Teaching Practices and Equitable Learning in Children's Language Education

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IGI Global
PUBLISHER of TIMELY KNOWLEDGE

A volume in the Advances in Early Childhood and K-12 Education (AECKE) Book Series

Published in the United States of America by
IGI Global
Information Science Reference (an imprint of IGI Global)
701 E. Chocolate Avenue
Hershey PA, USA 17033
Tel: 717-533-8845
Fax: 717-533-8661
E-mail: cust@igi-global.com
Web site: http://www.igi-global.com

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Library of Congress Cataloging-in-Publication Data

Names: Giannikas, Christina Nicole, editor.
Title: Teaching practices and equitable learning in children's language education / Christina Giannikas, editor.
Description: Hershey, PA : Information Science Reference, 2021. | Includes bibliographical references and index. | Summary: "The edited volume is a collection of research chapters that provide insights in the field of teaching English to children in pre-primary, primary and secondary education, supporting the needs of young learners of any context and background through relevant studies that include sound pedagogical and content knowledge "-- Provided by publisher.
Identifiers: LCCN 2020043640 (print) | LCCN 2020043641 (ebook) | ISBN 9781799864875 (hardcover) | ISBN 9781799864882 (paperback) | ISBN 9781799864899 (ebook)
Subjects: LCSH: English language--Study and teaching (Preschool)--Foreign speakers. | English language--Study and teaching (Primary)--Foreign speakers. | English language--Study and teaching (Secondary)--Foreign speakers. | English teachers--Training of.
Classification: LCC PE1128.A2 T44298 2021 (print) | LCC PE1128.A2 (ebook) | DDC 428.0071--dc23
LC record available at https://lccn.loc.gov/2020043640
LC ebook record available at https://lccn.loc.gov/2020043641

This book is published in the IGI Global book series Advances in Early Childhood and K-12 Education (AECKE) (ISSN: 2329-5929; eISSN: 2329-5937)

British Cataloguing in Publication Data
A Cataloguing in Publication record for this book is available from the British Library.

All work contributed to this book is new, previously-unpublished material. The views expressed in this book are those of the authors, but not necessarily of the publisher.

For electronic access to this publication, please contact: eresources@igi-global.com.

Chapter 8
Multisensory Language Teaching:
Its Impact on the English Vocabulary Achievement of Turkish Young Learners

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ABSTRACT

This study aims to investigate the effects of multisensory vocabulary teaching (MSVT) on 4th-grade learners' English vocabulary knowledge. Accordingly, the experimental group was taught through MSVT while the control group was given mainstream coursebook-based instruction. Both quantitative and qualitative data collection instruments were used. The non-parametric Wilcoxon tests yielded statistically significant differences regarding pupils' vocabulary achievement in favor of the experimental group both in the immediate post-vocabulary test and in the delayed post-vocabulary test. Furthermore, content analysis of the learners' diaries, teachers' blogs, and interviews revealed mostly positive views about learning words through MSVT compared to coursebook-based learning.

INTRODUCTION

Various aspects of individual differences and their implications in educational practice have recently drawn the attention of a considerable number of researchers in the field of language learning and teaching (Mayer, 2011). Among many major individual areas of language learning, learning style is considered as one of the most important variables which affect learners' language learning outcomes (Ehrman, Leaver & Oxford, 2003; Westwood & Arnold, 2004). In the literature, a variety of terms related to

DOI: 10.4018/978-1-7998-6487-5.ch008

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individuals' learning styles have been used. These are learning style, cognitive style, personality type, sensory preference, and modality (Ehrman et al., 2003). The present study will use the terms sensory preference and modality.

Due to the variety of style dimensions, it is impractical and a very demanding task for teachers to match their teaching style to each learner's learning style in limited classroom hours. Thus, perceptual learning style has been considered as a primary issue in the language learning area because perception is the way of constructing new L2 representations from input via the senses, which is an essential aspect of language acquisition (Truscott, 2015). Besides, activities which appeal to the five senses, such as visual, auditory, tactual/kinesthetic, and hands-on activities, have been reported to be the most effective teaching aids in young English learners' classes (Griva & Semoglou, 2012; Jubran, 2012). Furthermore, a variety of multimodal tools seem to appear every day to make a great contribution to daily life such as smartphones and tablets in addition to computers. Not surprisingly, the field of education has taken advantage of these tools in developing ways to increase young children's skills and motivation by designing multisensory educational materials as young learners (YLs) value multiple input modes which activate different sensory modalities. Similarly, teachers who seek innovation need to be cognizant of their current teaching contexts (Karatepe & Yılmaz, 2018) in addition to being aware of their learners by taking their characteristics, needs, learning preferences, intelligence levels, and views into account to provide them with learning opportunities through multiple ways to scaffold their learning.

However, the traditional classroom context in Turkey usually fails to support teachers' endeavor to provide learners with teaching materials which fit their learning style. One reason behind this failure is that educational policies are always formed with a view that all learners are the same. These policies do not seem to support individual differences; on the contrary, they defy such differences. Currently, ELT practices in Turkey rely heavily on visual materials and partly on audio materials such as a coursebook, and some basic educational technology equipment. Auditory and visual learners may somehow derive benefit from coursebook-based conventional instruction; however, tactual/kinesthetic learners may be at a strong disadvantage with such instruction. When viewed from this aspect, teaching foreign languages, particularly English, is not at a satisfactory level in Turkey (Akpınar & Aydın, 2009; Tarcan, 2004).

Extensive individualized instruction for every student is not practical, although both teachers and students can benefit from the identification of learning styles (Gilakjani, 2012). Thus, developing techniques to appeal to a class full of learners with different learning preferences can be a very daunting task for teachers. In this sense, using multiple input modes is an advantage not only for learners to maximize their learning but also for teachers, who can revive their teaching, and thus feel professional fulfilment because they can facilitate their learners' learning process by using a wide variety of tools (Nilson, 2010; Read, 2007). Moreover, when learners are taught through activities by manipulating and experiencing conceptual information, they learn more easily and retain what they have learnt better (Obaid, 2013). Therefore, this chapter aims to investigate the effect of integrating multiple senses on the foreign language vocabulary achievement of primary school students to reveal whether activating more senses will unlock learners' full potential in their foreign vocabulary achievement.

BACKGROUND

Multisensory Language Teaching (MSLT)

Traditionally, perceiving is regarded as unisensory: eyes for seeing, ears for hearing, bodies for moving, and fingers for touching and so on. However, from an ecological perspective, it is assumed that all learning is based on perceptual learning whose role is to combine visual, auditory and other information within a context of activity both directly and indirectly. Thus, learning a language is not a stand-alone or a fixed system, but instead a whole-body and whole-world network of processes that focus on more complex, multimodal networks of meaning-making in action. In other words, the centrality of action and the multisensory nature of perception need to be taken into account to provide language learners with rich and varied opportunities for meaning-making (van Lier, 2011).

The term "multisensory" is defined as a "sensory-embodied experience" which "is not in any essential way reducible to being of one or another sensory modality, but rather each is contingent on and indeed part of the production of others" (Fors, Bäckström & Pink, 2013, p. 175); or collective and synergic use of senses that increase the probability of detecting and identifying events or objects of interest (Stein & Standford, 2008).

Although the multisensory approach could somehow find its theoretical bases through Piaget's Cognitive Development Theory, Vygotsky's Sociocultural Theory, and Bruner's Theory of Instruction, the underlying theory of using MSLT is in fact, the Dual Coding Theory proposed by Allan Paivio (2007), who asserted that thinking comprises the activity of two different cognitive subsystems. These systems include a verbal system which is related specifically to the language aspect and a nonverbal system which is related to non-linguistic objects and events. This suggests that there is a close relationship between the Dual Coding Theory and Multisensory Approach. The brain organizes countless bits of sensory information detected every moment and gives meaning to what is experienced by selecting what to focus on and ignoring all the rest of the information in order to move and learn. For example, by drawing an analogy between food and sensation, it was stated that sensations could be considered as "food for the brain" because they provide the knowledge activating the body and mind (Ayres & Robbins, 2005). They argued that just as food must be digested to nourish our body, sensory processes must be well-organized to let the brain use those sensations to form perceptions, behaviours, and learning. Learning is a function of the whole nervous system; thus, learners learn more and more easily, when more sensory systems work together. Thus, providing language input through multiple-modality stimulations is cutting edge for learners not only to interpret the given input but also to recall the stored information easily in the future.

Multisensory Vocabulary Teaching (MSVT)

Vocabulary, which is more than a list of words and a proxy for content knowledge (David, 2010), can be defined as "the total number of words that are needed to communicate ideas and express the speakers' meaning" (Alqahtani, 2015, p. 25). However, vocabulary teaching with an open and unlimited subsystem had been ignored until the 1990s when compared to grammar teaching with a closed and manageable system, due to the influence of structuralism. During the 1990s, because the main aim of teaching a foreign language is to achieve communication, vocabulary teaching received a great deal of attention and was considered as a fundamental component of foreign language learning (Beltrán, Contesse & López, 2010). In the same direction, it is believed that a person with even a good deal of grammatical knowl-

edge will not be able to communicate without the required lexical knowledge which has a basic role in shaping and transmitting meaning in that language (Olmos, 2009). Therefore, vocabulary is considered as very critical to be able to communicate in a variety of social situations.

Learning and academic achievement can be enhanced, and competency of teaching and learning can be developed when teachers adapt their teaching styles in such a way that they can cater for different learning styles, by providing learners with opportunities to learn in several ways (Mishra, 2007; Siddique, Abbas, Riaz & Nazir, 2014; Yılmaz & Genç, 2010). Thus, before teaching the target words, teachers need to consider different ways of activating students' senses by incorporating the principles of MSVT, which were reported by Król-Gierat (2014) as follows:

Step 1: Putting the words into context, relating them to real experiences and children's interests, or discussing pictures and stories to create background knowledge.

Step 2: Using visuals, gestures, sounds, demonstrations and experimentations.

Step 3: Building links around word meaning.

Step 4: Building links around the sound and spelling of the words.

Step 5: Extensive practice and consolidation.

It is clear in the aforementioned principles that children need to be exposed to newly learnt words many times and in different situations, not only by stimulating their interests and curiosity (David, 2010; Zorba & Arıkan, 2012), but also by providing them with a language-rich environment and multi-layered contextualized vocabulary practices (also see, Hadley, 2003; Opp-Beckman & Klinghamer, 2006; Karatepe & Yılmaz 2018).

There appear a variety of multisensory materials suggested in the literature for YLs to present, practice, revise, and test vocabulary, such as puppets with brilliant colors, assorted textures, exaggerated physical expressions (Benjamin, 2003; Salmon & Sainato, 2005), wall charts, commercially-produced flashcards, home-made magazine picture flashcards, hand-drawn pictures, diagrams, grids (Gairns & Redman, 1986; Royce, 2002), online computer games, videos, songs, music video clips, digital stories, vocalized PowerPoint presentations, and even robots (*Fišer & Dumančić*, 2015; Natriello, 2007) to help teachers to draw and sustain learners' attention to the subject at hand.

In addition to multisensory materials, multisensory activities suggested in the literature are as follows: some TPR-based activities; learning with a puppet, such as following the puppet's instruction, correcting the puppet, or guessing what's in the puppet's bag; flashcard vocabulary activities, such as flashcard instruction, flashcard groups, and missing flashcards; some games such as bingo, crosswords, jumbles, dominoes, Pelmanism, treasure hunt; sequencing activities; classifying and sorting; word search; scrambled word challenge; and odd one out (Blachowicz & Fisher, 2004; Kirsh, 2008; Murray & Christison, 2011; Nunan, 2011; Read, 2007).

MAIN FOCUS OF THE CHAPTER[1]

Relationship Between Multisensory Language Teaching and Vocabulary Learning

Considering the common characteristics of children, particularly going for meaning and learning through chunks, and the need for fun (Moon, 2000), it is obvious that teachers should present vocabulary in context and in chunks through the use of songs, rhymes, visuals, puppets, toys, hands-on activities, role play, or

stories to enable children to use the target language in a more peaceful, relaxed, and fun environment. Thus, the studies summarized in this section present the effects of multisensory materials, songs and rhymes, various forms of stories, drama, games, and mixed/multimodal activities on YLs' vocabulary development.

For instance, Barani, Mazandarani and Seyyed Rezaie (2010) investigated the effect of "picture into picture" audiovisual aids on the vocabulary learning of sixty young Iranian EFL learners. For that purpose, the experimental group was taught unknown words through using audiovisual aids, such as watching and listening, watching and copying, listening and drawing, looking and drawing, looking and writing, and looking, listening, saying and writing and so on, whereas the control group was taught through the curriculum book. The T-test results showed that the experimental group outperformed the control group, which is a clear indication of a positive effect of using picture into picture audiovisual aids on vocabulary learning.

Believing that songs, as invaluable auditory input, help children practice vocabulary, rhythms, and structure of the language by having fun in the classroom, Coyle and Gracia (2014) and Sarı (2014) investigated the effects of using songs on YLs' vocabulary knowledge in English. For instance, in their study with 25 children attending a semi-private school in Spain, Coyle and Gracia (2014) examined whether the exposure to new words within the context of song activities leads to the acquisition of receptive and productive vocabulary in young EFL learners. The participants were taught English through songs accompanied by pictograms displayed on the interactive whiteboard, and follow-up activities such as doing the actions in the song lyrics and playing a game which required the children to point at the image that corresponded to a target word. Pre-, post- and delayed post-vocabulary tests were administered to the participants by asking each child both to name and to point to the words in English. The Wilcoxon signed-rank test and Friedman test results showed statistically significant changes as regards receptive vocabulary but not productive vocabulary. Thus, the study suggests that limited exposure to the song was sufficient to improve the children's receptive vocabulary but not sufficient to develop their productive vocabulary. Similarly, in Thailand context, Vungthong, Djonov and Torr (2017) focused on a systematic analysis of the power of images and their interaction with words to facilitate vocabulary teaching and learning by following a multimodal social semiotic approach. The results of the analysis of the 23 songs videos in the Grade 1 and 2 English apps revealed that elaboration relationships were used mostly in both grades. However, exposition relations in Grade 1 do not involve images with background, whereas more complex visual structure and more detailed background were dominated in Grade 2. Furthermore, the song videos in Grade 2 include fewer clarification relations and more projection relations than Grade 1. The study suggested the use of multimodality in EFL materials to support spelling and meaning aspects of a word; however, signified the importance of a teacher's instruction rather than multimodal materials regarding the use of a particular word.

The impact of the use of contextual vocabulary teaching on learners' vocabulary knowledge in English was investigated in the following studies via authentic animated cartoons (Arıkan & Taraf, 2010), authentic animated stories (Kaya, 2011), and digital stories (Abdul-Ameer, 2014) which revealed that the experimental group which was taught the target words through a variety of senses outperformed the control group which was exposed to fewer senses when learning the words. For instance, the study by Abdul-Ameer (2014), which aimed to investigate the impact of digital stories on 40 eight-year-old 3rd grade Iraqi primary students' understanding of the story and acquisition of new words, revealed that the students in the experimental group which was taught through three selected digital stories online by computer outperformed the students in the control group which was taught through stories based only

on the teacher without technology, not only in terms of comprehending new vocabulary items but also in terms of the four basic language skills, particularly listening comprehension.

The impact of drama on YLs' foreign language vocabulary learning was examined by Demircioğlu (2010), Köylüoğlu (2010), and Tokdemir (2015). For instance, Demircioğlu (2010) investigated whether drama had an impact on 9-10-year-old 3rd-grade learners' vocabulary learning by setting experiments with two classes, one of which was randomly assigned to the experimental group and the other to the control group with 25 subjects in each. Independent samples T- test results revealed that there was a significant difference between the groups' post-test scores in favor of the experimental group, which shows that teaching vocabulary to YLs through drama is more effective than traditional vocabulary teaching methods.

Since children will be able to memorize and reproduce chunks of language in games, songs and stories, modern primary foreign language programs include songs, rhymes, storytelling, role-plays, and game-like activities with high language content (Martin, 2000). The studies conducted by Chou (2014) and Dapo (2014), which investigated the effects of mixed activities, such as playing language-related games, singing theme-based songs, and listening to stories on children's vocabulary knowledge revealed that multimodal activities helped learners memorize English vocabulary more efficiently.

In another study, Tight (2010) conducted a study with 128 participants in eight intact classes of third-semester intermediate Spanish students at a large Midwestern university to investigate whether there were differences in L2 vocabulary gains and retention in immediate or delayed post-tests among all learners when the instruction was through (a) a single, more preferred learning style, (b) a single, less preferred learning style, (c) mixed-modality instruction, or when (d) there was no instruction. The results of the immediate post-test, the 1-week post-test, and the 1-month post-test showed that mixed-modality instruction always stimulated the greatest overall mean gains, followed by instruction in a more preferred modality, instruction in a less preferred modality, and no instruction, respectively, in addition to having a significant advantage over the other types of instruction. Similarly, mixed-modality instruction led to significantly greater retention in the delayed post-tests than both instruction in a single, more preferred modality and instruction in a single, less preferred modality.

Cárcamo, Cartes, Velásquez, and Larenas (2016), via an action research project, investigated the impact of multimodality instruction on vocabulary acquisition among 8th, 9th, 10th and 11th graders in two semi-public schools in Spain. There appeared a statistically significant difference between the results of the pre-test and the post-test, which indicates that multimodal instruction unconsciously helped students to use and retain the target words when compared to traditional instruction. More recently, in Belgium context, Peters (2019) investigated the effect of imagery on word learning in addition to examining the impact of input modality in three TV viewing conditions: with L1 subtitles, with captions, and without subtitles on word learning of 142 fifth and sixth grade Dutch speaking EFL learners. One of the striking results of the study is that on-screen imagery which combines both spoken text and visual images has a positive impact on vocabulary learning due to enabling learners to process information through auditory and visual channels.

Although the literature on teaching English to YLs is enormous and includes the importance of teaching through all senses, the effects of multisensory teaching on learners' achievement in English vocabulary knowledge have not been investigated in depth in Turkey context. Therefore, the present study, which aims to provide methodologically sound evidence to justify the use of MSVT in the educational practice of YLs, is likely to fill this gap in the field of teaching English to young learners (TEYLs) and to provide a significant contribution to the field. The study focused on the effects of MSVT on learners' receptive vocabulary knowledge in English. In other words, dealing with productive words is not within

the scope of this study. Thus, the researchers were charged with ascertaining whether the use of MSVT is supported by scientific evidence through experimental findings.

The Effects of Multisensory Language Teaching on Foreign Language Vocabulary Achievement of Primary School Students: A Case Study

Aim and Research Questions of the Study

The main purpose of this study is to investigate the effect of multisensory vocabulary teaching (MSVT) on students' foreign language vocabulary achievement. An attempt was made to examine the effect of MSVT on students' foreign language vocabulary achievement via the following research questions:

1. Is there a statistically significant difference between the vocabulary achievement scores of the treatment groups immediately after the implementation of MSVT?
2. Is there a statistically significant difference between the vocabulary retention scores of the treatment groups a month after the implementation of MSVT?
3. What are the views of the teacher and the pupils on learning English vocabulary through MSVT?

The independent variable of the study was MSVT. The lesson plans in the treatment were prepared in line with the content of the target units [unit 3 (family members), unit 4 (clothes), and unit 5 (body parts)] in the coursebook "Elementary English 4 Student's Book and Workbook 1" by taking into account the gains of MSVT. Accordingly, multisensory materials and activities used in this program were prepared by taking into account the suggested literature, the gains of the program, and achievement tests. In line with this purpose, the materials used in the study were audio and visual materials including songs, dramatizing, rhymes, cartoons, masks, drawings, pictures, flashcards, posters, animations, photos, videos, a digital story, and a crossword puzzle in addition to various tactual materials including toys, puppets and other realia. Furthermore, the activities used in the study were matching, labeling, completing the crossword puzzle, hands-on activities, listening and finding the correct item, finding the partner, categorizing the words, computer-based games, a guessing game, a dart game, and completing the pictorial worksheet.

Research Method

Research Pattern

Following a mixed method approach, the quantitative/positivist paradigm and the qualitative/interpretive paradigm were used in the study to encompass various aspects of MSVT used in this study. Because random assignment is not possible in state primary schools throughout mainstream education, a quasi-experimental research type with the non-equivalent comparison group design with two intact groups was utilized in the study to answer the research questions.

Study Group

The participants of the research consist of totally 46 fourth grade pupils (9-10 year-olds) enrolled in the Öğretmen Hasan Güney Primary School in Bursa, Turkey. An experiment was conducted in the first term of the 2012-2013 academic year. Subjects were two intact groups, class 4A (23 students, 12 of whom were female and 11 of whom were male) as the control group which was given mainstream education, and class 4B (23 students, 9 of whom were female and 14 of whom were male) as the experimental group which was given the treatment with MSVT. In addition, the teacher in this study, who was female and 32 years old at that time, had nine years of teaching experience with children.

The Instrumentation

The quantitative instrument was the vocabulary achievement test prepared by the researchers**.** The test was comprised of matching and multiple-choice items accompanied by various pictures as suggested by Vedyanto (2016), who provided statistical evidence for using pictures in a test format to assess students' vocabulary achievement. In order to test the internal consistency reliability of the vocabulary test, the 45-question vocabulary test was administered to a group of 30 fourth grade pupils (class 4C) in the same school as a pilot study. Based on the results of the analysis of the item total correlation test, items 1, 16, 39, and 45 were removed from the test. The answers of the participants to the remaining 41 items were reanalyzed to find out the reliability of the vocabulary test. Reliability analysis revealed a Cronbach's alpha score of $\alpha = .81$ over 41 items in the vocabulary test. In respect of the post- and delayed post-tests, the analysis revealed a Cronbach's alpha score of $\alpha = .80$ over 41 items in the post-vocabulary test and $\alpha = .87$ over 41 items in the delayed post-vocabulary test.

The qualitative instruments were the pupils' diaries, the teacher's blogs, and the semi-structured interview with the teacher.

Data Collection

The study was conducted after receiving approval from the Department of Research and Development of Education affiliated to the National Educational Directorate, and after obtaining an informed consent form from every pupil's parents. At the beginning of the experiment, the pre-test was given to both groups to determine whether the groups were equal regarding their background knowledge of the target words.

The treatment and testing were concealed within ordinary classroom routines. Because three units were involved in this study, the duration of the treatment was six weeks. The students were given the post-vocabulary test a week after the treatment and the delayed post-vocabulary test a month after the treatment.

Before the intervention, the students in both groups were given diaries to write about their experiences, ideas, and feelings with regard to each English lesson during the treatment. The students were at the beginner level, and thus they wrote their diaries in Turkish. Furthermore, the teacher wrote her observations, feelings, and views about teaching each lesson with multisensory materials and activities regularly in her blog for the 6-week period. Finally, the interview was conducted with the teacher to delve into the results obtained from the quantitative part.

Data Analysis

Due to non-normally distributed data, the quantitative data were analysed by using the Mann-Whitney U statistical test via SPSS-Statistical Package for Social Sciences to reveal the differences between the pre-, post- and delayed post-vocabulary achievement test scores. As for the qualitative data, codes and categories were formed from the data of the learners' diaries, the teacher's blog and the interview extracts by the researchers via the inductive content analysis technique.

Research Findings

Findings for the Post-vocabulary Achievement Test Scores of the Treatment Groups

In order to investigate whether there was a statistical significant difference between the groups in terms of their vocabulary knowledge, the Mann-Whitney U test, which assumes that there are two samples coming from the same population, was run on the participants' pre-scores in the vocabulary achievement test, as displayed in Table 1.

Table 1. Pre-Vocabulary Achievement Test Scores of the Groups

Treatment Groups	N	*Mdn*	Range	Mean Ranks	Sum of Ranks	U	*Z*	p
Experimental	23	14	68	23.30	536	260	-.099	.651
Control	23	14	46	23.70	545			

* Significant at the .05 level.

The Mann-Whitney U test result indicated that there was no statistically significant difference between the groups' pre-vocabulary achievement test scores (U = 260, p = .651), which evidenced that the groups were equal to each other in terms of their vocabulary knowledge. Thus, it can be asserted that the comparison of their vocabulary scores would reveal reliable results.

Table 2. Mann-Whitney U Test Results of Treatment Groups' Post-Vocabulary Achievement Test Scores

Treatment Groups	N	*Mdn*	Range	Mean Ranks	Sum of Ranks	*U*	*Z*	p
Experimental	23	79	78	16.74	385	109	-3.418	.001
Control	23	65	69	30.26	696			

* Significant at the .05 level.

The Mann-Whitney U test result presented in Table 2 indicated that there was a statistically significant difference between the treatment groups with regard to their vocabulary knowledge (U = 109, p=

.001, r= -0.503). Based on the median scores of the groups, it is clear that the experimental group's post-vocabulary scores (Mdn = 79) were higher than the control group's scores (Mdn = 65).

Findings for the Vocabulary Retention Scores of the Treatment Groups

Participants were given the vocabulary retention test a month after the treatment so as to investigate whether there was a statistically significant difference between the experimental and control groups regarding their vocabulary retention by using the Mann-Whitney U test.

Table 3. Mann-Whitney U Test Results of Treatment Groups' Vocabulary Retention Scores

Treatment Groups	**N**	*Mdn*	**Range**	**Mean Ranks**	**Sum of Ranks**	*U*	*Z*	**p**
Experimental	23	84	50	17.30	398	122	-3.134	.002
Control	23	69	60	29.70	683			

* Significant at the .05 level.

The Mann-Whitney U test result displayed in Table 3 showed that there was a statistically significant difference between the treatment groups with regard to their vocabulary retention (U = 122, p = .002, r = -0.45). Based on the median scores of the groups, it is clear that the experimental group's delayed post-vocabulary scores (Mdn = 84) were higher than the control group's (Mdn = 69) scores.

Findings for the Views of the Teacher and Pupils on MSVT

The following extract taken from the teacher's blog indicates the teacher's evaluation of the multisensory activities used in the classroom.

T: "We said that Ann has got a family and we are also a family. Thus, we gave roles of father, mother, aunt, and grandfather. My pupils looked so good in the costumes. Every new word they learnt became real when they played these roles. They learnt through experience. Their behaviours, gestures, and facial expressions changed immediately…"

The interview results also indicated the impact of MSVT on learners' interests and participation:

T: "While using MSVT, I observed that the students' participation increased and they took an active role in their learning. Therefore, they mostly learn by doing and experiencing. I realized that learning becomes more permanent when the coursebook is supported by supplementary materials and a variety of activities… Every child can find something interesting and motivating when learning English through multisensory materials and activities."

On the other hand, the teacher explained the way of her teaching English vocabulary during mainstream education:

T: "When I was using the coursebook, most of the time I took an active role and the students became passive. For instance, when teaching vocabulary, I expected them to underline unknown words in the passage, to guess the meaning of the words in the context by evaluating whether the meaning of a word is positive or negative, to match the words with the pictures, and finally to look up a dictionary to get the meaning."

In addition, in their diaries, a few pupils in the control group expressed their views related to learning English vocabulary as follows:

P3: "The English lesson was good. We always learnt new words. We had fun…"

P5: "I understood the words which we have learnt today easily because they are useful for me in daily life…"

P7: "…To be able to learn the words we learnt today I did revision. Therefore, I understood the words better…"

As seen in the above extracts, the pupils in the control group mentioned the subjects they learnt, their beliefs about learning new words and their vocabulary learning strategies.

SOLUTIONS AND RECOMMENDATIONS

The target words of each unit were taught explicitly through the use of multisensory materials such as hand puppets to introduce family members; hand-made Bugs Bunny and Lola Bunny models with their colorful hand-made clothes, a colorful wooden wardrobe, clothespins, and a washing line to introduce different items of clothing; and hand-made magnetic body parts of a monster, a big colorful cardboard model clown, and a puppet monster with its detachable parts to introduce the words for body parts. These visual and tactual materials were supported by auditory materials such as a video-based song, PowerPoint presentations that were vocalized by two American children, and digital stories, in addition to the teacher's presentation of these materials. As can be seen, the learners were provided with a variety of multisensory activities which helped them to process the new word meanings by working with the new vocabulary items through activating multiple senses. Hence, it is difficult to determine exactly which one of them was significantly more effective than another. It is more reasonable to attribute the success of vocabulary teaching in the study to the use of all learning modalities in combination.

The results of this study were in line with the study by Tight (2010), which concluded that mixed-modality instruction led to the strongest impact on vocabulary learning when compared to other uni-modal types of instruction. One of the reasons for the effectiveness of MSVT seems to come from its adaptability for learners' level of cognitive skills and perception. From the results of this study, it can be inferred that instruction by means of MSVT materials tailor-made to suit the needs and tastes of the pupils increases their achievement in vocabulary tests (Cameron, 2001; Linse, 2005; Moon, 2000; Moon, 2005; Read, 2007; Scott & Ytreberg, 1990). Furthermore, in line with the qualitative studies conducted by Sarı (2014) and Tokdemir (2015, the qualitative parts of this study including the learners' diaries,

the teacher's blogs, and interview also provided insight from the perspectives of the participants with regard to multisensory vocabulary learning and teaching.

Some of the pupils expressed their views on vocabulary learning in their diary extracts, which revealed that they developed mostly positive attitudes towards English lessons, and more specifically towards learning new words in English, through matching, labelling activities, and games. It is more likely that they had an enjoyable time when manipulating big pictures, flashcards, puppets, and hands-on materials. On the other hand, they also reported that they had difficulty in pronouncing and writing new words in English. The reasons for their negative experiences might be that the study did not aim to develop the pupils' productive vocabulary knowledge, but rather, their receptive knowledge. Although activities that required the pupils to practice the productive aspect of vocabulary learning were not completely ignored, most of the multisensory materials and vocabulary activities were designed and used to improve the pupils' receptive vocabulary knowledge. Furthermore, two of the pupils jotted down a problem related to remembering the words because they had to deal with too many words simultaneously in each unit. Dunlap (2015) emphasized that overloading students by expecting them to know too many words defeats the purpose of exposing them to and teaching them vocabulary items. She suggested that more than seven, eight, or nine words should not be introduced at a time. Instead, a small number of words should be carefully selected and taught wisely by creating a curiosity about words to build vocabulary. However, the researcher did not reduce the number of the words taught in the intervention program in order to verify the equivalence of the groups and so as not to contradict the impact of MSVT on vocabulary achievement. Thus, the number of words used in this study per unit, which was over the recommended number, was determined by the Ministry of National Education (MoNE) curriculum.

The data obtained from the cooperating teacher's blogs helped the researcher to ascertain some notable aspects of the use of MSVT. For instance, she stated that the pupils had much more fun when they played a game to revise newly learnt words. She suggested that people should not stop playing games, no matter how old they are, by asserting that games are one of the most effective techniques to promote learning. The teacher's views can be supported by the diary entries. The students stated that they had fun and spent a great and enjoyable time while playing games, in addition to positively mentioning the hand-made multisensory materials used within a variety of games such as the dart game and wheel game. In the literature, language games are also considered as a powerful learning tool in teaching almost every component of a language including vocabulary, by referring to their numerous benefits as mentioned by many authors such as Dolati and Mikaili (2011), Flora (2009), Lewis and Badson (1999), Linse (2006), Read (2007), and Wright, Betteridge and Buckby (2006).

In addition, the cooperating teacher also highlighted the importance of role-play activities in noticing and rehearsing newly learnt words through experiencing, by stating that "every new word they learnt became real when they played these roles". She also observed that when the pupils wore costumes to become different family members their behaviour, gestures, and facial expressions immediately changed. What was observed in the MSVT classroom is compatible with what is emphasized in the literature with regard to drama. Drama activities, which are naturally multisensory, enable learners to use mime, sounds, gestures, and imitation to make associations between language and these accompanied expressions serving as semantic clues (Dündar, 2012; Phillips, 1999; Read, 2007; Zalta, 2006).

On the other hand, the diary entries of the control group might shed light on the mainstream elementary school English instruction in Turkey. Some of the diary extracts revealed that pupils learnt new English words through pictures, listening to the teacher, translation, revising the words after the lesson, getting help from the teacher, doing exercises in a worksheet as homework, writing the words three times, and

drawing and coloring items or pictures. When reporting their way of vocabulary learning, it was seen that they did not use positive expressions such as having fun in relation to the aforementioned ways, with two exceptions, which were a drawing and coloring activity and a bingo game. This is the most important difference emerging from the diary data. With regard to the use of drawing to practice newly learnt words, Baines (2008) stated that creating drawings could help learners to depict the meaning of unfamiliar words. It is probable that learners forget the definition of words but not a drawing or an image associated with a definition. Thus, their learning moves from short-term to long-term memory.

On the other hand, some of the pupils in the control group expressed positive feelings and views about two of the book activities, namely a bingo game and a song, by stating that they had a great time /good day in the classroom when learning through games and songs. In the interview, the teacher also stated that she mostly used a matching activity that required pupils to match the words with pictures, which is also included in many elementary school English coursebooks. Furthermore, she tried to teach some strategies such as underlining unknown words within the passage, guessing the meaning of the words from the context by evaluating whether the meaning of a word is positive or negative, and finally looking words up in a dictionary to learn the meaning of unknown words. In short, it seems reasonable to assume that teaching English vocabulary through MSVT is more effective than through mainstream education.

With regard to retaining English vocabulary, it is obvious that MSVT helps learners to keep words in their long term memory. The findings of the study can support the dual-coding hypothesis proposed by Paivio (1990), who asserted that people comprehend environmental information by dealing with two systems cognitively, namely the imagery system by referring to non-verbal objects, events, and behaviours including the processing of information through sensory modalities, and the verbal system by referring to language phenomena which should not be associated with the verbal system alone, but also with the imagery system. In short, human cognition deals with both language and nonverbal objects and events simultaneously. Thus, higher retention might be explained by what is claimed by Paivio (2007) and supported by Vekiri (2002), in that the participants of this study appear to have stored the target words in at least two systems, namely the linguistic system and the multisensory system including the visual system, in long-term memory.

In addition to the quantitative results, the qualitative part of the study provided invaluable data as to the implementation of multisensory materials and activities in the context of the classroom. The overall results emerging from the diary extracts of the experimental group indicated that learning English through MSVT is nothing short of fun and entertainment, owing to the fact that the multisensory activities used in the study were designed to suit their age and taste, which is why most of the pupils were very happy and fostered positive attitudes towards the English course. It is interesting that some of the pupils compared learning English through coursebooks to learning through multisensory materials. Except for one who preferred learning with the book which provides more individual work, most of them expressed positive views and feelings with regard to multisensory materials and activities which lead to more cooperative work than the coursebook activities do. They pointed out that multisensory materials, particularly the puppets, yes/no hands and manipulative monsters, were more attractive, enjoyable, and effective than what is offered within the coursebook. The reason might be that it is very difficult for elementary learners to sit still to work with coursebook exercises. In such experimental studies, participants are usually impressed by the novelty of the whole experience.

It is apparent from their diary extracts that the multisensory materials and activities increased the pupils' willingness and desire to be actively involved in stimulating and challenging activities accompanied by manipulative materials. The interview results support the finding that every pupil, including

those labelled as uninterested and lacking in language aptitude, could find something interesting and motivating among a variety of multisensory materials and activities, which stirred up their enthusiasm for being involved in the activities supported by big, hand-made materials. The participating teacher suggested that when a teacher becomes the slave of prescribed books, it is highly likely that a lesson will be teacher-centered. However, MSVT puts the learners into action, and teachers are expected to take more of a passive stance while still being active.

On the other hand, the diary extracts taken from the control group might portray the mainstream English education in Turkey. That is, most of the participants within the control group attributed importance to the subjects being taught as easy, difficult, fun and enjoyable, being prepared for the lesson, answering the questions, getting help from the teacher, learning new things, doing exercises and homework, studying for the exam, and being able to produce the correct answer. They also mentioned their favorite coursebook activities such as the bingo game, song, drawing, and coloring. The results also indicated the pupils' negative views and feelings about doing revision and writing in a mechanical way. Despite having difficulties in dealing with some of the points, they fostered positive attitudes towards the English course as a result of their love for their teacher, for whom they express love and affection, saying that she makes the lesson more enjoyable for them.

The findings of this study can be used as a framework for primary school English teachers who seek innovative ideas to design their instructions so as to improve their pupils' vocabulary knowledge. Moreover, materials developers, particularly those who design English coursebooks for 4th-graders, can derive benefit from the multisensory materials and activities suggested in this study. In addition, should the need arise for redesigning the 4th-grade English language teaching program, the Turkish MoNE Board of Education and Discipline may take the findings and suggestions of the study into account in order to integrate evidence-based methods, techniques and materials. Finally, the teacher trainers who teach the course "Teaching English to Young Learners" in ELT programs can better equip teacher trainees with the techniques suggested in this study to help them become more competent English teachers in primary school contexts.

FUTURE RESEARCH DIRECTIONS

Despite using a mixed-method design by following both qualitative and quantitative research paradigms in order to achieve triangulation, this study followed a predominantly quantitative paradigm supported by a qualitative paradigm. Therefore, further research on the same issue can be designed by using a reversed version by focusing primarily on qualitative data involving field notes, classroom observation, video recordings, and interviews with pupils to obtain more in-depth results with respect to MSVT.

Knowing a word truly does not only mean perceiving its meaning but also using it as a part of daily life, and so students should be supported in using the target words in speaking and writing (Dunlap, 2015). Thus, further research can be conducted to investigate the effects of MSVT on learners' productive word knowledge.

The study was conducted via face-to-face education; however, the researcher and teachers have been struggling to find the best online teaching system and techniques due to the COVID-19 pandemic. Therefore, future research can be conducted to investigate the effects of MSLT which would involve online multisensory materials and activities on different components of language learning.

CONCLUSION

It would not be wrong to say that the findings of the study provide methodologically sound evidence for implementing MSVT, which activates the child's senses such as seeing, hearing, and feeling, in TEYLs. As considered in traditional methods, learning is not merely transmitting certain knowledge and skills to learners who are expected to gain factual knowledge. Instead, it is also a matter of instruction through which learners construct and reconstruct knowledge. When considered from this point of view, it is worthy of notice that MSVT helps pupils to construct and reconstruct knowledge through engaging in child-appropriate multisensory activities accompanied by developmentally appropriate manipulative materials which provide first-hand experience by seeing, handling, or manipulating them.

MSVT gives the teacher an opportunity to make a small change in this area. The history of education shows that remarkable changes come from within the classroom, from individuals altering one or two practices. If this attitude becomes widespread, it can snowball and animate the system. Big changes coming from above are not usually so powerful as to leave an imprint on an individual pupil's mind. No child would remember a word of the Ministry of Education, but s/he will always remember the teacher saying "*Here is a green monster!"*

ACKNOWLEDGMENT

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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KEY TERMS AND DEFINITIONS

Individual Differences: Learner variables differentiating individuals from each other.

Multiple Modality Stimulation: Activating more sense organs of students to increase their desire for learning.

Multisensory Activity: An activity in which students perform an assigned task by activating more than one sense.

Multisensory Language Learning: Constructing new language knowledge and skills via activating more than one sense.

Multisensory Language Teaching: A teaching system that requires language teachers to provide new language input through supporting visual, auditory, and tactual/ kinesthetic materials and activities.

Multisensory Materials: Any kind of language sources that require students to utilize more than one sense among visual, auditory, and tactual/kinesthetic senses.

Perceptual Learning Styles: Ways of perceiving and interpreting a new input via the most preferred learning channels such as visual, auditory, and tactual/kinesthetic.

Young Learners: Primary-level students aged from approximately 6/7 to 11/12.

ENDNOTE

[1] This study is a part of the first author's PhD thesis under the supervision of the second author.