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Implementation of an On-the-Job Training Method in a Distance Education Environment[i]

Şener Balat[1] **and Selçuk Karaman**[2]
[1]Bingöl University/Bingöl Vocational School of Technical Sciences, Bingöl, Türkiye; [2]Faculty of Economics and Administrative Sciences, Ankara Hacı Bayram Veli University, Ankara, Türkiye

Abstract

The aim of this study was to implement on-the-job training (OJT) in a distance learning environment. To achieve this, job analyses were conducted on spring semester beekeeping activities at a vocational school in the eastern Anatolia region of Türkiye, and content and activities were designed with an OJT environment prepared. Participants received a task video and checklist to be completed weekly during the relevant week of the season. They were required to record and send videos while performing tasks, with feedback provided, and they were encouraged to participate in expert/peer communication activities. Initially, participants completed tasks correctly at an 80% rate, which increased to 85% after feedback. Task completion levels were examined, showing higher levels for short, simple, and less risky tasks. The application showed a positive effect on academic achievement in favor of the final test.

Keywords: on-the-job training, distance education, skills teaching, distance vocational education, Türkiye

Introduction

Technological advancements have had a significant impact on job sectors and working conditions due to fast-paced changes. The changes occurring in various sectors necessitate the adoption of innovative technologies and the continuous self-improvement of employees using these technologies to maintain competitiveness. In recent years, global events have made use of technology in the workplace almost a necessity for developing the workforce, particularly in business life. The COVID-19 pandemic can be seen as one of the most prominent examples of the situation we are referring to, as it led to restrictions on face-to-face education and the worldwide inability to deliver certain types of teaching. This situation has affected the teaching of applied and skill-based behaviors to a significant extent and prompted teachers, instructors, and trainers in many fields to seek solutions regarding how to teach such learning tasks through distance education.

Many job fields provide education for their employees through on-the-job training (OJT) in face-to-face settings. This method can be conducted on a one-to-one basis or in small groups using the show-and-do technique, which is inherently suitable for teaching skills and practical job training. This study focuses on how this method can be adapted to distance learning and its tools, technical infrastructure, and methodology.

According to the literature, OJT refers to the activities performed by an individual in the workplace aimed at developing their knowledge, skills, and job-related attitudes (Pfau, 2005, as cited in Vasanthi & Basariya, 2019). There are two types of OJT, namely structured and unstructured (Basariya & Vasanthi, 2019). Although structured on-the-job training does not have a single and immutable method, it is stated that the following components should be present in this system (Levine, 1996, as cited in Ahadi & Jacobs, 2017):

- management support
- formal trainer support process
- checklists
- on-the-job training materials
- train-the-trainer program
- monitoring and reporting

Studies on distance OJT mostly focus on the unstructured OJT style and factors such as learning materials, tool effectiveness, attitude, satisfaction, and so forth. However, research on the structured OJT style, where skill-based learning is measured and a small sample group is selected for in-depth assessment performed using tools such as interviews and observations, is limited. OJT is used for acquiring performance-based learning, and therefore it is important to be able to support performance-based learning through distance training.

Unexpected situations such as the COVID-19 pandemic, increased workload, and different working conditions are crucial factors affecting problem-solving abilities. The pandemic has not only impacted our health but has also compelled society to adapt to new work environments. Industry workers have had to research online tools and techniques to adapt to these new conditions. This has created a need to transform experiential learning in vocational education into online and off-site learning. The transition from face-to-face education to online skills education creates significant challenges, especially for the teaching and learning of psychomotor skills (Seymour-Walsh et al., 2020). In this context, the purpose and research questions of this study are presented below.

OJT methods are preferred for achieving performance-based learning. In this context, it is crucial that distance training supports performance-based learning. Therefore, this study stands out for its focus on direct outcomes and skill development rather than the operational dynamics of distance training. Additionally, considering adult learning styles is another strength of this study.

The study has the potential to address gaps in the literature by examining the effectiveness of various approaches to teaching practical skills through distance learning. Designing a performance-focused framework for workplace e-learning and enhancing the supportive role of technology in distance education are also significant.

By facilitating performance-based learning through distance education and providing an alternative to experiential learning methods, the study has the potential to shape the design, implementation, and evaluation of future vocational and technical education processes. Furthermore, this study could play a crucial role in expanding workplace learning and continuous education opportunities, contributing to the development of adaptability skills and lifelong learning across various sectors.

The aim of this study was to design, implement, and evaluate a case of distance OJT in vocational education. In line with this objective, a distance OJT training environment was created to identify factors that affect participation, achievement, performance, and learning. In pursuit of this goal, the following research questions were posed:

1. What is the level of participation in distance OJT practices?
2. To what extent does distance OJT practice affect the academic achievements of employees?
3. To what extent is job performance improved through distance OJT practices?

Theoretical Framework and Related Research

On-the-job training has been described in various ways in academic literature. However, OJT is commonly defined as a training method in which employees develop the necessary knowledge and skills to perform a specific job by observing and participating in the activities of a person performing the job in the workplace (Na, 2021). OJT methods are typically categorized into two groups: structured and unstructured. S-OJT refers to the process wherein a skilled worker imparts competencies to a novice worker (Ahadi & Jacobs,

2017). S-OJT involves intentional learning tasks with a planned and systematic approach that includes specific steps in the learning process. On the other hand, unstructured OJT is a more informal type of learning wherein apprentices observe or perform tasks under the guidance of a mentor (Rothwell & Kazanas, 2011).

The literature presents various frameworks for structured S-OJT methodologies, with one of the most comprehensive being the model proposed by Ahadi and Jacobs (2017). This model offers a conceptual framework summarizing the findings from a review of existing research. It highlights how different components are interconnected. These components include:

1. characteristics of structured on-the-job training;
2. design, implementation, and delivery of training;
3. evaluation of structured on-the-job training;
4. performance, quality, and effectiveness outcomes;
5. financial aspects of structured on-the-job training; and
6. individual/organizational settings and geographical region.

The model emphasizes the critical importance of designing and structuring training specifically to ensure that it is systematic and effective. This framework stresses that the features of the training must align with organizational context and objectives, while also noting that the effectiveness of S-OJT depends on both the skills and commitment of the trainers as well as the readiness and engagement of the trainees.

The framework suggests that each stage design, implementation and evaluation is interconnected, with effective design leading to successful implementation and delivery, which in turn requires comprehensive evaluation to assess outcomes. The ultimate goals of S-OJT include improved performance, quality, effectiveness, and financial results.

In conclusion, the components of the S-OJT framework are interrelated, with each playing a crucial role in the overall effectiveness of the training process. Understanding these relationships enables organizations to better design and implement S-OJT programs that meet their specific needs and objectives.

There are different perspectives on how to measure business results. Kim and Lee (2001) focused on efficiency, effectiveness, and quality, while Borman and Motowidlo (1993) proposed two constructs: task and contextual performance. Matsuo (2014) also focused on teaching skills for OJT. Drawing on the literature of experiential learning and problem-solving, this study presents a framework for an OJT process consisting of seven steps under four main categories:

Plan

1. goal setting

2. action planning

   Do

3. implementing tasks
4. dealing with problems

   Check

5. assessing the results

   Act

6. extracting lessons
7. setting next goals

In this framework, quality improvement will be effective if improvements start with a good plan (plan), activities necessary to achieve the plan are implemented (do), results are checked (check) to understand the causes of the results and actions (act) are taken to improve the processes (Dahlgaard et al., 1995).

Changing working conditions require different formats for teaching methods. The skills and resources needed by workers during online education differ from those required for face-to-face education. Online learning requires students to regulate themselves, manage their time, and self-motivate. Additionally, it helps individuals enhance their self-regulation skills by providing structured feedback and monitoring tools in an effective online environment (Kaşıkçı & İzmirli, 2024).

The problems and challenges of distance learning in the workplace can be divided into two main groups. The first group of problems is related to learning occurring in the workplace and is associated with the nature of the work itself. The second group of problems is related to learning taking place in a virtual environment and is generally related to the presentation of learning materials. However, this situation conflicts with the purpose of workplace learning since the focus should be on creating and transferring knowledge rather than presenting materials.

OJT is an effective method for enabling employees to learn in the workplace. However, its effectiveness is directly related to the instructional materials and feedback methods. When used as the main instructional material in OJT, educational videos can help learners become more productive by increasing their practical knowledge in the workplace. The use of educational videos can make the learning process more effective by supporting it with visual and auditory elements. Sablić et al. (2021) have indicated that in this context, the method of teaching through videos enables students to observe their problem-solving processes and share their problem-solving methods, which, in turn, encourages them to develop and expand their ideas and establish clear connections between visuals and concepts.

Feedback is crucial in OJT. It is an important tool for monitoring, evaluating, and developing learners' performance. In the process of OJT, providing feedback helps learners identify their strengths and

weaknesses and contributes to improving their performance. Learning conditions in which feedback is provided in a timely manner can result in higher learning performance (Jensen et al., 2021).

Various distance learning tools have been examined in different sectors and target audiences in distance learning studies. Skill-based studies were preferred in these investigations, and the effects of factors such as expert support, educational video designs, feedback, simulations, specially designed learning methods, and mobile devices were explored. However, there are no studies on direct distance OJT in the field of beekeeping. Current studies generally relate to distance colony monitoring, disease detection, and monitoring hive conditions such as temperature, humidity, weight, and safety by beekeepers. The focal points of the research are increasing beekeeping productivity, disease detection and reduction, colony protection, income increase, and distance colony monitoring.

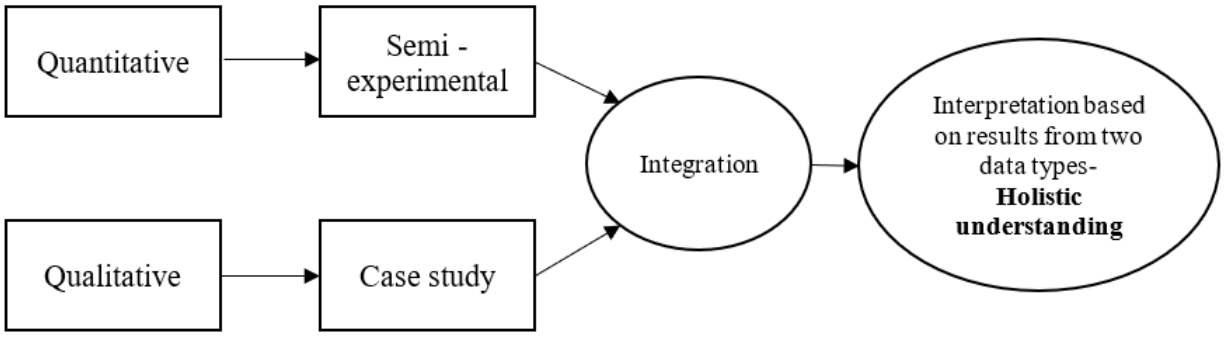
Another noteworthy aspect of this study is that more than half the studies were conducted in the past two years, which is believed to be due to the impact of the COVID-19 pandemic. The studies were generally conducted in various fields such as healthcare, construction, banking, agriculture, and maritime. It was observed that the distance OJT methods did not fully reflect the features found in S-OJT methods. In most studies, factors such as the effect of media used, material comparisons, applicability of a preferred technique in job training, and content analysis of previous studies in this area were examined.

Method

In this research, a concurrent design from mixed research methods was used. In concurrent design, qualitative and quantitative data are collected simultaneously. In the quantitative part, a quasi-experimental research method was employed and in the qualitative part, a case study method was used. As seen in Figure 1, quantitative and qualitative data are first collected and analyzed separately, and then these data are combined to interpret the results with a comprehensive understanding.

Figure 1

Simultaneous/Parallel Mixed Methods Research Design

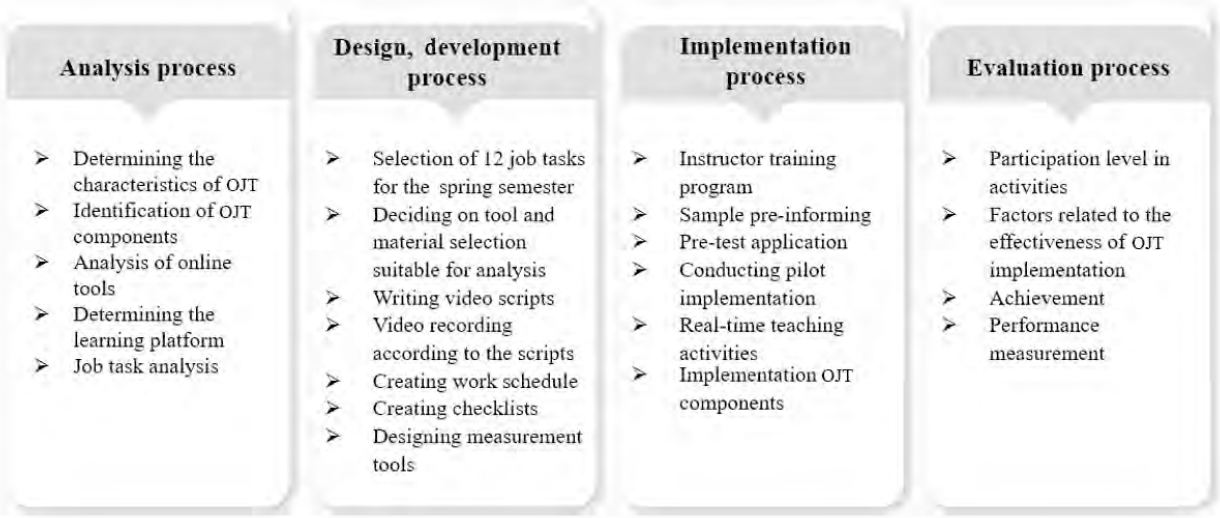


Design of Distance On-the-Job Training Process

The studies conducted on the application, analysis, design, and development stages of the distance OJT process have been elaborated in detail. Figure 2 explains the processes carried out in these stages.

Figure 2

Research Process



Determination of the Characteristics of the OJT Method and Distance OJT Management

In the OJT method applied in face-to-face instruction, various factors are necessary. It is important to identify these factors in the implementation process and determine the materials and tools that will be used in the distance learning environment. Table 1 shows the characteristics and matching status of the tools used in both environments.

Table 1

Determination of Characteristics of the OJT Method and Distance OJT Management

Feature of OJT	Characteristics of OJT in a distance learning environment
Apprentice-master relationship	Expert-beekeeper matching
Source of learning	Tutorial videos, expert support, feedback, peer training videos, and group interactions
Evaluation	1. Pretest and posttest 2. Checklists 3. Question-answer interaction and discussions 4. Performance evaluation (observation form) 5. Semi-structured interview 6. Event participation evaluation form
Instructor support	1. Ask the expert 2. Demonstrating with video and getting it done 3. Feedback 4. Checklists

Checklist	Creating a performance rubric that must be earned at the event
One-on-one or small group Work must be done in person	Small sample selection Providing material feedback that shows with training videos and pictures-videos

Beekeeping Job Tasks Needs Analysis, Creation of Educational Video Scenarios

The first author participated in an apiculture certification program in the eastern Anatolia region of Türkiye to analyze the job duties of the apiculture profession and actively engaged in beekeeping activities for two years. Focusing on spring season activities, 12 job duties were identified and a needs analysis was conducted to determine the appropriate materials and tools. The needs analysis involved the first author, an expert trainer and an apiculture course instructor. As a result of the needs analysis, educational video scenarios were prepared and converted into educational videos after expert review.

Creating Educational Videos

In the education video section, the sections related to how the job should be performed in terms of knowledge and skill instruction were prepared by the expert trainer. The reason for choosing an expert trainer was to have someone who personally carried out beekeeping activities and was a colleague of beekeepers. The expert provided the necessary equipment, controlling the scenario of each activity and shooting videos that used the demonstration and practice techniques under appropriate weather conditions during the relevant period of the activity. After the videos were reviewed by the expert and the research team and their suitability for educational purposes was determined, the same process was carried out for the next activity. Sample beekeeping task video footage is shown in Figure 3.

Figure 3

Sample Beekeeping Job Task Video Shots

Note. The visuals in Figure 3 illustrate examples of beekeeping tasks such as frame preparation and Insertion, hive cleaning and replacement, weak colony merging, and supplementation. In these visuals, an expert beekeeper demonstrates to novice or new beekeepers how to perform the 12 tasks outlined in the study step by step.

Creating a Job Calendar

In the field of apiculture, certain tasks that need to be performed in the spring season must be completed within specific time intervals. When creating the work assignments, the scheduled completion dates were taken into consideration. The purpose of this practice was to organize real-time OJT applications. Details of the work schedule are presented in the work schedule table below. If there were shared tasks to be performed during the same period, one or two tasks were planned together each week, depending on the level of difficulty of the job. Table 2 shows the beekeeping work program in detail.

Table 2

Beekeeping Work Schedule

Week	Time interval	Activity name	Job no.
1	April 26-May 2	Use of beekeeping equipment	1
2	May 3-9	Bellows burning and its use	2
		Hive cleaning and change	3
3	May 10-16	Frame preparation and delivery to the hive	4
		Spring feeding	5
4	May 17-23	Fighting the bee pest varroa	6
		Frame control	7
5	May 24-30	Reinforcement	8
		Merge weak colonies	9
6	May 31-June 6	Queen bee reception	10
7	May 7-June 15	Artificial swarm production	11
8	May 14-June 20	Adding honeycomb foundation and placing the queen excluder	12

Creation of Job Tasks Checklists

One of the important features of the OJT method we implemented is the use of job checklists. These checklists measure the level of learning of practical job skills. Job checklists control the number of tasks required to complete the job and provide feedback on employee performance. A total of 85 checklist tasks covering the 12 activities shown in Table 2 were created. These checklists were used to monitor participants' performance every week, to correct their mistakes and deficiencies. The checklists were prepared by taking

into account the process steps included in each activity and were reviewed by experts. An example of the job checklists is presented in Figure 4.

Figure 4

Example Job Checklist Following Review by an Expert

Name and surname: xxx Activity: Placing the honey super and installing the queen excluder	P
1. Be careful to perform the process of adding the super in suitable weather conditions.	4
2. Open the hive cover and cover cloth calmly and give smoke with a smoker.	
3. Take 1-2 frames with closed brood from the brood chamber.	4
4. Perform compression of the frames surrounding the taken closed brood frames and give two foundation wax sheets to the 2nd and 9th frames in the hive.	4
5. Place the super properly on top of the brood chamber.	5
6. Put the swollen combs left over from the previous year to the right and left of the closed brood frames in the super.	3
7. Place the feeder in the super appropriately.	1
8. Cover the super with the cover cloth by wrapping it over the top of the four frames placed on top and hanging it down from the sides.	4
9. Properly close the cover cloth and hive cover of the super.	4
10. Place the queen excluder between the brood chamber and the super and cover the super with it.	5
11. Mention that there should be at least 20 frames in the hive when using the queen excluder.	

Note. The name and surname of the employee are masked to preserve anonymity. Here, P=1 means "very inadequate", P=2 means "inadequate", P=3 means "average", P=4 means "good", and P=5 means "very good". Green represents tasks correctly performed by the employee, black indicates corrections made by the employee after feedback, and red signifies incomplete task steps. The numbers in the colored boxes are scores based on a scale of 1 to 5.

Feedback given to the employee regarding which tasks were performed correctly and incorrectly was color coded. After receiving this feedback, the employee was expected to complete the tasks marked with a red box and resubmit the checklist.

Implementation Process

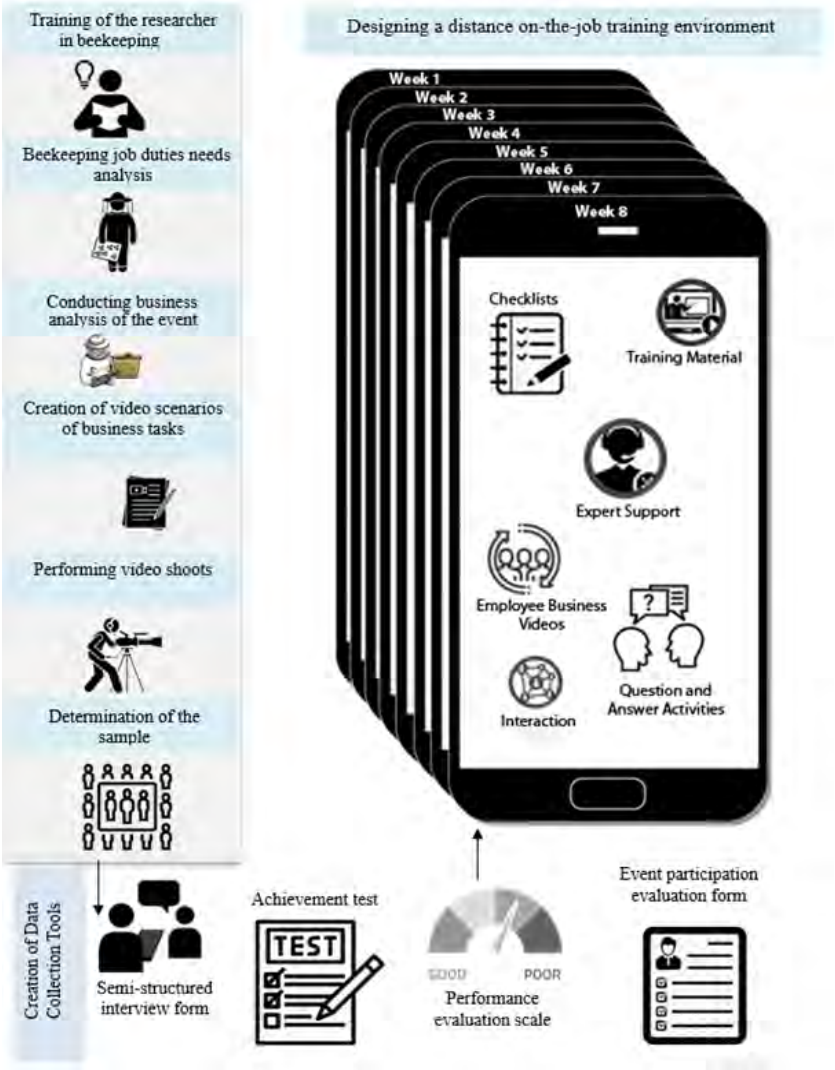
In the implementation process, it was important for employees to have access to tools that would enable them to easily perform in a distance learning environment without face-to-face teaching methods, and for the implementation to take place in an environment that did not create communication or interaction problems. To this end, an instant messaging communication platform that allowed for smooth transfer of common content such as instant audio, visual, and document transmissions was used. The research covered an 8-week period that included the spring season in the beekeeping sector. Due to the nature of beekeeping, certain tasks must be performed during certain seasons; therefore, the implementation process was

planned with an appropriate work schedule to perform real-time job skills. Detailed information about the processes carried out before and after the implementation process is presented in Figure 5.

The application process in Figure 5 can be summarized as follows: After completing vocational training in apiculture, the first researcher conducted an analysis of job duties in the profession and identified 12 job tasks that were carried out intensively during the spring season. Education scenarios were created for these tasks, and video recordings were made with the help of an expert. A sample of novice and new beekeepers who received face-to-face theoretical beekeeping education in an official institution was selected to conduct distance OJT, and data collection tools necessary for this process were identified. Finally, a mobile learning environment was created for the 8-week-long activities, where training materials were shared, expert support was provided, employees sent their job videos, question-answer interactions were enabled, and weekly checklists were sent and monitored through the interface of the environment.

Figure 5

Environment Design and Adaptation Process



To initiate the implementation process, a group named Distance Beekeeping Education was created. The interface of the group contained the factors mentioned in the design of the distance OJT environment, as depicted in Table 1. The group consisted of an expert beekeeper, 18 employees, and a researcher. The implementation process can be summarized as follows.

- Providing information about the process steps.
- Sharing the work calendar.
- Stating the weekly activities and explaining what employees need to do.
- Sharing the job task video every week.
- Sharing a blank checklist form that participants can use while performing their tasks.
- Instructing participants to watch the training video after completing their tasks, perform their tasks in accordance with the checklist, record it as a video or picture, and submit it to the group.
- Asking questions and getting answers from experts for any problems or questions that may arise during the activities.
- Weekly evaluation of the training videos by experts and sharing feedback checklist.
- Correcting missing or incorrectly performed job tasks and having the expert re-evaluate the corrections after feedback.
- This process was implemented for 8 weeks and aimed to encourage participants to correct errors and deficiencies in their job tasks and perform better in their work.

Study Group

This study examined a group consisting of 19 novice (1–3 years) and new (first-time) beekeepers who participated in a certificate training program organized by the Public Education Center and the Beekeepers Association in a city located in the eastern Anatolia region of Türkiye. From the selected 19 individuals, the study was conducted with 18 male students who actively continued the process. All participants in the study group were adults, with an average age of 32. The study group was selected using a purposive sampling method, which arises from the necessity of constructing a sample from a homogeneous subgroup. This sampling method is also known as selective or judgmental sampling and is combined with other sampling techniques to ensure sample diversity and representation of the studied population (Karačić Zanetti et al., 2023).

Data Collection Tools and Data Analysis

In this study, data were collected using a semi-structured interview form, a performance evaluation scale, an activity participation evaluation form, and an achievement test. The features and selection reasons for these instruments were explained in detail. Detailed information about which data collection tool was used for each research question and how the data were analyzed is presented in Table 3.

Table 3

Relationship Between Research Questions and Data Collection Instruments

Research question	Data collection tool	Analysis method
1. What is the level of participation in distance OJT practices?	• Evaluation form for activity participation • Semi-structured interview form	Descriptive statistics Content analysis
2. To what extent does distance OJT practice affect the academic achievements of employees?	• Achievement test	Descriptive statistics
3. To what extent is job performance improved through distance OJT practices?	• Evaluation form for activity participation • Performance evaluation scale	Descriptive statistics Content analysis

Achievement Test and Analysis of Data

The test designed to measure the academic achievement of employees was prepared by us with the help of an expert. The test was conducted using a time series design to measure the achievement level of employees. The test was administered before and after the implementation process and the data obtained were analyzed using a numerical data analysis program.

Semi-Structured Interview Form and Data Analysis

A semi-structured interview form was used to collect qualitative data. The aim of the interview was to evaluate the participants' satisfaction with the implementation process, the factors that were effective in learning, the problems encountered during the implementation process, and the factors that facilitated or hindered the work.

Performance Evaluation Scale and Analysis of Data

In the study, a performance evaluation scale was developed to measure skill-based learning. This scale, consisting of a total of 85 job tasks, including 12 job activities, encompasses the beekeeping profession's spring season activities. Each task was evaluated on a 5-point scale ranging from 1 (*very poor*) to 5 (*very good*). To increase data reliability, we performed separate observations from the expert trainers, and the average score was used.

We evaluated the job videos, and inter-observer agreement was calculated using the Cohen Kappa coefficient, with a reliability value of 0.69. Accordingly, it can be said that the inter-observer agreement was at a good level.

Evaluation Form for Activity Participation and Data Analysis

The study aimed to determine the level of task completion by creating an activity participation evaluation form that recorded data such as the number of tasks completed by each participant weekly, the number of tasks completed after job performance, the remaining tasks, and the number of tasks completed after

feedback. The collected data was analyzed to determine the impact of feedback on a weekly and activity basis, as well as the level of material sharing and question-answer interaction between experts and participants. The data from the form was used to provide feedback to participants by experts every week, allowing them to correct their mistakes and deficiencies. The data was then analyzed and transformed into averages, percentages, frequencies, graphs, and tables.

Results

Level of Participation in Distance On-the-Job Training Applications

Quantitative data on the research questions were obtained from the activity participation evaluation form and analyzed using descriptive statistical analysis. Qualitative data, on the other hand, were analyzed using the content analysis method. The results of the analysis are presented in detail in Table 4.

Table 4

Application Process Activity Participation Level Data Analyses

Variable	*n*	Data per person (%)
Activities	1,530	100.0
Completed tasks/jobs	1,207	78.9
Remaining tasks/jobs	326	21.3
Tasks/jobs completed after feedback	87	5.7
Completed tasks/jobs	1,294	84.6
Remaining tasks/jobs after feedback	239	15.6

During an 8-week OJT activity, an 18-member employee group aimed to complete 1,530 work tasks. However, the employees completed only 1,207 activities during this period. Expert trainers evaluated the work videos/materials that the employees submitted to the learning platform at the end of each week and identified that the employees completed another 87 work tasks after feedback. At the end of the process, the employees had completed a total of 1,294 tasks and were unable to complete 239 tasks. Table 5 provides detailed information about the sharing of expert-student materials and question-answer interactions according to the weeks.

Table 5

Weekly Distribution of Expert-Employee Material Sharing and Question-Answer Interactions

Week	Activity	Interaction (n)	
		Expert initiated	Worker initiated
1	Beekeeping equipment and usage	19	90
2	How to use a smoker Hive cleaning and replacement	39	70.5

3	Frame preparation and installation Spring feeding	33	73
4	Fighting Varroa mite infestations Frame inspection	31	51
5	Supplemental feeding Combining weak colonies	35	45
6	Queen acceptance	34	50
7	Artificial swarm production	38	68
8	Placing a honeybee layer and placing a queen bee grid	51	72

Note. Expert initiated $M = 35$; Worker initiated $M = 64.9$.

According to the data presented in Table 5, the number of interactions and material sharing between experts and employees varies significantly across weeks. Expert trainers conducted an average of 35 material or question-answer interactions throughout the implementation period, while employees, in response, engaged in an average of 64.9 material sharing or question-answer activities. These findings indicate that the level of interaction between experts and employees differs based on the nature of activities and the weeks, with employees participating more intensively in material sharing and question-answer interactions.

Now, several sample opinions obtained from interviews with employees participating in the distance OJT are presented. These show some of the reactions to elements of the OJT.

- Participant 9: “The feedback given while doing the job was definitely helpful. Because I could see my mistakes and have the opportunity to correct them. This way, I was approaching the work more systematically and accurately.”

- Participant 7: “I did not have difficulty in performing tasks that required practical skills. The hardest task in the work was giving consistency to the syrup. It was a challenging task as it was a bit risky. Also, there were more details in giving consistency to the syrup, and it was a long process, so it was challenging for me.”

- Participant 2: “The question-answer discussions during the trainings contributed to my learning of new things related to work. I think I learned new things in many questions.”

- Participant 16: “I was motivated by watching the videos of other participants. I thought I was doing my job better. I usually randomly selected and watched videos.”

Impact on Employees’ Academic Achievements

To determine the variation in the academic achievement of the employees, a pretest and posttest were administered. A dependent samples *t*-test was conducted to identify the differences in vocational knowledge of the participants, and the results are presented in Table 6.

Table 6

Comparison of Participants' Achievements Before and After the Distance Learning Application

Variable	*n*	$\bar{X}$	*SS*	*t*	*SD*	*p*
Pretest score	18	36	12.50	-9.392	17	.00
Posttest score	18	67.78	18.58			

As shown in Table 6, there was a statistically significant difference in favor of the posttest scores ($\bar{X}$ = 67.78) compared to the pretest scores ($\bar{X}$ = 36) [$t(18) = -9.392$, $p < .05$]. A dependent sample *t*-test to determine the difference in professional knowledge of the participants before and after the program was also conducted.

Level of Job Performance Achieved With Distance OJT Application

To evaluate the performance, an observation form was used to analyze all video content sent by participants to the learning platform, and data were obtained by evaluating each task on a scale of 5. A total of 85 job tasks covering 12 activities were defined during the application period, and the average values of these tasks were then grouped by activity. Table 7 shows the 12 activities and the mean scores of participants.

Table 7

Performance Evaluation Data by Activity

Activity	Score ($\bar{X}$)
Beekeeping supplies and usage	3.8
Bellows combustion and use	4.3
Hive cleaning and change	4.0
Frame preparation and delivery to the hive	3.4
Spring feed	3.9
Fighting the bee pest Varroa	4.1
Frame control	3.7
Reinforcement	4.0
Merge weak colonies	3.9
Queen bee acceptance	3.8
Artificial son production	3.4
Placing the honeybee layer and placing the queen bee grid	3.2

Note. M = 3.78.

In Table 7, it is seen that, based on video observations, the activities with the highest performance level on average were lighting and using the smoker ($\bar{X}$ = 4.3), combatting the honeybee pest Varroa ($\bar{X}$ = 4.1), and

cleaning and changing the hive ($\bar{X}$ = 4.0). On the other hand, the activities with the lowest performance level on average were giving the honeycomb foundation and placing the queen excluder ($\bar{X}$ = 3.2), producing an artificial swarm ($\bar{X}$ =3.4), and preparing and giving the frame to the hive ($\bar{X}$ = 3.4).

We found that the performance level of tasks in beekeeping such as lighting and using the smoker, combatting the Varroa mite, and cleaning and changing the hive, which are simpler, shorter, and less complex, was higher. On the other hand, the performance level of longer, more complex, and risky tasks, such as giving honeycomb foundation and placing a queen excluder, artificial swarming, and preparing and giving the frames to the hive, was lower.

Discussion

On-the-job training is carried out through the master-apprentice relationship and by focusing on the demonstration of the worker's behavior. If the OJT method applied in this study is imitated exactly, it can be assumed that learning behavior is achieved. In the distance OJT application used in this study, 78.9% of the 85 job tasks were completed, and this value corresponds to approximately 85% of the total number of tasks. This high level is attributed to factors such as participants both receiving regular feedback and being adults able to observe their own job performance and encourage each other while performing the same job on the same learning platform. Weng et al. (2015) emphasized the significant relationship between the support received from peers and experts and employees' learning performance and participation in e-learning programs. Similarly, Warr et al. (1999) argued that external factors such as teaching strategies, learning motivation, support, and trust influence the learning process. Morrison and Brantner (1992) highlighted factors such as time spent on task, task complexity, self-efficacy, and organizational climate as influencing learning and job participation. Sangeeta and Tandon's (2021) study indicated that facilitative conditions have a positive impact on performance expectations and online learning, whereas effort expectations and social activity may yield more uncertain results. Furthermore, Martins et al. (2019) suggested that environmental factors perceived as facilitative by employees during training programs can provide opportunities that motivate and support learners. In light of these studies, the importance of support, teaching strategies, and environmental factors in the learning process for employees becomes evident.

On the other hand, we observed that 15.6% of tasks were not completed. Klein et al. (2006) noted that environmental conditions or events can be perceived by employees as facilitators or barriers. Due to participants' personal characteristics, job suitability, or the nature of the job, it may not be possible to perform all learning tasks, especially for novice or new employees, as the profession may involve risky, challenging, or varied working conditions. Interview data with employees discussing the impact of this situation were obtained. More than half stated that their work environment included factors that made the job more difficult, for example, temperature, job-specific clothing, and so on.

According to the results of achievement tests conducted before and after the application, distance learning can increase academic achievement. The fact that the activities were directly related to practical application also had a positive effect on paper-based exams. It has been noted that learning is more permanent and

effective if people learn when they most need it, and that instant application reinforces knowledge acquisition and makes future use of information more permanent (Harun, 2001). Therefore, it is important for employees to have access to the necessary knowledge and material at the exact moment they need them.

There are many factors that contribute to the success of employees during distance OJT. These factors include experiencing the work while doing it, being part of a social group, receiving interactive support from an expert trainer, receiving continuous monitoring and feedback, and having the opportunity to correct mistakes. Dyson et al. (2009) have pointed out that there are still things that need to be done to improve learning and have emphasized the need to prioritize the design of teaching strategies for active, experiential learning.

In this distance OJT program, a total of 85 work tasks were identified. The components of distance OJT were effective in establishing the foundation of the implementation process. The literature has stated that OJT is mainly used for skill development. The work of Van Zolingen et al. (2000) argued that a strong connection is formed between education and application through OJT, resulting in more effective learning of skills acquired on the job.

In addition, high satisfaction levels of employees are related to the high average values of learning tasks. In this regard, Sun et al. (2008) found that students who perceive e-learning as useful performed better. Another data obtained in this study indicates that learners performed less well in skilled tasks compared to simpler, shorter, and less detailed tasks. The reason for the difference in performance in work tasks is due to the structure of the work environment inherently containing various risks (e.g., due to the discomfort of bees resulting from prolonged work and the resulting increase in aggression in bees, the worker may panic and perform the job incompletely, etc.). Additionally, the inherent complexity of some work tasks can result in a difference in performance. For example, the low average values in certain work tasks and the high average values in others may be due to the participants' preference for risk-free, simple, easy, and less complex tasks.

According to the literature, the challenges encountered in distance learning include student's attitude towards the content, nature, and complexity of the course, as well as factors such as lack of interest, inadequate study programs, and activities (Hicks et al., 2007). Abbad et al. (2010) emphasized that these difficulties can lead to discontinuation of education or incomplete course activities, while Klein et al. (2006) focused on how environmental conditions or events can be perceived by students as facilitators or barriers depending on individual characteristics and instructions. Martins et al. (2019) suggested that if these factors are perceived as facilitators, they can motivate learning and present good opportunities, thus helping employees acquire new knowledge and skills.

Conclusion and Suggestions

Achieving high levels of participation in distance OJT applications requires receiving regular feedback, focusing on job outcomes, and providing a supportive learning environment. The effective design of training strategies, increasing learning motivation, and the perception of environmental factors as facilitative by

employees influence the success of distance OJT programs. Particularly, it can be said that support between peers and experts influences learning performance and participation. Additionally, distance OJT enhances academic achievement and positively impacts job performance. However, challenges such as incomplete tasks were encountered in this study. Therefore, in the design of training programs, careful selection and organization of learning materials and activities according to the nature of job tasks are necessary. Furthermore, continuous feedback during the learning process and opportunities for correcting errors are important.

Based on the findings of this study, there are some practical applications that businesses and educational institutions should consider when developing distance OJT programs. For example, effective teaching strategies should be designed and implemented in OJT programs. Especially, interactive learning methods associated with practical applications should be preferred. Furthermore, since the conditions of the work environment can affect employees' participation and success, it should be ensured that the work environment is positive and supportive. In addition, training materials and activities should be closely related to the nature of the work. Practical applications should be designed to allow immediate application of theoretical knowledge. Diversification of materials considering individual employee characteristics is also important. Various efforts should be made, such as customizing training videos for more complex, longer-term, and riskier job tasks, designing profession-specific learning platforms, and integrating widely used mobile applications.

In this study, there were various limitations in the implementation of the distance on-the-job training method, such as the nature of the existing beekeeping sector in terms of working conditions, the structure of job tasks, and the educational level of the workforce engaged in the sector and their technological proficiency. Adapting this method to different businesses or sectors may pose additional limitations.

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