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The Curriculum Designed for the Preparation of Students with Developmental Disabilities for Transition to Independent Life *

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Abstract

The present study aims to determine the efficacy of the curriculum designed for students with developmental disabilities (SDDs) for their transition to independent life and to analyze the effectiveness of the curriculum designed based on the determined requirements. The study participants included 44 teachers who instructed SDDs and 13 of these students' parents, who attended third-tier private education institutions. The study included three stages and was designed as an exploratory sequential mixed-method research. In the first stage, observation, interview, and document analysis methods were employed to determine teacher requirements. Based on the collected data, teacher requirements were determined as follows: (a) personal traits of the individuals with developmental disabilities; (b) independent living skills; (c) transition; (d) behavior management; (e) error-free instruction methods; (f) video modeling; (g) direct instruction; (h) social stories; (i) material design; (j) an individualized education program; and (k) parental training. The TABA model was employed in the design of the curriculum, which included the abovementioned requirements. Based on the curriculum content, a knowledge test that included 35 multiple-choice questions was developed. In the second stage of the study, the knowledge test was applied to the teachers before (pre-test) and after (post-test) the implementation of the curriculum. The comparison of the pre-test and post-test data demonstrated a significant increase in the knowledge level of the teachers. In the third stage, an open-ended questionnaire was used to determine the views and recommendations of the teachers about the program. It could be suggested that teacher views about the curriculum were generally positive. A total of 15 teachers stated that they acquired new knowledge and skills during the program, and nine teachers stated that they revised prior knowledge.

Keywords

Students with developmental disabilities

Transition to independent living

Teacher training

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Introduction

The knowledge and skills required for an independent lifestyle are called "independent living skills." These skills were classified by Brolin (1997) and Wandry Wehmeyer and Glor-Scheib (2013) into three categories: "daily life skills," "self-determination and interpersonal relations," and "employment and professional skills." Academic skills are also an embedded notion that supports these three categories (Wandry et al., 2013). Daily living skills include personal budget management, household management, purchase and care of clothing, leisure activities, and transportation; self-determination skills include self-awareness, interpersonal communication, decision-making, and social awareness; employment and professional skills include interpersonal relations, job research and opportunities, employment and maintenance of employment, and adequate professional skills (Brolin, 1997; Wandry et al., 2013). Independent living skills are among the factors that would improve the quality of life of individuals (Ergenekon, 2019; Roessler, Brolin, & Johnson, 1990). Schalock et al. (2005) reported that quality of life has physical and emotional indicators, such as material well-being, self-determination, and interpersonal relations. These indicators reflect the quality of life and productivity of the individual and society (Schalock et al., 2005). It could then be argued that the productivity of individuals with independent living skills would increase (Allen & Williams, 2012). In other words, independent living skills would indirectly contribute to a society where individuals constantly improve their quality of life.

Schooling for all individuals, with or without disabilities, is quite important for their preparation for independent living (Baer & Flexer, 2013). It is suggested that the key concept in this preparation is "transition." Transition was described as the process of the movement between programs, service models, activities, environments, situations, living conditions, or life cycles that includes the determination of goals and an adequate environment, conducting instruction, assessment, placement, and monitoring activities (Baer & Flexer, 2013; Ergenekon, 2015, 2021a, 2021b; Kochhar-Bryant, 2009; Wheeler, Mayton, & Carter, 2014). Thus, "transition" refers to a change rather than an event (Rosenkoetter, Hains, & Fowler, 1994). Kagan (1991) and Wehmeyer and Webb (2012) categorized transitions into two groups: horizontal and vertical. Vertical transitions refer to predictable vertical transitions, such as the move from hospital to home, home to early intervention, early intervention to preschool, preschool to primary school, primary school to middle school, middle school to high school, and high school to adulthood. Horizontal transitions refer to those that occur during the day, such as going from home to school and leaving school to go to the park. Furthermore, as observed from the literature, transitions were classified as developmental transitions, non-developmental transitions, intra-class transitions, and daily transitions (Rosenkoetter et al., 1994). Age-related transitions from preschool to primary school are developmental transitions. A transition from a special education school or class to an inclusive school is an example of a non-developmental transition. Transitions from one activity or setting to another are in-class transitions. Daily transitions include visiting the grandfather's home, going for a walk in the outdoors, and visiting the hospital. These transitions occur throughout life, and they could be inevitable, stressful, or uninterrupted (Rosenkoetter et al., 1994). Thus, individuals need to be prepared to prevent transition problems (Baer & Flexer, 2013; Ergenekon, 2015, 2019, 2021a; Kochhar-Bryant & Bassett, 2002; Test, 2012).

Preparation for the transition is a phenomenon that requires more attention for individuals with developmental disabilities because these individuals experience difficulties coping with the anxiety, excitement, and stress due to the uncertainties, the changes, and their special needs (Bakken & Obiakor, 2008; Blasko, 2001). The role of teachers is important for these individuals to overcome these obstacles during transition. Teachers play a key role in the preparation of individuals with developmental disabilities (IDDs) for the transition (Carter, Lane, Pierson, & Stang, 2008). In this process, teachers should collaborate with IDDs, their parents, school administrators, and other stakeholders based on their interests, strengths, and needs (Bakken & Obiakor, 2008; Levinson & Palmer, 2005). These efforts could be based on the evaluation of the IDDs and personal settings to prepare the individual via the acquisition of the required skills for their transition to an independent life (Kochhar-Bryant, 2009).

The review of the previous studies on the provision of transition services by the relevant staff (e.g., teachers and caregivers) demonstrated that the teachers were insufficient to prepare SDD for their transition to independent life, and adequate training was not available for the development of individualized education programs (IEPs) and individualized transition plans (ITPs) (Blanchett, 2001; Talapatra, Roach, Varjas, Houchins, & Crimmins, 2019; Wolfe, Boone, & Blanchett, 1998). Furthermore, it could be suggested that there were certain problems in the studies that aimed to determine the current status of IDDs in their transition to independent life. The findings of these studies revealed that IDDs experienced employment problems, the participation of the parents in the preparation of IDDs for the transition to independent life was low, the implementation rate of existing regulations was low, and the post-transition follow-up of these individuals was inadequate (Blackorby & Wagner, 1996; Cain, 2017; Gallivan-Fenlon, 1994; Gillan & Coughlan, 2010; Pascall & Hendey, 2004).

In national literature, studies aimed to describe the current status of IDDs in their transition to independent life (Akardere, 2005; Artar, 2018; Baran, 2003; Coşgun Başar, 2010; Gündoğdu, 2010; Gürsel, Ergenekon, & Batu, 2007; Koçak, 2006; Özdemir, 2008; Uçar, 2016; Uçar Rasmussen & Yıkmış, 2020) and develop related scales (Cesur Yakaboylu, 2016) and curricula (Kaya, 2017; Yıldız, 2020). The findings reported by these studies revealed that the employer attitudes, workshops, and vocational training programs did not meet the needs of the SDDs in their transition to independent life in Turkey; IDDs did not acquire vocational skills; they experienced transportation, communication, and job placement problems; parental cooperation was lacking; and problems such as a lack of responsibility, employment policies, and legal rights were rampart for IDDs (Akardere, 2005; Artar, 2018; Baran, 2003; Coşgun Başar, 2010; Gündoğdu, 2010; Gürsel et al., 2007; Koçak, 2006; Özdemir, 2008; Uçar, 2016; Uçar Rasmussen & Yıkmış, 2020).

International (Gallivan-Fenlon, 1994; Gillan & Coughlan, 2010) and national (Gürsel et al., 2007; Koçak, 2006) studies on the transition of IDDs to independent life revealed that associated problems originated in the state, employer, parents, and teachers. Such problems included the inability of the IDDs to acquire independent living skills, the inadequacy of vocational training to meet their needs, and the inadequacy of ITPs. Since the teachers are the most important stakeholders in the acquisition of skills, preparation for independent life, and development of curricula and transition programs, they would require assistance on these issues. Furthermore, special education teachers, as well as certified basic education and mathematics, physics, and chemistry teachers, work with SDDs in Turkey. Thus, it could be suggested that the latter group of teachers requires theoretical and applied knowledge and skills on the transition of IDDs into independent life. Finally, certain studies in international literature reported that training programs designed for teachers who prepare SDDs for their transition to independent life were effective (Blanchett, 2001; Morningstar, Kim, & Clark, 2008; Plotner, Shogren, Shaw, VanHorn Stinnet, & Seo, 2017; Talapatra et al., 2019; Wolfe et al., 1998). However, national literature lacks studies on training programs designed for teachers who prepare SDDs for their transition to independent life and their impact. It should be clear that these individuals should acquire daily life skills, self-determination, employment, and academic skills, and the most important stakeholder in this process is the teacher (Brolin, 1997; Wandry et al., 2013). Thus, there is a need for national studies on the requirements for teachers involved in the transition of SDDs to independent life. The current study is based on these requirements.

The present study aimed to determine the needs of third-tier special education teachers (employed in special education vocational schools and special education job application centers or schools) during the preparation of SDDs for their transition to independent life and to investigate the efficacy of the curriculum. Thus, the following research questions were determined:

1. What are the requirements for teachers employed in private third-tier special education schools to prepare SDDs for their transition to independent life?
2. What are the views of parents whose children attend third-tier special education schools on the preparation of their children for independent life?
3. How should a curriculum be designed based on teacher requirements?
4. Is the curriculum designed to meet the needs of the teachers employed in third-tier special education schools in the preparation of SDDs for their transition to independent life effective?
5. What are the views and recommendations of the third-tier special education schoolteachers about the related curriculum?

Method

The study was conducted with an exploratory sequential design, that is, a mixed methodology. The first stage of the study was qualitative, the second was quantitative, and the third was qualitative. In the first stage of the study, the requirements of the third-tier special education schoolteachers in the preparation of SDDs for their transition to independent life were determined. In this stage, semi-structured interviews were conducted with the teachers and parents of SDDs, teachers were observed in the classroom environment, and IEPs and syllabi for SDDs were examined. Prior to the study, approval was obtained from the ethics committee and the Ministry of National Education (Date: 27.02.2019, No: 13839). Then, written consent forms were signed by all volunteer participants to collect data via interviews, observations, and document review.

The first stage

Teacher requirements were determined in the first instance between September 3, 2019, and January 3, 2020, and interviews were conducted with special education vocational schoolteachers employed in a public school, a special education job application center, or school in a Central Anatolian province, as well as with parents whose children attended these schools. The 19 teachers who participated in this phase of the study were employed at these schools and were special education, basic education, and agriculture teachers, among others. Maximum diversity sampling, a purposive sampling method that allowed maximum participation and diversity, was utilized to assign the participants. Participant demographics are presented in Table 1. The seniority of the teachers who instructed IDDs varied between 1 and 19 years. Furthermore, semi-structured interviews were conducted with the parents of IDDs, and 13 parents were interviewed. Parent demographics are presented in Table 2. Parental ages varied between 21 and 55. Teacher interviews lasted about 11 minutes and 50 seconds, while parent interviews lasted about 9 minutes and 51 seconds. Interviews were conducted in school gardens, offices, homes, etc., where the interviewees could relax. A total of 38 observations were conducted at schools between September 23, 2019, and December 9, 2019, during this phase. Observations were conducted in courses, such as mathematics, physical education, Turkish language, social adaptation skills, agriculture, handicrafts, and physical education, among others. Also, IEPs developed by 16 teachers and syllabi developed by three teachers were examined.

Table 1. Teacher demographics

Codename	Stage of participation	Dept. of graduation	Seniority
Gözde	Requirement determination	Theology	9 years
Berna	Requirement determination / Implementation	Special education	15 years
Bülent	Requirement determination	Special education	16 years
Levent	Requirement determination / Implementation	Plant preservation	4 years
Oğuz	Requirement determination	Special education	11 years
Tuğba	Requirement determination	Handicrafts	17 years
Gönül	Requirement determination	Special education	4 years
Cemil	Requirement determination	Physical education	10 years
Gülcan	Requirement determination	Fine arts	11 years
Berrin	Requirement determination	Special education	13 years
Kadri	Requirement determination / Implementation	Basic education	12 years
Kerem	Requirement determination	Special education	5 years
Birgül	Requirement determination	Special education	9 years
Menekşe	Requirement determination	Special education	14 years
Kemal	Requirement determination	Special education	19 years
Esin	Requirement determination / Implementation	Special education	8 years
Mehtap	Requirement determination	Special education	6 years
Ekrem	Requirement determination	Basic education	25 years
Cem	Requirement determination	Basic education	25 years
Şengül	Implementation	Eğitim bilimleri	4 years
Aslı	Implementation	Consumer sciences	6 months
Gülay	Implementation	Economy	1 year
Tuğrul	Implementation	Public administration	4 years
Nilgün	Implementation	Public administration	9 years, 5 months
Tolga	Implementation	History	10 years
Mahmut	Implementation	Physics	12 years
Cemre	Implementation	Literature	14 years
Ali	Implementation	Literature	15 years
Hilmi	Implementation	Casting	14 years
Sonay	Implementation	Chemistry	9 years
Sevgi	Implementation	Sociology	15 years
Olcay	Implementation	Nursing	18 years
Gökçen	Implementation	Radio TV	13 years
Banu	Implementation	Sociology	6 years
Ahsen	Implementation	Sociology	8 years
Berk	Implementation	Educational sciences	15 years
Neslihan	Implementation	Basic education	8 years
Esin	Implementation	Child development	7 years
Naz	Implementation	Child development	15 years
Nazmiye	Implementation	Social services	7 years
Aynur	Implementation	Child development	3 years
Türkan	Implementation	Nursing	N/A
Ceren	Implementation	Public administration	4 years

Tablo 2. Parent demographics

Codename	Age	Relation	Marital status	Education	Occupation
Adem	45	Father	Married	Middle school	Worker
Burçin	21	Sibling	Unmarried	Assoc. Degree	N/A
Gizem	36	Mother	Married	High school	Homemaker
İclal	38	Mother	Married	High school	Homemaker
Müge	54	Mother	Married	Primary	Homemaker
Cansu	35	Mother	Married	Middle school	Homemaker
Çiğdem	43	Mother	Divorced	Primary	Homemaker
Cemile	35	Mother	Married	Primary	Homemaker
Çisem	46	Mother	Married	Primary	Homemaker
Bengü	48	Mother	Married	High school	Homemaker, NGO manager
Sevilay	55	Mother	Widowed	Primary	Homemaker
Çağrı	42	Father	Married	Primary	Mechanic
Tansu	39	Mother	Married	Primary	Homemaker

The observation and interview data were analyzed with content analysis, and the data from the revised documents were analyzed descriptively. Intercoder reliability was ensured in these analyses. In other words, the author and a field expert separately coded the data and determined the themes and sub-themes. Then, these themes and sub-themes were compared separately by the author and the field expert. It was observed that 69% of the themes were consistent. A consensus was reached in the meeting held by the author and the field expert to determine the themes and sub-themes. Later, the second author revised the themes and sub-themes to finalize them. Thus, the teacher requirements were determined based on the finalized themes and sub-themes. A visual representation of the first stage of the study is presented in Figure 1.

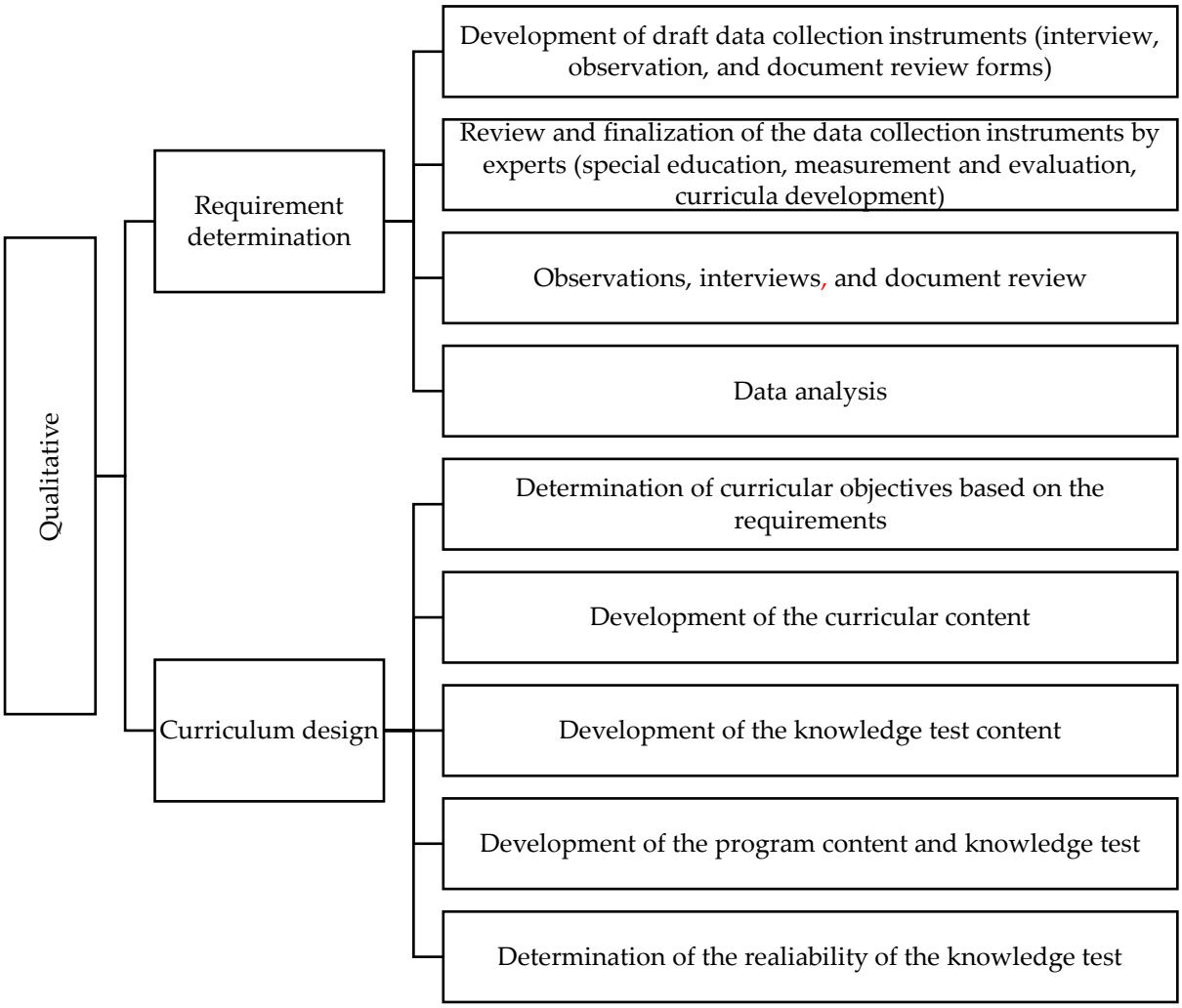

Figure 1. The first study stage

The curriculum designed in the present study was based on the TABA model. The TABA model includes a linear process from the determination of the participant requirements and the recipients of the curriculum until the evaluation. In other words, there is no return to previous steps in the TABA model. Thus, the model stages include (a) determination of the requirements, (b) determination of the goals, (c) determination of the content, (d) organization of the content, (e) determination of the instruction method, (f) organization of the instruction activities, and (g) evaluation (Demirel, 1992, 2017; Oliva, 2005; Oliva & Gordon II, 2018; Ornstein & Hunkins, 2018). In the first stage of the present study, the requirements of the participants were determined, and the curriculum was designed in a linear process based on the other stages of the TABA model and the determined requirements. The TABA model was employed in the design of the curriculum because it did not allow for coping mechanisms or repetition. In the TABA model, instead of a deductive process, the curriculum is designed based on teacher o school requirements; in other words, an inductive process is adopted (Oliva & Gordon II, 2018). In the present study, the TABA model was employed since the goal was to determine teacher requirements and design a curriculum based on these requirements.

Teacher requirements were determined based on the TABA model, and a curriculum booklet was drafted based on these requirements. The curricular objectives were determined by the first author and discussed with the second author. The booklet was based on the consensus reached about the objectives. Then, a knowledge test that included 35 multiple-choice questions was drafted based on the topics included in the booklet. The draft was submitted to 15 measurement and evaluation, special

education, and curriculum development experts. Ten experts provided feedback. The experts suggested that the multiple-choice options should be of equal length, distractors should be avoided in the options, the questions should include only positive statements, visuals should be employed in the curriculum booklet, and expressions such as "attention" should be employed in significant items. Based on expert views, the curriculum booklet and the knowledge test were revised. The reliability of the knowledge test was determined before the application. The reliability was determined with a pilot scheme conducted with 184 individuals, similar to the participant demographics. The knowledge test was sent to these individuals via Google Forms, and they were asked to answer the test. The Cronbach's alpha coefficient for the form was .647. Thus, it could be suggested that the test was reliable (Büyüköztürk, 2019). The final curriculum booklet was 122 pages, and the knowledge test included 35 multiple-choice questions. A PowerPoint presentation was developed for each unit in the curriculum booklet.

The second study stage

After designing the curriculum, it was implemented in the second stage of the study. Implementation steps are presented in Figure 2. During the implementation stage, the COVID-19 pandemic started to affect Turkey. Thus, based on the views of the Thesis Monitoring Committee members, the curriculum was implemented online. The teachers who participated in the requirement determination stage were asked whether they would like to participate in the implementation of the curriculum via distance education. As seen in Table 1, four of the 19 teachers who participated in the requirement determination stage in a province in the Central Anatolia Region wanted to participate in the implementation stage. Thus, different third-tier teachers were included in the study. These teachers were employed in a province in the Marmara Region. The second stage of the study was completed with 27 teachers, including the teachers who participated in the study. Teacher demographics are presented in Table 1. In this stage, the knowledge test was sent to the participants via Google Forms, where they were asked to answer the questions. After the pre-test, the curriculum was instructed to the participants between March 8 and 19, 2021, at 20.00 for 2 hours in 11 online sessions. The instruction was conducted with the Mergen Learning Management System (https://mergen.anadolu.edu.tr/login/canvas). After the implementation, the knowledge test was administered to the participating teachers. Then, the pre-test and post-test data were analyzed. In the analyses, $p \leq .05$ was accepted as the maximum type I error probability, and p values are specified between $p \leq .01$ and $p \leq .001$ during reporting due to sensitivity to smaller error probabilities. The hypotheses were determined, and the data were tested for normal distribution. Nonparametric analyses were preferred since the Kolmogorov–Smirnov and Shapiro–Wilk tests revealed significant results and the sample size was small. In other words, nonparametric analyses were employed since the data did not exhibit a normal distribution. The Wilcoxon signed rank test was employed to analyze repeated measurement scores, and Pearson product moment correlation analysis was employed to determine correlations.

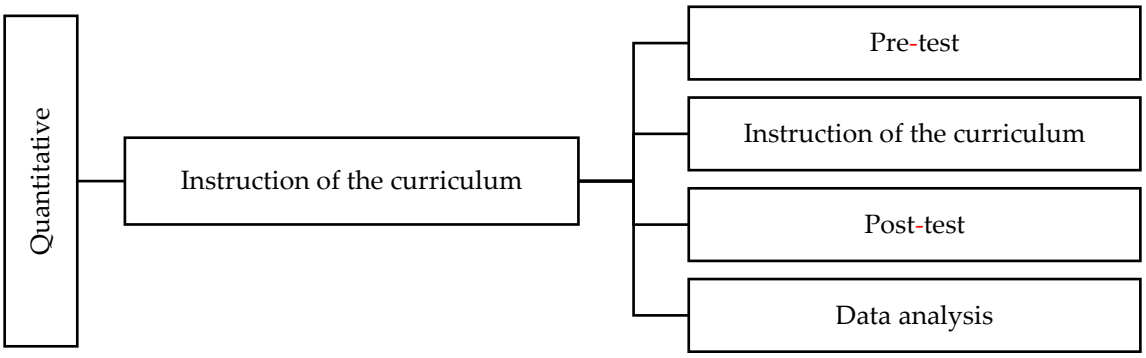

Figure 2. The second study stage

The third study stage

After the implementation of the curriculum, the views and recommendations of participating teachers were determined, and the process is presented in Figure 3. In this stage, a form that included 20 open-ended questions was developed. This stage was also conducted online due to the COVID-19 pandemic. The open-ended question form was uploaded to Google Forms, and the link was sent to the teachers who participated in the implementation stage. After the teachers answered the questions that reflected their views and recommendations about the curriculum, the data were converted into an MS Excel file. Then, the first author and the field expert who participated in the reliability study analyzed the data separately using descriptive analysis. The findings revealed a 96.5% agreement. The first author and the field expert met to discuss the disagreements and reached a consensus.

The departments and seniority of the teachers who participated in the curriculum evaluation phase are presented in Table 1. Teacher age varied between 24 and 55, and the mean was 39. Eighteen (64.3%) teachers were female, and 10 (35.7%) were male. The teachers graduated from different universities. It was observed that the most common university was Anadolu University, with nine teachers (32.1%). One teacher was a high school graduate. Nine teachers taught in education or technical education colleges. There were two special education school graduates (7.1%), one of whom was a graduate of a school of education, and the other was a graduate of a teaching program for the hearing impaired. The earliest year of graduation was 1995, and the latest was 2019. The teacher with the highest seniority had 19 years of teaching experience, and the participant with the least teaching experience had six months. Most of the participating teachers (f = 22, 78.5%) were employed in the Istanbul Metropolitan Municipality, Directorate for the Disabled; three were employed in a Special Education Vocational School; and three were employed in a Special Education Business Center for Education. The teacher with the highest seniority in the current institution served for 18 years, and the teacher with the lowest seniority in the current institution served for six months. Based on teacher experiences working with students with special needs, the most experienced teacher worked for 18 years, and the least experienced teacher never worked with special needs students. Teachers work with students with mild, moderate, or severe intellectual disabilities and autism spectrum disorders.

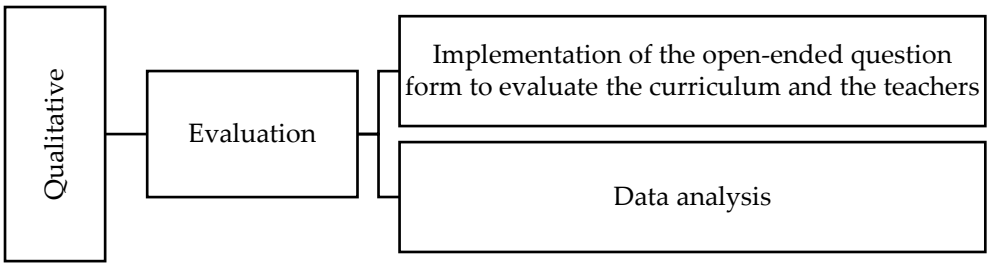

Figure 3. The third study stage

Findings

In this section, the requirement determination (qualitative), implementation (quantitative). and evaluation (qualitative) findings are presented. Qualitative data collected in the first stage, which is the requirement determination stage, included interview, observation, and document review data. Quantitative data collected in the implementation stage included the knowledge test (pre-test and post-test) data. Qualitative data collected in the final evaluation stage included the open-ended question form data.

Qualitative requirement determination findings

Semi-structured interviews were conducted with teachers and parents in the requirement determination stage. Also, classrooms were observed, and the IEPs and syllabi developed by the teachers were examined. In the requirement determination stage, the parental findings, followed by the teacher findings, are presented.

Parental requirements

The analysis of the data collected with the interviews conducted with the parents revealed two themes, eight sub-themes, and 38 codes. These themes and sub-themes are presented in Table 3.

Table 3. Parental interview findings

Perceptions of the Parents about Independent Living
Their examples for independent living skills
Independent living skills of their children
Independent living skills that their children should have
Their support for the acquisition of independent living skills by their children
Independent living skills that they think were instructed at school
Expectations of the Parents
Expectations from the teacher
Expectations from the school
Expectations from the state

The interviewed parents provided various examples of independent living skills. These examples included (a) daily living skills, (b) interpersonal skills, and (c) employment skills. Twelve parents mentioned daily living skills, and two mentioned interpersonal skills. One parent also mentioned employment skills. Çiğdem stated the following on independent living: "(S)he can do shopping, go to the market independently, that is, like a normal individual..."

Parents stated the independent living skills of their children. These skills could be categorized as follows: (a) daily living skills and (b) professional skills. Nine parents stated that their children had

daily living skills, while four mentioned professional skills. İclal stated the following on the daily living skills of her child with DD: “So (s)he could feed her(him)self, go to the bathroom alone.”

According to the parents, independent living skills that their children should possess include (a) daily living, (b) interpersonal, (c) professional, and (d) academic skills. Eight parents stated that IDDs should acquire daily living skills; five stated that they should acquire interpersonal skills; four stated that they should acquire professional skills; and two stated that they should acquire academic skills. İclal stated the following on the desired skills for IDDs: “I mean, I want him to take a bath alone, so I want him to wait for me when I am not at home, or when I ask him to buy some bread, I want him to go to a kiosk and get some bread. He cannot do any of these."

Parents have supported the acquisition of independent living skills by their children. These efforts included (a) providing a model, (b) verbal explanations, and (c) shadowing the children. Five stated that their support involved providing a model, while four literally explained what their children should do, and one stated that they shadowed the child. Burçin supported her child as follows: “We invite him to join us for a meal. You can do that like this, when we are not around, you can put your clothes and things into the washer like this. (S)he says ok."

The parents stated that their children acquired (a) interpersonal skills, (b) professional skills, (c) daily life skills, and (d) academic skills at school. Four of them stated that children with developmental disabilities were instructed in interpersonal skills; three stated that they were instructed in professional skills; two stated that they were instructed in daily life skills; and one stated that they were instructed in academic skills at school. Sevilay stated that her child acquired household skills at school.

The interviewed parents were asked about their expectations from the teacher, the school that their children attend, and the state. Parental expectations included (a) expectations from the teacher, (b) expectations from the school, and (c) expectations from the state. Four did not expect anything from the teacher; three expected the teacher to instruct daily life skills; and one parent expected the instruction of professional, social, academic, and safety skills, one-on-one instruction, and the organization of social activities. Burçin stated the following: “Also, the meal issue, clothing, you know, it could be sanitary and self-care skills.”

When asked about their expectations from the school for their children, six of the parents stated that they did not have any expectations from the school. Two parents stated that their children should acquire social skills, and one parent stated that they should acquire daily life skills, the school should organize social activities, and they should acquire professional skills. İclal, who expects the acquisition of daily life skills, stated the following: "(S)he should learn how to eat and drink, to go to the bathroom."

Interviewed parents were asked about their expectations from the state. It was observed that six had professional expectations from the state; four stated that the state should provide social activity opportunities; two parents stated that they did not have any expectations from the state; and one parent stated that (s)he expected the state to organize parental training, awareness activities, daycare services, supervise the schools and teachers, improve transportation facilities, and provide summer classes. Tansu stated that the state should provide vocational opportunities: “Job opportunities from the state based on my child’s skills, my child’s situation ... You know, taking care of my child at a level that (s)he can handle.”

Teacher requirements

During the requirement determination stage, interviews were conducted with the teachers of IDDs and their parents. The analysis of the data collected with the interviews conducted with the teachers revealed three themes, seven sub-themes, and 50 codes. These themes and sub-themes are presented in Table 4.

Table 4. The findings obtained in the interviews conducted with the teachers

Teacher Perceptions about Independent Living
Examples of independent living skills
Teacher Efforts
The skills selected for instruction
Strategies, methods and techniques employed by the teachers
Measurement and evaluation methods
Their collaboration with parents
Easily conducted activities
Experienced problems
Teachers' Assistance Requirements

The interviewed teachers provided various examples with regard to independent living skills. These included (a) personal care, (b) transportation, (c) job application, (d) domestic, (e) employment of social resources, (f) interpersonal, (g) personal safety, and (h) social awareness skills. Teachers stated their definition of independent living skills and provided examples of independent living skills. All 19 teachers mentioned personal care skills; seven mentioned transportation skills; six mentioned employment; six mentioned the use of social resources; five mentioned interpersonal skills; and one teacher mentioned personal safety and social awareness skills. Berna stated the following on individual needs: "It means that children could be competent in self-sufficiency and continue their lives without dependence on others."

Teachers were asked about their work with SDDs. They mentioned (a) the skills they selected for instruction; (b) the strategies, methods, and techniques they employed; (c) the measurement and evaluation methods they used; (d) their collaboration with the parents; (e) the way they easily conducted activities; and (f) the problems they experienced. On the skills they elected for instruction, nearly half (9) of the teachers stated that they instructed daily life skills to SDDs; four instructed academic skills, three instructed professional skills, two instructed leisure time activities, and one instructed interpersonal skills. Kerem stated the following on the topic: "As I said, I work on daily life and self-care skills."

Teachers also mentioned the strategies, methods, and techniques they employed when working with SDDs. Nearly half of the teachers (9) conducted practice-based instruction; six adopted community-based education; four preferred plain lectures; four provided a model; and four preferred role playing (4). A few teachers (3) stated that they analyzed the skills of the students in their classroom, and two teachers each employed the question-answer technique and talked to the parents. One teacher stated that (s)he evaluated the students in the classroom, conducted adaptations, allowed them to watch a movie about the topic, and employed error-free instruction. Teacher Berrin allowed the students watch a movie on the topic and stated that, "If there is a movie, they can watch the movie."

Teachers discussed how they evaluated SDDs. Most teachers (14) stated that they observed student behavior; six stated they evaluated the students with questions and answers; two talked to the parents; two tested the students; and one stated that (s)did not evaluate the students. Berna stated the following: "I ask the child predictive questions and evaluate the answers."

Teachers were asked how they collaborated with the parents. A small number of teachers (7) stated that they did not collaborate due to the lack of parental interest; four assigned parents as instructors; two set the goals with the parents; and one received feedback from the parents and provided information about the students. Kerem stated that they set the goals with the parents: "Of course, since we develop IEPs with the parents, they know their needs better than us, or we ask the parents if there were any skills they want to be improved, in other words, we prepare the IEPs accordingly."

Teachers were asked about the easy-to-conduct activities. A few teachers (6) stated that they instructed daily life skills easily; two instructed academic skills easily, assigned tasks, and conducted community-based instruction; and one instructed the preparation for the class and taking turns skills easily. Kerem stated the following on the issue: "Daily life skills and self-care skills are easy to teach; they are not difficult."

The interviewed teachers also mentioned the problems they experienced. A few teachers (6) stated that they experienced problems with the parents; five experienced problems due to the level of the student; five experienced a lack of equipment and materials; five experienced difficulty in the instruction of daily life skills; and one experienced difficulty in the instruction of academic skills. Cem stated the following: "For example, the most difficult topic is reading and writing. So, reading and writing gets very difficult."

Teachers also mentioned the support they required, which included (a) parental support, (b) material support, (c) hardware support, and (d) educational support. Teacher Kerem summarized equipment requirements as follows: "The organization of a classroom as a home; the presence of a kitchen, a bathroom, these could facilitate our job as we work on the independent living skills."

Observational findings

During the requirement determination stage, observations were conducted in addition to the interviews at the schools of IDDs. The analysis of the observation data revealed three themes, four sub-themes, and 38 codes. These themes and sub-themes are presented in Table 5.

Table 5. Observation findings

Skills Selected for Instruction
Academic skills
Daily life skills
Other skills
Instructional Strategies, Methods, and Techniques
Types of cues
Educational Activities
Instructional Problems

As seen in Table 5, teachers aimed the acquisition of (a) academic skills, (b) daily life skills, and (c) other skills during instruction. The academic skills included literacy skills (9), mathematical skills (8), and concepts (4). The observation note that "Teacher Berna wrote on the blackboard the name of the course, mathematics, and the topic, subtraction without carry" demonstrated that teacher Berna instructed math skills, an academic skill, in her class.

Teachers also instructed daily life skills to SDDs. Four teachers aimed to instructed food-beverage preparation skills, and one teacher aimed the acquisition of self-care skills. An observation note taken in teacher Esin's class read as follows: "Teacher Esin called student 1 to the kitchen counter. She said they will pop some corn."

Apart from academic and daily life skills, teachers also included artistic activities (5), professional skills (4), fine motor skills (2), school and classroom rules (2), and interpersonal skills (1) in their instruction. An observation note taken in teacher Berrin read as follows: "Teacher Berrin put the pictures that the students had already started to paint in front of them and asked them to continue drawing."

The teachers mostly employed cues (18) and reinforcement (17) in skill instruction. In the instruction of independent life skills, teachers employed practice-based (16), question-answer (10), lecture (9), student evaluation (8), providing examples (6), and error-free (5) and error correction (5) strategies, methods, and techniques.

Cues were the most common technique in skill instruction. It was observed that model cues (12), physical cues (3), verbal cues (2), and hints (1) were the most common cue types employed by the teachers. Teacher Gülcan was observed employing the model cue: "Teacher Gulcan took the pencil of the student 3 and drew the picture saying, 'You can do it like this,' and handed the pencil back to the student and said, 'Continue.'"

It was observed that teachers mostly preferred task assignment activity (13) during instruction. Also, watching a topical video (1) activity was conducted. In observation notes, teacher Bülent employed task assignment activity: "He asked them to write the same words next to them and left."

The problems observed during instruction were mostly about skill instruction. These problems were experienced during extracurricular activities (9) and were due to the inability of the teachers to interact individually with all students (9). Furthermore, behavior management problems (7), inability to transition between activities (6), inadequate use of reinforcements (6), incorrect use of methods (5), lack of evaluation records (4), different student levels (2), inability to use the voice effectively (2), inability to provide systematic cues (2), inability to set a functional objective (1), inability to wait for student reaction (1), inability to force classroom rules, (1) and inadequate materials (1) were the problems experienced by the teachers.

The expression of extracurricular activities conducted by the teachers reflected cases where the teachers did not conduct any activity on the topic. In the class of teacher Oğuz, the following observation was noted: "Oğuz sat at his desk and played with his phone."

In the study, the IEPs of 16 teachers and the syllabi of three teachers were reviewed. Since five out of 16 teachers whose IEPs were reviewed (Gözde, Levent, Tuğba, Cemil and Gülcan) were branch or studio teachers, they did not prepare an IEP, and they only signed previous IEPs. Also, "Kerem and Cem," "Birgül and Mehtap," and "Menekşe and Esin" were partners in the same classes. Thus, the three IEPs were reviewed for these six teachers. In other words, eight IEPs were reviewed in total.

All IEPs included student performances. Student performance notes included the following: "He partially possesses the motor skills required for professional skills;" "The psycho-motor development level is adequate;" "He exhibits slight retardation in motor development;" and "Recognizes, knows." In other words, when the performance levels of the students were specified, writing principles about the students' performances described in the literature (e.g., providing data on the impact of student functions in different fields on the participation of the student in educational activities and student competencies and requirements) were neglected.

All IEPs reviewed in the study included long-term and short term objectives. These objectives included expressions such as "recognizes, knows, is eager." It could be argued that non-behavioral expressions were employed in the description of the objectives, similar to student performances.

Half of the reviewed IEPs did not include instruction periods. In three IEPs, which included instruction periods, a broad period was specified as September 17–December 14 2019. All IEPs included the names and signatures of BEP members. Half of the reviewed IEPs did not include information on the date of the IEP meeting. Similarly, half of the reviewed IEPs did not include IEP minutes and decisions. None of the reviewed IEPs included any evaluation data. Similarly, none of the reviewed IEPs included any data on special education support services.

Although all reviewed syllabi included the date, course or topic, and time or duration of the class, a clear date was not provided in one of the lesson plans, but a time interval was provided. Although data on the setting was included in one of the syllabi, it was limited to the phrase "classroom environment," and no other detailed information was provided about the settings. All syllabi included the names of the students, but two did not include any data on the disability type of the students.

A purpose statement was included in all syllabi. However, the purpose statements written with non-behavioral expressions include "knows, understands, and is eager." Although all reviewed syllabi included an instruction methodology, no implementation details were provided. None of the syllabi included "cue, instruction, reinforcer, reinforcement schedule, error correction, and student reactions." Although the names of the equipment and material were included in one syllabus, no data were provided on the employment of these items. Although two reviewed syllabi included instruction data, these were written with official and broad phrases: "The teacher draws the attention of the students and keeps them motivated in the classroom. (The teacher) presents the topic. Then, students are asked questions on the topic. Verbal reinforcement is used. Plenty of repetitions, exercises, and case studies are conducted on the topic." All reviewed syllabi included an evaluation section. However, two syllabi lacked evaluation forms and information on the evaluation method, and only the word "observation" was noted in the evaluation section of the other syllabus.

A curriculum was designed based on the data collected from teachers and parents in the requirement determination stage. Thus, teachers required assistance in the acquisition of the knowledge and skills for the transition to independent life skills for IDDs (e.g., independent living skills, scientific practices, behavior management, IEP development, and parental training). This was also obvious in the interviews conducted with the parents of IDDs, classroom observations, and the review of documents such as IEPs and syllabi. Therefore, the curriculum content was based on IDD traits, transition to independent life, scientific application examples (e.g., error-free instruction methods and video modeling), behavior management, IEP development, and parental training.

Quantitative findings obtained during the implementation of the curriculum

In the second stage of the study, the designed curriculum was implemented with the teachers, and a knowledge test was developed along with the curriculum. The comparison of the pre-test and post-test scores of the 35-item knowledge test developed by the author is presented in Table 6. As shown in Table 6, 28 teachers participated in the implementation stage of the curriculum. One teacher did not participate in the post-test but participated in the evaluation of the curriculum. Thus, the number of participants is 27.

Table 6. Pre-test and post-test descriptive statistics

Item	Pre-test			Post-test	
	N	Mean	SD	Mean	SD
1	27	0,481	0,509	0,667	0,480
2	27	0,778	0,424	0,852	0,362
3	27	0,074	0,267	0,667	0,480
4	27	0,222	0,424	0,704	0,465
5	27	0,222	0,424	0,481	0,509
6	27	0,185	0,396	0,667	0,480
7	27	0,370	0,492	0,556	0,506
8	27	0,222	0,424	0,259	0,447
9	27	0,704	0,465	1,000	0,000
10	27	0,444	0,506	0,815	0,396
11	27	0,296	0,465	0,630	0,492
12	27	0,185	0,396	0,296	0,465
13	27	0,037	0,192	0,222	0,424
14	27	0,519	0,509	1,000	0,000
15	27	0,259	0,447	0,667	0,480
16	27	0,852	0,362	0,889	0,320
17	27	0,296	0,465	0,630	0,492
18	27	0,333	0,480	0,704	0,465
19	27	0,444	0,506	0,741	0,447
20	27	0,185	0,396	0,593	0,501
21	27	0,704	0,465	0,778	0,424
22	27	0,111	0,320	0,407	0,501
23	27	0,259	0,447	0,333	0,480
24	27	0,296	0,465	0,519	0,509
25	27	0,296	0,465	0,407	0,501
26	27	0,185	0,396	0,593	0,501
27	27	0,111	0,320	0,444	0,506
28	27	0,333	0,480	0,704	0,465
29	27	0,444	0,506	0,444	0,506
30	27	0,148	0,362	0,556	0,506
31	27	0,148	0,362	0,222	0,424
32	27	0,630	0,492	0,778	0,424
33	27	0,148	0,362	0,444	0,506
34	27	0,926	0,267	0,926	0,267
35	27	0,593	0,501	0,852	0,362
TOTAL	27	**12,36**	**2,623**	**21,44**	**5,447**

The analysis and descriptive statistics demonstrated that there was an increase in all mean item scores, except for Items 29 and 34, including the items where there were and were not significant differences. In Items 29 and 34, the mean pre-test and post-test scores were the same. Item 29 was on material design, and Item 34 was on parental training. The related areas of the curriculum content should be revised based on these findings. In summary, based on all participant responses and item analyses, there was an increase in the knowledge level of the teachers after the implementation, and this increase was statistically significant in 19 items. The significant difference between the total scores was $z = -4{,}340$ ($p < .001$) and the change in the mean score was $\overline{X} = 12.36/21.44$.

Analyses were conducted to determine the correlations between the continuous demographic teacher variables such as seniority, age, years of experience in the same institution, experience in special education, and the item pre-test and post-test scores. Pearson product moment correlation analysis revealed a significant and positive correlation between years of experience and Item 26. A significant and positive correlation was also determined between Item 26 and the years of experience in special education (.568). In other words, as the years of experience in special education and years of instruction experience increased, the correct response rate increased for the relevant item. Item 26 was on behavior management. Thus, it could be suggested that an increase in instruction experience led to an increase in teacher knowledge on behavior management. Similarly, there was a significant correlation between the years of experience in special education and the Item 11 pre-test score. Article 11 was about social stories. Social stories are a scientific application. Thus, the increase in years of experience in special education led to an increase in teacher knowledge of social stories. Furthermore, there was a significant positive correlation between the participant's age and total score. In other words, an increase in participant age led to an increase in knowledge level.

In summary, once the curriculum was implemented, an increase in the knowledge level of the teachers on the topics covered in the curriculum was observed. Also, significant increases were observed in 19 items out of the 35-item knowledge test (Items 3-4-6-9-10-11-13-14-15-17-18-19-20-22-26-27-28-30-33). The significant difference between the total scores was $z = -4{,}340$ ($p < .001$), and the change in the mean score was $\overline{X} = 12.36/21.44$.

Qualitative findings obtained during the evaluation of the curriculum

When asked about their expectations from the curriculum before the implementation, almost all teachers ($f = 25$, 89.2%) stated positive expectations. These positive expectations reflected their desire to acquire new knowledge or revise prior knowledge. Teacher Aslı stated, "It would allow me to improve my knowledge to better understand the individuals with special needs, conduct systematic instruction, understand and improve parent-student relations." Teacher Gökçen: "To learn behavior management and incorrect instruction methods." Teacher Nazmiye stated the following negative expectations: "I think it will be cut short and prove unproductive." However, teacher Esin stated that she did not have an idea about the curriculum.

The views of the participating teachers on the curricular objectives were also questioned. All teachers expressed positive views about the objectives of the program. Teacher Şengül stated: "I think the curriculum has achieved its objective of providing general and specific information about independent life skills." Similar to teacher Şengül, teacher Nazmiye expressed positive views about the objectives of the program: "To improve and facilitate the instruction of the enable with developmental disabilities."

Teachers were asked whether there were any other topic(s) that they would like to be included in the curriculum. Fifteen (53.6%) teachers stated that the curricular topics were adequate and there was no need for further topics. Esin and Gökçen stated that there should be video samples and that the instruction should be more practice-oriented. Furthermore, Olcay and Hilmi stated that the section on the management of problem behavior should be more detailed. For Cemre and Aslı, the topic of sexual education should be included in the curriculum. Ceren and Sevgi stated that students with hearing loss and visual impairment should be emphasized in the curriculum.

The teachers who participated in the program evaluated the curriculum based on the instruction of the course, the duration and frequency of the classes, educational materials, the command of the topic, and the articulation and communication skills of the lecturer. Twenty-three (82.1%) teachers mentioned the instruction of the course, 16 mentioned the duration of the course (57.1%), 21 mentioned the frequency of the classes (75%), and 25 mentioned educational materials (89.2%). All expressed positive views (f = 28, 100%) about the articulation and command of the subject and the communication skills of the lecturer. Further, 15 (53.6%) teachers stated that they acquired new knowledge and skills during the program. Teacher Neslihan emphasized this as follows: "It allowed me to make up for my deficiencies to be more useful for my students." Nine teachers (32.1%) stated that the curriculum provided an opportunity to refresh prior knowledge. Teacher Bülent indicated this as follows: "I think it reinvigorated and updated my knowledge."

In summary, most teachers (f = 25, 89.2%) had positive expectations about the curriculum before the application. Also, all participants expressed positive views on the curricular objectives. More than half of the teachers (f = 15, 53.6%) considered the curricular content adequate. Certain teachers (Esin and Gökçen) indicated the need for practical applications and sample videos in the curriculum, and others (Olcay, Hilmi, Aslı, Ceren, Cemre, and Sevgi) desired the inclusion of different topics, such as sexual education and hearing and visual impairment, suggesting that these teachers considered the curricular content inadequate.

Discussion

Studies in the international literature reported that IDDs experienced housing, employment, interpersonal communications, and transportation problems in their transition to independent life, and they lagged behind their peers with typical development. Furthermore, they experienced problems induced by their teachers, parents, employers, and government policies during their transition to independent life (Blackorby & Wagner, 1996; Butcher & Wilton, 2008; Cain, 2017; Caton & Kagan, 2006; Gallivan-Fenlon, 1994; Garcia Iriarte, Stockdale, McConkey, & Keogh, 2016; Gillan & Coughlan, 2010; King et al., 2017; Pascall & Hendey, 2004; Thomson, Ward, & Wishart, 1995; Van Naarden Braun, Yeargin-Allsopp, & Lollar, 2006). The present study's findings were consistent with those of the international literature. The lack of knowledge of the teachers about preparing their SDDs for independent life was one of the most significant findings of the present study. The interview, observation, and document review findings demonstrated that teachers could not determine adequate goals for SDDs. The same findings also demonstrated that teachers' theoretical and applied knowledge of instruction strategies, methods, and techniques was insufficient. This could be due to inadequate vocational or in-service teacher training. Also, although 19 participating teachers in the requirement determination stage stated that they lacked knowledge and skills in the preparation of IDDs for independent life, the fact that only four of these teachers participated in the implementation stage was a significant finding. Furthermore, it was observed that most teachers (f = 27, 93.1%) were non-special education teachers. The abovementioned problems could have been induced by the fact that these teachers were not trained on the transition of IDDs to independent life before and during their service. Also, it could be argued that insufficient in-service training and theoretical and practical problems in

the available training could have been among the factors (Karasu, Aykut, & Yılmaz, 2014). To prevent these problems, the teachers who would instruct IDDs should undergo training programs where theoretical and practical knowledge are taught before and during the service.

An interesting study finding was that although teachers stated that they required parental support, parents stated that they did not have any expectations from the school or teachers. Thus, it was quite clear that the key to success in the transition of IDDs to independent life was collaboration among the teachers, parents, and school community. The need for parental training was obvious to ensure parental collaboration and the inclusion of the parents in the process. Thus, teachers of the IDDs have significant duties. However, due to the COVID-19 pandemic, schools were closed, which meant that children could not attend classes and had to stay home; parents experienced problems in coping with the behavior of their children and conducting educational activities; and regressions were observed in children's performances, demonstrating the significance of parental training to both parents and educators (Bond, 2020; Karahan, Yıldırım Parlak, Demiröz, Kaya, & Kayhan, 2021; Kurt & Kurtoğlu Erden, 2020; Toseeb, Asbury, Code, Fox, & Deniz, 2020). Thus, parental training could inform the parents of IDDs about the domestic support requirements of the children, their parental rights, the support systems available at schools, and the rights of the children, which improves parental knowledge and skills. Contrary to the present study findings, Yazıcı and Durmuşoğlu (2017) reported that the parents of IDDs expected the teachers to support their children. Thus, the findings of these two studies were not consistent based on parental expectations.

A literature review revealed that IDDs could acquire independent life skills, which include daily life skills (Orum Çattık & Ergenekon, 2018; Ottley & Hanline, 2014; Sayğın, 2009; Scheeler & Lee, 2002; Şabanova, 2000), self-determination skills (Agran & Wehmeyer, 2000; Benitez, Lattimore, & Wehmeyer, 2005; Orum Çattık, 2020; Yücesoy Özkan, Gürsel, & Kırcaali-İftar, 2014), and employment skills (Collins, 2012; Ergenekon, Doğan, & Orum Çattık, 2020; Güneş Özler, 2019; Mechling & Ortega Hurndon, 2007; Özbey, 2015) through education. Thus, the requirements of the teachers of SDDs to prepare their students for independent life were determined in the current study. A curriculum was designed and implemented for the teachers of SDDs. Thus, the present study could contribute to the development of independent living skills in SDDs by supporting the requirements of the teachers.

The observations conducted during the requirement determination stage included the following: the teachers organized extracurricular activities in the class, did not personally interact with all the students, experienced behavior management problems, did not plan transitions between the activities, did not reinforce knowledge, did not employ adequate instruction methods, and did not keep evaluation records. In the interviews, the teachers stated that they experienced difficulties with parents and the instruction of self-care skills. Furthermore, they stated that they experienced problems due to the inadequacy of the students in addition to problems associated with the availability of the equipment and materials. It was observed that the teachers who participated in the first stage of the study were inadequate in behavioral management, implementation of instruction methods, transitions, and planning and implementation of the instruction; however, in the interviews, they stated that they experienced problems with the parents and the instruction of certain skills and problems associated with the students. The differences between observation and interview findings were due to the teachers' unawareness of their incompetence. This finding was consistent with the findings reported by Özdemir (2019), which reported that teachers experienced problems in the instruction and application of certain skills. The participants in Özdemir's study lacked knowledge of scientific practices or their knowledge was inaccurate, and they were not aware of that fact. This finding is consistent with the finding of the present study that teachers were not aware of their incompetence. This could be due to inadequate in-service training and a lack of theoretical knowledge instruction in in-service training (Karasu et al.,

2014). However, Öğülmüş (2014) reported that the professional competence of teachers of SDDs was adequate. This could be due to the fact that the teachers participating in their study had current professional competencies. More than half (58.4%) of the participants in Öğülmüş's study had less than 10 years of teaching experience, and nearly half (46.9%) had attended in-service training. Thus, these participants could have current competencies since they graduated recently and availed themselves of the latest in-service training.

IEPs and syllabi developed by the teachers of SDDs were reviewed in the requirement determination stage. It was observed that non-behavioral purpose statements included in the IEPs and syllabi did not include support services, instruction methods were not detailed, did not include concepts such as instructions, cues, reinforcers, equipment-material, and error correction, and had incomplete evaluations. This could be due to a lack of knowledge on instruction methods, planning, behavior recording, and evaluation. To improve the professional competency of the special education teachers, they require services such as coaching (Değirmenci, 2018; Fidan, 2018; Kıyak, 2020; Tekin-İftar, Collins, Spooner, & Olçay Gül, 2017; Tunç Paftalı & Tekin-İftar, 2021; Ünal, 2018) and performance feedback (Achinstein & Fogo, 2015; Akay & Gürgür, 2018; Vuran, Ergenekon, & Ünlü, 2014), as well as the curriculum developed in the present study. Thus, to eliminate the problems associated with lack of knowledge and practical problems, programs to support the professional development of the teachers should be developed, and the efficacy of these programs should be tested.

There are limitations to this study. The COVID-19 pandemic occurred as the current study continued for four academic years. Since the requirement determination stage was conducted before the pandemic and the training was designed back then, it could have missed certain teacher requirements that developed during this time. Teachers had to conduct educational activities online during the pandemic. This led to differences in the courses due to the nature of the pandemic and distance education. Thus, it could be suggested that the requirements of the teachers during the pandemic were not included in the curriculum. Also, since the participant's cameras were off during distance education, their concentration could not be determined during the instruction.

Only nine out of the 19 teachers who participated in the requirement determination stage of the study volunteered for the implementation stage, and only four of these teachers completed the program. This could be due to the fact that the requirement determination stage was conducted before the COVID-19 pandemic and the implementation stage was conducted during the pandemic. Previous studies reported that the developments inducted by the COVID-19 pandemic led to certain problems, such as increased teacher workload, adaptation problems, and burnout syndrome (Battal & Koşar, 2021; Fidan, 2021; Kaymaz, 2021; Turan & Akkaynak, 2021). Thus, it was decided that other teachers who worked with SDDs should also participate in the study to implement the curriculum with more participants. In addition to the four abovementioned teachers, 34 teachers participated in the implementation stage. As presented in Table 6, 27 teachers completed the program. The demographics of these teachers would demonstrate that only one teacher who joined the program later had a bachelor's degree in special education. Thus, it could be suggested that the teachers who joined the program later could have different requirements when compared with those included in the curriculum.

Studies in the literature indicated that the professional development of the teachers could be ensured via in-service learning and that the quality of education could be improved (Özer, 2004; Seferoğlu, 2004). Similar studies conducted in special education emphasized facilities such as coaching to improve the professional competencies of the teachers (Değirmenci, 2018; Fidan, 2018; Kıyak, 2020; Tekin-İftar et al., 2017; Tunç Paftalı & Tekin-İftar, 2021; Ünal, 2018). Thus, the knowledge levels of the teachers participating in the present study before and after the implementation stage were compared. The findings demonstrated that there was a significant increase between the pre-test and post-test scores of the participants in 19 items and between the total scores. In the items where significant differences were or were not observed, the mean scores increased in all items except for Items 29 and 34. The pre-test and post-test scores were the same for these items. These items focused on material design and parental training. This could be explained by the inadequacy of the curriculum on these topics. However, it could be argued that the applied curriculum was effective in general. Based on the total participant scores and the study data, the curriculum was effective. This was consistent with previous study findings (Blackorby & Wagner, 1996; Butcher & Wilton, 2008; Cain, 2017; Caton & Kagan, 2006; Gallivan-Fenlon, 1994; Garcia Iriarte et al., 2016; Gillan & Coughlan, 2010; King et al., 2017; Pascall & Hendey, 2004; Thomson et al., 1995; Van Naarden Braun et al., 2006).

The teachers who participated in the program were asked about their expectations from the program before the application. Most teachers (f = 25, 89.2%) expected to renew their knowledge or acquire new knowledge. Teachers were also asked about the contributions of the program. Certain teachers (f = 15, 53.6%) stated that they acquired new knowledge and skills in the program, and others (f = 9, 32.1%) replied that they renewed their knowledge. Thus, it could be suggested that the expectations of teachers were significantly fulfilled.

Limitations

The study participants were employed in two cities in the Marmara and Central Anatolia regions of Turkey. The study data were collected from teachers employed in the Central Anatolia region during the requirement determination stage. However, since only four teachers (21%) volunteered to participate in the implementation stage, new participants who were employed in the Marmara region were included in the study.

Data were collected face-to-face during the requirement determination stage; however, the implementation of the curriculum was conducted online due to the COVID-19 pandemic. Since the program was developed for face-to-face instruction but implemented online, this could be considered another limitation of the study. Also, since participants' cameras were off during instruction, their actual level of participation could not be determined, which was another limitation of the study.

The knowledge test was applied before and after the program was completed on Google Forms. It was not possible to check whether the participants completed the tests based only on their knowledge. Thus, this fact endangered the internal validity of the study.

Conclusions

The aim of the current study was different at each stage. In the first stage, the aim was to determine the requirements of the teachers who worked with SDDs in their transition to independent life. Thus, semi-structured interviews were conducted with the teachers and parents of SDDs. Also, the classrooms of SDDs were observed, and the IEPs and the syllabi developed by the teachers were reviewed. In the second stage, a curriculum was designed based on the data collected in the first stage. To test the effectiveness of the curriculum, a multiple-choice knowledge test was applied to the instruction participants before (pre-test) and after (post-test) the program. In the third stage, after the implementation of the curriculum, an open-ended question form was applied to the teachers to determine their views and suggestions about the program.

The curriculum content was determined based on the data collected in the requirement determination stage, the first stage of the study. Thus, the curriculum content included (a) independent living skills, (b) the traits of SDDs, (c) behavior management, (d) transition, (e) video modeling, (f) error-free instruction methods, (g) direct instruction, (h) material design, (i) social stories, (j) IEP and (k) parental training. A 122-page curriculum booklet titled "Curriculum for Teachers to Prepare the Students with Developmental Disabilities for Transition to Independent Life" and PowerPoint presentations for the curriculum topics were developed.

A knowledge test was developed based on the curriculum content. To determine the reliability of the knowledge test, a pilot scheme was conducted with 184 teachers. The pilot scheme was conducted on Google Forms due to the COVID-19 pandemic. The pivotal scheme findings demonstrated that the knowledge test was reliable, and all test items were preserved in the final version.

The pre- and post-knowledge tests and the program were conducted online due to the COVID-19 pandemic. The pre- and post-tests were conducted on Google Forms, and the instruction was conducted on the Mergen Learning Management System (https://mergen.anadolu.edu.tr/login/canvas). The pre-test and post-test findings demonstrated that the knowledge levels of the participating teachers significantly increased.

To determine the views and suggestions of the teachers on the program, an online open-ended question form was employed in Google Forms after the implementation of the curriculum. The findings demonstrated that almost all teachers (f = 25, 89.2) expected the program to renew their existing knowledge or acquire new knowledge. Also, at the end of the program, nearly half of the teachers (f = 15, 53.6%) stated that they acquired new knowledge and skills, and nine (32.1%) stated that they renewed their existing knowledge.

In the study, a curriculum was designed for teachers who worked with IDDs, and the curriculum was implemented. The effectiveness of the curriculum was determined by comparing the knowledge levels of the teachers before and after its implementation. After the implementation of the curriculum, the study also aimed to evaluate the program based on teacher views. Independent living skills data were not collected from SDDs in the classrooms of the teachers who attended the program. It could be suggested that the lack of student data was a limitation of the present study.

Recommendations

This section includes recommendations for implementation and for future studies based on the study findings.

Recommendations for implementation

1. More than half of the teachers (f = 111, 57.9%) who participated in the requirement determination stage of the study desired to attend the program face-to-face. However, the program was conducted online due to the COVID-19 pandemic. Thus, a face-to-face program could be implemented after the pandemic.
2. Presentation strategies could include visualization, giving examples, and questions and answers to reinforce the knowledge, along with verbal presentation (Altun, 2014). In the present study, a presentation strategy was employed during implementation. Thus, the use of sample instructional videos could be suggested to reinforce learning.
3. The curriculum was instructed between March 8 and 19, at 2021, 20.00–22.00 hours. Certain participants stated that the abovementioned schedule was difficult for them. Thus, future programs could be carried out over a longer period.
4. The participants were not assigned homework in the program. Learning could be reinforced with practical and theoretical homework in future studies.
5. The requirements of different teachers who work with SDDs could be identified, and in-service training programs could be organized with different content based on these requirements.

Recommendations for future studies

1. The study data were collected from the participants, who lived in two cities in the Marmara and Central Anatolia regions. Similar studies could be conducted with participants from different cities. Also, future studies could be conducted to disseminate the curriculum developed in the present study.
2. After the program, a knowledge test was conducted to measure the knowledge levels of the participants in the short term. To determine whether there are long-term effects of the curriculum on the knowledge levels of the teachers, the test could be reapplied in the future.
3. In the present study, theoretical knowledge was required. To determine whether the instructions were put into practice, future studies could be conducted to observe the classroom activities of the participants.
4. Similar studies could be conducted to determine and fulfill the requirements of the parents of IDDs.
5. Action research could be planned to resolve the problems experienced by IDDS in their transition to independent life.

Open-ended questions were employed to determine the views and suggestions of the participating teachers. These forms were used to collect the written views and suggestions of the participants in the program. Semi-structured interviews could be conducted with the participants to develop in-depth views and suggestions for future studies.

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