

INTERCULTURAL COMMUNICATIVE COMPETENCE ACROSS THE HIGH SCHOOL CURRICULUM:

Case studies drawing on insights gained from the Permit Project

edited by:
Neva Čebron



INTERCULTURAL COMMUNICATIVE COMPETENCE ACROSS THE HIGH SCHOOL CURRICULUM:

Case studies drawing on insights gained from the Permit Project

edited by:
Neva Čebron

INTERCULTURAL COMMUNICATIVE COMPETENCE ACROSS THE HIGH SCHOOL CURRICULUM:

Case studies drawing on insights gained from the Permit Project



Univerzitetna
Založba Annales
Koper 2012

INTERCULTURAL COMMUNICATIVE COMPETENCE ACROSS THE HIGH SCHOOL CURRICULUM: CASE STUDIES DRAWING ON INSIGHTS GAINED FROM THE PERMIT PROJECT

EDITED BY: NEVA ČEBRON

TECHNICAL EDITOR: *Jadranka Cergol*

REVIEWERS: *dr. Sündüz Öztürk Kasar, dr. Paula Zupanc*

PROOFREADING: *Peter McGrath, Carolyne Klose*

COVER DESIGN: *Tina Cotič*

LAYOUT DESIGN: *Birografika Bori d.o.o.*

SERIES PUBLISHER: *University of Primorska, Science and Research Center, Annales University Press*

FOR THE SERIES PUBLISHER: *Darko Darovec*

EDITION PUBLISHER: *University of Primorska, Faculty of Humanities*

FOR THE EDITION PUBLISHER: *Vesna Mikolič*

PRINTED BY: *Birografika Bori d.o.o., Ljubljana*

COPIES PRINTED: *300*

CIP - Kataložni zapis o publikaciji
Narodna in univerzitetna knjižnica, Ljubljana

37:316.7(082)
37.016:378(082)

INTERCULTURAL communicative competence across the high school curriculum : case studies drawing on insights gained from the Permit project / edited by Neva Čebron. - Koper : University of Primorska, Science and Research Center, Annales University Press, 2011

ISBN 978-961-6328-99-9

1. Čebron, Neva

257206272

Content

Neva ČEBRON
Introduction 7

Anna Lia PROIETTI ERGÜN
Toward a brain-friendly approach in intercultural education:
The PERMIT project experience 13

Sertel ALTUN
A comprehensive analysis of the views of Turkish teachers on
the process of the PERMIT project 29

Sadriye GÜNEŞ
Applications of metaphor in teaching science in the context
of an intercultural education: Examples from the PERMIT project 47

Lucija ČOK
Intercultural education within the curricula 65

Nives ZUDIČ ANTONIČ
Literary education in intercultural perspective 83

Neva ČEBRON
Intercultural awareness across the curriculum: Approaches
to promoting intercultural communicative competence within
the PERMIT project 101

Index 121

Applications of metaphor in teaching science in the context of an intercultural education: Examples from the PERMIT project

SADRIYE GÜNEŞ

YILDIZ TECHNICAL UNIVERSITY, FACULTY OF ARTS AND SCIENCE, ISTANBUL, TURKEY

ABSTRACT

The main subject of this paper is the application of metaphor activities by Turkish science teachers in their lessons during the pilot phase of the PERMIT project, which aims to improve the civil society dialogue between the EU and Turkey.

In the context of cognitive sciences, language is dealt with as a phenomenon emerging from the interaction of thought and culture, from the framework of a metaphorical language system.

Metaphor is described as a fundamental process and a method of learning, classification, conceptualization, evaluation and an interpretation of the environment.

After a brief reference to the history of metaphor, examples of its uses are presented. The group of science teachers prepared and carried out their individual unit plans designed with the aim of raising *environmental awareness*, which they had jointly identified in accordance with the intercultural education precepts adopted by the PERMIT project.

The methodologies pursued by teachers who opted to use metaphor as the teaching technique in their studies and evaluations are cited, along with the outputs of some students. The results and suggestions related to the usage of metaphor as an aspect of intercultural education are given with an analysis of study samples.

KEY WORDS: metaphor, intercultural education, PERMIT, secondary education, science education

INTRODUCTION

The PERMIT project aims to promote civil society dialogue between the European Union and Turkey, with a specific focus on ensuring a better knowledge and understanding of Turkey within the European Union.

At the beginning, this goal was reformulated by the Scientific Committee into the more significant and representative one of a process of mutual learning from practices that over time will lead to involving the cultures.

Hence, the working hypothesis was designed as follows:

- intercultural awareness among researchers, teachers and students involved in the project is supposed to be low;
- the innovations in teaching methodologies and materials are expected to enhance the awareness of researchers, teachers and students regarding cultural diversity and understanding.

The main objectives of the PERMIT project are to:

- improve social dialogue through the processes of increasing quality of education;
- develop and promote teaching strategies favouring the valorisation of different mindsets (multiple intelligences), critical thinking, student participation in class activities, debate, and personal responsibility thus favouring the growth of civil society at a grass roots level;
- develop materials on the project's thematic areas;
- develop specific examples of strategies that can be applied to reach the expected objectives;
- pilot experimentation of the exemplary teaching materials produced by cooperation between the trainee and experienced teachers in secondary schools (PERMIT, 2008).

The PERMIT project focuses on high school teachers and students, who play a central role in nurturing new approaches and debating how intercultural education can become a part of everyday teaching. The project's activities are expected to enable teachers (with the support of a wider teachers community set up by a first research group) to develop their own teaching material on crucial themes such as sustainable development, languages and multilingualism as part of cultural identity, critical thinking and ethical behaviour, thus favouring a deeper understanding of Turkish, Slovenian and Italian realities (PERMIT, 2008).

The new methodology and the innovative teaching materials are expected to "enhance student understanding and awareness of cultural diversity" (Čebron, 2009). After piloting the innovative teaching materials, the teachers were able to

register increased knowledge, understanding and cognition of their students. Students are better informed on cultural variety, they can understand various beliefs and values and accept otherness, they accept differences among cultures, they can decentre, and view their own attitudes towards intercultural reality. The project activities and research findings contribute to building bridges among nations (in Italy, Turkey and Slovenia) and promote awareness of the intercultural reality (Čok, 2008a, Malčič & Zudič Antonič, 2007).

THE CONCEPT OF METAPHOR AND ITS USE IN EDUCATION

Theorizing about metaphor dates back more than two thousand years, to Aristotle and Plato. In this golden age of metaphor, it is handled within the framework of the rhetorical and the poetic. The effects that metaphor has on listeners and readers in either written or spoken language were known when Aristotle created his notion of rhetoric (Babkin, 1970, 22).

Despite the fact that metaphor has always been a major subject for philosophers, poets, writers, speakers and literature critics, few systematic studies had been done until recent times.

The first experimental studies date back to 1908 with the analyses of German linguist Karl Bühler. In the 1950s, theories of metaphor were challenged by a group of Gestalt psychologists. Thus, a leading study involving the relationship between notion and language was started (Danesi, 2003, 46). "Metaphors in education have traditionally been viewed as occasionally heuristically useful but essentially ornamental, and sometimes as downright pernicious" (Petrie & Oshlag, 1993). In 1977, Pollio et al., with their work in this domain, showed how the metaphorical elements of oral communication are far from being an ornament and that metaphorical thinking is an important factor in human communicative behaviour (Danesi, 2003, 37). Also, there have been some arguments that figurative language and metaphor fill the gaps in language vocabulary (Cuozzo, 2003, 15).

Having done some studies in the area of metaphor, Lakoff and Johnson (2004) assert that metaphor is not just a figure in language but, above all, it is a form of thinking and a cognitive tool allowing classification of the experience. According to the authors, metaphors first take shape in thoughts, then in behaviours and language. A conceptual process cannot be thought to be accomplished without metaphor. Metaphor allows "knowing" as a tool for humans to understand their environment and nature, to explain objective reality, to give meaning to their life and experiences. Also, Reyna (1986) refers pedagogical metaphors to a type of functional metaphor used to introduce novel concepts by relating them to familiar concepts.

Some authors, including Morgan and Smircich, have emphasized the importance of metaphors in the processes of comprehension of the world via the formation of scientific knowledge and interpretation. As a result of the research studies of scientists like Piaget, Čukovski, Gardner and Wojcik, it has emerged that metaphor is an important and indispensable tool in children's acquisition of a language and that it has an influential function in their formation of reality. It has been emphasized that metaphor is "a language form that is applied to a different content in order to state a specific similarity of a concept or term", and that it has become an effective and potent communication tool because it allows the telling of a complex story using an image (Yildirim & Simsek, 2005, 208).

In the 20th century, metaphor is considered an essential and very important component of language, while science and scientific knowledge are handled in new dimensions. Based on the views about the nature of metaphor: "metaphor emerges in the power of the deep features of human thought and becomes a tool for recognizing the world" (Gak, 1988, 11).

Cognitivism has largely accepted that formation of metaphor is a basic intellectual process and a method for learning, categorization, and conceptualization, evaluating and explaining the environment. Some reasons for the cognitive approach in studying metaphor are its intellectual character (ontological aspect) and potential in learning (epistemological aspect). Authors who draw attention to the metaphorical nature of thinking include Vico, Nietzsche, Ricards and Blek (Budayev, 2007).

A cognitive approach to metaphor is used by J. Lakoff and M. Jonhnson in *Metaphors We Live By* (1980). The authors developed a theorem bringing a systemic approach to defining metaphor as a cognitive mechanism. They state that metaphor is not limited to the domain of language, and that the thinking processes of humans are metaphorical. As a phenomenon of consciousness, metaphor is seen not only in language but also in thinking and behaviour. Such an approach has taken metaphor out of the frame of the language system and provided its consideration as a phenomenon resulting from the interaction of thought and culture (Budayev, 2007). Petrie and Oshlag (1993) claim that the anecdotal data of teachers supports Petrie's and their view of the efficacy of metaphor in creating structural changes. They also suggest that "*student* production of metaphors can result in important changes in the cognitive structures and affective responses of students".

Today, research on the cognitive potential of metaphor in the attainment of scientific knowledge has widened. The effects of cognitive metaphor in the development of scientific thought is being studied in philosophy, biochemistry, mathematics, education, political sciences, psychology, genetics, economics and many other scientific domains (Budayev, 2007).

Budayev and Čudinov (2007) have analysed the worldwide studies done today related to the use of metaphor in the field of education. Bozlk (2002) researched how a group of American freshman college students used metaphors to describe themselves as subjects of the education process. Many of these metaphor uses have highlighted the passive roles of the students. Few metaphors reflecting students as independent have been recorded.

Inbar (1996) collected thousands of metaphors used by teachers and students to describe education and prepared a comprehensive study. He analysed the metaphors that teachers and students used to express their opinions about education and concluded that many educational inconsistencies are based on the metaphorical figures that teachers and students have.

Besides studies treating education as a whole, metaphor usage as a tool in the comprehension of concepts has been increasingly used in the classroom. If the conjecture that metaphor is one of the basic thinking mechanisms is considered, then the effects of metaphor in the process of education, in any subject, should be clear. Metaphor lies at the basis of understanding a thought, even in mathematics, which is a field considered to be far away from and irrelevant to metaphor. The studies of Lakoff, who developed the conceptual metaphor theory, and those of Nunez support this idea (Budayev, 2007).

It has been argued that metaphor enables one to transfer learning and understanding from what is well known to what is less well known in a vivid and memorable way, thus enhancing learning. This claim is essentially a psychological one, asserting a connection between vividness, or more precisely, imageability, and learning (e.g., Davidson, 1976; Ortony, 1975; Paivio, 1971; Reynolds & Schwartz, 1983). It is an extremely important result that metaphorical teaching strategies often lead to better and more memorable learning than do explicit strategies (Petrie & Oshlag, 1993).

As stated above, the studies made on the pragmatic aspects involve not only the analysis of cognitive schemata but also the search of concrete solutions to many educational problems.

With metaphor usage, students notice and think about some sides of their own activities which they have not thought of before. Another facet of research on metaphor in education is that the rational forms of comprehension of reality are based on less efficient mechanical memorizing. Whereas the use of metaphor models helps to perceive and comprehend the essence of the facts handled. Especially the importance of metaphor usage in the expression of abstract concepts is enormous. The studies indicate that metaphor usage in expressing abstract concepts has better results than the use of plain narration (Flynn et al., 1995). And those better results are vital to younger students (Castillo, 1994).

Minini (1986) urges educators to utilize metaphors in language instruction. Two experiments support this position. The results of the first experiment reveal that students learn lexical items more efficiently if presented in metaphors. The results of the second experiment indicate the usefulness of metaphors in developing critical thinking in students. Sunstein and Anderson taught college freshmen to use metaphors to write about unfamiliar science topics. In representing a connection between their personal experiences and a scientific model, these students learned writing skills and acquired scientific knowledge (Petrie & Oshlag, 1993).

THE METHODOLOGY FOLLOWED IN THE TEACHER STUDIES

Within the PERMIT project, three groups were formed among the teachers from Turkey, Italy and Slovenia during the First Residential Seminar held on 11–14 February 2009 in Istanbul. Those were: the Sciences Teachers Community, Humanities and Social Sciences Teachers Community, and Languages and Literature Teachers Community. In the Sciences Group, the common topic to be processed was "Environmental Awareness". In the implementation period it was decided to add the socio-cultural aspect of the environment topic to the aspects covered by its curriculum. The unit plans for the pilot studies that would be conducted were prepared, discussed and revised with additions by teachers in the Second Residential Seminar held in Koper, Slovenia on 9–11 April 2009. Following this meeting, the teachers piloted the new teaching materials at their schools and presented their findings and results during the third Residential Seminar held in Venice, Italy, 4–6 June 2009. They then wrote articles in which they expressed the implications of what they had done and identified those activities which they considered to be the 'best'.

Intercultural education perceptions

The Turkish teachers did not have any previous experience in international projects. In the conventional Turkish education system, especially in public schools, lessons are taught in a more teacher-based/centred way. From this point of view, participation in this project and the information learned by the Turkish teachers within the framework of this project have provided new methods of teaching and opened up new horizons for them. They received assistance from foreign colleagues during the three international meetings and local gatherings and over the online internet platform. Čok (2008b), Margiotta (2008), Minello (2008), Byram and Čebron (2006), Malčič and Zudič (2007) and Raffaghelli (2009) made important contributions, especially through their publications, studies and guidance on intercultural education.

The defined objectives

Within the PERMIT project, the common objectives defined in the Sciences Group for the students were: to develop abilities of self-confidence, critical thinking, establish empathy, self-reflection and problem-solving, to obtain intercultural communication skills using those abilities and to obtain environmental awareness.

In the unit and lesson plans they prepared, the Turkish science teachers defined general objectives towards gaining intercultural competence which were compatible with intercultural education, in addition to the objectives compatible with the curriculum defined by the National Ministry of Education. The defined objectives are given in Table 1, in which it can be seen that empathy, critical thinking and environmental awareness are prominent among the objectives defined by the four teachers.

Table 1: General objectives defined within the project

Teacher	*General objectives defined within the project*
E. Avci	To develop: communication, critical thinking and problem-solving skills, creativity, empathy, tolerance and sensitivity towards people who are different and the environment.
D. Çakir	To develop abilities in the areas of: familiarization with one's own cultural facts, self-awareness, getting to know European culture in the process, establishing empathy, making comparisons, noticing similarities and differences, obtaining inferences, and critical thinking.
F. Çiller	To grasp the importance of scientific thinking and intercultural communication, to develop explanations of cause and effect, to encourage assertiveness, to promote scientific research, to develop environmental awareness.
M. Dalgiç	Awareness of one's own and different cultures, to develop empathy and tolerance.

Metaphor implications/applications

The metaphor activities applied by the Turkish teachers in the pilot stage attracted attention in the presentations concerning implications at the Third Residential Seminar and in the articles the teachers wrote. Table 2 shows the teachers who applied metaphor activities, the schools where those activities were conducted, and the classes, dates and attendance. As can be seen in Table 2, two biology and two physics teachers conducted metaphor activities within the project. The metaphor activities conducted and the effects of those activities on the students based on the evaluations of the teachers are discussed below.

Table 2: The classes in which metaphor activities were conducted

Teacher	*School (İstanbul)*	*Lesson*	*Class*	*Date*	*Attendance*
E. Y. Avci	V. Koç Foundation, Koç Private Elementary and High School	Biology	Class 9-G (ages 14–15)	04/05/2009	24 students
D. Çakir	Sultangazi Cumhuriyet High School	Biology	Science section, 3rd grade	05/05/2009	24 students
F. Çiller	Bahçeşehir Atatürk High School	Physics	Class 9–K	04/05/2009	24 students
M. Dalgiç	Küçükköy Vocational High School for Girls	Physics	11–A, Technical Class	19/03/2009	24 female students

The implementation of the metaphor activities

In order to achieve the objectives defined within the project, the teachers used student-oriented methods, techniques and materials during the teaching process. The unit and the topic in which the metaphor activities were applied, and the methods of application are given in Table 3. In the metaphor activities applied in the topics outlined in Table 3, the students did individual and group work and produced various material.

Table 3: The implementation of the metaphor activities

Teacher	*Unit/Topic*	*The Topic of the Metaphor Activity*
E. Avci	The Respiratory and Circulatory Systems	The students were asked to think of themselves as the heart of an individual living in Rome or Istanbul and to present their metaphor story with a poster, caricature or to compose a song.
D. Çakir	Respiratory Systems/ Respiratory System in Humans	In this activity called *The Journey of Oxygen,* the students were asked to think of themselves as an oxygen molecule and to contemplate a journey starting in the atmosphere and going into human cells. A worksheet including vocabulary words was given. Students were told that they could travel freely in the atmosphere, go to any country and enter any cell they wanted.
F. Çiller	Heat and temperature/ Heat exchange.	At the start of the class, the teacher informed students that there were four glasses of water on his table, each with a different temperature. After writing the topic of the lesson and the four group names on the board, he explained: "As you know, when matter with different temperatures mixes together, heat exchange takes place. The cold matter takes on heat, the hot gives out heat. In today's lesson you will observe heat exchange. During the observation everyone will write down what he/she feels after picking one of the four groups written on the board and thinking of himself as one of those groups."
M. Dalgiç	*Electricity/ Electric Current and Resistance*	After the resistance topic was explained, students were asked to think of themselves as electrons. "Let's imagine that each one of us is an electron. We are in a medium, and we need to change it. To do this, we have to pick one of the bridges next to each other and go across it. But here is the problem: not all of the bridges want us to get across. So it is possible for us to experience obstacles and have casualties."

Student outputs

The work that students produced in the metaphor activities process is given in Table 4. As can be seen in this table, students in Avci's class produced written stories, posters and compositions appropriate to their abilities. The students in Cakir's and Ciller's classes produced essays, while the students in Dalgic's class gave oral presentations.

Table 4: Student outputs

Teacher	*Work style of the students*	*Product / Presentations*
E. Avci	Individual, group work in song composition	The students did their projects and made their presentations after choosing an appropriate tool in line with their abilities. Different learning styles were seen in the projects. While the composing group used their musical-rhythmic intelligence, the caricature and poster group used their visual intelligence. Presentation of the projects in the classroom created a medium where every student used his/her physical-kinaesthetic and social-interpersonal intelligence.
D. Çakir	Individual	Written essays. The students who volunteered read their essays to the class.
F. Çiller	Individual	Written essays. The students who volunteered read their essays to the class.
M. Dalgiç	Individual, conversation	Oral presentations were used as triggers for conversations/discussions in the class.

Evaluation of the metaphor activities

In the evaluation process, the teachers evaluated the work produced by the students and the process in general by using both observation and rubrics. Teacher evaluations were made in regard to student behaviour and attitude, classroom atmosphere and the general objectives defined by them within the framework of the project in the unit plans.

Avci based her evaluation on the stories, posters and compositions produced by the students, as well as rubrics and her observations; Cakir and Ciller based their evaluations on the written essays, oral answers and ideas, and their own observations; and Dalgic based his on the oral presentations and views of his students, their answers to questions and also his own observations.

Table 5 shows the teachers' opinions on the classroom atmosphere, student behaviour and attitude before and after the application of metaphor activities as results of their evaluations. We can summarize Table 5 as follows: in Avci's class, the application of metaphor activities increased student attention, self confidence and excitement; in Cakir's class, it made learning easier and the class more fun and enjoyable, it increased student motivation and eagerness to express their thoughts and made them trust in themselves more; in Ciller's class, it increased self-confidence, motivation and satisfaction and helped students to express themselves more easily and the class to be more productive; in Dalgic's class, it increased interest in the subject, improved understanding and increased the productivity of the class.

Table 5: Teacher opinions regarding the metaphor activities

Teacher	*Before the application of metaphor activities*	*After the application of metaphor activities*
E. Avci		A student, hesitant to talk in other classes, proved his self-confidence to his classmates by playing his own composition on a piano. Applying techniques that make interdisciplinary bonds in education attracted student attention more than usual. The willingness of students who had been to Rome to share their observations and the excitement during their presentations motivated the other students.
D. Çakir	Metaphor is one of the new methods used in the classroom. Initially, students found it to be childish, a waste of time and an additional burden.	The process was quite fun for students. The activities which made them more active in the classroom rendered the lesson more enjoyable and the subject easier for them to comprehend. Expressing their own thoughts in Biology where everything is absolute and clear was rather appealing and motivating. It was observed that they did good work. They were satisfied with the unique and fun class. Self-confidence increased and hesitation to talk decreased.

Teacher	*Before the application of metaphor activities*	*After the application of metaphor activities*
F. Çiller	In classical education, the Physics class is teacher-oriented.	As seen in writing samples, students put serious efforts into the activities. Metaphor usage in Physics class was effective. It caused the class to be more successful than expected. The technique gave self-confidence to students and also helped them to express themselves more easily. The students stated after the class that they were extremely happy with the class and asked for this technique to be used in other classes as well.
M. Dalgiç	In my experience, Electric Current and Resistance is a subject disliked by most of the students. Besides, attention levels wane for many students near the end of the Physics class, which lasts three hours. Therefore, the metaphor technique was used in the last hour to see how it would affect decreasing efficiency and attention.	Compared to two previous classes, attention increased to a maximum. I had expected the increase in attention but not to that degree. Understanding the subject was raised to 100%, just like the level of attention. And the percentage of right answers from students reached 97%. Lastly, I can comfortably say that this class was a lot more effective than the usual technique used in previous years.

The statements of the teachers about whether the general objectives defined within the project were reached at the end of the metaphor activities are as follows. Avci stated that a serious infrastructure was achieved for developing empathy, awareness of common values, human rights, responsibility, the environment, personal rights and freedoms, heart health and diversity of lifestyles. Cakir stated that students presented critical ideas and solutions to problems of the environment; that environmental awareness improved and some selectivity in perception occurred; that prejudice against people who are different decreased and respect increased; self-criticism, critical thinking and problem-solving abilities and curiosity to learn improved.

Samples from student work

Among the work produced by the students during the four metaphor activities mentioned above, some of the student writings on metaphors in Ciller's Physics class (given in Table 6) have drawn particular attention.

Table 6: Sample student writings

Group	*Student*	*Heat exchange Metaphor*
Group 1: Ice at -20°C	Mert Fırat	"I was a cube of *ice.* I used to think that everyone was cold. One day they took me out of the refrigerator and I started to warm up. I was afraid because I was heating up every minute. Then I melted and saw that it was not that bad... While thinking that everyone was cold and the best state of the matter was solid... I learned to warm up. I saw that this state is beautiful as well... I hope my other cold friends experience this pleasure."
	Can Şentürk	"I used to be so cold. I melted after establishing relationships with strangers. My appearance changed. My feelings for different nations changed, too. I felt better this way. I got angry with myself after asking why I hadn't thought this way before. I felt happier with my new state. I saw that answers to universal problems would be looked for when we interact with foreigners..."
Group 2: Ice at 0°C	Büşra Filiz	"I am a cube of ice melting and turning into water in a bowl. I don't want to transform into water and lose my personality. At the moment I want somebody to take me to the freezer. I am ice at 0°C and I am so afraid to be water at 0°C. Let me tell some of my specialties. In fact... I'm not so solid. I'm a bit timid and I can't trust my surroundings. Not a bit, I'm too timid. I'm very curious about what people think of ice at 0°C. So... I'm pretty curious. Even too much. Let me tell my story. A child took me and put me over his swelling forehead. I thought I helped him. Yes, in my view I'm charitable. Anyway, part of me had melted. Then he added some water onto me and put me back into the freezer. I was going to integrate with water. I didn't want that. But after spending some time with water, I liked it. Besides it was in the mood to unite. In a while I will get colder and be at -20°C. I don't want that either. Nonetheless, it isn't certain what we are going to be in the future..."

Group	*Student*	*Heat exchange Metaphor*
Group 3: water at 0°C	Sema Mamal	"I was unable to heat myself up. But after I met my friend I started to heat up. With the energy I took from my friends, with the heat they gave me, I started to look like them. We got accustomed to each other easily. Everyone shared its energy within with each other..."
Group 4: water at 90°C	Oktay Kalem	"I am water at 90°C. I'm almost ready to boil. People boil me every day in the kettle. They make tea. They meet their everyday needs. As the weather gets colder, my temperature gets lower as well. One day a human put me in a glass. Then he lost himself talking on the phone and forgot me. My temperature dropped to 40°C. He blamed me and poured me into the sink. A new life was starting. As moments passed my temperature was dropping. Gliding through the pipes, I reached the sea. There I met with lots of new friends. I had both salty and fresh friends... I am in a new adventure..."
	Emircan Güneş	"I tried to bring every group to the same degree. I provide equality in between but I spend energy for that. Thus only one community and unity exists instead of four different communities. In fact, each group is the same in substance. Nonetheless, I unite groups with different properties and eliminate their differences. Thus, we can create only one common group. And this makes us happy."

When the student writings in Table 6 are analysed, it can be seen that students appropriated the *heat* concept using their own situations, and the *heat exchange* concept with a processes of recognizing people different from themselves, communicating with them, being open to sharing. The students demonstrated their abilities for self-identification and identifying others. It can be asserted that new and positive thoughts and feelings have taken the place of the previous negative thoughts and feelings.

CONCLUSION AND SUGGESTIONS

The following conclusions can be drawn after evaluating the metaphor activities applied by the four Turkish teachers in the Sciences Group within the PERMIT project.

With regards to the selection of method and technique, metaphor is beneficial in the field of sciences for intercultural education. It could be thought that concepts such as intercultural competence, intercultural communicative competence and empathy are not easily applicable to science classes, but, in the case of these metaphor activities, it was seen that the concept of empathy could be handled in an effective and efficient way.

Metaphor activities could be used to increase student participation, interest and motivation and as a means of allowing them to express and reflect on their feelings and thoughts easily. They could also be used to improve the atmosphere in the class, avoid monotony, increase student learning and facilitate comprehension of difficult concepts in the sciences.

REFERENCES

Avci, E. Y. (2009). Biyolojide Cokkulturlu Egitim Uygulamalari ve Yansimalari. In I. Bengi-Oner (Ed.), *PERMIT: A Story of Creative Teaching Practices* (pp. 69–74). Istanbul: DIYE.

Babkin, A. M. (1970). *Russkaya Frazeologiya, iyo Razvitiye i Istočniki.* Leningrad: Nauka.

Byram, M., & Čebron, N. (2006). Language teaching and education for citizenship: An experiment. *Call Review, 1*, 5–10.

Bozlk, M. (2002). The college student as learner: Insight gained through metaphor analysis. *College Student Journal, 36*(1), 142–151.

Budayev, E. V. (2007). Stanovleniye Kognitivnay Teorii Metaforiy. In *Lingvokulturologiya. Viyp. 1* (pp. 16–32). Yekaterinburg: Philology.ru.

Budayev, E. V., & Čudinov A. P. (2007). Metafora v Pedagogičeskom Diskurse: Sovremenniye Zarubežniye Issledavaniya. In *Političeskaya Lingvistika. Viyp. 1* (pp. 69–75). Yekaterinburg: Philology.ru.

Cakir, D. (2009). Biyoloji Ogretiminde Kulturlerarasi Yaklasima Dair Bir Ornek. In I. Bengi-Oner (Ed.), *PERMIT: A Story of Creative Teaching Practices* (pp. 75–80). Istanbul: DIYE.

Castillo, L. C. (1994). *The Effect of Analogy Instruction on Young Children's Metaphor Comprehension.* New York: Department of Educational Psychology, City University of New York.

Ciller, F. (2009). Fizik Dersinde Cok Kulturlu Egitim Uygulamalari ve Yansimalari. Istanbul, Unpublished Presentation: PERMIT.

Čebron, N. (2008). *Close Otherness: English as a bridge to "intercultural citizenship".* Koper: Založba Annales.

Čok, L. (2008a). *Rational: First Scientific Committee – Synthesis of the SC discussion.* Istanbul.

Čok, L. (2008b). The human coexistence: underpinned by languages and cultures. *Šolsko polje, Revija za teorijo in raziskave vzgoje in izobraževanja, 19*(5/6), 91–106.

Cuozzo, L. (2003). *La comprensione del linguaggio figurato: in particolare delle espressioni idiomatiche.* Tesi di Master. Salerno: Università degli Studi di Salerno.

Dalgic, M. (2009). Cokkulturluluk Cercevesinde Bilim. In I. Bengi-Oner (Ed.), *PERMIT: A Story of Creative Teaching Practices* (pp. 81–85). Istanbul: DIYE.

Danesi, M. (2003). *La Metafora nel Pensiero e Linguaggio.* Brescia: Editrice La Scuola.

Elame, E. (2008). Le rappresentazioni sociali dell'educazione interculturale nella scuola italiana. In E. Elame, & R. Marchionni (Ed.), *Rappresentazioni sociali nuova via dell'intercultura. Percorsi didattici* (pp. 39–56). Bologna: EMI.

Flynn, L., Dagostino L., Carifio J. (1995). Learning new concepts independently through metaphor. *Reading Improvement, 32*(4), 200–219.

Gak, V.G. (1988). Metafora: Universalnoe i Specifičeskoe. In V. N. Teliya (Ed.), *Metafora v Yaziyke i Tekste* (pp. 11–26). Moskva: Nauka.

Grant Contract External Actions of the European Community. (2002). TR0604.01–03/002. Annex A. 1.4 Summary p. 6.

Inbar, D. E. (1996). The free educational prison: Metaphors and images. *Educational Research, 38*(1), 77–92.

Lakoff, G., & Johnson M. (2004). *Metafora e Vita Quotidiana.* Milano: Strumenti Bompiani.

Malčič, M., & Zudič N. (2007). I bisogni emersi. In O. Rasom (Ed.), *La ricerca e il modello di formazione europeo* (pp. 87–94). Trento: Progetto Info.

Margiotta, U. (2008). Educazione interculturale e rappresentazioni sociali. In E. Elame E., & R. Marchionni (Ed.), *Rappresentazioni sociali nuova via dell'intercultura: Percorsi didattici* (pp. 19–35). Bologna: EMI.

Mayer, R. (1993). The instructive metaphor: Metaphorical aids to students' understanding of science. In A. Ortony (Ed.), *Metaphor and Thought* (pp. 561–578). Cambridge: Cambridge University Press.

Minello, R. (2008). Approcci Metodologici e Tecniche Didattiche per la Costruzione di Positive Rappresentazioni Sociali dell'Identità. In E. Elame E., & R. Marchionni, *Rappresentazioni sociali nuova via dell'intercultura: Percorsi didattici* (pp. 57–98). Bologna: EMI.

Minini, G. (1986). L'uso della metafora nell'educazione linguistica (Use of the Metaphor in Language Instruction). *Rassegna Italiana di Linguistica Applicata, 18*(2), 23–40.

PERMIT. (2008). *The Action*, 6–8.

Petrie, H. G., & Oshlag R. S. (1993). Metaphor and Learning. In A. Ortony (Ed.), *Metaphor and Thought* (pp. 579–609). Cambridge: Cambridge University Press.

Raffaghelli, J. (2009). Insegnare in contesti culturali allargati: rappresentazioni sociali, discorso pedagogico e identità professionale degli insegnanti per il ripensamento dell'educazione interculturale. *Journal SSIS, Formazione e Insegnamento, 3,* 73–101.

Reyna, V. F. (1986). Metaphor and associated phenomena: Specifying the boundaries of psychological inquiry. *Metaphor and Symbolic Activity, 4,* 271–290.

Zudič Antonič, N., & Malčič M. (2007). *Il vicino diverso: Percorsi di educazione interculturale di lingua italiana.* Koper: Založba Annales.

Yildirim, A., & Simsek H. (2005). *Sosyal Bilimlerde Nitel Arastirma Yontemleri.* Ankara: Seckin Yay.



UNIVERSITÀ DEL LITORALE
UNIVERZA NA PRIMORSKEM

FACOLTÀ DI STUDI UMANISTICI
FAKULTETA ZA HUMANISTIČNE ŠTUDIJE

twas

VENETIARVM VNIVERSITAS
IN DOMO FOSCARI

YILDIZ TEKNİK ÜNİVERSİTESİ
1911

AVRUPA BİRLİĞİ
GENEL SEKRETERLİĞİ

Bu proje Avrupa Birliği Genel Sekreterliği tarafından yürütülmektedir.
This project is implemented by the Secretariat General for EU Affairs.

CSD
PROMOTING CIVIL SOCIETY DIALOGUE

AB ve Türkiye arasındaki Sivil Toplum Diyaloğunun Geliştirilmesi Projesi
Promotion of Civil Society Dialogue between EU and Turkey Project

MFİB

Bu projenin sözleşme makamı Merkezi Finans ve İhale Birimi'dir.
The Contracting Authority of this project is Central Finance and Contracts Unit.

Bu proje AB tarafından fonlanmaktadır.
This project is funded by the EU.