



Effectiveness of Teaching Place Names in English to Students with Intellectual Disabilities through Antecedent Prompt and Test Procedure *

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Abstract

This study explored the effectiveness of teaching place names in English to students with intellectual disabilities by utilizing antecedent prompt and test procedure. Three subjects with mild intellectual disability participated in the study. Multiple probe design, which is a single subject research model, was used in the study to determine the effectiveness of antecedent prompt and test procedure in teaching place names in English to the subjects. Research findings demonstrated that antecedent prompt and test procedure was effective in teaching the target behaviors to the three subjects. Students were found to maintain the target behaviors with high accuracy in the 19th and 29th days after teaching. Two subjects generalized the target behaviors to individuals, settings and instruments at a rate of 96% while this rate was found to be 87% for the other subject. The study concludes with the limitations of the study and suggestions for future studies.

Keywords

Teaching through antecedent prompt and test procedure
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Introduction

Intellectual disability is defined as a developmental disability which affects all aspects of life and includes adaptive limitations along with cognitive limitations in conceptual, social and practical fields (American Psychiatric Association [APA], 2013; World Health Organization [WHO], 1992). The literature previously indicated that the prevalence rate of intellectual disability of the society was 3% on average but with the recognition of the significance of adaptive functions in diagnosis, its prevalence is now thought to be approximately 1% (Maulik, Mascarenhas, Mathers, Dua, & Saxena, 2013; McKenzie, Milton, Smith, & Ouellette-Kuntz, 2016; Sucuoğlu, 2010). Individuals with intellectual disabilities are not a uniform group; based on the level of their disability, they are included in one of the four sub categories as mild, moderate, severe, and profound (APA, 2013, p. 204-205; WHO, 1992).

Individuals with mild intellectual disabilities learn most of the information, concepts and skills by using similar strategies as their peers but compared to their peers, they learn more slowly and with higher level of difficulty due to impairments in cognitive functions. These individuals have difficulty in transferring what is learned in a situation to other contexts and in generalizing the information they have accumulated. In addition, impairments in language and communication skills and their limited vocabulary may limit their ability to communicate with other individuals and maintain these interactions (Van der Schuit, Segers, van Balkom, & Verhoeven, 2011, p. 1884). Therefore, it is vital to utilize the limited learning capacities of people with intellectual disabilities to teach them functional

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knowledge, skills and concepts that can be transferred to their daily lives and to include in their curriculum the functional skills such as communication skills to facilitate their participation in society (Matson, Hattier, & Belva, 2012; Morse & Schuster, 2000). Functionality of what is taught can be glimpsed by the practicality and utility of these knowledge and skills in everyday life, at home or in society. Literature points out to studies that focus on functional skills such as teaching sight vocabulary to individuals with mild to moderate intellectual disabilities to enhance their participation in society by supporting their communication skills (Browder, Wakeman, Spooner, Ahlgrim-Delzell, & Algozzine, 2006; Joseph & Seery, 2004,) and receptive-expressive language skills (Abbeduto, Warren, & Conners, 2007; Petursdottir & Carr, 2011; Rowan & Pear, 1985).

Sight words (Ehri, 2005), which are remembered as soon as they are seen by the reader, are of great importance for children with disabilities. There are many studies that demonstrate that teaching these words which support communication and participation in society are useful in terms of recall, vocabulary retention, phonological awareness, fluency and reading comprehension (Joshi, 2006; Parette, Blum, Boeckmann, & Watts, 2009; Riviera, Koorland, & Fueyo, 2002). Acquisition of sight words is significant for children with disabilities since it helps them acquire functional skills related to using buildings names, train/bus schedules and routes and names of things to get from the market in daily life (Browder & Xin, 1998). A meta-analysis and review that explored previous studies conducted on sight vocabulary research (Browder et al., 2006) found using systematic instruction with prompt and fading strategies while teaching reading comprehension and English vocabulary to students with intellectual disabilities was highly effective and furthermore, even students with profound intellectual disabilities could learn to read sight vocabulary with the help of systematic applications such as errorless (or near errorless) teaching methods

Vocabulary teaching is not limited to mother tongue in today's society in which the lack of ability to speak a second language is regarded as a kind of illiteracy and second/foreign language teaching is widely encouraged at all levels of education. More and more students with special educational needs take foreign language courses in parallel with strategies to expand integration practices. Though the number of students with special educational needs is increasing day by day in educational environments, it is known that teachers who teach foreign languages are inadequate in providing instruction to these students and have negative attitudes towards foreign language teaching (Wire, 2005). Against the view that teaching a second or foreign language to children with special educational needs who do not have a certain level of competence in using their mother tongues will not be possible, the literature supports the view that supporting children with special educational needs in learning a second/foreign language will have a positive impact on their participation in the social environment (Wire, 2005) and it is emphasized in the literature that learning a second language is the right of all children regardless of their competence in their mother tongues and that second/foreign language learning is independent from the native tongue (Oda, 2010). In the world, a limited number of countries such as Scotland (McColl, 2005) and Poland (Domagała-Zyśk, 2013) provide children with special educational needs with systematic training in learning a second/foreign language. Krapez (2010) states that all students, even students with intellectual disabilities, have the innate ability to learn a foreign language but it is necessary to plan teaching and learning processes in a professional manner in order to achieve that goal. While it is observed in the literature that the native language competencies of students with intellectual disabilities affect their potential to learn a second language, there are also positive studies that affirm their ability to do so (Mohammadian & Mohammadian-Dolatabadi, 2016; Yahya, Yunus, & Toran, 2013).

Examination of literature in regards to teaching foreign languages to students with special educational needs points to two issues with key significance: The first key issue is related to difficulties faced by students with special educational needs while learning a foreign language and the second key issue is related to adaptations and arrangements that will benefit the students in this process (Wight, 2015). Using reminders, providing extra time, reducing the amount of content (e.g. teaching 5-9 words at a time), providing frequent repetitions and studying pronunciation and vocabulary can be mentioned among the adaptations and arrangements to be used in teaching foreign languages to children with special educational needs (Abrams, 2008; Arries, 1999; Duvall, 2006; Skinner & Smith, 2011; Sparks &

Ganschow, 1993). While there are some studies on second language teaching to individuals with intellectual disabilities in the international literature (Sparks & Ganschow, 1993; Yahya et al., 2013), they are limited in number (Mohammadian & Mohammadian-Dolatabadi, 2016).

Similar to the limited number of international studies in this field, examination of national studies pointed to only two studies which focused on teaching English vocabulary and a single study that explored teaching Turkish as a foreign language to individuals with intellectual disabilities. The first among the studies cited above (Çulha, 2010) examined the effectiveness of the individualized support presented along with simultaneous prompting to teach foreign language skills to primary school fourth grade inclusion students with intellectual disabilities and the effect of maintenance and generalization across instruments.

The findings showed that individual support provided with simultaneous prompting was effective in teaching foreign language skills to inclusion students. Participants of the study were able to generalize their ability to use the English vocabulary they studied to other teaching sets composed of different instruments. The second study which focused on foreign language teaching (Yalçın & Akmanoğlu, 2013), examined whether teaching through simultaneous prompting was effective in teaching the Turkish meanings of English words to a child with autism, whether the participant was able to maintain the learned skills at one, two and four weeks following the teaching process. Whether the participant could generalize the skill to other individuals or across instruments and whether the participant could learn non-targeted information that was also presented. Findings showed that simultaneous prompting was effective in teaching the Turkish meanings of English words to a child with autism; the participant maintained the targeted behaviors at one, two and four weeks after teaching; could generalize the learning to different instruments and individuals and the participant learned 100% of the unintended information presented to him. The third study which focused on foreign language teaching (Koçbeker & Saban, 2005) explored an autistic child's process of learning Turkish as a foreign language. During the process, a foreign language training program developed according to the individual characteristics, needs and interests of the child was implemented for the duration of six months and the effect of this program was examined. At the end of the study, it was observed that the autistic child could learn Turkish in addition to speaking English, his mother tongue. In addition, this study showed that the following points were significant as well: early and intensive behavior and speech therapy received by the autistic child prior to the process of learning a foreign language, the ability to speak his native language, lack of intellectual disabilities and provision of systematic training in an appropriate learning environment in line with the individual needs of the child.

In Turkey, since 2013-2014 academic year, English is taught from primary school 2nd grade in accordance with the "Law on Making Amendments on Primary Education Law" No. 6287 published (2012) in the T.C. Resmi Gazete no. 28261. Students with intellectual disabilities mainstreamed in general education schools are also subject to the same curricula in English courses like their peers with normal developmental patterns. However, inclusion students may have difficulties in English classes due to differences between English and Turkish in both spelling and pronunciation and the use of syntax. At the same time, the use of English words is increasing in Turkey. Many English words are encountered and used in daily life. For example; in food and beverage names in markets (e.g., cola, cupcake, pizza, chips); in mass media and technological tools such as radio, television and computers (e.g., hard disk, memory stick, volume, mail, printer, Wi-Fi, play station), in many building names in avenues and streets (e.g. café, hotel, WC, restaurant, shop, center) and in daily conversations (e.g., bye, okay, selfie, like, yes, no). In short, the use of English words is becoming widespread in many areas of life.

Therefore, students with intellectual disabilities in inclusive environments try to fulfill the requirements of English courses which they take starting from the 2nd grade and they personally encounter many English words in their communities. In addition, the place names they encounter in their social circles are also included in the 5th and 6th year English course curriculum.

Having knowledge of English vocabulary most frequently encountered in daily life is regarded to be important for students with intellectual disabilities in inclusive settings so that they can academically achieve better in English courses and be more independent in their daily lives. Literature in this field emphasizes the need to increase the number of studies that explore teaching foreign languages to the students with intellectual disabilities and it is also underlined that systematic foreign language instruction in schools is a basic right for children with intellectual disabilities (Mohammadian & Mohammadian-Dolatabadi, 2016; Oda, 2010). However, only a limited number of studies is available in both national and international literature that are conducted in the field of teaching English to children with intellectual disabilities and new studies are needed in this area. Based on the gap in this field, this study aimed to teach students with intellectual disabilities the English words that are most frequently used in daily life.

Method

Participants

The study commenced with the participation of a total of four 12-year old students (one female, three male students) diagnosed with mild intellectual disability and enrolled in special education classroom. Then, it was identified that the female student did not meet one of the criteria for participation and therefore she was excluded from the study. The prerequisites sought in participants were as follows: a) Ability to read a text which composed of at least five sentences in three minutes without making any mistakes, b) Ability to focus their attention to visual and auditory stimuli for at least ten minutes; (c) Regular attendance to the study and d) Not having prior knowledge of the English vocabulary to be studied.

The female student did not meet the last prerequisite of not having prior knowledge of the English words to be studied since it was observed during baseline that she already knew seven of the nine targeted English words and therefore she was excluded from the study at the start. The three male students who met the prerequisites and who continued to participate in the study had no health problems that prevented them from participation and they attended the sessions regularly. Participants' classroom teachers were interviewed in order to find out whether the subjects had the above-mentioned prerequisite behaviors and later the students were evaluated with one-on-one sessions and their families were interviewed to ensure that the subjects met the prerequisite behaviors.

The first subject Ahmet (subjects' real names are not used here to protect confidentiality) displayed no behavioral problems. According to the results of educational assessment and diagnosis conducted by the Guidance and Research Center Directorate, Ahmet had mild intellectual disability and he attended to a special education class in a secondary school affiliated with the Ministry of National Education. Ahmet was able to use motor movements, took turns in plays, used simple expressions to describe his needs and his daily life, he could mimic and imitate, follow two and three-part verbal instructions and non-verbal instructions, was able to grasp the natural numbers from 1 to 9 and could these write numbers, read and write, come to school independently, draw basic lines and distinguish objects based on their properties such as less-more, small-big, short-tall, thick-thin, empty-full and high-low. Also, Ahmet did not previously receive any training in English.

The second subject, Salih, was a student with no behavioral problems who was diagnosed with mild intellectual disability based on the educational assessment and diagnosis conducted by Guidance and Research Center Directorate. Salih, who attended a special education class in a secondary school affiliated with the Ministry of National Education could express his needs by using sentences containing three or more words, read and write, attend school independently, communicate with others, take part in group games, share his belongings with others, follow the rules of courtesy in his dialogues in daily life, comprehend and write two-digit natural numbers, draw basic lines and create syllables from sounds. In addition, Salih did not receive any previous training in English.

The third subject, Hakan, also displayed no behavioral problems. Hakan was a physically disabled student in a wheelchair who was diagnosed with mild intellectual disability as a result of the educational assessment and diagnosis conducted by the Guidance and Research Center Directorate. Hakan attended the special education class of a secondary school affiliated with the Ministry of National Education. He could express his needs by using sentences containing three or more words, but he sometimes stammered while talking. Hakan could give information about the events he saw and experienced, speak by following the rules of courtesy, track a simple event from beginning to end, draw basic lines and make syllables from sounds, write his name and the names of people in his close circle, comprehend and write natural numbers between 1-9, read and write, , come to school independently, differentiate objects based on properties such as big-small, less-more, tall-short, heavy-light, high-low, empty-full, thick-thin, inside-out, on-under, front-behind , on the right-left and far--near. Furthermore, Hakan did not receive any training in English before.

Implementer

The implementer who conducted the research is a teacher of English at a secondary school affiliated with the Ministry of National Education and at the same time she continues her doctorate at Eskişehir Osmangazi University Special Education Department.

Setting and Instruments

The study was conducted in the resource room of a secondary school affiliated with the Ministry of National Education. The resource room had three desks, three chairs, three cabinets with books, a bookshelf and bulletin boards on the walls. A camera, data recording forms and pens were used to record data. In addition, 9 vocabulary cards (15x15) with the words "Shop, Hospital, Cafe, Rent a car, WC, Pet shop, Restaurant, Cinema, Exit" printed on them were used for teaching the English words in the study along with 9 pictograms (15x15) that contained the visuals for the vocabulary to be taught. These were used to collect training, daily probe, full probe and maintenance data. In order to collect generalization data, 10x10 vocabulary cards and pictograms were used.

In order to select the English vocabulary to be taught in the study, 40 primary school 2nd and 3rd graders, 32 secondary school 6th graders, 26 secondary school subject matter teachers and 23 experts employed at Eskişehir Osmangazi University and Anadolu University were asked the following question: "What are the English words you observe around or use in your daily life?". Primary school 2nd and 3rd graders answered that question by 143 words, 6th grade students by 121, the subject matter teachers by 185 words and the experts by 139. A total of 588 general English vocabulary obtained from individuals in four different areas were examined and ten place words with common frequency in English were identified. Of these words, the word *Cafe* was selected by 45 individuals, , *WC* by 29, *Exit* by 20, *Restaurant* by 19, *Cinema* by 12, *Center* by 11, *Shop* by 8, *Pet shop* by 7, *Hospital* by 2 and *Rent a Car* by 2. However, the fact that the words *Shop* and *Center* were very similar in meaning and the word *Center* was often used in the form of a noun phrase with another name in front (e.g. city center, shopping center), it was excluded from the list and therefore that a total of 9 words were targeted to be taught. A pilot study was carried out by using 9 identified English words with the participation of a primary school 1st grade student who had recently learned how to read and write.

Research Model

Multiple probe design, which is a single-subject research model, was used in the study to determine whether antecedent prompt and test procedure was effective in teaching English vocabulary. Dependent variable of the study was the subjects' knowledge of what these 9 English vocabulary items (composed of place names) meant in Turkish and what could be done in those places. The independent variable of the study was training via antecedent prompt and test procedure.

Experimental control in single-subject studies is ensured by the increase observed in the performance of the subject who receive training after the instruction compared to his/her baseline performance; near baseline performance of the subjects who do not receive training, and similarly, increase in the performance of the subjects along with implementation and similar change in all subjects in a diachronic manner (Tekin-İftar, 2012). Experimental control in this study was established by observed increases of subject' performance in providing Turkish meaning of the English vocabulary and what could be done in those places compared to his/her baseline performance after the subject was provided with training, no change between baseline performance and later performance for subjects who were not taught the vocabulary and the fact that this could be observed in all subjects based on the principle of diachrony.

There are some threats to internal validity in single-subject research models. Internal validity is that the change in the research is caused only by the independent variable. Therefore, the study should be designed in such a way that factors other than the independent variable can be controlled (Tekin-İftar, 2012). Hence, in order to control the possible external factors that may affect the outcome of the study, except for the independent variable a) subjects' classroom teachers and their families were asked in the interviews conducted that children were not taught English until the conclusion of this study, b) it was aimed to complete the research as soon as possible to reduce the maturity effect, c) inter-observer and implementation reliability data were collected in 30% of all sessions so to prevent effects of measurement on internal validity; d) four subjects were initially selected against the possibility of subject loss, and the study was continued with three subjects after one subject was excluded from the study and e) effects of prior experiences were aimed to be diminished by selecting students who did not participate as subjects in training activities with the implementer.

Experimental Process

The experimental process of the research was composed of pilot implementation, full probe, training, daily probe, generalization and maintenance sessions. All sessions were held in the resource room of a secondary school affiliated with the Ministry of National Education on Monday, Tuesday, Wednesday and Thursday between 12.20 and 13.20. All sessions were carried out by one-on-one training arrangements. In order to reinforce the correct responses of subjects in full probe, training, daily probe, generalization and maintenance sessions, social reinforcements (you are amazing, you are super, bravo, excellent) and activity reinforcements (playing with puzzle, dummies, looking at picture books) were used for all subjects and subjects were given the toys they wanted (a red car, a blue car and a gray motorcycle) when the study was completed. The reinforcements used during this study were identified based on the information obtained from subjects themselves, their teachers and families.

Pilot Implementation

A pilot study was conducted with the participation of a 1st grader with problems in reading and writing skills by using the 9 English words which were previously identified in order to determine the possible problems that may have occurred before moving to the main application phase and to make any changes, if necessary. The pilot study contained 4 training sessions with the student and it was observed that the student started to learn the relevant words successfully. The pilot study implemented by using the instruments and the setting of the main study demonstrated that the word "center" could be used as a noun phrase with the addition of another noun in front of it and therefore it did not mean the same thing in Turkish when used alone. Hence this word was excluded from the vocabulary list that was targeted to be taught in the framework of the study.

Full probe Sessions

The first of the full probe sessions was performed to collect the baseline data simultaneously in a one-on-one training session across all behaviors and subjects. Full probe sessions were performed just before training started for a subject and when the criteria in training were met. In all full probe stages, a total of 54 target stimuli were presented for each target stimuli for behaviors (a set of instruments composed of 9 English words) for three times: "what is this? (27 trials) and "what can be done here?"

(27 trials). Instrument sets were shuffled and mixed before each trial so that the target stimuli in the behavior sets in full probe sessions could be presented in an order that the subjects could not predict.

Full probe sessions in the study were carried out as follows: Before each probe session, the implementer placed the 9 15x15 English vocabulary cards in the behavior set on the left side of the table. Then, she presented the student with the prompt (Ahmet, we will work English words with you now. Are you ready?). Later, she presented the task direction. First, she presented the question "what is this?" and waited for 4 seconds for the student to respond; later she asked "What can be done here?" and waited another four seconds for student's response. Appropriate task related behaviors of students such as sitting in their seats and directing their attention were reinforced by saying "How well you are working with me, thank you!" and the vocabulary cards were shuffled in the next one minute to move on to the next trial. When the student answered correctly in regards to the correct Turkish equivalent of an English vocabulary item and what can be done in that place in four seconds (response interval), the implementer accepted it as an accurate response; likewise, when the student provided a different place name than the one presented in the card, or stated an action that was not supposed to happen in that place or was unresponsive in the response interval (4 seconds), the implementer accepted it as the inaccurate response. For instance, students received (+) when they correctly stated the Turkish equivalent of an English word but they received (-) when they were wrong about the actions that could be done in that place or when they were unresponsive.

Training Sessions

In training sessions, the implementer presented the controlling prompt (stimuli added to the target stimulus or after the target stimulus to help the student make the target response, for instance when the teacher says "it is a restaurant") with a visual prompt immediately after the task direction (the reminder stimulant necessary for the child to initiate the response, for example "What is this?").

Two training sessions were held in one day and each trial session included 18 trials (two trials with each card with English words). In training sessions, the response interval was 4 seconds and the interval between trials was 5 seconds. The controlling prompt included the use of verbal and visual cues in conjunction. In training sessions, the correct responses were defined as the accurate statements as to the meaning of the place word in Turkish and what could be done in this place following the presentation of task direction and the controlling prompt. Training sessions continued until the students met the 100% accuracy in response rate to all 18 target stimuli directed to them in the daily probe sessions.

Training sessions were carried out by implementer as follows: The English vocabulary cards and the visual cards in the set whose will be practiced were placed face down on the table where students could easily see them. First, the task was explained (e.g., Now I'm going to teach you the names of the places in English and what is done in these places. First, I'll tell you the name of the place and what is done in this place by showing the word card and visual card and you will just listen to me by looking at both cards very carefully. Then I'll ask you "What's this?" and "What's done here?" and you'll tell me the name of the place and what is done there. Then, the prompt to get attention was presented (e.g., "Ahmet, are you ready to learn English words?") followed by the task direction (e.g., "Ahmet, what is this?" and "OK, so what is done here?"). Immediately after the task direction (0 seconds), controlling prompt and visual prompt were presented (by holding up the pictogram presenting the place asked by the implementer, "It is a restaurant. Food is eaten in a restaurant", and come on now, you tell me, what is this? And what is done here?). Students were given 4 seconds to respond. If the student responded in 4 seconds, he was reinforced verbally (you are great, very well, bravo, you are super). When the student stated an incorrect place name or if the student did not provide a response in 4 seconds, it was regarded as inaccurate response and the response was ignored. This training process was repeated in the same manner in all trials. Correct student responses in the training sessions were reinforced by continuous reinforcement schedule. In addition, student attitudes to participate in the study and paying attention towards the study were reinforced by the activity reinforcements.

Daily Probe Sessions

Two types of trials are conducted in antecedent prompt and test procedure. These are the probe trials where prompt is presented (system of least prompt) and probe trials where the prompt is completely eliminated to test individuals (system of most prompts). After providing antecedent controlling prompts in a certain number of trials or sessions, the implementer terminates the prompt and performs probes to test whether the individual responds correctly only when the target stimulus is presented. The implementer can provide the probe sessions immediately after the trials where prompts are presented, or at any time during the day (Tekin-İftar & Kırcaali-İftar, 2004). For this reason, probe sessions were held in this study at the end of two training sessions every day when training sessions were used. Daily probe sessions were performed in a similar manner to full probe sessions. In daily probe sessions, the implementer provided a total of 18 task directions and recorded student responses. The responses of the subjects in daily probe sessions were not reinforced, but at the end of the study, the participative behaviors of the subjects were reinforced by symbol reinforcement tariff (winning a smiley face sticker at the end of each task).

Generalization and Maintenance Sessions

Generalization sessions in the study were performed one week after the last full probe session. Generalization study included generalization across instruments, setting and individuals. 10x10 English place name cards and pictograms (that are smaller than the 15x15 English place name cards and visuals used in training sessions) were used in generalization sessions by the special education teacher in the special education classroom with task directions. As in the other sessions, the response interval and the interval between trials were 4 seconds in the generalization sessions. A total of three generalization sessions were held with 18 task directions in each session. Student responses were not reinforced in these sessions, but students' participation behaviors were verbally reinforced at the end of the session by saying "Thank you for working with me". Generalization sessions were performed in the same way as probe sessions.

Maintenance sessions were conducted to see if the students maintained the behaviors they acquired on the 19th and 29th days after the last probe session since the schools were closing. Maintenance sessions were organized like probe sessions. At the end of maintenance sessions, the student's participation in the study was verbally reinforced ("Thank you very much for working so well with me!").

Data Collection Forms

During the experimental process of the research; data collection forms were developed to collect full probe, daily probe, generalization, maintenance and implementation reliability data. Full probe data were recorded on the Full Probe Sessions Data Collection Form; daily probe data were recorded on the Daily Probe Sessions Data Collection Form; generalization data on Generalization Sessions Data Collection Form and maintenance data was recorded on the Maintenance Sessions Data Collection Form.

Information regarding the subject's name, surname, the name of the implementer, the start-end time of the study, the date of implementation, the total duration and the information about the session number were included at the top of the form while correct and incorrect responses were added below this information.

Reliability

Sessions identified by randomly assignment were monitored to collect reliability data in 30% of the daily probe, full probe and training sessions and 50% of the maintenance and generalization sessions. Inter-observer reliability was evaluated by comparing the match between implementer's records and records of the observer who assessed reliability. The inter-observer reliability coefficient of the study was calculated using the formula $\text{Agreement} / (\text{Agreement} + \text{Disagreement}) \times 100$ (Erbaş, 2012, p. 117). Implementation reliability coefficient of the study was calculated using the following formula: $\text{Observed Implementer Behavior} / \text{Planned Implementer Behavior} \times 100$ (Erbaş, 2012, p. 117).

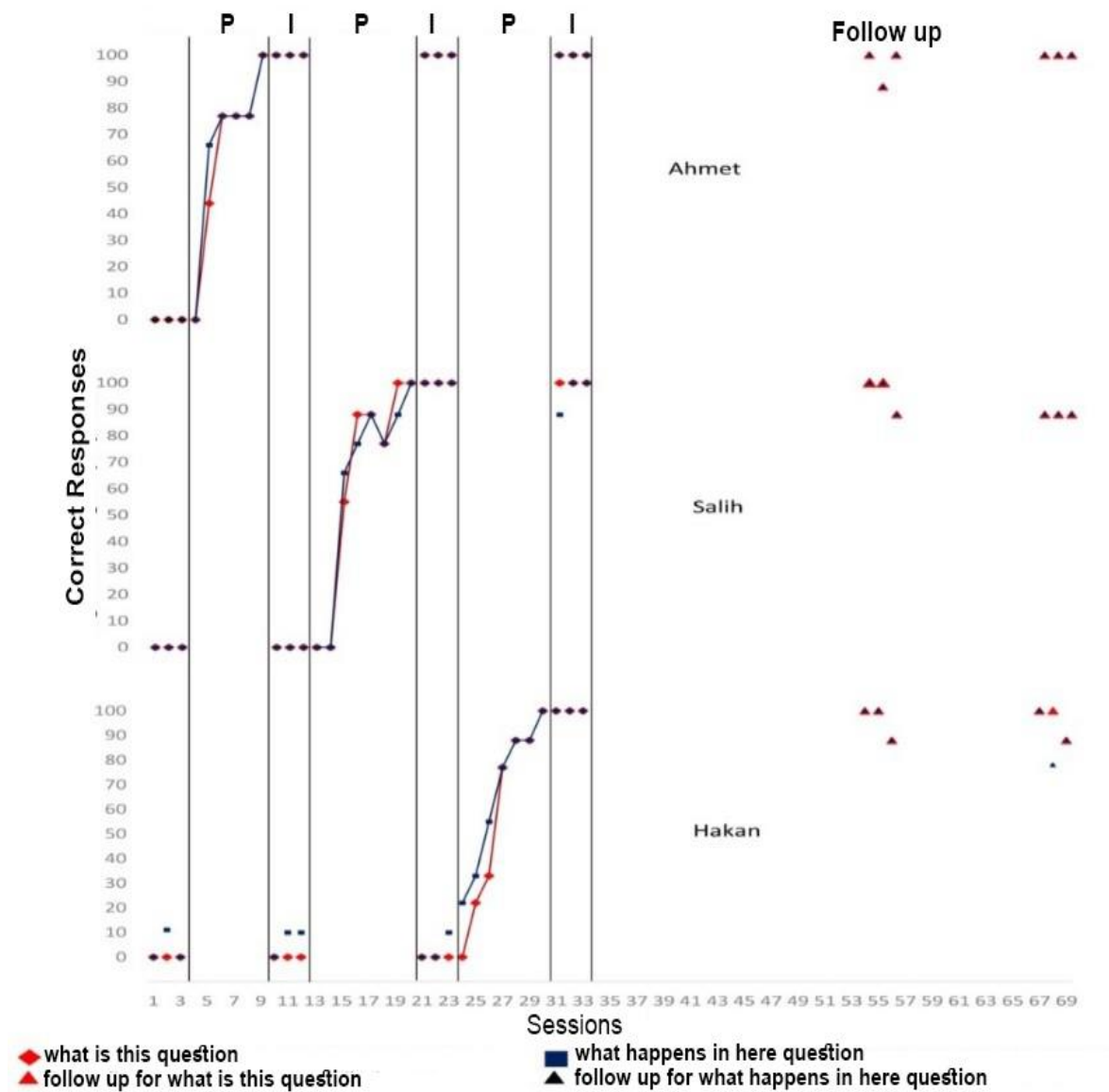
For implementation reliability, the following implementer behaviors were observed: (a) checking the instruments, (b) presenting the prompt to get attention, (c) presenting the target stimulus (task direction), d) presenting the controlling prompt, (e) waiting for the response interval and (f) appropriate response after behavior. The same implementor behaviors were evaluated separately for full probe, daily probe, maintenance and generalization sessions.

Inter-observer reliability and implementation reliability were found to be 100% in all sessions.

Results

Findings regarding the effectiveness of antecedent prompt and test procedure

Graphic 1 presents the data obtained for Ahmet, Salih and Hakan for the targeted behaviors of stating the place names (“restaurant, cafeteria, hospital, rent a car, pet shop, shop, exit, cinema, toilet”) and stating what was done in these places (such as “food is eaten, tea-coffee is drunk, treatment is provided, cars or motorbikes are rented, pets are sold or bought, shopping is done, it is used to get out, movies are watched, it is used for peeing/pooping”) taught by antecedent prompt and test procedure.



Graphic 1. Findings about student utterances about English place names and what can be done in these places.

It is observed from the graphic that Ahmet exhibited both behaviors at 0% level (i.e. what is this? and what is done here?) before training, that is, he could not display any of the steps correctly. An increase was observed in Ahmet's performance as soon as he was taught via antecedent prompt and test procedure how to say the place names and the actions performed in these places. Ahmet met the criteria by demonstrating 100% of the targeted behavior of stating teaching the English place names and actions that took place in these places with the help of antecedent prompt and test procedure. Ahmet's behavior of stating the English place names and actions performed in these places was realized at a level of 100% in the second, third and fourth full probe sessions.

Examination of data related to Salih shows that that both behaviors were displayed at 0% level before starting training. Salih's performance increased after he was taught English place names and the actions demonstrated in these places via antecedent prompt and test procedure. Salih met the criteria by demonstrating 100% of the targeted behavior of stating teaching the English place names and actions that took place in these places with the help of antecedent prompt and test procedure. Salih's behavior of stating the English place names and actions performed in these places was realized at a level of 100% in the third full probe session and his behavior of stating the English place names was reported to be 100% in the fourth full probe session, while the mean behavior of stating the actions performed in these places was found to be 96%.

When the data related to Hakan were examined, it was seen that the behavior of stating English place names was at a level of 0%, and the behavior of stating what was done in these places was an average of 5%. An increase was observed in Hakan's performance as soon as he was taught via antecedent prompt and test procedure how to say the place names and the actions performed in these places. Hakan met the criteria by demonstrating 100% of the targeted behavior of stating teaching the English place names and actions that took place in these places with the help of antecedent prompt and test procedure. Hakan's behavior of stating the English place names and actions performed in these places was realized at a level of 100% in the fourth full probe session.

Findings regarding the period of sessions in the study

Table 1. Training Session Periods

Student	Training Session Periods (minute: second)																Total
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	
Ahmet	4:53	3:32	4:01	3:08	3:25	2:27	2:53	2:11	2:55	2:55	2:13	2:10					36:43
Hakan	5:56	3:30	3:38	3:24	3:12	2:49	3:06	2:48	3:33	2:55	3:36	2:42	3:02	3:01			47:03
Salih	3:51	2:45	3:07	2:49	3:11	3:10	3:24	2:48	3:53	2:08	2:58	2:35	3:05	2:34	2:58	2:40	47:53

Table 2. Daily probe session periods

Student	Daily Probe Session Periods (minute: second)								Total
	1. Probe	2. Probe	3. Probe	4. Probe	5. Probe	6. Probe	7. Probe	8. Probe	
Ahmet	2:47	2:51	2:17	2:29	2:47	2:23			15:35
Hakan	5:13	4:19	4:21	3:45	3:13	3:35	2:51		27:16
Salih	1:59	2:16	3:12	2:42	2:46	2:46	2:23	2:25	20:25

With the help of the antecedent prompt and test procedure, Ahmet was able to demonstrate the level of performance that met the specified criterion in both behaviors with a total of 12 training sessions. Similarly, Hakan needed 14 training sessions and Salih 16 training session to demonstrate the level of performance that met the specified criterion in both behaviors with the help of the antecedent prompt and test procedure. Both behaviors were taught to Ahmet in total of 36 minutes, 43 seconds of training, to Hakan in 47 minutes, 3 seconds of training, and to Salih in 47 minutes and 53 seconds of training.

Table 3. Generalization session periods

Student	Generalization Session Periods (minute: second)			Total
	1. Probe	2. Probe	3. Probe	
Ahmet	1:46	1:25	1:23	4:31
Hakan	2:00	1:47	2:08	5:50
Salih	1:32	1:36	1:28	4:35

Table 4. Maintenance session periods

Student	1. Maintenance Session Periods (minute: second)			Total
	1. Probe	2. Probe	3. Probe	
Ahmet	1:52	1:57	1:42	5:28
Hakan	2:49	2:39	2:25	7:51
Salih	1:50	1:52	1:51	5:31
2. Maintenance Session Periods (minute: second)				
Ahmet	2:10	1:50	1:57	5:56
Hakan	2:53	2:16	2:56	8:04
Salih	2:23	1:51	2:08	6:22

Findings Regarding Generalization

A week after training ended, Ahmet and Hakan were able to generalize what they learned across individuals, settings and instruments with 96% accuracy by using cards of different sizes, a different setting and a different teacher while the level of accuracy in generalization was 87% for Salih.

Discussion and Conclusion

In this study, three students diagnosed with mild intellectual disability was taught with the help of antecedent prompt and test procedure how to state the Turkish equivalents (“Mağaza, Kafeterya, Tuvalet, Lokanta, Çıkış, Araba kiralama, Evcil hayvan dükkânı, Hastane, Sinema”) of 9 English place names (Shop, Cafe, WC, Restaurant, Exit, Rent a Car, Pet shop, Hospital, Cinema) and the actions that were demonstrated in these places. In addition, whether these skills were maintained at the end of 19th and 29th days after the completion of the training and whether they were generalized by using different sized cards, a different setting and a different teacher were also examined. Research findings demonstrated that training via antecedent prompt and test procedure was effective to teach students with mild intellectual disabilities skills in stating English place names and what were done in these places. The maintenance and generalization findings that were obtained in the study also showed that teaching with antecedent prompt and test procedure was effective in terms of maintaining and generalizing learned behaviors.

Picture cards were used in this study and picture cards with different sizes were utilized in the generalization. The study conducted by Yahya et al. (2013) also reported the effectiveness of using picture cards in teaching foreign language skills to individuals with special needs and the findings of the study confirmed their finding. Despite the differences in subjects’ literacy performance in their native language, all participants with literacy skills were able to learn English words at the end of the study. Mohammadian and Mohammadian-Dolatabadi (2016) and Oda (2010) stated that children with intellectual disabilities can learn a second language regardless of their level in their mother tongue and that there are studies supporting this proposition. The results of the current study are consistent with this finding. Training processes were planned in a systematic manner in this study and training was provided expert practitioners both in English and in special education. Krapez (2010) and Wire (2005) emphasized the importance of systematic planning and the competence of the practitioner. The successful conclusion of this study shows that foreign language teaching can be provided to the students

with intellectual disabilities through support and trainings to be provided to English teachers and / or special education teachers. The conducted study will bring a significant contribution to the field, given the insufficiency of the number of studies on foreign language teaching to individuals with intellectual disabilities in the literature (Mohammadian, & Mohammadian-Dolatabadi, 2016).

Examination of the findings show that the highest number of sessions was conducted with Salih in order to teach him the 9 English place names and what were done in these places, but at least 14 sessions were necessary until all the students could meet the criteria. The inadequacy of the cognitive processes of students with intellectual disabilities (APA, 2013; WHO, 1992) and the limitations they experience in transferring the information they have learned to long-term memory (Sucuoğlu, 2010) require frequent repetitions for these students for learning to take place. It is emphasized in many research reports that it is important to repeat what is learned frequently and to allocate extra time in teaching (Abrams, 2008; Arries, 1999; Duvall, 2006; Skinner & Smith, 2011; Sparks, & Ganschow, 1993) to acquire foreign language skills. The results of the current research, in line with the literature, reveal the importance of repetitions in teaching English vocabulary to students with intellectual disabilities.

In single-subject studies, higher number of subjects (three or more) participating in the study is desirable to be able to generalize findings. In this study, only one of the four subjects in the special education class at the school where the research was conducted was excluded from the study due to the fact that she already knew 7 of the 9 targeted English words and therefore the study was continued with three subjects. This can be seen as one of the limitations of the research.

It can be reported that this research has two main strengths. First, the findings of the study indicate that teaching via antecedent prompt and test procedure is effective in ensuring the maintenance and generalization of the skills in English vocabulary instruction to individuals with mild intellectual disabilities. Second, this study is the first study that taught English vocabulary by using antecedent prompt and test procedure in literature.

Based on the findings of the research, some suggestions can be proposed for future research. For instance, similar studies can be carried out with different individuals in different settings, and generalization data can be collected by taking the subjects to real life settings. A training program and curricula may be developed to teach foreign languages to students with intellectual disabilities or other types of disabilities and studies can be conducted to apply the developed program throughout the country. This implementation carried out individually can be implemented by planning a group instruction consists of 5-6 children with intellectual disability. Also, this implementation can be conducted via a small group instruction by getting peer support in classroom setting. Antecedent prompt and test procedure can be compared with other methods in teaching single step skills in terms of efficiency and productivity. This study focused on the skill of stating only 9 English place names and the actions performed in these places via antecedent prompt and test procedure. By using the antecedent prompt and test procedure, different English vocabulary can be taught, or the same method can be used to teach words in different languages such as German or French. Finally; teachers, parents and peers can be instructed to provide training by using pre- antecedent prompt and test procedure.

References

- Abbeduto, L., Warren, S. F., & Conners, F. A. (2007). Language development in Down syndrome: From the prelinguistic period to the acquisition of literacy. *Mental Retardation and Developmental Disabilities Research Reviews*, 13(3), 247-261.
- Abrams, Z. (2008). Alternative second language curricula for learners with disabilities: Two case studies. *Modern Language Journal*, 92(3), 414-430. doi:10.1111/j.1540-4781.2008.00755.x
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.
- Arries, J. (1999). Learning disabilities and foreign languages: A curriculum approach to the design of inclusive courses. *Modern Language Journal*, 83(1), 98-110. doi:10.1111/0026-7902.00008
- Browder, D., & Xin, P. Y. (1998). A meta analysis and review of sight word research and its implication for teaching functional reading to individuals with moderate and severe disabilities. *Journal of Special Education*, 32(3), 130-153.
- Browder, D., Wakeman, S., Spooner, F., Ahlgrim-Delzell, L., & Algozzine, R. F. (2006). Research on reading instruction for individuals with significant cognitive disabilities. *Exceptional Children*, 72(4), 392-408.
- Çulha, S. (2010). *Zihinsel yetersizliği olan ilköğretim kaynaştırma studentlerine yabancı dil öğretiminde eşzamanlı ipucuyla sunulan bireysel destek eğitimin etkililiği* (Unpublished master's thesis). Anadolu University, Graduate School of Educational Sciences, Eskişehir.
- Domagała-Zyśk, E. (2013). *Teaching the deaf English as a foreign language for deaf and hard of hearing persons in Europe*. Lublin: Wydawnictwo KUL.
- Duvall, E. (2006). Including students with disabilities in a foreign language classroom. *Teaching Exceptional Children*, 38(6), 42-48.
- Ehri, L. C. (2005). Development of sight word reading: Phases and findings. In M. J. Snowling & C. Hulme (Eds.), *The science of reading [Electronic resource]: A handbook* (pp. 135-154). Oxford: Blackwell Publishing.
- Erbaş, D. (2012). Güvenirlilik. In E. Tekin-İftar (Ed.), *Eğitim ve davranış bilimlerinde tek denekli araştırmalar* (pp. 109-128). Ankara: Türk Psikologlar Derneği Yayınları.
- İlköğretim ve Eğitim Kanunu ile Bazı Kanunlarda Değişiklik Yapılmasına Dair Kanun (2012, 11 April). Resmi Gazete (Sayı: 28261). Retrieved from <http://www.resmigazete.gov.tr/eskiler/2012/04/20120411-8.htm>
- Joseph, L. M., & Seery, M. E. (2004). Where is the phonics? A review of the literature on the use of phonetic analysis with students with mental retardation. *Remedial and Special Education*, 25(2), 88-94.
- Joshi, R. M. (2006). Vocabulary: A critical component of comprehension. *Reading & Writing Quarterly*, 21(3), 209-219.
- Koçbeker, B. N., & Saban, A. (2005). Otistik bir çocuğun yabancı dil öğrenimine ilişkin örnek olay incelemesi. *Selçuk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 14, 401-427.
- Krapez, S. (2010). Second language comprehension and acquisition in mentally disabled children-illusion or reality. *IBS Newsletter Porocevalec*, 1(3). Retrieved from <http://porocevalec.ibs.si/sl/component/content/article/42-letnik-1-t-3/136-staa-krape-ma-ed-applied-linguistics-second-language-comprehension-and-acquisition-in-mentally-disabled-children-illusion-or-reality>

- Matson, J. L., Hattier, M. A., & Belva, B. (2012). Treating adaptive living skills of persons with autism using applied behavior analysis: A review. *Research in Autism Spectrum Disorders*, 6(1), 271-276.
- Maulik, P. K., Mascarenhas, M. N., Mathers, C. D., Dua, T., & Saxena, S. (2013). Prevalence of intellectual disability: A meta-analysis of population-based studies. *Research in Developmental Disabilities*, 34(2), 729.
- McColl, H. (2005) Foreign language learning and inclusion: Who? Why? What? - and how?. *Support for Learning*, 20(3), 1-10.
- McKenzie, K., Milton, M., Smith, G., & Ouellette-Kuntz, H. (2016). Systematic review of the prevalence and incidence of intellectual disabilities: Current trends and issues. *Current Developmental Disorders Reports*, 3(2), 104-115.
- Mohammadian, A., & Mohammadian-Dolatabadi, S. (2016). The effect of affection on English language learning of children with intellectual disability based on total physical response method of language teaching. *International Journal of English Language and Literature Studies*, 5(2), 92-103.
- Morse, T. E., & Schuster, J. W. (2000). Teaching elementary students with moderate intellectual disabilities how to shop for groceries. *Exceptional Children*, 66(2), 273-288.
- Oda, T. (2010). Tutoring an American autistic college student in Japanese and its challenges. *Support for Learning*, 25(4), 165-171.
- Parette, H. P., Blum, C., Boeckmann, N. M., & Watts, E. (2009). Teaching word recognition to young children who are at risk using Microsoft Powerpoint coupled with direct instruction. *Early Childhood Education Journal*, 36, 393-401.
- Petursdottir, A. I., & Carr, J. E. (2011). A review of recommendations for sequencing receptive and expressive language instruction. *Journal of applied behavior analysis*, 44(4), 859-876.
- Riviera, M. O., Koorland, M. A., & Fueyo, V. (2002). Pupil-made pictorial prompts and fading for teaching sight words to a student with learning disabilities. *Education & Treatment of Children*, 25(2), 197-207.
- Rowan, V. C., & Pear, J. J. (1985). A comparison of the effects of interspersal and concurrent training sequences on acquisition, retention, and generalization of picture names. *Applied Research in Mental Retardation*, 6(2), 127-145.
- Skinner, M. E., & Smith, A. T. (2011). Creating success for students with learning disabilities in postsecondary foreign language courses. *International Journal of Special Education*, 26(2), 42-57.
- Sparks, R., & Ganschow, L. (1993). The impact of native language learning problems of foreign language learning: Case study illustrations of the linguistic coding deficit hypothesis. *Modern Language Journal*, 77(1), 58-74. doi:10.2307/329559
- Sucuoğlu, B. (2010). Zihin engellilerin eğitimi. In B. Sucuoğlu (Ed.), *Zihin engelliler ve eğitimleri*. Ankara: Kök Yayıncılık.
- Tekin-İftar, E. (2012). *Eğitim ve davranış bilimlerinde tek denekli araştırmalar*. Ankara: Türk Psikologlar Derneği.
- Tekin-İftar, E., & Kırcaali-İftar, G. Y. (2004). *Özel eğitimde yanlışsız öğretim yöntemleri*. Ankara: Nobel Yayın Dağıtım.
- Van der Schuit, M., Segers, E., van Balkom, H., & Verhoeven, L. (2011). How cognitive factors affect language development in children with intellectual disabilities. *Research in Developmental Disabilities*, 32(5), 1884-1894.
- Wight, M. C. S. (2015). Students with learning disabilities in the foreign language learning environment and the practice of exemption. *Foreign Language Annals*, 48(1), 39-55.

- Wire, V. (2005). Autistic spectrum disorders and learning foreign languages. *Support for Learning, 20*(3), 123-128.
- World Health Organization. (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines*. Geneva: World Health Organization.
- Yahya, S., Yunus, M. M., & Toran, H. (2013). Instructional practices in enhancing sight vocabulary acquisition of ESL students with autism. *Procedia-Social and Behavioral Sciences, 93*, 266-270.
- Yalçın, I., & Akmanoğlu, N. (2013). Eşzamanlı ipucuyla öğretim yönteminin otistik bir çocuğa İngilizce kelime öğretimi üzerine etkileri: Hedeflenmeyen bilgi öğretimi. *Journal of Academic Studies, 15*(58), 117-140.