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Using songs to teach students with intellectual disabilities to tell time

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Abstract

The purpose of this study is to determine the effectiveness of using songs to teach students with intellectual disabilities to tell time. It followed a multiple-probe, across-subject design with a probe phase, which is a single-subject research design. The participants were three 17–19-year-old female students with mild intellectual disabilities who could not read clocks. They were taught to read analog clocks at full, half, and quarter past hours. Graphical analysis was used to analyze the data on the effectiveness of teaching through songs. At the end of the study, it was evaluated whether the students could read clocks without singing. Social validity data were collected from the students and their teachers. The findings show that all three students could learn to read clocks through songs and could tell the time correctly without songs. In the social validity data, the students stated that they were able to learn to tell time easily without getting bored and they wanted other lessons to also be taught through songs. The teachers stated that the students participated in the lesson more willingly than usual and that they enjoyed learning to tell time.

Keywords: Intellectual disabilities, mathematical skills, telling time, teaching through song

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1. Introduction

The ultimate goal of education for individuals with intellectual disabilities is for them to be able to live independently (AAMR, 1992) so should provide these students with the necessary daily, social, professional, and academic skills. Mathematical literacy is also among these academic skills, namely telling time, the focus of this study.

1.1. Conceptional Framework

Mathematical literacy is important for daily life, for example using money, learning prices, numbering, weighing, and telling time. These skills are integrated with others, so they are among the most important for students with intellectual disabilities.

Among mathematical skills, telling the time is one that we use on a daily basis for planning the day and keeping a schedule. For students with intellectual disabilities, this skill allows them to be on time to take medications, go to school or work, and follow bedtime and mealtime routines. Crouch et al.'s (1984) study mentions three employees with intellectual disabilities who were fired since they could not start and finish work on time. Hence this skill can have a significant impact on students' lives.

Students with intellectual disabilities have difficulties learning abstract concepts, including time (Alptekin, 2019; Eripek, 2003; Gürsel, 2010; Tekin-İftar et al., 2008). Telling time involves abstract concepts such as seconds and minutes. Hence this skill is usually taught with increasing abstraction and precision: full hour, half hour, quarter hour, five minutes, and minute (Heller, 2001). These concepts are usually learned slowly by students with intellectual disabilities, so teaching this skill requires greater attention to the learning process and teaching methods (Alptekin, 2019; Gürsel, 2010). In the literature, systematic teaching methods are most common for teaching students with intellectual disabilities to tell time.

Some mathematical skills can be taught through song, which makes the learning experience more lively, enjoyable, and dynamic. Students are more motivated because they actively participate and has a result, retain new skills (Brewer, 1995; Dunlap & Lowenthal, 2010; Kömür et al., 2005; Van Der Linde, 1999).

The most basic objectives of mathematics teaching are that students should enjoy mathematics and trust their skills (Cantürk & Başer, 2008). The data from the Trends in International Mathematics and Science Study (TIMSS) show that students perform better when they enjoy the lessons. The 2011 TIMSS revealed that the frequency of practices for holding students' interest significantly improved learning (Büyüköztürk et al., 2014). Specifically, teaching through songs can improve students' mathematical abilities (An et al., 2014; Cavanaugh, 2005).

1.2. Related Research

There are few studies in the literature on teaching individuals with intellectual disabilities to tell time. Barcott (1973) taught this skill to 16 students in five special education classes, which resulted in students telling the time correctly 18% more often. In Smeet et al.'s (1985) study, four children all learned to tell time with an appointment activity. Dağseven's (2001) study with four students showed that direct instruction was more effective than stepped instruction for teaching telling time and adding. Horn et al. (2006) compared the effectiveness of raising hands and reaction cards in teaching three secondary school students to tell time. Using reaction cards resulted more active engagement and less inappropriate behavior. Applegate et al. (2008) showed that auditory and visual feedback presented via a computer improved one student's ability to read an analog clock. Karabulut and Yıkmış (2010) showed the effectiveness of simultaneous prompting in teaching three students to read clocks at full, half, and quarter hours. Tufan et al. (2020) showed that direct instruction was effective in teaching the skill of distinguishing full hours.

Other studies focus on teaching through songs, for example foreign languages (Akbary, Shahriari, 2018; Arleo, 2000; Batdı and Semerci, 2012; Hadi, 2019; Köse, 2012; Modiri, 2010; Tegge, 2015; Sulaymonova, 2019), science (Governor et al., 2013), reading (Aslan, 2015; Iwasaki et al., 2013), geography (Bedir, Akkurt, 2015), and mathematics (Talşık, 2013; Tan, 2016; Topcu, Bulut, 2016). Other studies deal with teaching through songs for students with disabilities (Samokhin et al., 2017; Simpson & Keen, 2010). More specifically, other studies cover songs to teach students with intellectual disabilities daily life skills (Ertekin et al., 2017; Sazak & Özbey, 2016), self-care (İneci, 2016; Kırşehirli, 2011; Ünal et al., 2016), and life sciences (Zelyurt, 2015).

1.3. Purpose of the Study

Songs can be used to teach students with and without intellectual disabilities. The current study's purpose to evaluate the effects of teaching students with intellectual disabilities to tell time. This will make a contribution to the literature by expanding both dependent and independent variables and participant characteristics. It is also hoped that it will be useful to teachers working in this area. In line with the study's main purpose, we address the following questions.

a) Is teaching the skill of telling time to individuals with intellectual disabilities through songs effective?

b) Can the skill of telling time be subsequently performed independently without songs?

c) What are the views (social validity) of the students participating in this study?

2. Methods and Materials

2.1. Research Design

This study follows a multiple-probe across-skills design with a probe phase. This is a single-subject research design. This design aims to repeat the effect of the independent variable on the dependent variable in at least three skills in order to evaluate its permanence (Tekin-İftar and Kırcaali-İftar, 2013). Regarding internal validity, the participants' families and teachers were interviewed. Participants were asked not to do outside study on telling time.

The independent variable was teaching through songs. The implementer modeled the skill be performed while singing. Without aiming to make students sing or memorize the song. The skill was taught based on the song's ability to attract attention and lengthen memory retention. The dependent variable of the study was students' ability telling the time for full hours, half hours, and quarter past the hour.

2.2. Participants

The participants were three 17–19-year-old female students in a special education class at a vocational high school. All have mild intellectual disabilities. Pseudonyms are used for ethical reasons. Permission was obtained from the families for the students to participate in the study. The participants all met the prerequisites since they had the ability to:

1. follow simple instructions,
2. focus on the activity for at least five minutes,
3. read numbers 1–12,
4. distinguish numbers 1–12 from other numbers,
5. distinguish the concepts of long and short, and
6. distinguish the concepts of full, half, and quarter.

2.3. Setting and Materials

The study was conducted in the participants' classrooms after the end of their lessons. Teaching and evaluation sessions were done using a model clock in front of the smart board. After teaching, the students' ability to tell time without the song was evaluated using the wall clock in the classroom. Teaching and evaluations were carried out in two sessions, three days a week. During the study, this skill was not otherwise taught to the students.

The model clock used in the study was made from a circular piece of cardboard with a radius of 40 cm. The hour and minute hands could be easily rotated by hand and seen clearly. The same examples were shown on the same model clock for all three students in the teaching sessions. A list of the examples to be used was given to the implementer. A laptop computer was used to play the song and a smartphone was used to record all the interventions.

2.4. Intervention Process

The researcher prepared the lyrics to teach full, half, and quarter past hours. The song was prepared by replacing the lyrics of an existing song, in collaboration with the school's music teacher. The intervention process comprised the pilot study, baseline sessions, teaching sessions, daily and multiple probe sessions, and generalization sessions.

The pilot study was carried out with a participant, Sema, who has similar characteristics to the study participants. Sema was taught to read full hours through songs over four sessions. The pilot study and subsequent sessions were carried out in the same way.

Baseline sessions continued until stable data were obtained during three consecutive sessions for each student.

The participants' data were collected using the single-opportunity method. Responses to the question "What time is it?" were recorded on the form for "Data Registration Form of Probe Sessions." The implementer did not respond to either correct or incorrect answers. The following steps were followed in teaching sessions.

1. The implementer introduced the materials and the name of the activity.
2. The implementer told the student, "Today, we will study the skill of telling time through songs. Shall we listen to our song?"
3. After the student agreed, it was ensured that the student listened to the song played on the laptop computer.
4. The student was verbally reinforced when she listened to the song carefully.
5. The implementer told the student to watch and listen carefully.
6. The implementer showed the steps of telling time on the model clock along with the lyrics (e.g., when the hour hand was stopped at two, the hour hand was left at two on the model clock while saying "two"; when the minute hand was stopped at 12, the minute hand was left at 12 on the model clock while saying "12").
7. The student was verbally reinforced when she watched and listened to the implementer carefully, for example, "Well done, you listened and watched very carefully."
8. The implementer presented a stimulus to the student by saying, "Now, while I am singing the song, you're going to show me the steps of the time-telling at the same time on the model clock, are you ready?"
9. After the student said she was ready, the implementer gave the instruction "Let's say the time" and played the song.

10. While verbally reinforcing correct behaviors, the implementer corrected errors when the student did not respond or gave an incorrect response.
11. After correcting errors, step 9 was repeated, and while verbally reinforcing correct responses.
12. The study was stopped when the student gave an incorrect response. The implementer thanked her for participating.

Teaching was continued until the students could tell the time consistently for three consecutive sessions. In daily probe sessions, the students' performances were evaluated, except for the first teaching session. Daily probe sessions were held in the same way as pre-teaching probe sessions. A multiple probe session was held for all skills after the criterion was met in the target skill and stable data were obtained in three consecutive probe sessions. The multiple probe session was conducted in the same way as the pre-teaching probe session. The generalization session was held using the wall clock in the classroom.

The data from the generalization sessions were evaluated with the pretest–posttest application. Before starting the intervention process, probe data for the subjects' target skills were collected by the implementer in the generalization setting. These sessions were held in the same way as the pre-teaching probe session.

2.5. Data Collection Tools

The data obtained from the baseline of the research, daily, collective probe, and generalization sessions were collected using the "Inspection Sessions Data Record Form". The data obtained from the teaching sessions were collected with the "Teaching Sessions Data Record Form". The inter-observer reliability data of the research were collected with the "Inter-Observer Reliability Form".

2.6. Data Collection and Analysis

Effectiveness, social validity, and reliability data were collected and analyzed. The data for the target skills were analyzed using a line graph and the generalization data were analyzed using a bar graph. The social validity data were analyzed qualitatively. The effectiveness and social validity data were collected by the implementer. The research data were collected and analyzed by examining the video recordings taken during the teaching and probe sessions. The social validity data were collected from the participants and their teachers. Social validity questions included, for example: What did this study provide you? What were the changes you observed in your students after this study? Social validity questions were evaluated through content analysis.

Inter observer agreement data were collected by a special education teacher with a Master's degree in special education. Reliability data were collected from 30% of the sessions. Both these randomly-selection sessions, the observer and the implementer both examined the recordings and scored them. The interobserver reliability coefficient was calculated using this formula: Agreement / (Disagreement + Agreement) × 100. The observer randomly selected procedural adherence data and evaluated data for the teaching and probe sessions. During the study, procedural adherence data were collected with probe and teaching through songs procedural adherence forms. Procedural adherence data were estimated with this formula: Observed Implementer Behavior / Planned Implementer Behavior × 100.

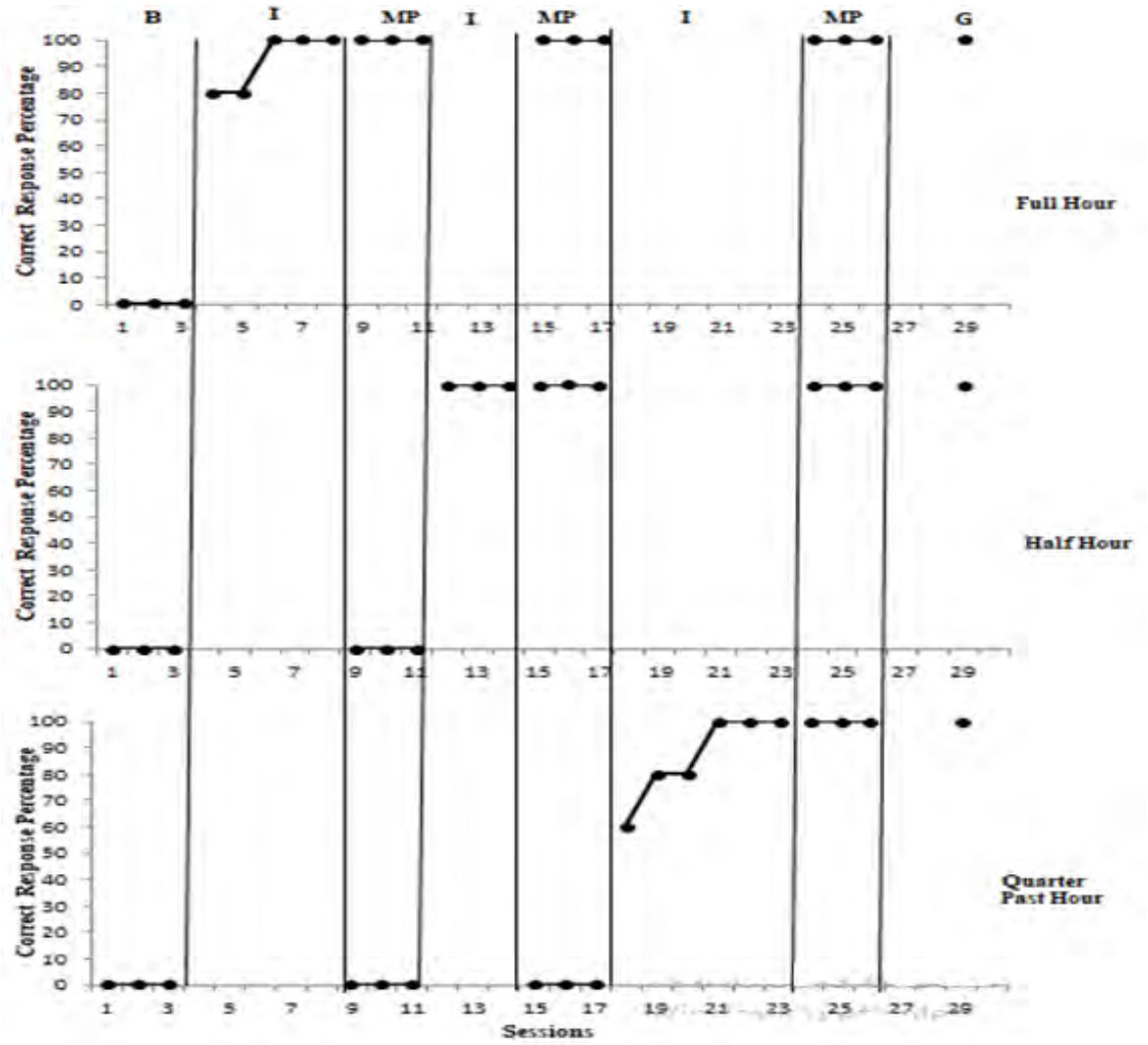
3. Results

The procedural adherence data were 100% for all three participants in the probe and teaching sessions. The interobserver agreement data were calculated separately for each participant and they were 97% for Dilek, 100% for Buket, and 99% for Tuğba.

Effectiveness data were collected for the baseline, intervention, and multiple probe sessions. Dilek performed at 0% when she was asked to tell the time at full, half, and quarter past the hour on the wall clock before the teaching sessions (Figure 1). After five sessions, she could do so independently 100% of the time using the wall clock and without the song.

Figure 1

Dilek's correct response percentage for the baseline, intervention, multiple probe, and generalization sessions on the skill of telling time at the full, half, and quarter past the hour.

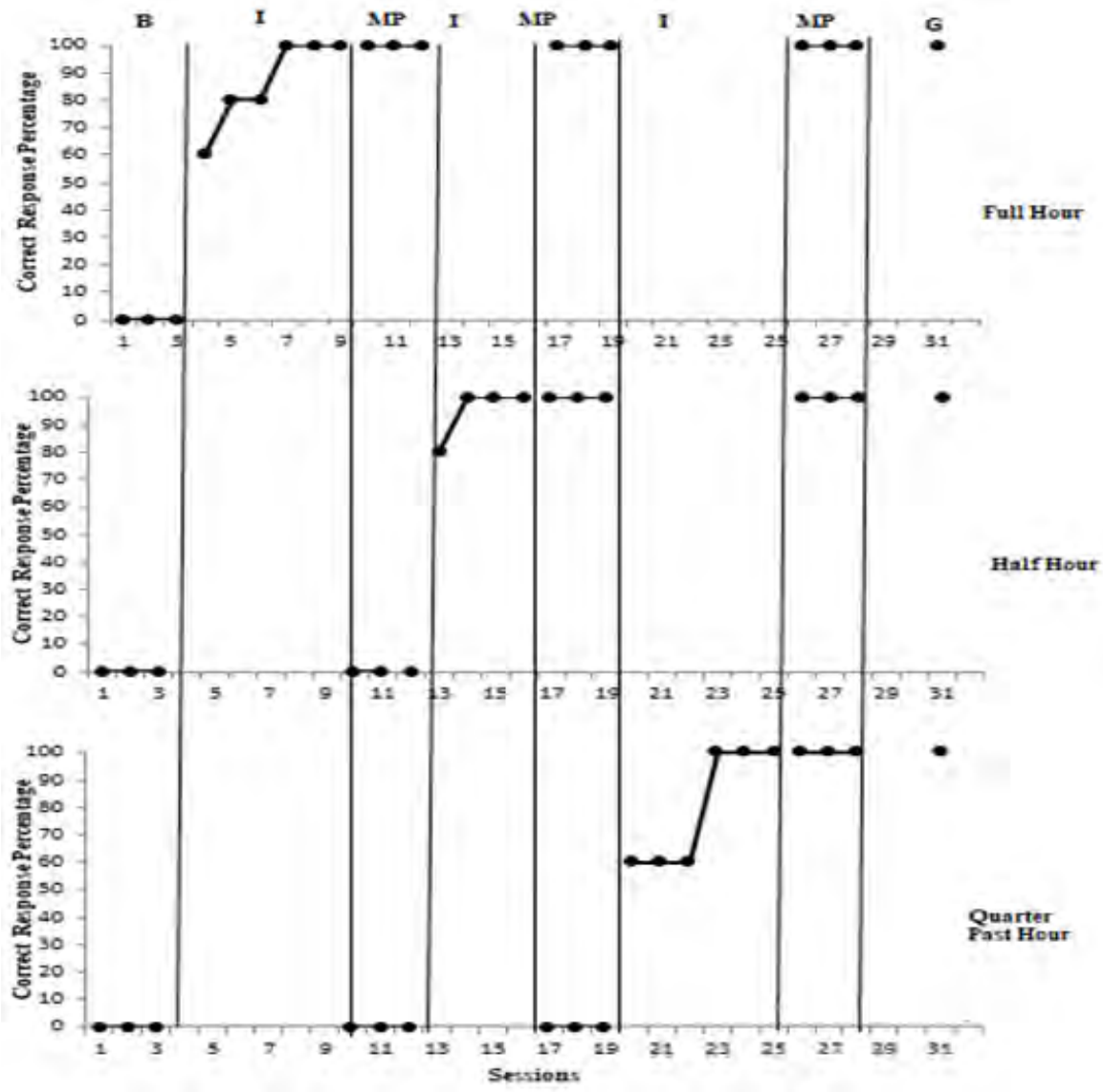


Note: B: Baseline I: Intervention M.P.: Multiple Probe G: Generalization

Similarly, Buket could not tell time at all before the study (Figure 2). She learned to read half hours after four sessions and after six sessions, she could read full and quarter hours. After teaching her to tell time through songs, Buket generalized her skills of telling full, half, and quarter hours 100% of the time, using the wall clock and without the song.

Figure 2

Buket's correct response percentage for the baseline, intervention, multiple probe, and generalization sessions on the skill of telling time at the full, half, and quarter past the hour.

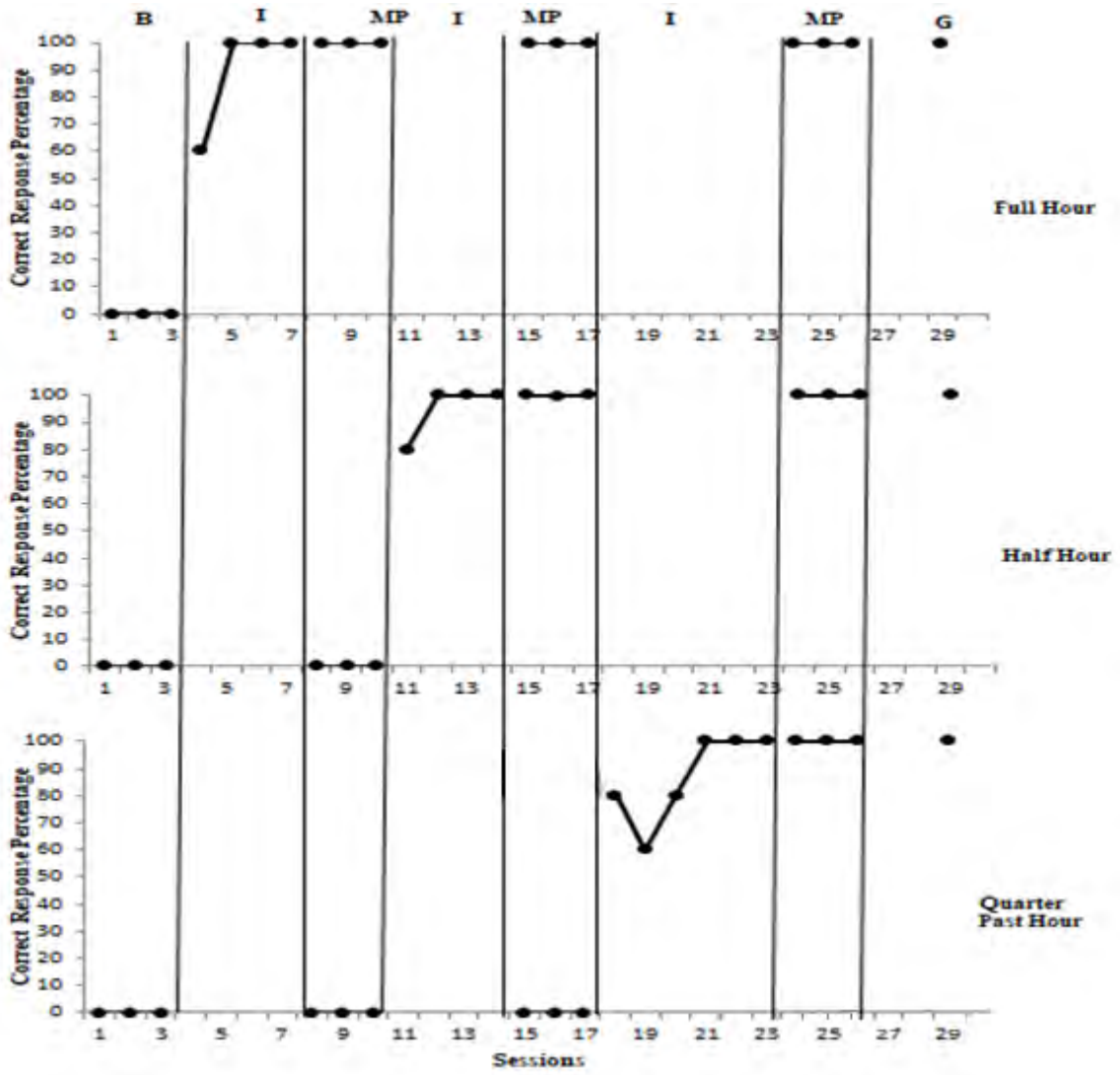


Note: B: Baseline I: Intervention M.P.: Multiple Probe G: Generalization

Tuğba could also not tell time before the study. After four sessions, she learned to read full and half hours and after six sessions, quarter past the hour. Like the other students, she successfully generalized this skill with 100% correct responses.

Figure 3

Tuğba's correct response percentage for the baseline, intervention, multiple probe, and generalization sessions on the skill of telling time at the full, half, and quarter past the hour.



Note: B: Baseline I: Intervention M.P.: Multiple Probe G: Generalization

The social validity data were collected from the students and their teachers. All three students said they enjoyed the study. Two of the students said, "I wish we could learn all lessons by singing like this, we both had fun and learned." They also stated that could now wear a watch and tell time. The teachers indicated that teaching through songs motivated students, they could keep their attention longer, and they had fun. Moreover, they observed that teaching through songs increased participation and enabled the students to socialize and that one of the students participated in the learning very enthusiastically and with pleasure, while she was silent during the lessons.

4. Discussion

It has been recently observed that music has a significant effect on acquiring academic and social skills (Jensen, 2006). Integrating mathematics with music does not require musical practice or expensive equipment (Edelson & Johnson, 2003). Hence, it is quite easy to adapt songs that provide active participation to classroom settings. This study investigated the effect of songs on learning to tell time. This skill is one of the common functional skills in daily life. It is used for making plans,

following a schedule, and arriving on time for work and school. Hence it is a key skill that enables individuals with intellectual disabilities to live independently.

The literature reports that students with intellectual disabilities have difficulties learning abstract concepts and skills, including telling time (Alptekin, 2019; Eripek, 2003; Gürsel, 2010; Tekin-İftar et al., 2008). Moreover, learning one abstract idea facilitates learning others (Alptekin, 2019; Gürsel, 2010). In this study, the skill of telling time was taught with a model clock. Teaching through songs increased students' motivation and encouraged learning (Dunlap & Lowenthal; 2010; Kömür et al., 2005; Van Der Linde,1999). This method allowed the skill of telling time to be taught easily and effectively to students with intellectual disabilities.

This study agrees with others that show songs are an effective way to teach individuals with disabilities (Ertekin et al., 2017; İneci, 2016; Kırşehirli, 2011; Sazak & Özbey, 2016; Ünal et al., 2016;). Zelyurt's (2015) study on social studies found that songs were even more effective than the direct instruction method. Hence teaching with songs is more effective than other methods. In the current study, it was observed that the students could generalize the skills from a model to a real clock without the song. This echoes other similar studies (Kırşehirli, 2011; Sazak and Özbey, 2016).

The social validity data shows that the participants and teachers had positive views on learning through songs. The participants stated that they enjoyed learning through songs and that they wanted their other lessons to be taught in the same way. The teachers indicated that teaching through songs increased students' attention span, they learned more quickly, and increased they were more motivated to participate. Along the same lines, Talşık (2013) found that activities students continued to learn through songs outside school. Students in this study emphasized that songs made things easier to remember and made for an enjoyable learning environment.

Although attempts are made to teach telling time in primary school, our participants had not acquired this skill, even though they attended a special education class at a vocational high school. These three students may not be representative, but it is clear that teaching methods in primary school were not effective, and this may be the case for other students with intellectual disabilities. Instead, different teaching methods should be employed that make learning more attractive, especially for teaching abstract and complex mathematical skills to individuals with intellectual disabilities. This study's results suggest that song should be used for a variety of mathematical skills.

5. Conclusion

Telling the time is a key skill in daily life, but it requires abstract concepts that may be more difficult for students with intellectual disabilities. This study showed the effectiveness of teaching this skill through songs. At the end of the study, all three students could read a real analog clock without songs. Students learned to tell time easily and willingly. The social validity data suggest that song-based teaching in other courses would have positive effects on learning.

6. Recommendations

The study has several limitations and some suggestions can be made. It was a single-subject study with three students with mild intellectual disabilities, and larger groups should be evaluated to assess the generalizability of the findings. The study is limited to teaching the skills of telling full, half, and quarter past hours. This could be expanded to include other times. Follow-up sessions could not be held since students' secondary education ended, so we could not evaluate whether the students retained the skills they learned. For futures studies, follow-up will be important to track this method's long-term impacts.

References

AAMR/American Association on Mental Retardation (1992). *Mental Retardation: Definition, Classification and Systems of Supports.* (9th Edition) Washington, DC. https://doi.org/10.1002/9780470373699.speced0002

Akbary, M., Shahriari, H., & Hosseini Fatemi, A. (2018). The value of song lyrics for teaching and learning English phrasal verbs: A corpus investigation of four music genres. *Innovation in Language Learning and Teaching, 12*(4), 344–356. http://doi.org/10.1080/17501229.2016.1216121

Alptekin, S. (2019). Planning mathematics for effective teaching. In S. Alptekin (Ed.), in *Mathematics in special education: Teaching basic math skills to students with low mathematics performance* (pp. 1-19). Ankara, Turkey: Eğiten Book.

An, S. A., Tillman, D. A., Boren, R., & Wang, J. (2014). Fostering Elementary Students' Mathematics Disposition through Music-Mathematics Integrated Lessons. International *Journal for Mathematics Teaching & Learning, 15*(3), 1-18. https://www.cimt.org.uk/journal/an.pdf

Applegate, S. L., Rice, M. S., Stein, F., & Maitra, K. K. (2008). Knowledge of results and learning to tell the time in an adult male with an intellectual disability: A single-subject research design. *Occupational Therapy International, 15*(1), 32-44. Retrieved from http:/doi.org/10.1002/oti.242

Arleo, A. (2000). Music, song and foreign language teaching. *Cahiers de l'APLIUT 19* (4): 5–19. Retrieved from https://www.persee.fr/docAsPDF/apliu_0248-9430_2000_num_19_4_3005.pdf

Arslan, D. (2015). First grade teachers teach reading with songs, *Procedia - Social and Behavioral Sciences 174*, 2259 – 2264. https://doi.org/10.1016/j.sbspro.2015.01.884

Barcott, R. A. (1973). Time-telling instruction in special education classes. *Education and Training of the Mentally Retarded, 8*(4), 207-211. Retrieved from https://www.jstor.org/stable/23876228?seq=1#metadata_info_tab_contents

Batdı, V. & Semerci, Ç. (2012). Students' views towards effectiveness of songs in developing foreign language skills. *Journal of Research in Education and Teaching, 1*(4),126-133. http://www.jret.org/FileUpload/ks281142/File/15a._batdi.pdf

Bedir, G., & Akkurt, A. (2012). Geography teaching by songs. *Eastern Geography Journal, 17*(28), 303-316. https://dergipark.org.tr/en/pub/ataunidcd/issue/2456/31296

Brewer, C. B. (1995). *Music and learning: Integrating music in the classroom*. Toronto: Zephyr Press. Retrieved from http://education.jhu.edu/PD/newhorizons/strategies/topics/Arts%20in%20Education/brewer.htm.

Büyüköztürk, Ş., Çakan, M., Tan, Ş. and Atar, H. Y. (2014). *TIMSS 2011 national math and science report:8. classes.* MEB Publishing. Retrieved from https://odsgm.meb.gov.tr/test/analizler/docs/timss/TIMSS-2011-8-Sinif%20Raporu.pdf

Cantürk G.B., Başer N. (2008) The Effect of Problem-Based Learning Method on Students' Attitudes Towards Mathematics and Achievement, *Abant İzzet Baysal University, Journal of the Faculty of Education, 8*(1), 120. Retrieved from https://dergipark.org.tr/tr/pub/hunefd/issue/7805/102341

Cavanaugh, L.K. (2005). *The Study of the Effects of Music on Middle School Students' Math Test Scores.* (Publication No. 3194216) [Doctoral dissertation, Barry University - Adrian Dominican School of Education]. ProQuest Dissertations Publishing. Retrieved from https://www.proquest.com/docview/305355112?pqorigsite=gscholar

Crouch, K. P., Rusch, F. R., & Karlan, G. R. (1984). Competitive employment: Utilizing the correspondence training paradigm to enhance productivity. *Education and Training of the Mentally Retarded*. 19, 268-275. Retrieved from https://www.jstor.org/stable/23877269

Dağseven, D. (2001). *The comparison of effectiveness and efficiency of direct instruction and problem solving approaches in teaching of social skills for children with mental retardation.* [Unpublished Master Thesis]. Gazi University, Ankara. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/tezSorguSonucYeni.jsp

Dunlap, J. C., & Lowenthal, P. R. (2010). Hot for teacher: Using digital music to enhance students' experience in online courses. *Tech Trends, 54*(4), 58-73. Retrieved from https://eds.s.ebscohost.com/eds/pdfviewer/pdfviewer?vid=12&sid=29945d35-1ebc-42d2-9f18-c3c489640c1d%40redis

Edelson, R. J., & Johnson, G. (2003). Music makes math meaningful. *Childhood Education, 80*(2), 65-70. Retrieved from https://doi.org/10.1080/00094056.2004.10521259

Eripek, S. (2003). Children with mental retardation. A. Ataman (Ed.), *In children with special needs and special education. (*pp. 153-173). Ankara: Gündüz Education and Publishing.

Ertekin, T., Ece, A. S. & Yıkmış, A. (2017). Comparison of Effectiveness and Productivity of Video Modeling and Video Modeling Through Songs In Teaching Daily Living Skills to Children with Intellectual Disability. *Kalem Journal of Education and Human Sciences,7*(1),99-117. Retrieved from http://doi.org/10.23863/kalem.2017.77

Governor, D., Hall, J., & Jackson, D. (2013). Teaching and Learning Science through Song: Exploring the Experiences of Students and Teachers. *International Journal of Science Education, 35*(18), 3117–3140. Retrieved from http:/doi.org/10.1080/09500693.2012.690542

Gürsel, O. (2010). Teaching Mathematics. I.H. Diken (Ed.), *In inclusion in primary education* (pp. 444-477). Ankara, Turkey: Pegem Publishing

Hadi, M. S. (2019). The Use of Song in Teaching English for Junior High School Student. *English Language in Focus (ELIF), 1*(2), 107–112. Retrieved from https://jurnal.umj.ac.id/index.php/ELIF/article/view/4513/3199

Heller, K. W. (2001). Adaptations and instruction in mathematics. In J. L. Bigge, S. J. Best, & K. W. Heller (Eds.), *Teaching individuals with physical, health, or multiple disabilities* (pp. 423-466). New Jersey, Columbus, Ohio: Merrill Prentice Hall

Horn, C., Schuster, J. W., & Collins, B. C. (2006). Use of response cards to teach telling time to students with moderate and severe disabilities. *Education and Training in Developmental Disabilities, 41*(4), 382-391. Retrieved from https://www.jstor.org/stable/pdf/23879664.pdf

Iwasaki, B., Rasinski, T., Yildirim, K., & Zimmerman, B. (2013). Let's bring back the magic of song for teaching reading. *The Reading Teacher, 67*(2), 137-141. Retrieved from https://eds.s.ebscohost.com/eds/pdfviewer/pdfviewer?vid=10&sid=29945d35-1ebc-42d2-9f18-c3c489640c1d%40redis

İneci, S. (2016*). Effectiveness of teaching through video modeling supported by song on mentally handicapped students to teach self-care skills.* [Unpublished Master Thesis]. Near East University, Lefkoşa. Retrieved From http://docs.neu.edu.tr/library/6408183470.pdf

Jensen, E. (2006). *Brain compatible learning* (A. Doğanay, Translater.). Ankara: Nobel Publishing.

Karabulut, A., & Yıkmış, A. (2010). The effectiveness of simultaneous prompting on teaching the skill of telling the time to individuals with mental retardation, *Abant İzzet Baysal University Journal of the Faculty of Education, 10*(2), 103-113. Retrieved from http://efdergi.ibu.edu.tr/index.php/efdergi/article/view/1089

Kırşehirli, M. (2011). *Teaching self-care skills to children wıth mental retardation by the song.* [Unpublished Master Thesis]. Abant İzzet Baysal University, Bolu. Retrieved from https://acikbilim.yok.gov.tr/handle/20.500.12812/582729

Komur, S., Sarac, G., & Seker, H. (2005). Teaching english through songs. *Muğla University Journal of Social Sciences, 15*, 109-120. Retrieved from https://dergipark.org.tr/tr/pub/musbed/issue/23525/250671

Köse, B. (2012). *The use of songs in foreign language teaching*. [Unpublished Master Thesis]. Çukurova University, Adana. Retrieved from http://libratez.cu.edu.tr/tezler/8790.pdf

Modiri, I. (2010). Teaching of Foreign Language By Way of Music In Pre-School*, Uludag University Journal of Education Faculty, 23* (2), 505-516. Retrieved from https://dergipark.org.tr/en/pub/uefad/issue/16692/173495

Samokhin I.S., Sokolova N.L., Mrachenko E.A., Sergeeva M.G., Mishatkina M.V. (2017). The role of songs in teaching English in the context of inclusive education. *Scientific dialogue*. *10*, 368-382. http://doi.org/10.24224/2227-1295-2017-10-368-382.

Sazak, N., Özbey, F. (2016). Teachıng the skill of folding a jumper to students with intellectual disability via by songs. *Abant İzzet Baysal University Journal of the Faculty of Education, 16* (Special Issue of İpekyolu), 2423-2438. Retrieved from https://app.trdizin.gov.tr/publication/paper/detail/TWpFMk5ERTJOZz09

Simpson, K, Keen, D (2010) Teaching young children with autism graphic symbols embedded within an interactive song. *Journal of Developmental and Physical Disabilities 22*(2): 165–177. Retrieved from https://doi.org/10.1007/s10882-009-9173-5

Smeets, P. M., Lancioni, G. E., & Van Lieshout, R. W. (1985). Teaching mentally retarded children to use an experimental device for telling time and meeting appointments. *Applied Research in Mental Retardation, 6*(1), 51-70. Retrieved from http://doi.org/10.1016/S0270-3092(85)80021-7

Sulaymonova, D. H. (2019). Using music and song in teaching foreign languages. *International scientific review,* 72–74. Retrieved from https://cyberleninka.ru/article/n/using-music-and-song-in-teaching-foreign-languages

Talşık, E. (2013). *The effect of using songs as teaching material in primary school Turkish, mathematics and life studies lessons on students' achievement and attitude development.* [Unpublished Doctoral Dissertation]. Gazi University, Ankara. Retrieved from http://doi.org/10.13140/RG.2.1.3471.5601

Tan, N. (2016). *The effect of using songs on the student's academic success, attitude and vocabulary in primary school maths lessons*. [Unpublished Master Thesis]. Adnan Menderes University, Aydın. Retrieved from http://hdl.handle.net/11607/3098

Tegge, F. (2015). *Investigating song-based language teaching and its effect on lexical learning*. [Unpublished Doctoral dissertation]. Victoria University, New Zealand. Retrieved from http://core.ac.uk/download/pdf/41339839.pdf

Tekin-İftar, E.& Kırcaali-İftar, G. (2013). *Error-free teaching methods in special education* (3rd ed.). Ankara: Vize Publishing.

Tekin-İftar, E., Kurt, O., & Acar, G. (2008). Enhancing instructional efficiency through generalization and instructive feedback: A single-subject study with children with mental retardation. *International Journal of Special Education, 23*(1), 147-158. Retrieved from https://eric.ed.gov/?id=EJ814384

Topcu, H. & Bulut, N. (2016). The effects of mathematics instruction enriched with songs on 6th grade students' achievement. *Ahi Evran University Journal of Kirsehir Education Faculty,* 17 (1), 535-553. Retrieved from https://dergipark.org.tr/en/pub/kefad/issue/59448/854060

Tufan, S., Tiryaki, D., & Altunay-Arslantekin, B. (2020). Effectiveness of direct instruction model on teaching identification of full hours to students with intellectual disabilities. *Ankara University Faculty of Educational Sciences Journal of Special Education,21*(4), 757-787. Retrieved from https://doi.org/10.21565/ozelegitimdergisi.595152

Ünal, M., Ece, A. S. & Yıkmış, A. (2016). Teaching Self-Care Skills To Mentally Retarded Children With The Song. *Journal of Mehmet Akif Ersoy University Institute of Social Sciences, 8* (17), 139-153. Retrieved from https://doi.org/10.20875/sb.30725

Van Der Linde, C. H. (1999). The Relationship Between Play and Music in Early Childhood Education, *Educational Insights. 199 (*4), 610-616. Retrieved from https://eds.s.ebscohost.com/eds/pdfviewer/pdfviewer?vid=1&sid=29945d35-1ebc-42d2-9f18-c3c489640c1d%40redis

Zelyurt, S. (2015). *Comparison of the effectiveness and efficiency of presenting the life studies lesson with songs and direct teaching method to students with intellectual disabilities.* [Unpublished Master Thesis]. Abant İzzet Baysal University, Bolu. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/tezSorguSonucYeni.jsp