. the age of high school students, it is the result of deductive reasoning and persuasion in the process of thinking production follows the course from general to special. Deductive reasoning reveals the converging or divergent thinking that illustrates the aforementioned. When a problem is solved, divergent thinking is the core of creative production, while converging thinking assimilates and processes information in collaboration with memory. More specifically, the investigation of a problem starts with incomplete data and is oriented to the conception of many and varied ideas, from which it finally evaluates and selects the one that responds to the problem. Sometimes this

20 Paraskevoypoulos, J., (1985). Παρασκευόπουλος, Ι., *Εξελικτική Ψυχολογία*, Τόμοι 2ος και 3ος. Athens.

21 Babiniotis, G., (1980), Μπαμπινιώτης, Γ., *Θεωρητική Γλωσσολογία*. Athens. p.p. 57-84.

requires a combination of elements that are considered to be irrelevant. Here is where the creative and imaginative educator will fertilize the students' thoughts and feed their imagination with mechanisms with the help of the Arts and perhaps Music. This encouragement of the combination of lessons and knowledge is provided to the teachers through the Presidential Decree and circulars of the Ministry of Education and Religious Affairs (Presidential Decree 583 / 31-8-1982, Government Gazette 107). For example, in the field of Literature and Poetry, a subject studied nationwide, the students' thoughts and opinions are mainly fuelled by emotions. Emotions can come from melodious sources and orchestrated directions. In the subject of Modern Greek language, which concerns candidates of all specialisation, the students' thought must be critical, systematic and cumulative, not target-oriented.

Moreover, something similar can happen in Science because when a person deals with a difficult problem, to avoid panic and losing focus, at the time of written examination, recalling a dynamic information mechanism is recommended as a dynamic defence, The exercise or the question asked will be integrated into the memory at a pleasant pace and recalling it in this way will make it easier to be solved. This is called intuitive perception and means that the student recalls experiences to control and regulate feelings.

5. Conclusions – Proposals

It is not easy for teachers to follow such an original teaching method. Teachers have to get rid of the established and the trivial to choose artworks, which will be the stimulus for the preparation of the subject they are working on²². Based on the stereotypical assumptions implemented within the school curriculum and the classroom, they have to critically approach their subjects and give the students the opportunity to explore the subject from many angles and to initiate them to acquire given assumptions and also to learn new things more easily. They need to provide particular effort to modify stereotypical perceptions, to ask for the opinions and help of colleagues from other specialties, and maybe at first try to teach experimentally²³.

5.1 Originality

Teachers have to apply creative methods to the organisation of their work, so that the students get involved in the stochastic way of thinking and learn actively. At this point it would be appropriate to mention the example of Pythagoras appeared

22 De Bono, E. (1992) *Teach your child how to think*. New York: Penguin. p. 151-162

23 Χανθακου, G. (1998), Ξανθάκου, Γ. *Η δημιουργικότητα στο σχολείο*. Athens: Greek Letters. p. 46

before his students playing with a ball with great skill and ability to stimulate interest and teach them the intervals in mathematics. Pythagoras himself also travelled very much under rough and harsh conditions to Egypt, Mesopotamia, Syria, to acquire knowledge and teach young people. He was careful about managing his time and his diet. He pledged to follow a light and digestible diet so that his sleep would be short, his soul pure and vigilant and his body in a state of perfect and unchanging resilience. He taught the young without taking money even if he had to face absolute poverty. Furthermore, he often used the four-string harp to strengthen his demonstrations on Mathematics. Can you name a teacher in Primary or Secondary Education willing or able to suffer so many sacrifices in our days? For this reason he was called by the youth of his time “divine”²⁴.

5.2 Pleasure

Teaching through Music or harmony is an enjoyable way of learning. It enables free expression, develops all forms of intelligence, puzzles and sensitises students. Teaching becomes more relaxing and some students, who would otherwise not dare to take part, try to participate. We will now focus on a case study conducted by ourselves. When we were given a chance to take part in a contest on Mathematics we participated with a music and dance number that we adapted ourselves relating to the number $\pi = 3.14$ and the concepts of [harmony](#) and circular ellipse. We won a prize and the students learned more easily and gained a memory that they will never forget²⁵.

5.3 Case study

This whole process keeps students alert and teaching becomes more effective. A second case study has shown us that it is easier to teach students Grammar Euripides’ Helen through Theatre and Music. In this way they understand better and realise the dual role played by Helen. There are also students who may have talent in some Art, although they are not good enough at writing.

5.4 Reflections

Of course, there are also difficulties because thoughtful teachers need time to prepare well and to teach, which is why many teachers are generally unwilling to

24 Ferguson, K. (2013) *Η Μουσική του Πυθαγόρα*. (transl.) K. Simos (μτφρ.) Κ. Σίμος. Athens: Travlos. p.p.42-76.

25 To Vima newspaper: Sunday July 14, 2018: <http://www.tovima.gr/society/article/?aid=552669> (accessed on 20/7/2018)

implement such new methods. This is also not reflected in the existing education system that puts educators in moulds and limits their autonomy. Remember Alexandros Delmouzos, educator and self-proclaimed Democratic Director of the Volos Girls' High School, who was tried and convicted on 16 April 1914, in Nafplio, by the Court of Appeal, with 110 witnesses and four lawyers, among 12 accused persons. He was accused of teaching music instead of mathematics. However, in its three and a half years of operation, which covered the educational void for the girls of Volos, for the first time in secondary education, modern Greek literature, ancient translation, linguistic expression in the Demotic Greek, in parallel and independently from Katharevousa, along with natural science lessons, mathematics, French, housekeeping, music and, of course, religion were taught. The basic principles of the Girls' School were the emphasis on meaning rather than on memorising, teaching without books, and cultivating initiative-taking of children, with the teacher gradually playing the role of counsellor²⁶.

5.5 Creativity

Teachers are those who will discover new ideas and will bravely try to apply them in their classrooms, without destroying the old methods, but with care and discretion to enable their students to develop their own initiatives and imagination to create new horizons in education. More specifically on this subject, nowadays technology can provide a quick and incomparable integration and specialisation on every subject, but without the guidance and wisdom of wise minds, our society is driven to tragic and wrong deadlocks. We need a comprehensive and versatile education and music can be the glue in this process, because it soothes the soul and directs it morally and provides a beautiful tone of comfort to pursue every effort.

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26 Learning Science through the Theatre: 5th High School of Lamia: https://www.youtube.com/watch?v=cauG_4BuoEo (accessed on 25/7/2018)

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Papachristou Alexandra

Designing an intervention program to improve student performance

Summary

This paper aims to present a proposal to design an intervention program to improve student performance. The proposed intervention program is aimed at a secondary school class, in an effort to promote the achievement of the greatest possible effectiveness of the educational work produced and the learning performance. According to the Dynamic Model of Educational Efficiency, effective teaching is a complex concept that involves the element of capacity, since it is based on parameters and dimensions that are interdependent. This effort aims at highlighting the multi-level and dynamic nature of school efficiency and the need for a strong vision of improvement in the school unit, openness to change, a climate of cooperation and mutual support and learning among all members of the school community, within one transformational and distributed leadership.

Key words: Educational effectiveness, effective teacher, diversified teaching.

Introduction

In recent years there has been an important trend towards school autonomy, coupled with increased interest in school attendance and school success, as well as how to improve learning outcomes and high quality in the education provided¹. Social needs are constantly changing, and there is now a requirement for modern school to offer high-quality cognitive and social skills. In response to these demands, the effective school movement tried to investigate and respond to the problem of school mobility and student success. School Effectiveness Research was launched by the US and Western Europe² and since then many researchers have dealt with the effectiveness of public education. According to a general view, school efficiency characterizes schools that operate close to their potential and are distinguished by effective leadership, a climate of high demands and expectations, a strong vision of growth and continuous learning, and open and multilevel communication³.

The question of how an effective school is defined is extremely complex and multifarious⁴. To evaluate the effectiveness of a school, researchers use a set of criteria or methods and identify a set of characteristics that affect the quality of education. According to these criteria, an effective school has an organized, deliberate and safe working atmosphere, within which interpersonal communication between students and teachers is based on cooperation. There are expectations that all students can achieve and the success of expectations is assured with the help of supervisory and teaching material so that teaching can be learned⁵. The school administration operates in a collaborative and collective decision-making environment. In particular, the manager must act as a collaborator, principal contributor to changes, who co-shapes the vision and establishes a culture of acceptance and equality, contributes to the professional and personal development of teachers, and to the improvement and development of pupils and their performance, the formation of good interpersonal relationships and the development of open communication channels with all shareholders⁶.

1 Cheng, Y., Tam, W., Tsui, K. (2002). New Conceptions of Teacher Effectiveness and Teacher Education in the New Century. *Hong Kong Teachers' Journal*. Vol. 1. Retrieved January 24, 2016 from: http://edb.org.hk/hktd/download/journal/j1/1_1.1.pdf. σ.σ., 5-20.

2 Coleman, J.S. (1966). Equality of educational opportunity. Washington: U.S. Department of Health, Education and Welfare, Office of Education. σ.σ., 10-40.

3 Pasiardis, P. & Pasiardi, G. (2006). *Effective Schools: Reality or Utopia?* Athena. Publishing Houses.σ.σ.. 6-10.

4 Kyriakides, L. & Creemers, B. (2008). Using a multidimensional approach to measure the impact of classroom level factors on student achievement: a study of the validity of the dynamic model. *School Effectiveness and School Improvement*, 19 (2), σ.σ., 183-205.

5 Bagakis, G., Demetzi, K., Stamatidis, Th. (2007). *A School Learns*, A.A. Livani.σ.σ.. 10-20

6 Coleman, J.S. (1966). Equality of educational opportunity. Washington: U.S. Department of Health, Education and Welfare, Office of Education. σ.σ., 10-40.

Differentiation of teaching is considered an essential dimension of effective teaching and is directly related to the concept of a democratic and humanistic school. Nowadays, as ever, classrooms are characterized by a diversity in their composition which calls for the abandonment of one-dimensional, traditional teaching practices and seeks to apply the child-centered practices of personalization and differentiation⁷.

1. Theoretical aspects of school efficiency / improvement

1.1. School effectiveness

According to Creemers & Kyriakidis⁸, the concept of educational effectiveness is characterized by complexity and capacity, since it is based on various parameters, individual dimensions and interactions. The modern theoretical approach of the Dynamic Model of Educational Effectiveness demonstrates the multi-level and multidimensional nature of educational effectiveness and underlines the need to be a constant pursuit and continuous improvement of school function. Variable and interrelated are the parameters of effective teaching. The teaching techniques, the course of teaching and the way in which matter is presented, the organization and administration of the classroom, the learning environment and the classroom, the assessment methods of the students, are dimensions of an effective educational process according to international research on educational effectiveness. The Dynamic Model of Educational Efficiency recognizes the different needs of schools and provides them with tools for measuring effectiveness factors to identify and prioritize their needs by demonstrating the crucial role that each educational context plays in achieving effectiveness through educational actions and programs intervention. A central place in quality and effective education is the teacher who, according to Pasiardi P. & Pasiardi G.⁹, is an actual person in school reality, trying to achieve the objectives of his teaching, having discovered his own personal teaching objectives. Together with the achievement of efficiency and quality in education, the need for equality and democratization of the education provided is also imperative. Education is required to ensure a learning context where there is equal opportunities in learning and learning, regardless of any variety or characteristics¹⁰. Diversifying teaching as a pedagogical and teaching proposal

7 Matsangouras, H. (2003). *The School Class. Theory and practice of teaching*. Athena. Gregory Publications.

8 Creemers, B. & Kyriakides, L. (2005) A critical analysis of current approaches to modeling educational effectiveness: The importance of establishing a dynamic model. Faculty of Behavioral and Social Sciences, University of Groningen. Department of Education, University of Cyprus http://www.rug.nl/staff/b.p.m.creemers/paper_on_the_dynamic_model_at_sesi.pdf

9 Pasiardis, P. & Pasiardi, G. (2006). *Effective Schools: Reality or Utopia?* Athena. Publishing Houses. σ.σ.. 30-40.

10 Coleman, J.S. (1966). *Equality of educational opportunity*. Washigton: U.S. Department of Health,

can promote equality in the learning opportunities provided and contribute to school efficiency. According to international research, diversification can support effective teaching and learning for all students, aiming at overcoming inequalities, promoting social justice and achieving a high-quality education¹¹.

In recent years there has been an important trend towards school decentralization and autonomy, coupled with increasing interest in schooling and school success, and how to improve the learning outcomes and the high quality of education provided¹². There is a focus on identifying the effectiveness of education systems combined with efficiency indicators, ensuring the quality of education, criteria for school success and assessment of the learning process. Social needs are constantly changing, and there is now a requirement for modern school to offer high-quality cognitive and social skills¹³. In response to these demands, the Effective School movement, which attempted to investigate and respond to the problem of student mobility and student success, functioned. School Effectiveness Research, launched by the US and Western Europe¹⁴ and since then many researchers have dealt with the effectiveness of public education. According to a general view, school efficiency characterizes schools that operate close to their capabilities and are distinguished by effective leadership, a climate of high demands and expectations, a strong vision of growth and continuous learning, and open and multilevel communication¹⁵. The effectiveness of a school unit is influenced by the culture inherent in it, the degree of security it provides to the stakeholders and the margins of autonomy of in-school management¹⁶.

1.2. The school leader

International research¹⁷ highlights a series of features that make up the profile of an effective educator. The integrity of the character, the enthusiasm, the good judgment, the good organization of the classroom, the clarity of speech, the design

Education and Welfare, Office of Education.

11 Kyriakides, L. & Creemers, B. (2008). Using a multidimensional approach to measure the impact of classroom level factors on student achievement: a study of the validity of the dynamic model. *School Effectiveness and School Improvement*, 19 (2), 183-205.

12 σ Pasiardis, P. & Pasiardi, G. (2006). *Effective Schools: Reality or Utopia?* Athena. Publishing Houses.. σ.. 6-1.8

13 Pasiardis, P. (2004). *Educational Leadership*. Athena. Metaichmi Publishing.σ.σ.. 7-14.

14 Coleman, J.S. (1966). *Equality of educational opportunity*. Washigton: U.S. Department of Health, Education and Welfare, Office of Education.σ. σ.. 80-92

15 Pasiardis, P. & Pasiardi, G. (2006). *Effective Schools: Reality or Utopia?* Athena. Publishing Houses.σ.σ.. 15-23.

16 Kapsalis, A. (2005). Character of good school. In Kapsalis A., (eds.), *Organization and Administration of School Units*. Thessaloniki: University of Macedonia.σ.σ.. 10-30.

17 Kapsalis, A. (2005). Character of good school. In Kapsalis A., (eds.), *Organization and Administration of School Units*. hessaloniki: University of Macedonia. σ.σ., 10-30.

of the lesson, the perfect knowledge of the object to be taught, the continuous feedback and reward of the pupils, the perseverance and the his self-evaluation towards self-improvement, his mature, integrated and balanced personality and his mental health are some of the features that an effective educator should have MR. School success of students is often evaluated through a variety of evaluation methods. The results of this evaluation are used to improve both the presence of each student and the program. Finally, an effective school must work with the students. There must be trust and communication with parents who share the results. The existence of school units which themselves assume responsibility for the definition and detailed processing of their curricula and assessment methods tends to be positively linked to improved outcomes. The fact is that these units have the opportunity to develop their own profiles, adapting the curriculum to the needs of these pupils, selecting educational material and teaching methods in order to offer an upgraded quality of education¹⁸.

In particular, the manager should act as a partner, an animator. The critical role of the administration lies in the fact that as a leader, the manager is the main factor of change and establishes the mentality of the school. the transforming leader with his actions and co-shaping the vision of the school, succeeded in changing and establishing a new culture of acceptance and equality that all its members have the same rights and opportunities and are treated equally, contributed to the professional and personal development of teachers, improving and developing students and their performance, developing good interpersonal relationships and developing open communication channels with all stakeholders, boosting the unit and putting the ploy anism in a developmental orbit gazing at the future with optimism¹⁹. There is a clear goal of the school, a common consolidated vision, towards a consensus on results, priorities, evaluation and responsibility, recognizing the responsibility of the school for achieving it. Teachers allocate school time to teaching essential skills, utilizing the curriculum. They use a variety of teaching strategies and methods, effectively use information and communication technologies and carry out a well-designed and well-organized diversification of their teaching practices, given the diversity that is the hallmark of the modern student community.

Pashiardis and Brauckmann²⁰, through the LISA research program, provide the theoretical framework for supporting the behavior and actions undertaken by

18 Chatzipanagiotou, P. (2003). The School Administration and the Participation of Teachers in the Decision Making Process, Kyriakidis Brothers, Thessaloniki σ.σ., 46.

19 Creemers, B. & Kyriakides, L. (2005) A critical analysis of current approaches to modeling educational effectiveness: The importance of establishing a dynamic model. Faculty of Behavioral and Social Sciences, University of Groningen. Department of Education, University of Cyprus http://www.rug.nl/staff/b.p.m.creemers/paper_on_the_dynamic_model_at_sesi.pdf

20 Πασιαρδής, Π. (2012). *Επιτυχημένοι Διευθυντές Σχολείων. Διεθνείς ερευνητικές τάσεις & η ελληνική πραγματικότητα*. Εκδοτικός όμιλος ΊΩΝ. σ.σ., 20-30.

the school leader in a broad and multilevel school and general educational context in order to achieve effective functioning of the organization, improving learning outcomes, cultivating citizenship and a positive attitude towards lifelong learning. The leader is called upon to operate on multiple levels, both as a personality and as an effective administration, the role of leadership in the development of leadership, Globalization, complexity, insecurity and constant change are the key features of our modern age (Stylianidis, 2012). Educational leaders need to think with a global perspective, but at the same time they are called upon to act effectively in the local context²¹.

1.3. Differentiation of teaching

Differentiation of teaching is considered as a basic dimension of effective teaching and is directly related to the concept of democratic and human school²². In the democratic school, the differentiation of teaching focuses on recognizing pupils 'characteristics, peculiarities and needs, both in the gendiological and level of pupils' skills as well as in the socio-emotional and cultural level of the pupils. Today, as ever, school classes are a multidimensional mosaic that transforms dynamically and requires a shift away from one-dimensional, traditional teaching practices. On the contrary, it seeks to apply the child-centered practices of personalization and differentiation²³. The theory and practice of differentiated teaching is primarily based on the theory of building learning, according to which the individual builds new knowledge and develops skills by linking new knowledge to the pre-existing. Therefore, the purpose of differentiated teaching is the ability to build personal knowledge for all pupils and for each student separately²⁴, which will maximize the motivation for cognitive and metactivity development while simultaneously maximizing the performance of each student²⁵. In daily teaching, the differentiation of teaching requires the teacher's vigilance and ability to dynamically adapt teaching practice, always according to the results of the ongoing formative assessment²⁶. The teacher's adequacy in relation to his / her teaching practices can not de facto lead to the differentiation of teaching.

21 Pashiardis, P., Brauckmann, S. (2009). Professional development needs of school principals. Commonwealth Education Partnerships. Ανακτήθηκε Δεκέμβριος 23, 2012 από: <http://www.cedol.org/wp-content/uploads/2012/02/120-124-2009.pdf> σ.σ., 3-5.

22 Kyriakides, L. & Creemers, B. (2008). Using a multidimensional approach to measure the impact of classroom level factors on student achievement: a study of the validity of the dynamic model. *School Effectiveness and School Improvement*, 19 (2), σ.σ., 183-205.

23 Bagakis, G., Demetzi, K., Stamatis, Th. (2007). *A School Learns*, A.A. Livan. Stylianidis, M. (2008). *The School of the Future. Strategic forecasting and planning*. Athena. Gregory Publications. σ.σ., 34-39.

24 Trilianos, A. (2000). *Methodology of Contemporary Teaching*. Athena. σ.σ., 23-40.

25 Valiantis, S. & Koutselini, M. (2009) Implementation of differentiated teaching-learning through the use of school textbooks. M 'International Conference of Pedagogical Society of Greece. Janina.σ.σ., 20-35.

26 Valiantis, S. & Koutselini, M. (2009) Implementation of differentiated teaching-learning through the use of school textbooks. M 'International Conference of Pedagogical Society of Greece. Janina. σ. σ. 45-55.

What can lead to the effective diversification of teaching is the change in the way teachers think and the philosophy of their teaching practice. Preparing teachers to meet the needs of cultural or socio-economic groups as well as the particularities of the operating conditions of school units so that they are prepared to address the social, communicative and educational needs of all categories of students within the same school environment is deemed necessary.

2. Design and analytical presentation of the intervention program

In this paper, a proposal for an intervention program in the teaching practice is developed, it concerns the implementation of differentiated teaching in a secondary school class, consisting of students of mixed ability and performance, using various teaching strategies. The aim of the program is to achieve improvement in learning outcomes by responding to each pupil's needs and diversity and maximizing the learning opportunities provided to each pupil in the classroom²⁷. In particular, the aim of the intervention is to improve student performance in the language course. The target group of the students is part of the 1st class in a High School. This is a total of 26 pupils, of which few have a high performance in the language lesson, while the majority is ranked low. In addition, a small number of students within the group, are unable to meet the requirements and objectives of the course. The language teachers of the school, one of whom is the writer, given the concern expressed by the parents about the course and performance of the students, wish to carry out an organized and planned improvement intervention based on the adoption of differentiated teaching practices, at the beginning of the second quarter of the current school year.

Diversified teaching is a multidisciplinary teaching process that involves classroom teaching, application of the collaborative method and personalized teaching²⁸. The particular level of learner readiness, personal interest and motivation for learning, the individual learning profile, as well as the way in which it is involved in the learning process, are the three points during which differentiation is based on the teaching process and at the same time contribute significantly to the shaping of learning outcomes²⁹. According to international surveys³⁰ on educational effectiveness, differentiated teaching can be the answer to the phenomenon of school failure in mixed ability classes and can contribute

27 Pasiardis, P. & Pasiardi, G. (2006). *Effective Schools: Reality or Utopia?* Athena. Publishing Houses. σ.σ.. 20-30.

28 Baris, Th. (2013). *Diversification in Teaching and Learning*. National Center for Public Administration. σ.σ.. 25-45.

29 Gustafsson, J.E. (2013). Causal inference in educational effectiveness research: a comparison of three methods to investigate effects of homework on student achievement. *School Effectiveness and School Improvement*, 2013 Vol. 24, No. 3, 275-295, <http://dx.doi.org/10.1080/09243453.2013.806334>

30 Valiantis, S. & Koutselini, M. (2009) Implementation of differentiated teaching-learning through the use of school textbooks. M 'International Conference of Pedagogical Society of Greece. Janina.σ.σ.. 10-20.

to the improvement of learning outcomes. In particular, according to the modern theoretical Dynamic Model of Educational Efficiency (DAE), an effective school must constantly seek to improve the educational practice, through methods of action research, systematic collection of empirical data, continuous self-assessment of the needs of its members, as well as implementation of action and intervention programs. The design and structure of the course, the orientation of the students towards the achievement of specific objectives, the management of teaching time, the use of consolidation exercises, the questioning, the pupil assessment and the learning environment are factors of effectiveness, which affect the level of classroom and they are related to the way and quality of teaching³¹. In addition, external factors such as personality, gender, learning opportunities, motivations, and the overall state education policy that influences the school's educational policy, seem to influence both the quality of teaching and the learning outcomes³². The teacher should find ways in which students with different levels of readiness and interest, different learning styles, social-economic and cultural profiles, can build new knowledge. Given the key role of the teacher in the realization and success of the differentiation, the training and development of teaching skills regarding the theory and practice of differentiated teaching is considered a prerequisite for the implementation of an intervention program in the learning process³³.

The writer's proposal concerns a secondary school unit, which strives to design and implement a comprehensive strategy for improving learning outcomes, with a particular focus on learning and enrichment of teaching practices as well as undertaking and implementing a variety of actions and programs to achieve quality in the training provided. The school management is responsible for cultivating a collaborative and learning environment for all members of the school unit and keeps open the channels of communication with parents, local bodies and the wider educational and academic community³⁴. A plan of action is needed to implement the program³⁵. The proposal for a differentiated teaching program is compatible with the specific educational context, distinguished by openness

31 Creemers, B. & Kyriakides, L. (2005) A critical analysis of current approaches to modeling educational effectiveness: The importance of establishing a dynamic model. Faculty of Behavioral and Social Sciences, University of Groningen. Department of Education, University of Cyprus http://www.rug.nl/staff/b.p.m.creemers/paper_on_the_dynamic_model_at_sesi.pdf σ.σ. 10-17.

32 Creemers, B. & Kyriakides, L. (2005) A critical analysis of current approaches to modeling educational effectiveness: The importance of establishing a dynamic model. Faculty of Behavioral and Social Sciences, University of Groningen. Department of Education, University of Cyprus http://www.rug.nl/staff/b.p.m.creemers/paper_on_the_dynamic_model_at_sesi.pdf σ.σ. 10-17.

33 Baris, Th. (2013). Diversification in Teaching and Learning. National Center for Public Administration. σ.σ. 5-8.

34 Kapsalis, A. (2005). Character of good school. In Kapsalis A., (eds.), Organization and Administration of School Units. Thessaloniki: University of Macedonia. σ.σ., 70-90.

35 Dimitropoulos, E. (2010). Educational evaluation. Evaluation of Education and Educational Work. Athena. Gregory Publications.

to improvement and development, and is part of the overall school improvement strategy³⁶. The school leader needs to make clear the need for intervention and change in teaching practices right from the outset so that the school unit can successfully respond to the ever-increasing diversity that characterizes the student potential³⁷. Initially, it is proposed to set up a teacher action group to collect information on the context of the classroom, analyze the needs of the pupils involved, and coordinate diversified learning actions. It examines the current results of the classroom learning performance, identifies the desired results and sets new targets. Questionnaires, written essays, as well as observations between colleagues during teaching can be used as measurement and data collection tools³⁸. The action group consists mainly of Language teachers and can collaborate with the general pedagogical guidance counselor or with academic bodies in the design and implementation of the required teaching practices as well as continuous formative assessment and feedback. Intervention activities can be recorded in a two-year action plan and included in the school's annual programming. In the first year it is proposed that differentiated teaching activities be applied, while in the second year a final evaluation of the results can be made, which will provide the basis for future expansion and enrichment of the teaching practices. There is a need to designate responsible teachers in a framework of participatory decision-making³⁹, without excluding the involvement of parents. A next step may be to implement the actions throughout the school community in the framework of organized in-school research and self-assessment, aiming at the continuous improvement and operation of the school as a learning and development community⁴⁰ but also to communicate the program and the results to other schools, both at local and regional level.

Prior to the start of the intervention program, teachers applying the modulation of teaching should be trained in designing and implementing them. The aim of the training is to familiarize teachers with the design of differentiated teaching based on the textbooks of high school. It is necessary to adapt and reform the curriculum, to provide a variety of learning opportunities to students in an encouraging and supportive environment so that all students, including those facing learning difficulties, achieve high learning outcomes⁴¹. Initially, student differences are studied as a basis for the scheduling of teaching. Teachers can

36 Mortimore, P. (1992). Issues in school effectiveness. In D. Reynolds and P. Cuttance (Eds), *School Effectiveness, Research, Policy and Practice*. London: Cassel.

37 Pasiardis, P. (2004). *Educational Leadership*. Athena. Metaichmi Publishing. σ.σ.. 3-10.

38 Dimitropoulos, E. (2010). *Educational evaluation. Evaluation of Education and Educational Work*. Athena. Gregory Publications.

39 Chatzipanagiotou, P. (2003). *The School Administration and the Participation of Teachers in the Decision Making Process*, Kyriakidis Brothers, Thessaloniki.

40 Bagakis, G., Demetzi, K., Stamatis, Th. (2007). *A School Learns*, A.A. Livan. σ.σ..10-30.

41 Pamuktoglou, An (2001). "Towards a Valuable View of the" Born or Effective Teacher "(research). Democritus University of Thrace, Alexandroupolis. σ.σ..50-60.

design and implement differentiation both in terms of teaching content and the teaching process, as well as in the assessment of learning outcomes as well as the learning environment. The aim is to ensure the activation of all pupils, respecting the individual working and learning styles of each one through the combination of individual and team work, as well as personalized support by the teacher⁴². The teacher focuses on the essential knowledge and skills expected by students and selects the main goals in each module⁴³. The aim is to help sophisticated students achieve their goals and to deepen advanced students' knowledge on more complex topics. For example, in terms of language lessons and in relation to middle-class students who are included in the class potential, it is useful to use an electronic or printed dictionary, illustrated or not, so that they can refer to it in case of difficulty in the way they speak or to find unknown words in the course of the work. Exercise and consolidation activities are given to weak and less confident students, and activities of deepening and transforming new knowledge to very good and fast learners. The texts that are given in the context of teaching activities have the same content, but it is recommended that the academically challenged students be given simpler texts, in terms of both lexical and editorial difficulty, so that they can achieve full understanding. The teacher changes the time and the teaching methods, uses didactic scenarios and digital educational platforms, differentiates the ways of grouping pupils and the ways of evaluation⁴⁴. The assessment is continuous, formative and diagnostic, in order to adapt the instruction to the needs of the students⁴⁵. Students work with the teacher to set learning goals for themselves and for the whole class as well as to evaluate the achievement of goals⁴⁶. Teachers who, through training and appropriate pedagogical guidance, apply the model of differentiated teaching, understand the importance of designing teaching, not on the basis of the content of the subject or the aims pursued, but on the basis of learning, social and psycho-emotional needs of learners.

3. Conclusions, discussion

Adopting the principles of differentiated teaching at the level of daily teaching practice can be considered to be directly related to the teaching dimensions of the Dynamic Model of Educational Efficiency⁴⁷. It offers multiple learning

42 Trilianos, A. (2000). *Methodology of Contemporary Teaching*. Athena. σ.σ.50-60.

43 Baris, Th. (2013). *Diversification in Teaching and Learning*. National Center for Public Administration.

44 Matsangouras, H. (2003). *The School Class. Theory and practice of teaching*. Athena. Gregory Publications. σ.σ. 23-24

45 Glasman, N., Cibulka, J., Ashby, D. (2002). *Self-Evaluation for Continuous Improvement*. *Educational Administration Quarterly*. Vol. 38, No. 2 (April 2002) 257-288. Published by: <http://www.sagepublications.com>.

46 Bagakis, G., Demetzis, K., Stamatis, Th. (2007). *A School Learns*, A.A. Livan.

47 Valiantis, S. & Koutselini, M. (2009) *Implementation of differentiated teaching-learning through the use of school textbooks*. M 'International Conference of Pedagogical Society of Greece. Janina.

and interaction opportunities, both during individual work and individualized assistance, as well as in support of teams. The combination of individual work and group cooperative activities where students work according to their own knowledge and skills and then work together to control, reflect, integrate or enrich their work is an attractive but effective work practice and learning process⁴⁸. Time is saved, allowing for the assignment of training and consolidation activities for slim and moderate students, as well as for the provision of deepening and transformation of new knowledge to very good and fast learners. It takes a lot of time to adapt teachers and their pupils to the new way of teaching, but also to organize and prepare the teaching, which may be the obstacles and difficulties in implementing the intervention program. It is also probable that it is difficult to determine the nuclear knowledge and skills of teaching, to supervise and guide pupils working at different stages of work, and to a smooth transition from individual work to group work. It should be stressed here that the programming time for differentiated work can gradually decrease as teachers continue to work, learn and shape their daily teaching practice⁴⁹. This program addresses the level of learning outcomes and goals of a mixed classroom in the language course, but after its implementation it can be extended to the whole school capacity of the whole school and to the other subjects. A next step may be to communicate actions and results to the whole school community, both at the level of education management concerned and at a wider regional level. Finally, it is estimated that further exploration, analysis and mapping of teachers' factors, suggestions and opinions on the application of differentiated teaching can help determine their actual involvement in enhancing quality in education, as the teacher is an integral factor for any success or effectiveness of the educational project⁵⁰.

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48 Matsangouras, H. (2003). *The School Class. Theory and practice of teaching*. Athena. Gregory Publications. σ.σ. 34-35

49 Baris, Th. (2013). *Diversification in Teaching and Learning*. National Center for Public Administration.

50 Cheng, Y., Tam, W., Tsui, K. (2002). *New Conceptions of Teacher Effectiveness and Teacher Education in the New Century*. Hong Kong Teachers' Journal Journal. Vol. 1. Retrieved January 24, 2016 from: http://edb.org.hk/hktd/download/journal/j1/1_1.1.pdf

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The evaluation of immigrant students’ special education needs

Abstract

The aim of this study is to evaluate the special education needs of immigrant students. This study used a structured questionnaire with four categories of 5-point Likert questions. Both descriptive and inferential statistics have been used. Teachers with special education training believed at a higher level that the immigrant and non immigrant students have been evaluated by the special learning centers in the same way, and that the evaluation tools that special centers use for students with different cultural background must not be the same as those used for the rest of the students. Teachers with multicultural education training believed at a higher level that the evaluation of the special learning centers does not correspond to the real students’ needs and that there are students that attend integration classes due to cultural differences.

Key words: immigrant students, special education, evaluation process

1. Introduction

It is a fact that society, based on its current form, is considered to be multicultural, and this has become more evident in various settings and in areas like labor, education, and entertainment. The introduction of immigrants entails both positive and negative effects for both immigrants and the host country. Foreign students are challenged to face a new way of life that is different from what they had learned in the past years of their lives; new images, new rules, a different culture from their own, a situation that scares them and which they are called to understand immediately if they want to adapt. The dimension of multiculturalism in the field of special education is an issue which unfortunately has been a matter of concern to the scientific as well as the educational community as to the design of targeted educational policies for pupils with special educational needs coming from migrant families. While in the recent decades both the field of special education and the field of intercultural education have attracted the interest of researchers as well as of political and educational bodies and are particularly popular as independent fields of research and action, the combination of the two fields is limited¹.

2. Theory

2.1. Immigrants students

In the recent decades the migration of groups or populations specifically to Europe and other continents has increased greatly, for economic, political, and social reasons. The identity of the European population has changed as European society gradually becomes more multicultural. This composition of the population, of course, is also reflected in the school population, including the school population with special educational needs. General and special education schools welcome students of different national backgrounds who were either born in countries other than the country of residence or were born in the country of residence but whose parents were born in another country

These students usually have a different culture and sometimes speak a language different from that of the host country in which, however, they go to school and interact with peoples who originate primarily from the country of origin². Due to the intense mobility of populations internationally and in Europe in particular, important European and international organizations encourage

1 European Agency for Development in Special Needs Education (EADSNE) (2009). *Development of a set of indicators for inclusive education in Europe*. Brussels: EADSNE.

2 Koiliari, A. (2005). *Multilingualism and Language Education. A Sociolinguistic Approach*. Thessaloniki: Vaniats Publications, Nikolaou, G. (2000). *Integration and education of foreign pupils in Primary School - from "homogeneity" to multiculturalism*. Athens: Ellinika Grammata, Skourtu, E. (2009). Linguistic Diversity in Greek School: Controversies and Prospects. In A. Androusou & N. Askouni (eds.). *Cultural Diversity and Human Rights: Challenges for Education* (pp. 152-164). Athens: Metaxchio.

national authorities to support and provide high quality education to all pupils, including students with special educational needs, regardless of national and cultural backgrounds.

For example, 20 years ago, UNESCO³ had supported this school's obligation to offer its services to all children. In particular, the Declaration (Salamanca Declaration) states: "Schools must accommodate all children, regardless of their physical, mental, social, emotional, linguistic or other circumstances. This should include children who are disadvantaged and charismatic, street and working children, those belonging to remote or nomadic populations, children from linguistic, ethnic or cultural minorities, and children from other vulnerable or marginalized regions or groups"⁴.

In 2008, the United Nations held a conference on the Rights of People with Disabilities and argued that people with disabilities will have equal rights with the rest, recognizing and supporting their specific cultural and linguistic identity⁵.

2.2. Immigrant students with special education needs

The Council of Europe in the Action Plan 2006-2015 also notes that "people with disabilities from minority groups, migrants and refugees with disabilities can face multiple difficulties due to discrimination or the lack of familiarity with public services. Member States should ensure that support for people with disabilities takes into account their linguistic and cultural background and the specific needs of such a minority group"⁶. It is well known that research data on multiculturalism in the area of special education is extremely limited, if not non-existent. This is for a variety of reasons related both to conceptual and theoretical as well as to practical issues concerning the concept of immigration and interculturalism in different countries and different educational systems.

Different and often contradictory views of specialists on issues related to specific practices that would facilitate the integration of immigrant pupils into the host school (general or special education) and improve the quality of their education also create problems for the credible study of the subject. For example, opinions differ on the subject of the pupil's language in the school (mother tongue or the language of the host country) or on the degree of familiarity of teachers with the culture and language of the migrant student's country of origin (the same national background as the student or different)⁷.

3 Unesco (1994). *The Salamanca Statement: network for action on special needs education*. Access at URL: <<https://www.inclusion.com/page/lhtml>

4 Unesco (1994). *The Salamanca Statement: network for action on special needs education*. Access at URL: <<https://www.inclusion.com/page/lhtml>, p.6.

5 Article 30, 2008.

6 Annex 4.6, p. 32

7 Verkuyten, M. (2005). Ethnic group identification and group evaluation among minority and majority groups:

While the education of pupils with special educational needs from immigrant families is now employing educational policy actors in the field of special education, attention is particularly given to either the education of pupils with special educational needs or the education of pupils from families of immigrants, while studies that cover both dimensions (special education and multiculturalism) are minimal.

This is clearly distinguishable as regards the sources of support for these pupils, which focus unilaterally either on the specific needs of pupils or on their migrant background. Specifically, on the one hand, the programs proposed to students and migrant students to learn the language of the host country usually do not take into account any special educational needs that these children may have. On the other hand, the cultural background of pupils is usually not taken into account when assessing their specific educational needs despite the great efforts of the last few years for culturally-free assessment trials⁸.

In general, there is over-representation of pupils with migrant background in special education, as international bias against migrants is recorded internationally in the various special education organizations⁹. This bias can also be created within the framework of a general classroom itself, as often inappropriate teaching practices that hinder rather than facilitate students from migrant families and lead to erroneous assessments of teachers and, by extension, to the discomfort of these students and their families¹⁰. These difficulties are even greater in the case of pupils with mental retardation and learning difficulties, as early intervention in the country of origin is most often absent and the children's social behaviour problems are more pronounced¹¹.

It also appears that migrant or ethnic minority children with special educational needs usually live in low socio-economic conditions, many of whom in poverty. Indeed, these poverty conditions may be responsible for the developmental problems of these children due to their great deprivation.

However, Werning, Løser and Urban¹² point out that this is a multi-systemic exclusion of immigrant pupils with disabilities, as the exclusion of families from nationality and limited access to the labor market and the prosperity of economic well-being are correlated with strong limitations on children's potential for school success. In the context of the effective management of the special

Testing the multiculturalism hypothesis. *Journal of Personality and Social Psychology*, 88, 121-138.

8 European Agency for Development in Special Needs Education (EADSNE) (2009). *Development of a set of indicators for inclusive education in Europe*. Brussels: EADSNE.

9 OECD (2010). *Pisa 2009 results*.

10 Losen, D. J., & Orfield, G. (2002). *Racial Inequity in Special Education*. Harvard Education Press.

11 Werning, R. Løser, J. M. & Urban, M. (2008). Cultural and social diversity. An analysis of minority groups in German schools. *Journal of Special Education* 42(1), 47-54.

12 Werning, R. Løser, J. M. & Urban, M. (2008). Cultural and social diversity. An analysis of minority groups in German schools. *Journal of Special Education* 42(1), 47-54.

educational needs of foreign pupils in either the special or the general school, particular attention is given to the good education and lifelong training of all the professionals involved in the education of these pupils and pupils. This training should include adaptation of teaching methods, quality education, evaluation services and support structures for the wide range of special educational needs and awareness of the intercultural dimension of education¹³.

2.3. Aim

The aim of this study is to evaluate the special education needs of immigrant students. In addition, the following four hypotheses were tested:

Hypothesis 1. The gender factor is expected to have a significant impact on teachers' perceptions of assessing the difficulties / competencies in studying immigrant pupils with SEN;

Hypothesis 2. A significant influence of the "Special Education Training" factor is expected on the teachers' perceptions of assessing the difficulties / competencies in studying immigrant pupils with SEN;

Hypothesis 3. A significant influence of the Intercultural Education Training Factor is expected on the teachers' perceptions of assessing the difficulties / competencies in studying immigrant pupils with SEN;

Hypothesis 4. A significant impact of the Teacher experience with immigrant pupils is expected on the teachers' perceptions of assessing the difficulties / competencies in studying immigrant pupils with SEN;

3. Methodology

3.1 Participants

A convenience sample of 200 teachers was gathered for the research purposes. This sampling technique was selected because it is more economical and less time-consuming. The sample was gathered through an online Google platform during 1/1/19 and 31/1/19. As to the characteristics of the sample these were the following: the ratio of male and female participants in the study was 60% and 40% respectively, 43.5% degree of the teachers were between 30 – 35 years old, 27.5% were between 25 – 30, 11% were between 40 – 45, 8.5% were between aged 35 – 40 and the rest 9.5% were above 50 years old.

Furthermore, 47.5% degree of the teachers had between 7 – 12 years teaching experience, 17.5% had less than 2 years, 16% had more than 16 years,

¹³ European Agency for Development in Special Needs Education (EADSNE) (2009). *Development of a set of indicators for inclusive education in Europe*. Brussels: EADSNE.

13% had between 13 -18 years and the rest 6% had between 2 – 6 years. Also, 63.5% degree of the teachers had less than 2 years teaching experience in special education, 26% had between 7 -12 years, 8% had between 2 – 6 years and the rest 2.5% had between 13 – 18 years. In relation to the level of education 62.5% degree of the teachers had a master's, 30% had a university degree and the rest 7% had a PhD. For those that either had a PhD or a master's (69.5% in total), 46.8% had a master in special education, 27.3% had a master in different field, 15.8% had a master in multicultural education and the rest 10.1% had a PhD in special education.

Regarding the teaching section 43% of the teachers acquired it in special education, 35% in general education and 22% in intercultural classrooms. Finally, 46% of the teachers said that their position in the teaching section was in intercultural classrooms, 37.5% were teachers of general education and the rest 16.5% were teachers of parallel support.

3.2. Material

This study used a structured questionnaire with four 5 point Likert questions. These questions were the following: The evaluation of the special learning centers corresponds to the real need of the students, They are students that attend integration classes due to cultural differences and not because they have learning difficulties, Immigrant and non immigrant students have been evaluated by the special learning centers in the same way, The evaluation tools that special centers have used for students with different cultural background must not be the same as those used for the rest of the students.

3.3. Statistical analysis

In this study, descriptive and inferential statistics have been used. Descriptive statistics were used in order to present the participants' characteristics and their answers to the main body of the questionnaire. Also, inferential statistics were used in order to test the hypotheses of the study. For this reason, the independent sample t – test was used (even though data deviated from normal distribution in almost all cases, the skewness and kurtosis indexes were not very high, between $+2$ ¹⁴, therefore the deviation was not significant in order to use non parametric test, also the levene's test was used before the presentation of the results of the t – test). The statistical analysis was conducted with the use of the statistical software SPSS22.0.

14 George, D. & Mallery, P. (2010). *SPSS for Windows Step by Step: A Simple Guide and Reference 17.0 Update*. Boston: Pearson.

4. Results

Table 1 Evaluation of learning difficulties

	Strongly disagree		Disagree		Neither agree nor disagree		Agree		Strongly agree		Strongly agree & agree	
	N	%	N	%	N	%	N	%	N	%	N	%
The evaluation of the special learning centers corresponds to the real needs of the students	26	13,00%	65	32,50%	52	26,00%	57	28,50%	0	0,00%	57	28,50%
There are students that attend integration classes due to cultural differences and not because they have learning difficulties	0	0,00%	35	17,50%	29	14,50%	96	48,00%	40	20,00%	136	68,00%
Immigrant and non immigrant students have been evaluated by the special learning centers in the same way	9	4,50%	13	6,50%	40	20,00%	77	38,50%	61	30,50%	138	69,00%
The evaluation tools that special centers have been using for students with different cultural background must not be the same as those used for the rest of the students	0	0,00%	4	2,00%	9	4,50%	38	19,00%	149	74,50%	187	93,50%

Note: in the final column the sum of the “agree” & “strongly agree” is being presented from the smallest to the largest

According to table 1 93.5% degree of the teachers agreed that the evaluation tools that special centers are using for students with different cultural background must not be the same as those used for the rest of the students (4.5% were neutral). Furthermore, 69% degree of the teachers agreed that immigrant and non immigrant students have been evaluated by the special learning centers in the same way (20% were neutral). Also, 68% degree of the teachers agreed that there are students that attend integration classes due to cultural differences and not because they have learning difficulties (14.5% were neutral). Finally, 28.5% degree of the teachers agreed that the evaluation of the special learning centers corresponds to the real need of the students (26.0% were neutral).

Table 2 Differences between male and female teachers

	Gender				t	df	p
	Female		Male				
	M	SD	M	SD			
Immigrant and non immigrant students have been evaluated by the special learning centers in the same way	3.90	1.02	3.75	1.15	.969	198	.334
The evaluation of the special learning centers corresponds to the real need of the students	2.67	1.02	2.75	1.04	-.564	198	.574
There are students that attend integration classes due to cultural differences and not because they have learning difficulties	3.63	.95	3.81	1.02	-1.267	198	.207
The evaluation tools that special centers have been using for students with different cultural background must not be the same as used for the rest of the students	4.60	.71	4.75	.56	-1.655	192.519	.100

According to table 2, there is not a statistically significant difference between male and female teachers **regarding the evaluation of learning difficulties of immigrant students with special learning needs.**

Table 3 Differences between teachers with and without special education training

	Do you have expertise in special education?				t	df	p
	No		Yes				
	M	SD	M	SD			
Immigrant and non immigrant students have been evaluated by the special learning centers in the same way	3.26	1.15	4.36	.65	-8.187	142.694	.000
The evaluation of the special learning centers corresponds to the real need of the students	2.78	1.10	2.63	.95	.989	185.054	.324
There are students that attend integration classes due to cultural differences and not because they have learning difficulties	3.70	1.07	3.71	.90	-.039	198	.969
The evaluation tools that special centers have been using for students with different cultural background must not be the same as used for the rest of the students	4.51	.79	4.79	.49	-2.994	152.548	.003

According to table 3, teachers with special education as opposed to teachers without special education believed at a higher level that the immigrant and non-

immigrant students have been evaluated from the special learning centers in the same way ($M_N=3.26$ $SD_N=1.15$ vs $M_Y=4.36$ $SD_Y=.65$, $p < 0.01$). Also, teachers with special education as opposed to teachers without special education believed at a higher level that the evaluation tools that special centers have been using for students with different cultural background must not be the same with those used for the rest of the students ($M_N=4.51$ $SD_N=.79$ vs $M_Y=4.79$ $SD_Y=.49$, $p < 0.01$).

Table 4 Differences between teachers with and without multicultural education

	Do you have expertise in multicultural education?						
	No		Yes		t	df	p
	M	SD	M	SD			
Immigrant and non immigrant students have been evaluated by the special learning centers in the same way	3.86	1.10	3.78	.97	.441	198	.660
The evaluation of the special learning centers corresponds to the real need of the students	2.84	1.00	2.22	.97	3.671	198	.000
There are students that attend integration classes due to cultural differences and not because they have learning difficulties	3.63	.93	3.98	1.10	-2.137	198	.034
The evaluation tools that special centers have been using for students with different cultural background must not be the same as used for the rest of the students	4.63	.71	4.78	.42	-1.790	123.549	.076

According to table 7, teachers with multicultural education as opposed to teachers without multicultural education believed at a higher level that the evaluation of the special learning centers does not correspond to the real students' needs ($M_N=2.84$ $SD_N=1.00$ vs $M_Y=2.22$ $SD_Y=.97$, $p < 0.01$) and that there are students that attend integration classes due to cultural differences and ομοίως not because they have learning difficulties ($M_N=3.63$ $SD_N=.93$ vs $M_Y=3.98$ $SD_Y=1.10$, $p < 0.05$).

Table 5: Differences according the educational experience in special education

	Experience as a teacher of special education						
	0-6		7-18		t	df	p
	M	SD	M	SD			
Immigrant and non immigrant students have been evaluated by the special learning centers in the same way	3,62	1,13	4,39	,65	-5,979	173,619	,000

The evaluation of the special learning centers corresponds to the real need of the students	2,73	1,03	2,61	1,01	,750	198	,454
There are students that attend integration classes due to cultural differences and not because they have learning difficulties	3,66	,92	3,81	1,13	-,928	198	,355
The evaluation tools that special centers have been using for students with different cultural background must not be the same as used for the rest of the students	4,64	,69	4,70	,60	-,563	198	,574

According to table 5, teachers that have 7 -18 years of experience in special education as opposed to teachers that have less than 7 years of experience in special education believed at a higher level that immigrant and non-immigrant students have been evaluated by the special learning centers in the same way ($M_{0-6} = 3.62$ $SD_{0-6} = 1.13$ vs $M_{7-18} = 4.39$ $SD_{7-18} = .65$, $p < 0.01$).

5. Conclusion

This study concluded that the majority of the teachers agreed that the evaluation tools that special centers are using for students with different cultural background must not be the same as those used for the rest of the students. Furthermore, 2/3 of the teachers agreed that immigrant and non-immigrant students have been evaluated by the special learning centers in the same way and that they are students that attend integration classes due to cultural differences and not because they have learning difficulties. Also, almost 1/3 of the teachers agreed that the evaluation of the special learning centers corresponds to the real need of the students. In relation to the research hypotheses the first one was not confirmed. Therefore, the gender factor did not have a significant impact on teachers' perceptions of assessing the difficulties / competencies in studying immigrant pupils with SEN. The remaining three were partially confirmed. More precisely, the study resulted that teachers with special education as opposed to teachers without special education believed in a higher level that the immigrant and non immigrant students have been evaluated from the special learning centers in the same way. Also, teachers with special education opposed to teachers without special education believed at a higher level that the evaluation tools that special centers have used for students with different cultural background must not be the same as those that used for the rest of the students. Furthermore, teachers with multicultural education opposed to teachers without multicultural education

believed at a higher level that the evaluation of the special learning centers does not correspond to the real students' needs and that there are students who attend integration classes due to cultural differences and not because of learning difficulties. Finally, teachers that have 7 -18 years of experience in special education as opposed to teachers that have less than 7 years experience in special education believed at a higher level that immigrant and non-immigrant students have been evaluated by the special learning centers in the same way.

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