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Viktoria Prekate[1], **Nektaria Palaiologou**[2]

Applying intercultural principles in practice during teaching: languages of instruction and use in multicultural classes

Abstract: Since 2015, Greek schools have seen a sharp increase in the number of students from refugee backgrounds, especially in areas near large refugee hospitality centres. Multilingual and multicultural classes multiplied in numbers, hosting students with widely different educational histories and almost zero command of the official language of instruction. This manuscript presents three observed science lessons at a multicultural junior high school in Athens, in a class of fourteen (N) refugee and migrant students, none of whom were native speakers of English or Greek. The students were observed as to their language of choice for note-keeping and writing, the use of code-switching and translanguaging, as well the use of the first language in the classroom. According to this study, most students chose to use their own 'working' language, which is the language most readily available to them in that moment, in order to negotiate new scientific knowledge. This 'working' language consists mainly of English speech and text, but with many elements of code-switching to Greek and students' first

[1] Viktoria Prekate is postgraduate student at Language Education for Refugees and Migrants (L.R.M.) Programme at Hellenic Open University. Email: vprekate@gmail.com
[2] Nektaria Palaiologou is Programme Director at Language Education for Refugees and Migrants (L.R.M.) Programme at Hellenic Open University. Email: nekpalaiologou@eap.gr

languages, showing and highlighting the need for encouraging students to use intermediate language tools, rather than the strictly monolingual official language of instruction.
The ultimate goal is the effective inclusion and healthy coexistence of all culturally linguistically diverse students within the classroom.
Keywords: multicultural education. refugee education, translanguaging, code-switching, multilingual classes, intercultural education

Uporaba medkulturnih načel v praksi pri poučevanju: učni jeziki in uporaba v večkulturnem razredu

Izvleček: Od leta 2015 je v grških šolah število učencev beguncev, zlasti na območjih v bližini velikih begunskih centrov, močno naraslo. Večjezični in večkulturni razredi so se množili, vključevali so učence z zelo različno zgodovino izobraževanja in skoraj brez znanja uradnega učnega jezika. Ta članek opisuje tri ure naravoslovja na multikulturni nižji srednji šoli v Atenah v razredu štirinajstih dijakov beguncev in migrantov, med katerimi nihče ni bil materni govorec angleščine ali grščine. Učence smo opazovali glede uporabe jezika, ki so ga izbrali za zapisovanje in pisanje, uporabe preklapljanja kod in prevajanja ter uporabe prvega jezika v razredu. Kot smo opazili, se je večina dijakov odločila za uporabo lastnega "delovnega" jezika, ki jim je bil v danem trenutku najlažje dostopen za učenje novih znanstvenih spoznanj. Ta "delovni" jezik je bil sestavljen predvsem iz angleškega govora in besedila, vendar dopolnjen s številnimi elementi preklapljanja med kodi grščine in maternega jezika učencev; to kaže na potrebo po spodbujanju učencev k uporabi vmesnih jezikovnih orodij namesto strogo enojezičnega uradnega jezika pouka.
Ključne besede: večkulturna vzgoja, izobraževanje beguncev, prevajanje jezikov, preklapljanje kod, večjezični pouk, medkulturna vzgoja

Introduction

Since 2015, when the Greek refugee crisis started, areas near Refugee Hospitality Centres (refugee camps) suddenly registered high numbers of students from refugee/migrant backgrounds with low Greek language skills. Secondary education, in particular, was ill-prepared to accommodate students with such linguistic and cultural diversity and widely different educational histories. Learning new academic content in a language they could barely understand, became a very challenging task (Dryden-Peterson 2015, 8).

Formal education attempted to respond to the newly arising needs by re-activating the previously established Reception Classes. These are similar in concept to the 'sheltered ESL classes' mentioned by Curtin (2005, 25) and Knoblcock and Youngquist (2016, 3), where the host language (Greek) is taught intensively for 15 hours per week in mainstream schools, until refugee/migrant students are ready to fully enter mainstream education (Palaiologou et al. 2021, 324). Greek language skills assessment tests, issued by the Ministry of Education, are carried out at the beginning of each academic year, diagnosing the need for joining a Reception Class, although maximum duration for attendance is set as three years, with most students becoming fluent enough to join the mainstream class after one year. Other structures, such as Intercultural Education Schools, already established in Greece since 1989, were also re-activated with sharply increased student influxes. Even though Intercultural schools aim at promoting the integration of non-Greek speaking students into the Greek education system and society, in practice, they host mostly non-native speakers. These schools attempt, through adaptation of pedagogical strategies and materials, to teach the full mainstream Greek curriculum to students, whose Greek may be very basic and, in some cases, non-existent. Obviously, language of instruction and

language use in class pose many issues. Intercultural schools host dozens of different nationalities of students from various socio-cultural backgrounds, including, for example, refugee students from camps, unaccompanied minors, children of newly arrived economic migrants, children of diplomats or returnees from the Greek diaspora. Also, many schools in central urban areas have a high percentage of non-native speakers among their students. Multilingual schools are an important vehicle for host language learning though socialization among peers of different nationalities and locals, as friendship seems to be an important route to social inclusion and integration (Palaiologou and Prekate 2022, 5).

This article investigates the comparative use in class of mother languages, of second or third languages of instruction (such as English and French) and of intermediate languages, constructed by students themselves through translanguaging and code-switching processes during a multilingual class. Translanguaging allows the mixture of elements, modes and features from different languages, prioritizing communication facilitation over language accuracy and boundaries (García 2009, 140). Translanguaging intervenes at the level of word structure, borrowing grammatical and syntactical rules from one language and applying it to another (for example, conjugating Greek verbs with English subfixes). Code-switching, on the other hand, is a simpler form of conflation where two languages are used within a sentence, but words remain largely intact. Both strategies aim at making communication among multilinguals more effective. These phenomena are widespread at multicultural schools' multilingual environments, bringing positive effects to communication, but also sometimes difficulties. The construction of intermediate languages treats languages not as independent entities, but as mutually interacting systems in education and becomes an evolving step stemming from multilingualism.

The current study involves observation of science lessons at a multicultural junior high school and the frequency of mother language, host language (Greek) and third language (English) use during the lessons. During the lessons observed, students were free to use the host or third language on their worksheets (they were also allowed to keep notes in their mother language, although they could not be corrected by the teacher). In a sample (N) of 14 students from over 8 nationalities, their worksheets were analyzed and grouped according to the language(s) used: English only, Greek only, Greek terminology only (with explanations in English), Greek terminology only (with no explanations). The main findings show that most students use English extensively as a working language. Even though learning Greek terms is within the lessons' teaching aims, there are students who find this very difficult and prefer to resort to a more familiar language (English). The common use of English is confirmed in the third type of observation concerning the translation of science terms from English to mother language: most students could not find an accurate corresponding term in their mother language and stated that they 'didn't need to', as they have been used to 'think in English'. This paper begins with a brief theoretical background on translanguaging and code-switching in teaching and learning, followed by detailed descriptions of three observations of science lessons from a multicultural class, one biology lesson on the characteristics of life, another biology class on the description and functions of the cell, and one science class on terminology of properties of materials. The Discussion section follows with the relative frequency of host and third language (English) uses, as well as translation to mother language, as observed during the lessons. The Conclusions section emphasizes the crucial role that translanguaging and code-switching play in facilitating non-native speakers' learning

and socialization. Translanguaging and code switching could be used to enrich intercultural practices in multilingual classes and support culturally-linguistically diverse students in order to include them within the classroom's context.

Research shows that children learn better in their mother language (Cummings 2014, 5) and parental engagement is more likely when educational materials are in their mother tongue (Tudjman 2019, 6). Mother language use at schools is also included in EU educational guidelines (Androulakis 2019, 16), although in Greece, the official language of instruction in mainstream formal education is Greek. Intercultural schools' operation framework requires that teaching staff are hired according to their command of the mother language of student majority. However, in present day multilingual schools, there is no single 'majority' mother language and it would not be feasible to cater for all linguistic needs, which include, for example, Arabic, Farsi, Kurdish, Dari, Urdu, Georgian, Chinese, Russian, French, Albanian, Swahili, Turkish, South African English, as well as many topical dialects. Additionally, many teachers see mother language use as hindrance to students' academic progress (Argidag 2019, 9) and prefer to deliver entire lessons in new academic topics in Greek. There are many examples in the literature where researchers, teachers and policy makers advocate for the use of mother language (and culture) in mainstream education (Vižintin 2019, 125). However, approaches differ among educators at different schools that host a variety of mother languages, with some allowing mother language use among peers, while others actively discourage the use of mother language or third languages (such as English).

It is interesting to note that many students at multicultural schools ultimately become not only bilingual but multilingual, with English (rather than Greek) being the most prominent second language. The reasons are: a) Many students come from Eng-

lish-speaking international backgrounds, either from international schools in other countries, or as refugee students in intermediate countries, where English was used as a 'survival' language, b) English is the language teenagers use for communication in social media, c) English is the main language of socialization among peers of different ethnic groups, d) English is the most spoken language in the EU and students who aspire to relocate to other European countries invest in mastering English.

However, other languages are constantly present: peer-teaching takes place either in the mother language, third languages (French for some African students, or Turkish, for refugee students who have prior schooling experience in Turkey before coming to Greece) and in an 'intermediate language', that is, a main 'background' language, such as English or Arabic, upon which elements of other languages are superimposed, either at the level of the sentence or at the level of the word (code-switching and translanguaging). Peer teaching can also take place in neighbouring languages (such as Sorani and Farsi) (Androulakis 2019, 21), during a process called 'inter-comprehension', which utilizes similarities between neighbouring languages to decode messages and assist comprehension of an unknown language. The purpose of this article is to investigate the functionality of these intermediate languages as learning strategies.

Theoretical Background: Translanguaging and Code-switching in Teaching and Learning

Although very few people would identify as multilingual (Edwards 2013, 20), as language forms an integral part of identity, multilingualism is found in an increasing number of people in modern multicultural societies and affects several sectors of public and private life: the media, social services, commerce, education (Tsolakidou 2009, 6) and communication within one's home and family: second generation immigrant children talk with their parents in their mother tongue, but use a second language with their siblings or even a third language, when they contact their friends through social media.

Bi/multilingualism was traditionally determined by socio/political factors, like political union of two separate ethnic states or colonization of one country by another. However, in modern societies, these bounds are no longer as influential (Edwards 2013, 6): there may be families or individuals within a highly monolingual state or area, with multilingual competences out of choice, professional requirements or necessity. Today, it is more the complex population movements, often to multiple countries, for financial, career, survival or political reasons that shape the terrain of multilingualism, bringing together many individuals from multiple cultural and linguistic backgrounds. When students from such different backgrounds come together in a single educational environment many interesting multilingual processes and realities emerge.

At the school of our study, there were students from over 40 nationalities, with varied linguistic backgrounds, like the bilingual refugee Afghan students (in two mother languages, Farsi and Dari) who become rapidly trilingual in Greek, or Spanish speaking children of the Greek diaspora in Latin America. Some

Syrian refugee students' writing skills were better in Turkish than in their mother language, as they spent crucial schooling years as refugees in Turkey, before coming to Greece. These are examples of students who have developed different capacities and skills in different languages, according to functionality and need. Monolingual interactions occur between multilingual students when they socialize with classmates of the same nationality. Arab students, for example, all speak Arabic to each other during breaks, Bangladeshi students speak Bangla, etc. However, the phenomenon of translanguaging arises when nationalities mix during socializing: Syrians and Afghans can communicate in English, with Arabic or Turkish language elements interfering. The Chinese and Ukrainians communicate in English. Interestingly, most students rarely use Greek, except for the occasional slang phrases.

Translanguaging is a process that mixes linguistic elements in a way that goes beyond the parallel coexistence of different monolingual systems, by mixing elements of different languages at the level of the sentence and at the level of the word. It diffuses the partitions between monolingual systems, linguistically and socio-linguistically (Tsolakidou 2015, 391). The purity of a mother language is no longer kept intact and language interaction is taking place through the transference of linguistic elements from one language to another. 'Greeklish' is a typical example of translanguaging among Greek native youths who often possess a high command of English language and are exposed daily to English through online activities (music, videos, gaming, etc.). In translanguaging, official, named languages are recognized and used, but no longer dictate the use of minoritized languages (Tsolakidou 2016, 12-13). Translanguaging allows the freedom of using a repertoire of practices and a variety of elements

from different minoritized languages, in order to communicate effectively. It is the unitary system of language that the speaker constructs to serve everyday life communication needs. Students from marginalized minorities (as well as their parents) are often ambivalent about the use of the mother tongue in school (Skourtou 2011, 13), but translanguaging, as a tool of dynamic multilingualism, helps them progress academically and develop a multilingual cognitive capital that is very important in modern day multicultural societies, where the monolithic, monolingual model is no longer viable (Garcia and Sylvan 2011, 385). Despite all this, translanguaging is generally misunderstood or even ignored, as teachers are not properly trained in how to use it and see it as a 'wrong' form of language.

Translanguaging uses languages as a communicative continuum, mitigating the differences between different language systems. As a coherent language system that the speaker constructs for himself, it becomes almost an invented 'intermediate language' that multilingual speakers use consciously or unconsciously. Many minority languages can coexist in parallel in a multilingual educational community, such as an Intercultural school, but it is only through translanguaging that equal interaction between the two is achieved. Multilingualism is a prerequisite for translanguaging, but it is not certain that translanguaging will occur even in the most diverse multilingual communities – although Garcia and Lin (2016, 119) argue that it is practically impossible for multilinguals to live/work together without using translanguaging, as translanguaging is a dynamic process of diffusion among multilingual systems. Conversely, one cannot use translanguaging without having at least two different language systems. For example, bilingualism is a necessary but not a sufficient condition for translanguaging.

Method: Examples of Translanguaging in a Multilingual Science Class

This study involves observation of three Science lessons at the 2nd year of a multicultural Junior High School and the uses of translanguaging and code-switching were noted. Fourteen (14) students from the class were chosen for the analysis of this work, as they were present in all three observed lessons and came from various ethnicities, such as Romania, China, Georgia, Afghanistan, Syria, Lebanon, Ghana, Morocco, etc. and a variety of socio-economic backgrounds (refugee families in camps, refugee families in hostels, unaccompanied minor refugees, children of economic migrants, Greek returnees from the Greek diaspora, etc.). Their Greek language skills varied greatly, but none of the students spoke Greek or English as their mother languages. Teachers continuously adapted their resources in both English and Greek and allowed students the flexibility to use either English or Greek to master the new academic content, while improving their language skills.

The participants all attended the same class and were present during all three lessons. More students attended the class at any given time, but the analysis involved the class-notes of those present during all three lessons. There was no other selection criterion for the observation (only criterion was the uninterrupted attendance during all three lessons), but a specific class was chosen through personal contact and communication with the teacher, who was experienced in multilingual science teaching. The teacher recommended the second year of junior high school for research observation purposes, as it is a year when many new scientific concepts are introduced and students have acquired some basic Greek language skills. The research took place under the umbrella of the Migrant Children and Communities in a Transforming Europe (MiCREATE) project, which was run by the Hellenic Open

University as a partner, co-ordinated by coordinator Science and Research Centre, Koper in Slovenia and funded by the European Union HORIZON 2020 framework. The MiCREATE research team was granted entrance to all educational structures for the aims of researching education for refugees and migrants. Individual parental consent in this case was not required, as there was no communication or interaction by the observant teacher with the students, only passive lesson observation, although students were informed beforehand that another teacher/researcher would be observing the lesson for the purposes of academic research on multilingual class language use. Field notes were taken to transcribe some oral examples of translanguaging and code-switching, but no recording was allowed. Students' worksheets provided most of the field material for analysis, backed by the observer's field notes and discussion with the teacher afterwards. The observation mainly focused on the way students and teacher 'switched' languages (mostly between English and Greek). The students had lived in Greece from six months to two years, most of them attended intercultural (and some mainstream) primary schools and were aged 12-14.

Results

A summary of observations regarding use of code-switching and translanguaging during the Science lessons are the following:

A Biology Revision Class Example

During a revision lesson in Biology regarding the seven characteristics of life, students were given a worksheet to write the key terms in either English or Greek (or both, if they wished) (Appendix I). The terms required were: 'eat', 'breathe', 'grow', 'reproduce', 'excrete', 'react', 'common origin' and students were given the option to express themselves in either language. As a result,

one (1) student answered in Greek with full description, four (4) students answered only using Greek terms, four (4) students wrote with both English and Greek terms, and five (5) students in English only. A sample of each answer type is shown in Appendix I. Students stated that having the option to answer either in English or Greek was helpful to them. It should be noted that some students were not fluent in English and spoken Greek was more accessible to them than English terms. However, Greek orthography was very challenging for all participants.

A Biology Class on the Cell

In this example, students were given a class worksheet with a cell diagram to fill in the blanks the names of the different organelles and their functions. Again, students had the option of using either English or Greek in the functions' description, although the organelles' names should also be written in Greek (Appendix II). The teacher taught the entire lesson in both languages. As a result, two (2) students wrote only in Greek (including the functions), four (4) students wrote only in Greek (but only the names, they did not write anything about functions) and eight (8) students, used both languages (including English to describe the functions). It seems therefore that the majority of students finds Greek difficult as a working academic language, although terminology is more readily acquired, if a combination of methods is used (e.g. translation to English or mother language, linking to prior knowledge, explanatory diagrams, etc.). Therefore, the organelles' names were memorized in Greek as required, but most students chose English as the language to explain and keep notes about their functions. Since most scientific terminology is of Greek origin, this made it easier for students to approach, as the following sample dialogue shows:

Teacher: This is a κύτταρο. What's inside? In κύτταρο? Look... Mitochondria... Μιτοχόνδρια... You see same word! What do they do? Yes... Produce energy... Energy? Ενέργεια. Παράγουν ενέργεια**. See same word again!*
*Student: Kyria, έτσι***, sosto?*
*Teacher: Ναι, very good, μπράβο****!*

**transl. Cell.*
***transl. They produce energy.*
****transl. Miss, like this, right?*
*****transl. Yes, very good, well done.*

This is not the only example where terminology of new concepts is introduced in Greek, but explanation of concepts takes place in whatever language students have greater fluency in (or find more accessible), including sign language! Here' s how an Arabic-speaking student explains to a Farsi-speaking student what to do in an exercise on electricity:

Here, you have two φορτία. Draw δυνάμεις**, draw, samanah***, OK? La, la****, not this. Look, δυνάμεις. Έλκονε, απωθούνε***** [uses his hands to show the directions of attractive and repulsive forces].*

**transl. Electrical charges.*
***transl. Forces.*
****transl. Draw forces, draw, draw.*
*****transl. OK? No, no.*
*****transl. Look, forces. Attract, repel [wrongly pronounced Greek].*

In this case, the student did not have the term for 'attract' or 'repel' in his mother language, or even in English. So, he chose the corresponding Greek terms, as he memorized them (mispronounced).

The terms, though, had the correct meaning, as he used his hands to show the meaning of attraction and repulsion between electrical charges. This is an example of a student who begins to learn new scientific concepts directly in the second language.

Mother Tongue Use on Physical Concepts

In a Chemistry lesson, three new physical concepts on material properties were introduced ('density', 'hardness', 'fragility') and the terms and explanations were given in both English and Greek. Students kept notes in whatever language they wished, including their mother tongue. Then, students were asked in what language they kept notes in and (additionally to previous examples) were also asked to comment on mother language terms, translation to mother language and related meanings (shown in Appendix III). Only one student reported resorting to translation to mother language (Romanian) and all students preferred to keep notes in English, as they found the new terms in Greek ('πυκνότητα','σκληρότητα', 'ευθραυστότητα') especially difficult. Some of the students' comments about mother language use were the following:

(A) 'Density'

Students were asked to write the word 'density' in their mother tongue, as they understood the word 'density' from the relevant lesson and the corresponding English term 'density'.

In the first line, the Romanian speaking student easily understood the term 'density', as the corresponding term in her mother tongue was is similar to English ('densitate') and she had already been taught the physical concept in her mother language.

In Arabic (third line in the Worksheet), the student could not find an example for the corresponding Arabic word and had not been taught the concept of 'density' in his mother language. Nev-

ertheless, the translation of the term in his mother tongue helped him understand this new scientific concept.

In the fourth line, the term is given in Georgian. The student mentioned that the same term used has other meanings, such as when a body is "solid" and "compact".

In the sixth line, the term is given in Pashto (ګاونډیوالی) and the student commented that its meaning is the same as the English word 'density', but the student spoke fluent English.

The student on the fifth line (Swahili) was unable to give a corresponding term in his language.

(B) 'Hardness'

The term "hardness" in English has many meanings, but in physical science it means the ability of a material to carve other materials. Students commented on the respective terms in their mother languages:

Romanian (first line): "*It also means 'harshness'*".

Arabic (third line). The student gave an example where this word is used to describe hard or soft meat. This example is accurate, as it relates to the ability of meat to be carved from other materials (e.g. a knife).

Georgian (fourth line). The student gave two different synonyms.

Panjabi (sixth line). The student gave as an example for non-hardness the material '*chalk*' (correct, it is easily carved), but also suggested '*glass*', because it breaks easily (wrong, this is the property of fragility). Therefore, students who think in their mother tongue exhibit similar types of confusion between related natural concepts, just like Greek students.

(C) 'Fragility'

Romanian (first line): The term is similar to the English ('*fragilitate*') and the student was able to mention that it also has metaphorical meanings. She mentioned that it may be used both for a fragile material, e.g. porcelain, and for a fragile character, e.g. a girl who cries easily. Here there are cultural similarities in the use of terms in Western societies.

Bangla (second line): the term given (ভঙ্গুরতা), as the student mentioned, has no metaphorical meaning – it is used only for materials that break easily.

Arabic (third line): the student translated through the use of a phrase "*what breaks easily*", although, he claimed that there is a one-word term in Arabic, which means fragility of materials (هشاشه). Apparently, the student had not been taught the term in his mother tongue. In this case, the translation into mother language would probably not be helpful, as the term in the mother language was unknown and no relevant associations had been formed.

Georgian (fourth line): The student mentioned that in her mother tongue this term is not used metaphorically, only for materials that break easily.

In the final discussion, students were asked whether they used translation to their mother languages to understand the newly introduced concepts (in English and Greek). All students, with the exception of the Romanian student, said that, if they understand the context, they do not use translation of terms into their mother tongue, but prefer to think directly in English. It would be particularly difficult for them to understand the terms if the explanations were given only in Greek. The Romanian student, on the other hand, used translation very often for possible reasons: the similarity of terms in Romanian and English (terms often had a common Latin root) and the fact that she had already been taught the

physical terms in the mother tongue at her school in Romania. It should be noted that the terms given by the students in their mother tongue may not be the accurate names of the corresponding scientific concepts, but the names that students found most related to the concepts, as they understood them.

Summarizing the results of code-switching in teaching new scientific concepts to multicultural students:

Table 1. Code-switching in science writings in a multicultural class

	All notes in Greek	Only terms in Greek	Both English and Greek/ English only	Mother tongue use (examined in Chemistry lesson)
Biology: Characteristics of life	1	4	9	
Biology: The Cell	2	4	8	
Chemistry: Properties of materials			13	1

Discussion and Suggestions

Taking the above results into consideration, we observe that multilingual students, whose mother tongue is neither Greek nor English, use English extensively as a 'working' language to define and explain new scientific concepts. Students effectively learnt new terminology in Greek. However, as most students speak only basic Greek, introducing new scientific concepts entirely in Greek would be unrealistic for them. When students are given a degree of flexibility about which language to use, they seem to advance both in content and language knowledge. For example, at the biology lesson on the cell, all students were finally able to name the organelles in Greek and comprehend their functions. Some students noted in Greek only, whereas others in Greek and English. Only very occasionally would students use their mother tongues, mostly during peer-teaching, or for terminol-

ogy translation, if English translation did not provide any associations. Language choice should not be hindered, as students use whatever language is most available to them to reach their cognitive goal. Allowing students to use whatever language is most accessible to them is compatible with the bottom-up approach in CLIL terminology learning, where students mentally construct concept maps that link new and previous knowledge (Silva and Albuquerque 2016, 187). Translanguaging can boost the self-confidence and sense of self-efficacy of minority students, and give them a sense of belonging, by offering more options on expressing themselves in a monolingual world (Tsolakidou and Skourtou 2020, 232).

Teachers should be specially trained to teach multilingual classes, with methods that incorporate code-switching/translanguaging. Poor quality, teacher-centred, lecture-led, inflexible instruction is often due to lack of appropriate training of teachers that does not allow for any use of intermediate languages/mother languages. Lack of training means that often teachers ignore the linguistic and academic capital of diverse students, often neglecting basic principles of intercultural education (Papadopoulou et al. 2020, 205). Didactic practices could be modified by allowing students to process the material taught in their own language or in another working language; by giving extra time to students to do translation through apps; by letting students to take extra notes in the language of their choice; by encouraging students to talk with each other doing necessary translation and/or comparing how they have been taught in their own countries (for example, arithmetic division is taught in a different layout in Arabic countries); by utilizing students' prior knowledge; by simplifying new knowledge, so that it is not heavily language loaded; and by changing negative stereotypes about ethnic students' prior learning that expect them to underachieve (Kidd et al. 2008, 327).

These examples defy the deficit model that sees minority language speakers as inadequate learners because they have not mastered the dominant language (Reyes 2010, 424). Appropriate use of translanguaging allows speakers to draw from a broader repertoire of linguistic elements, which interact with each other through variations in grammar and syntax, without criticizing the student who uses them. It is a paradox to promote multilingualism, while criticizing translanguaging and many teachers holding dualistic beliefs about language miss the advantages of its use in class (Granstrom 2019, 244). It is a stage of intermediate language, which includes a changing relationship between linguistic varieties, helps to acquire multilingualism, while strengthening minority identities. Multilingualism is a term confined to language use, whereas translanguaging is a wider concept, encompassing a changing relationship to language varieties and language creation, and its usefulness becomes apparent in the introduction of new academic content to students that are non-native speakers of the language of instruction.

Conclusions

Good practices in teaching multilingual science classes were mentioned, drawn from three didactic paradigms at a multilingual Junior High School, where many students from refugee backgrounds attend. None of the students were native speakers of Greek or English. The results indicated the importance of allowing students to use a 'working' language of their choice in their note-taking and speech production. It was found that students think and communicate in whichever language system best suits them in understanding and expressing themselves. That 'working' language was not necessarily their mother language, but rather, in most cases, English, with many elements of

code-switching and translanguaging between English, Greek and mother languages. Translanguaging, often unknown and misunderstood, was found to be adopted by students often in an attempt to mitigate the differences between different language systems. In the three didactic examples, translanguaging, code-switching and mother language use were found to assist the acquisition of new scientific concepts, learning new terminology in Greek and facilitate peer-teaching. The need for teacher training was discussed in working with translanguaging and code-switching, so that the practices are not rejected as "wrong" language forms, but used to realize students' potential, by assisting minority students to communicate effectively in their everyday lives. Translanguaging and code-switching strategies could be used in more creative ways, such as drama play and poetry and could even be analyzed during language lessons to deepen language understanding. Students could learn to discern their own use of code-switching in a metacognitive way, as stepping-stone to mastering a new language and as a tool for communicating with other non-fluent speakers, when they themselves have mastered the target language. Further research could explore the use of these practices within the school context of a broader sample of culturally-linguistically diverse students.

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Appendix I

Foto 1. The seven characteristics of life, in Greek only (with descriptions)

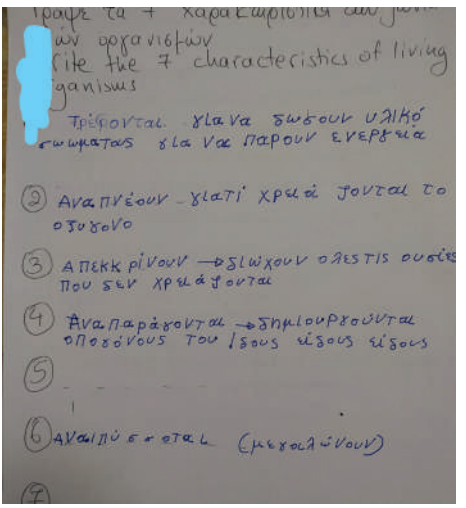


Foto 2. Terms only, in Greek only

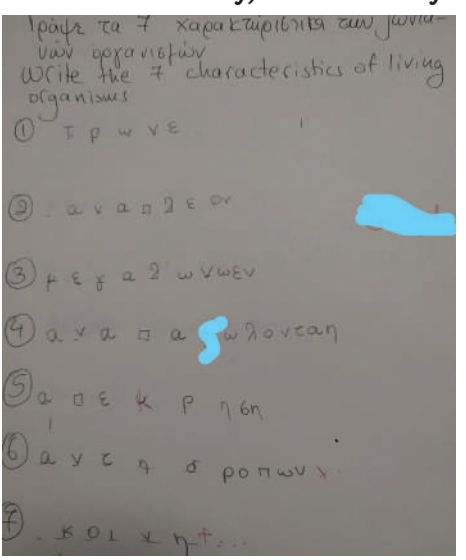


Foto 3. Terms in English and Greek

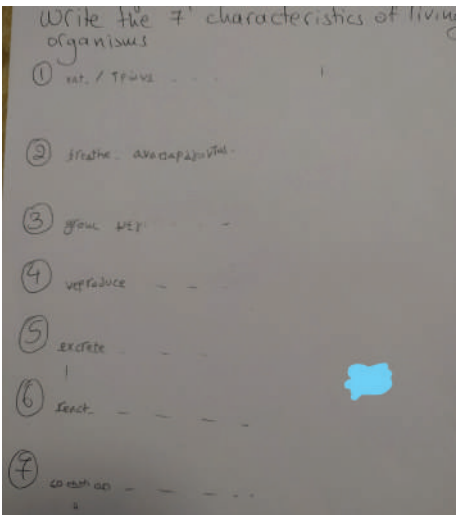
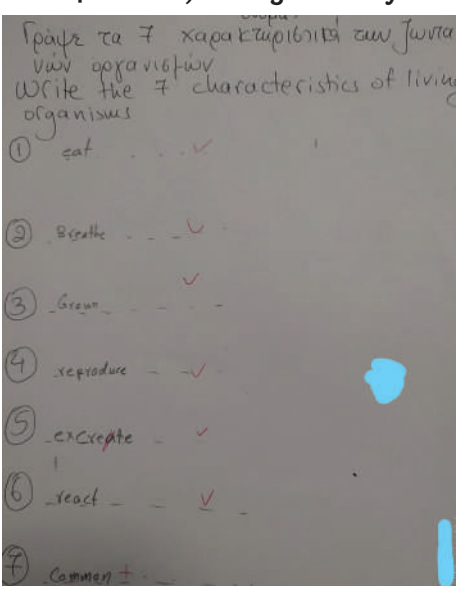


Foto 4. Terms, in English only



Appendix II

Foto 5. The cell, in Greek only (with descriptions)

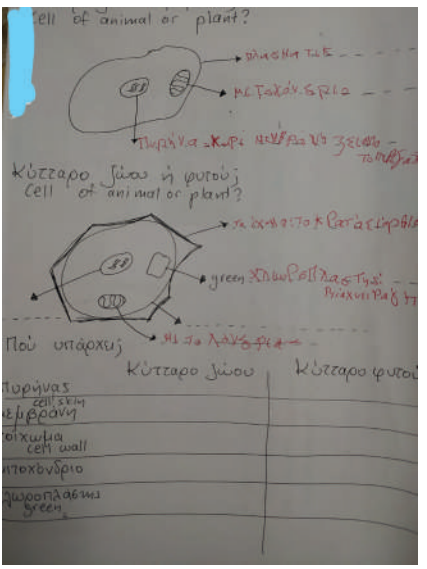


Foto 6. Terms, in Greek

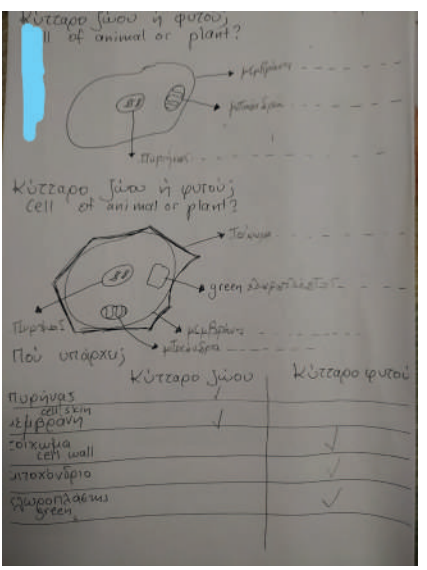
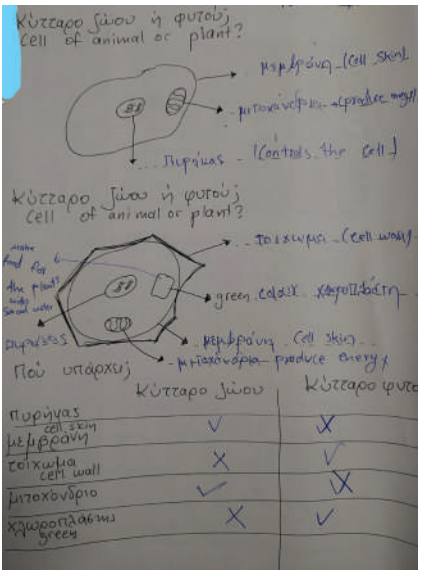


Foto 7. The cell, English descriptions only



Appendix III

Foto 8. Terms, in various languages