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ABSTRACT OF A DISSERTATION

TOPIC: DEVELOPMENT OF A MODEL FOR EVALUATION OF THE RESULTS FROM TRAINING

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Contents of the Abstract of the Dissertation

I. GENERAL CHARACTERISTICS OF THE DISSERTATION

Over the last 20 years in Bulgaria, the field of "Training and Development" has seen significant growth, and almost every medium to large-sized company now incorporates this function. During times of crisis, companies tend to cut their budgets, often starting with training, as the results are challenging to measure. With Bulgaria joining the European Union, numerous training and development programs emerged, but the significance of the courses diminished, and training failed to deliver the expected value. This was primarily due to these programs rarely aligning with the specific needs and goals of organizations. Thanks to the internet and shared online knowledge, the direction of training and development, as well as the evaluation of training, has shifted towards creating training programs with clearly defined goals and structured assessments focused on real-world outcomes and benefits for business and society.

Assessing training makes the results of courses measurable, making it a fundamental process for the Training and Development system. It demonstrates the return on investment, a key reason why businesses invest in developing their employees in addition to enhancing their qualifications and motivation to work in the company. This makes researching this issue **relevant and significant**.

The study contributes to better designing training programs and assessing their results by proposing a model for evaluating the outcomes of training and learning.

The conducted research among training evaluators and various organizations in Bulgaria shows the need to define goals and measure results from the claimed courses. Subsequent interviews confirm the opinion that there is an urgent need for the value of training to be created and demonstrated. The missing link between the employee's performance and the company's performance is mainly due to the fact that training for business does not yield measurable results directly influencing the organization. A good assessment model provides these necessary measurable results.

The motives for choosing the topic are both scientific and personal. In 1954, Donald Kirkpatrick completed his dissertation, presenting the four levels of training evaluation - reaction, learning, behavior, and results. Years later, James and Wendy Kirkpatrick developed

this model and introduced the "New Kirkpatrick Model," where the assessment starts from the last level - results, indicating what the organization wants to achieve from training (Kirkpatrick, 2019). In the years following 1954, many scholars attempted, with varying success, to further develop the Kirkpatrick Model by adding or removing levels. Successful models include that of Phillips (1997a), which adds the Return on Investment level; Kaufman (1994), who includes the benefits of training for society; and Mahapatra and Lai (2005), who start the evaluation with a new level - technology. From a scientific point of view, examining and comparing these and other models and evaluation methods, I discovered benefits and shortcomings in them and propose a new model for use by organizations.

On the other hand, the topic of training and development of staff is very close and interesting to me personally, as my first professional experience, which lasted 5 years, is in this area. This is **the personal motive** behind choosing the topic. My work was in a large aviation company and required knowledge not only of how to connect with the best trainers for technical and soft skills training but also to advise leaders and managers in all departments on how to request the most suitable course based on the result they want to achieve afterward. All of this in an industry with specific and very strict legal requirements, in a company with over 1200 people - production and administration. Communicating with experts in various fields is enriching and expands my knowledge in the field of training.

When preparing the budget for training, collecting training needs from all teams, and organizing and conducting these courses, I noticed a gap. Some of the aviation training courses are required by law, their conduct is mandatory for performing a specific activity, and they are not subject to review by the company's management. A large part of the remaining training is ordered due to the need for new knowledge or refreshing old knowledge in some of the teams. The gap is that after conducting these courses, in addition to the standard feedback gathered from the participants, there was a lack of another assessment showing whether the course met the expectations of the managers and whether it would be genuinely beneficial for the organization. This also led to doubts about whether enough time is allocated to set goals and expected results from the course, as well as to adapt the content to make it as useful as possible for the participants. This raised the question of to what extent leaders and managers help their teams apply what they have learned in practice. All of this

prompted me to seek more information on how training results are evaluated and what the real benefits for the business are.

The aim of the research is to propose and test a new model for evaluating training courses based on a comparative analysis of existing models and methods for assessing training outcomes. After verification with businesses through questionnaires and interviews, it is expected that the model will provide new opportunities for organizations to assess conducted courses. This work builds upon existing knowledge of training evaluation. The research is grounded in Kirkpatrick's New Model (Kirkpatrick, 2019), studies in business and industry (Tatchell, 1997), and financial services (Gomez, 2003) following the Phillips model (1997), as well as Brewer's dissertation (2007).

To achieve the goal, the following research tasks were formulated and executed:

- Literature review, including a comparative analysis of 8 models for training evaluation; extracting their key characteristics, elements, and methodologies.
- Testing a new model incorporating elements from existing ones.
- Analysis of empirical data collected for the purposes of the study and evaluation of the model based on information gathered from employees in medium and large companies in Bulgaria.
- Formulating guidelines for the practical application of the research results.

The research **focuses on** training evaluators and employees in managerial positions or in the Human Resources department in large companies in Bulgaria from various sectors.

The study **investigates** (1) their understanding of training – its design, implementation, and evaluation; (2) the training outcomes and their impact on business and particularly (3) the influence of technologies, skills, and participant behavior on business and society through the perspective of evaluators outside the organization and people within the organization.

The thesis argues that the results of employee training can be measurable for businesses through variables related to Learning, Technology, and Behavior. Three **hypotheses** are tested:

- **Hypothesis 1:** IT-based tools influence business outcomes after training. This is tested by examining the impact of the **technology element** on training outcomes.

- **Hypothesis 2:** Knowledge and skills acquired through training influence business outcomes. This is tested by examining the influence of the **learning element** on training outcomes.
- **Hypothesis 3:** Changes in participant behavior due to training impact business outcomes. This is tested by examining the influence of the **behavior element** on training outcomes.

The **methodology** includes a literature review, quantitative and qualitative research. Based on the literature review, four elements were derived from existing training models, and a new model was developed for organizational needs.

The first part of the research is planned as a quantitative part and involves creating three questionnaires distributed online to external training evaluators, internal employees (managers, leaders, HR specialists), and employees in expert and managerial positions within the organization. The first questionnaire is aimed at training evaluators outside the organization and consists of 27 questions. The second is directed towards employees within the organization (managers, leaders, experts, specialists in the Human Resources field) and comprises 21 questions. The third questionnaire, with 9 questions, is again targeted at employees in the organization in expert and managerial positions, aiming to assess when the expenses for a training are considered justified. The statements are evaluated on a 5-point Likert scale.

The data were collected from March 2023 to September 2023, analyzed using specialized software (IBM SPSS and MS Excel), and the relationship between model elements was tested through multiple regression.

Additionally, a qualitative study was conducted through 20 semi-structured interviews with managers and HR specialists and 6 meetings with representatives of training organizations. The aim was to provide commentary on the survey results and gather insights on training evaluation. Quantitative data analysis was summarized in a schema.

Applicability of results. The training outcome evaluation model is applicable for both organizations and evaluators. By creating evaluation models and methods, researchers aim to make training and its outcomes measurable for businesses. What the organization is seeking is a return on investment, real and visible positive changes in the knowledge, skills, and behavior of employees that lead to tangible business results. These results can include

increased sales, improved productivity, reduced turnover, minimized losses, and better Key Performance Indicators (KPIs).

The study has the following **limitations**:

• The study includes only Bulgarian offices of medium and large companies without sector limitations.

• Training and learning are understood solely as corporate learning in a business environment—training provided by the company to its employees.

The dissertation **structure** comprises an introduction, two chapters, conclusion, a list of information sources, and appendices.

II. STRUCTURE OF THE DISSERTATION

The first chapter encompasses a literature review on the subject of Training and Development. An overview of the theory behind the Training and Development process is provided, along with a comparative analysis of eight models for assessing training outcomes. As a result of this examination, a novel model for evaluating training and learning outcomes has been derived. This model incorporates components from existing models, combining them in a new way to facilitate a reasoned analysis of conducted training and to identify and rectify deficiencies when necessary.

The second chapter outlines the empirical research conducted. The results are presented, and an analysis is performed to verify the effectiveness of the proposed model.

The appendices contain additional tables displaying results from the analysis, as well as the questionnaires used in the study.

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III. SUMMARY OF THE DISSERTATION

INTRODUCTION

The introduction of the dissertation outlines the relevance and significance of the problem, motives for choosing the topic, goals and objectives of the research, the object and subject of the study, research methodology, results, and applicability of the research. It also discusses the limitations of the study, which are detailed in Chapter One of this abstract. The introduction concludes with a brief overview of the dissertation's structure.

CHAPTER ONE: THEORETICAL PARAMETERS OF THE STUDY

This chapter provides an overview of the theory of the "Learning and Development" process, with a detailed examination of assessment as an element of this process. Models and methods for assessing training are presented, including a comparative analysis of eight models, focusing on their application and elements.

In the First Chapter, there are two main sections – the first introduces the Training and Learning system, while the second focuses on training evaluation models and the comparison of their key characteristics.

The theoretical framework of this research is based on the fundamental methods used for assessing training from the second half of the 17th century to the present, with a focus on Donald Kirkpatrick's model (1994) and the enhanced and adapted New Kirkpatrick Model (2019). Other models discussed include Phillips' model (1997a), adding a fifth level to Kirkpatrick's Model - return on investment; the CIRO approach (Warr, Bird & Rackson, 1970), based on the assessment of four aspects of training: context, input, reaction, and results; CIPP model by Stufflebeam (Worthern, Sanders & Fitzpatrick, 1997), examining all strategies and components of evaluation; and Kaufman's 5-Level model (Kaufman, 1994), incorporating societal benefits of training beyond the organization.

1. LEARNING AND TEACHING SYSTEM

This section emphasizes the importance of the "Learning and Teaching" system and its role in qualifying employees for an organization. Scholars Boudreau and Ramstad (2005) confirm the system's significance, stating that organizations must succeed in three areas to gain a competitive advantage: finance, products and markets, and human capital. Effective management of personnel appointment and training is crucial for organizational success (Salas et al., 2012). Elements of this system are examined in detail: training goals, training needs analysis, training program, training implementation, feedback, and training evaluation.

The definition of **goals** according to Ames (1992) is presented, where goals are considered an integrated model of beliefs leading to different methods and corresponding achievements. The goal-setting process begins with specific behaviors that lead to goal achievement, with the possibility of a more precise goal description if needed (Barbazette, 2006). Specific steps for goal-setting based on Barbazette's work are proposed.

An in-depth **analysis of training needs** is presented, including various types of needs analysis (Barbazette, 2006). Information from analyses and studies related to training needs analysis is included, playing a significant role in effective training program planning and implementation (Carlisle et al., 2011; Horng & Lin, 2013; Khan & Masrek, 2017). The focus is on organizational analysis, task analysis, and individual analysis (Horng & Lin, 2013; Khan and Masrek, 2017; Sahoo & Mishra, 2019). The hypothesis is suggested that training needs analysis positively influences employee performance (Mahmud et al., 2019).

Special attention is given to **developing the training program** and its significance for training outcomes. The necessary content of a training program is presented, outlining two primary approaches for its implementation: one focused on the trainer who controls the course content and experiences, and the other centered on the learner, with the trainer acting as a guide and providing resources. A well-designed program is developed to address issues related to employee and company performance. Key elements of the training program include needs assessment, learning objectives, and practical application. A crucial aspect of the training package is the ongoing support provided to participants and the evaluation of training results (HRM, Management Sciences for Health, 2012).

The **implementation of training** is presented as the next step after developing the training program - its practical execution. Elements that consistently contribute to the value of training are discussed based on research in the field (Sales et al., 2012). These elements include the use of technology in training, well-designed simulations and games, practical tasks related to participants' work allowing for mistakes and learning from them, the use of targeted behaviors (Taylor et al., 2005), and self-regulated activities (Sales et al., 2012). These elements are included in a step-by-step guide for training implementation (Sales et al., 2012, p. 89).

Feedback influences the learning process. Oral explanations and demonstrations by learners, as well as written explanations, are often used tools to provide feedback to both learners and trainers. Additionally, individual or group progress can be charted to form what is commonly known as the learning curve. The main purpose of the learning curve is to provide feedback on the learner's progress and can be used to decide when to increase or decrease the intensity of training or when to change methods (Byars and Rue, 2000, p. 212). An example feedback form after training is applied in the dissertation.

Emphasis is placed on the **evaluation step of training**, one of the most significant parts of the training process. Every effective training and development process begins with identifying training needs and concludes with training evaluation (Gopal, 2009). Training evaluation must ensure that employees can apply what they have learned in the workplace (Nagar, 2009). Different definitions of training evaluation are presented, outlining goals and challenges associated with assessment. Determining the purpose and significance of training evaluation, Van Dyk et al. (1997) focus on several problematic areas:

- Evaluation is a continuous process, not just at the end of the course.
- The assessment process is directed towards specific goals.
- Evaluation requires the use of accurate and appropriate measurement tools to gather decision-making information.
- Evaluation is a form of quality control.
- Evaluation applies not only to learners but also to the entire training system.

Results from a study on the Czech market by Urbancova et al. (2021) indicate that the most commonly used methods for training effectiveness assessment include evaluating

employee responses immediately after training and assessing the achievement of goals outlined in the training and development plan.

Results from Bulgarian research on online training platforms and various evaluation parameters are also discussed (Nikovska, 2022). Criteria for evaluating training effectiveness are presented, considering the study by Ilcheva, Vulkova, and Stoyanova (2013).

2. Models for Training Evaluation

In this section, some of the leading models for training evaluation are examined. A comparative table, presented in Appendix 2 to the dissertation, provides a comparative analysis of eight models. They are compared based on three indicators: key characteristics, elements/components, and application.

The **Kirkpatrick model** is presented first. Its main strength lies in its focus on the behavioral outcomes of participants in training (Mann & Robertson, 1996). The model consists of four levels: reaction, learning, behavior, and results (Figure 9). These levels were defined by Donald Kirkpatrick in the 1950s as the subject of his dissertation, and even today, it is one of the most widely used models for training evaluation.

Level 1: Reaction	The extent to which participants find the training useful, appealing, and applicable to their work.
Level 2: Learning	The extent to which participants acquire the desired knowledge, skills, behaviors, confidence, and commitment based on their participation in training.
Level 3: Behavior	The extent to which participants apply what they have learned during training when they return to work.
Level 4: Results	The extent to which the targeted results are achieved as a result of training

.

Figure 9 – Kirkpatrick Levels (Kirkpatrick, 2019, p. 34)

The **New Kirkpatrick Model** supports the four levels of evaluation and adds new elements to be applicable in a modern environment, considering them in reverse order - from Level 4 to Level 1. Formally introduced in 2013 by Donald Kirkpatrick's son and daughter-in-law, Jim and Wendy Kirkpatrick, the new model makes changes primarily in Level 3 and Level 4, presenting new facts, practices, and techniques related to training evaluation; new processes unfold.

Another approach to training evaluation is presented by **Philips** (1997a), who suggests adding one more level to Kirkpatrick's four levels so that the return on investment (ROI) for training can be calculated. This fifth level - return on investment, measures the monetary value of the program's results and costs, usually expressed as percentages. Philips' proposal provides trainers with a logical framework for calculating the return on investment from the perspective of human performance and business results. Measurement includes comparing the monetary benefits of the program with its costs.

The **Success Case Method** is also discussed in detail. This method evaluates the impact of training and coaching programs based on identifying the most successful and least successful participants in a program. With the Success Case Method, managers are provided with support through specific measures directly related to their rewards and the organization's net profit. The method identifies and highlights the factors on which the success or failure of training depends, allowing leaders to directly discover the "weaknesses in training" and then outline the measures needed to overcome them (Kirkpatrick, 2019, p. 183-184).

Stufflebeam proposes an evaluation model known as Context, Input, Process, and Product (**CIPP**). He is a pioneer in management-oriented evaluation, aimed at helping leaders make the right decisions about the program (Worthern, Sanders & Fitzpatrick 1997). The goal of the CIPP model is to explore all strategies and components of evaluation and answer the following questions: Does the evaluation scheme function correctly? What are potentially problematic points, and how can they be resolved? Are there more effective ways to collect data (Gilchrist, 1974)?

In 1970, the **CIRO** model for training evaluation for managers was proposed (Warr, Bird & Rackson, 1970). It is based on the assessment of four aspects of training: context,

input information, reaction, and results. According to Tennant, Boonkrong, and Roberts (2002), the CIRO model focuses on measurements before and after training. The main strength of the model is that goals (context) and equipment (input information) are taken into account.

Other Approaches and Models for Training Evaluation

In this section, the following approaches and models are discussed: Cost-Benefit Analysis, Kaufman's Five Levels Model, Fitz-Enz and Training Costs Variables, Mahapatra and Lai's Evaluation Method (2005), and Cannon-Bowers et al.'s Evaluation Levels (1995).

Cost-Benefit Analysis is perhaps the oldest process used to assess costs for the entire training program. It is based on the theoretical frameworks of economics and finance. The goal of this analysis is to ensure that society maintains an optimal level of efficiency in allocating resources (Mishan, 1960; Musgrave, 1969; Nas, 1996).

Kaufman's Five Levels Model expands the influence of training assessment beyond the organization, incorporating the benefits of training for society and the external environment of the organization (Bhattacharyya et al., 2007).

In 1994, **Fitz-Enz** identified 18 cost variables that manifest at different stages of training. These include compensation for the trainer, compensation for program organizers, compensation for participants, food and travel for the trainer, food and travel for organizers, food and travel for participants, office supplies, training materials, material printing, external services, equipment delivery expenses, equipment rental, equipment maintenance, registration fees, space expenses, room rental, general participant expenses, and other minor costs.

Authors **Mahapatra and Lai** (2005) propose an evaluation method that includes five levels: (1) technology, (2) reaction, (3) skill acquisition, (4) skill transfer, and (5) organizational impact. Levels 2 to 5 are comparable to the levels in Kirkpatrick's model (Kirkpatrick, 1998). The Mahapatra and Lai framework has two dimensions: an evaluation dimension suggesting what to evaluate and an evaluator dimension identifying the person or group responsible for conducting the assessment.

Cannon-Bowers et al. (1995) develop and test an instrument to measure training effectiveness at all levels to determine early training effectiveness; it is called the Basic Training Effectiveness Scale. The levels proposed by Cannon-Bowers et al. (1995) include instructional performance, individual knowledge, and organizational performance.

3. Development of a Model

Based on the literature reviewed above and conducted research, a model is proposed, presented in Figure 18. It includes four elements: technology, learning, behavior, and performance (results).

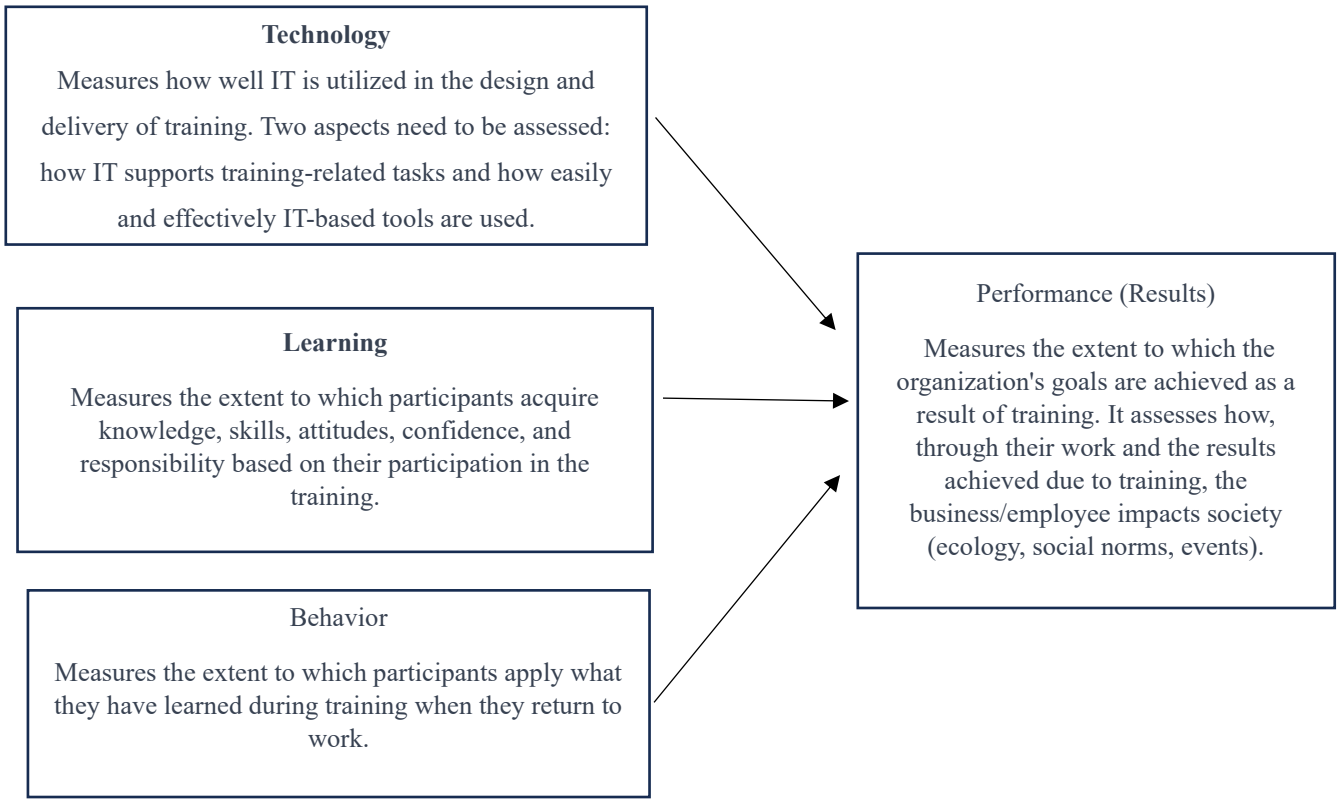

Figure 18 – Proposed model for evaluating training results (Source: The Author)

The foundation of the proposed new model is the New Kirkpatrick Model (Kirkpatrick, 2019), particularly focusing on behavior change as key to training evaluation. The new model builds upon the previous Kirkpatrick Model (Kirkpatrick, 2008) by adapting it to the modern world and paying particular attention to the return on expectations and return on investment after training, integrating the augmented level from the Phillips Method (Philips, 1998).

The added value of the proposed new model lies in the following directions:

- It seriously considers the impact of technology on training outcomes in organizations after 2019. It examines the participation of technology in training and training administration.
- It integrates the Reaction level from Kirkpatrick's Model (1998) into the Learning element, specifically in terms of the value that observation and immediate feedback after training have on the content of the training program and its future improvement.
- It views behavior change after training as key to training outcomes, emphasizing significant behaviors. This assessment includes detailed interviews with successful and unsuccessful cases, making this evaluation highly useful for trainers.
- It acknowledges the impact of training outcomes on society.

Subsequent research aims to demonstrate the influence of the three elements – technology, learning, and behavior, shown in the figure, on business performance.

CHAPTER TWO: PRESENTATION AND ANALYSIS OF RESEARCH RESULTS

In Chapter Two, a review of the empirical study is conducted. The collected quantitative and qualitative data are thoroughly examined, and an analysis is performed using MS Excel and IBM SPSS to validate the proposed model.

1. Research Methodology

The research methodology is initially presented with a review of the prepared questionnaires. The study comprises three questionnaires, each addressing specific aspects based on James and Wendy Kirkpatrick's book, "Kirkpatrick's Four Levels of Training Evaluation" (Kirkpatrick, 2019). A Likert scale of 1-5 is used in all surveys, where 1 - strongly agree, 2 - somewhat agree, 3 - neutral, 4 - somewhat disagree, and 5 - strongly disagree.

Questionnaire 1 (Survey 1) is directed solely at training evaluators, including individuals whose profession involves assessing training, as well as managers, leaders, and HR specialists responsible for this role. The questionnaire consists of 25 questions divided into 5 groups.

Questionnaire 2 (Survey 2) primarily targets managers/specialists from the HR department to determine if this model would be useful and if they intend to use it from an organizational perspective. The questions are formulated based on recommendations from experts Andrew Jefferson and Roy Pollock (Pollock, Jefferson, Wick, 2015) on how to approach training evaluation from an organizational and business perspective to ensure business satisfaction. The survey comprises 21 questions, including two demographic questions.

Questionnaire 3 (Survey 3) contains 9 statements aiming to examine how training expenses are justified. These statements focus on the direct connection between conducted training and business results. Survey 3 was completed by 108 respondents.

Survey 1 had 101 respondents, Survey 2 had 105 respondents, and Survey 3 had 108 respondents.

The evaluation of training results helps businesses understand if and to what extent the acquired knowledge will be applied in practice and will have a real impact on the organization's outcomes. The proposed evaluation model (see Figure 18 on page 23) includes four elements: technology, learning, behavior (including interviews with successful and unsuccessful employees after training), and results (overall for business and society). The research aims to trace and demonstrate the influence of the elements of technology, learning, and behavior on outcomes. Results for both business and society are of interest but are considered as a whole.

In addition to the questionnaires, interviews were conducted with 20 individuals, including HR specialists and people in leadership and managerial positions in various Bulgarian companies, as well as 6 interviews with representatives of companies offering training. These interviews were conducted to comment on specific results from the surveys and provide additional perspectives on training and its evaluation, both from within and outside the organization.

Results from the questionnaires are commented on, focusing on responses related to the elements of the proposed training evaluation model.

For questions related to the importance of using technology for training and its impact on outcomes, 84 respondents agree that it is crucial (Figure 21).

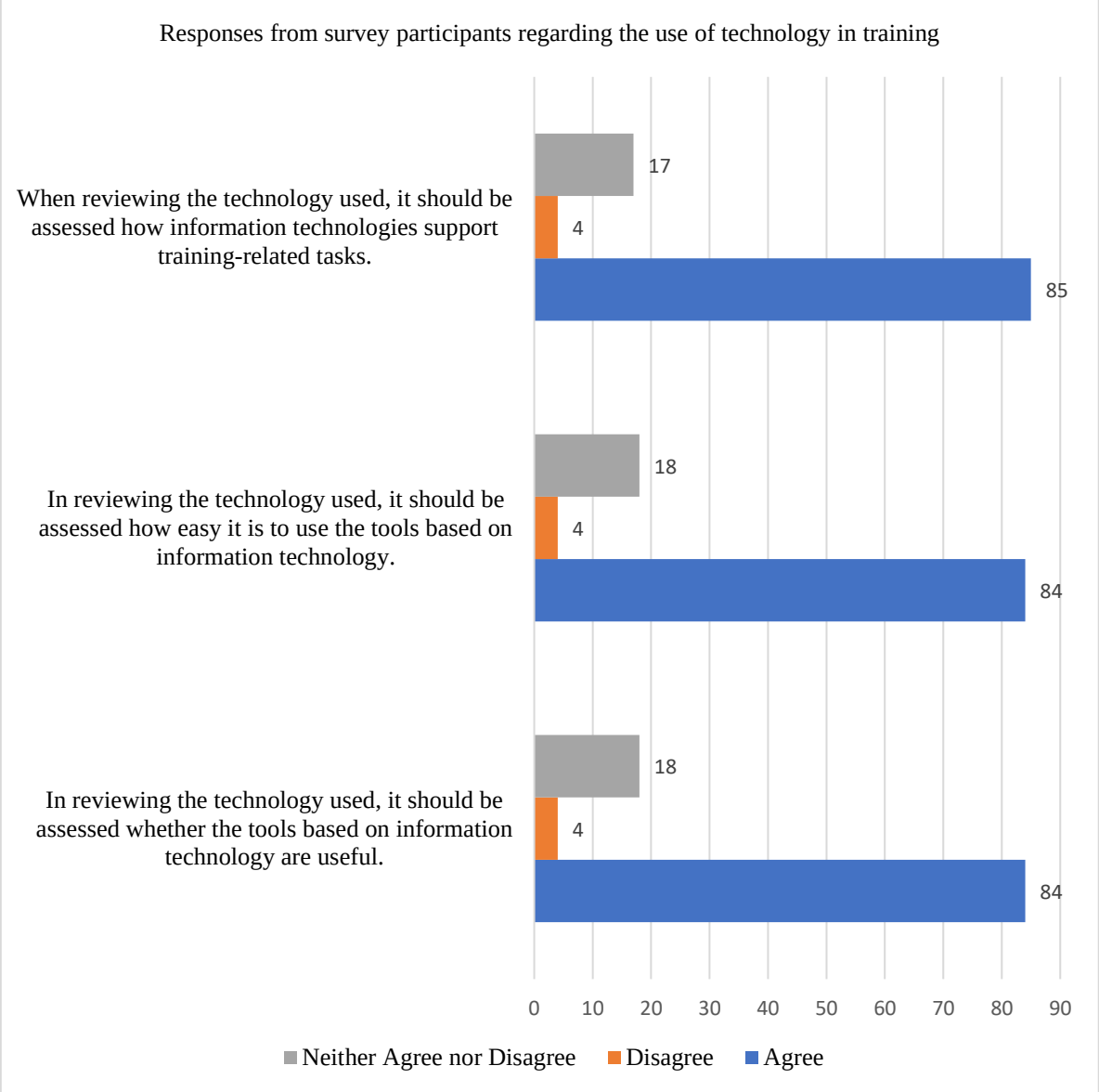

Figure 21 - Responses from survey participants regarding the use of technology in training. (Source: Own research)

According to Figure 22, observations are crucial for assessing what is learned from training. Training should take place in an environment close to reality to be maximally effective, and post-training questions (the so-called instant feedback) are essential for evaluation. When the assessment of what is learned occurs entirely during the training itself, it is recommended to conduct subsequent summative evaluation. Once again, there are

individuals who neither agree nor disagree with the statements, leaning more towards the question of summative evaluation. Its application makes sense in line with instant assessment and the tools used.

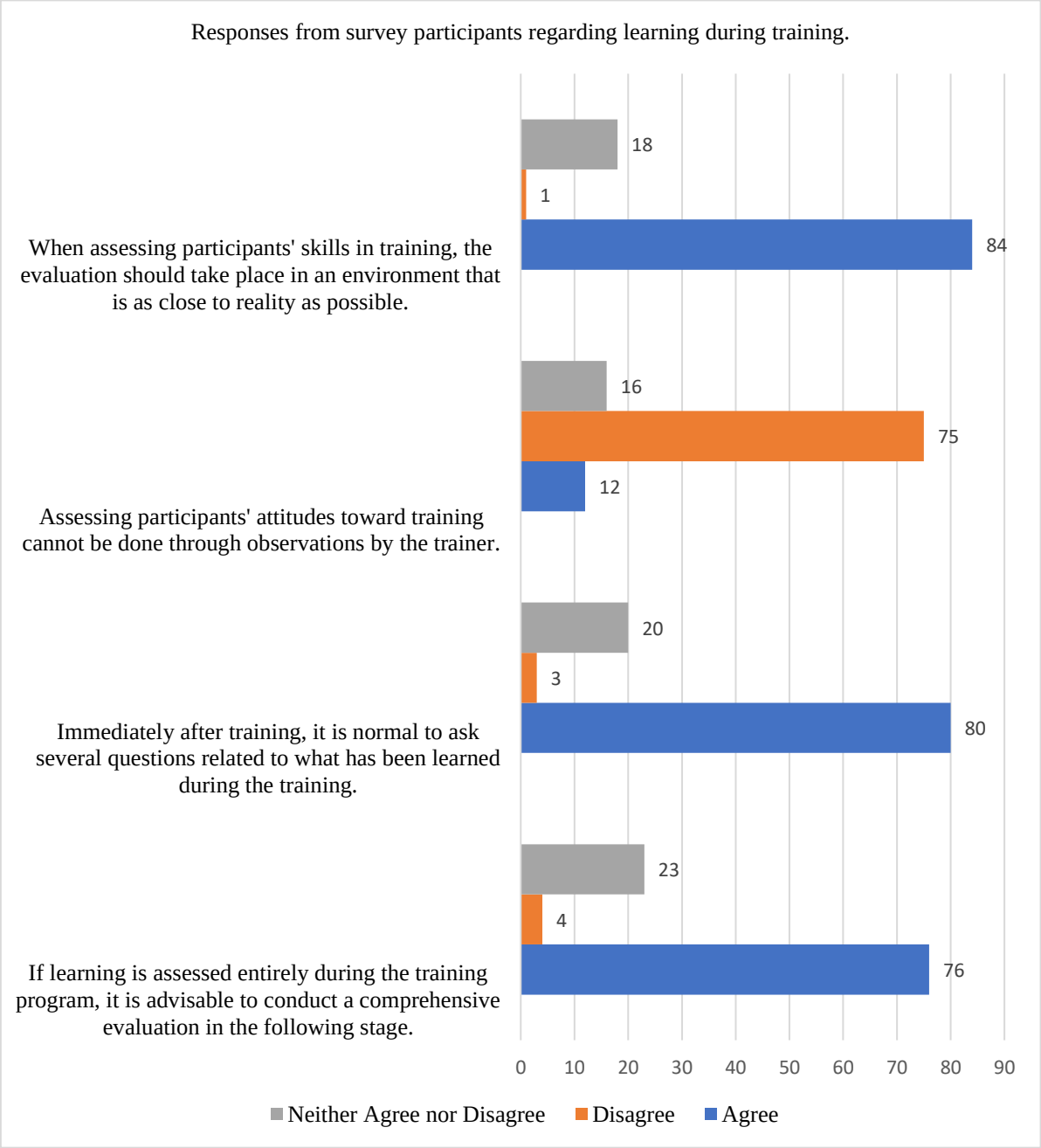

Figure 22 - Responses from survey participants regarding learning during training. (Source: Own research)

Figure 23 shows that, according to the evaluators, assessing behavior after training is the most crucial step in the evaluation process (83 respondents confirm the statement). Respondents confirm that identifying significant behaviors and linking them to competencies is important and influences the results. These behaviors should be specific, observable, and measurable (Kirkpatrick, 2019, p. 90).

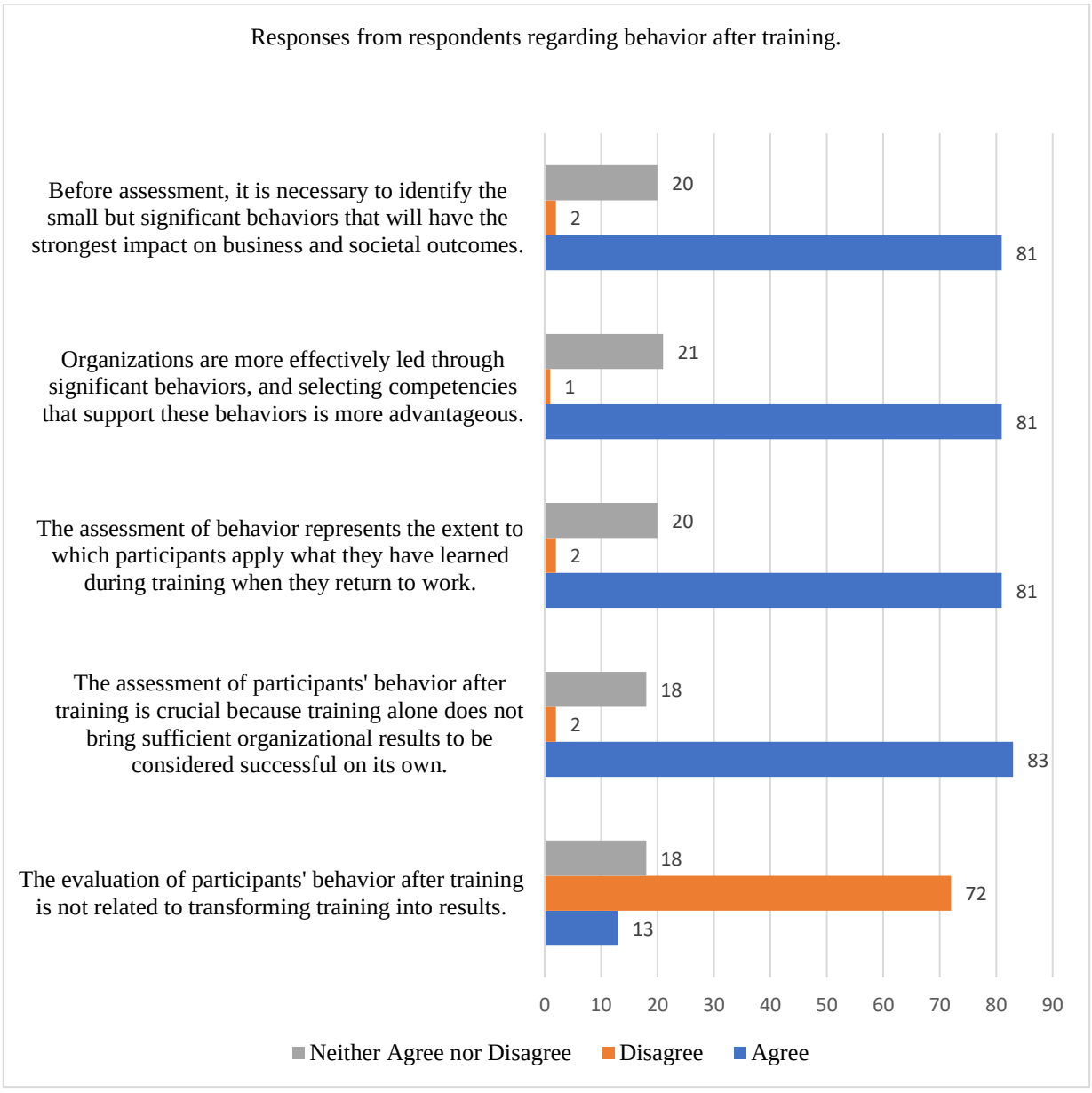

Figure 23 - Responses from respondents regarding behavior after training. (Source: Own research)

Figure 24 demonstrates consensus regarding the connection between set goals and results. The second, third, and fourth questions aim to verify an aspect of the Success Case Method – conducting interviews with individuals who have shown improvement and those who have not observed any change after participating in training. More than half of the respondents consider such interviews meaningful and influential on the results. The last statement, agreed upon by 81 respondents, involves outcomes from training both within and outside the organization, impacting society.

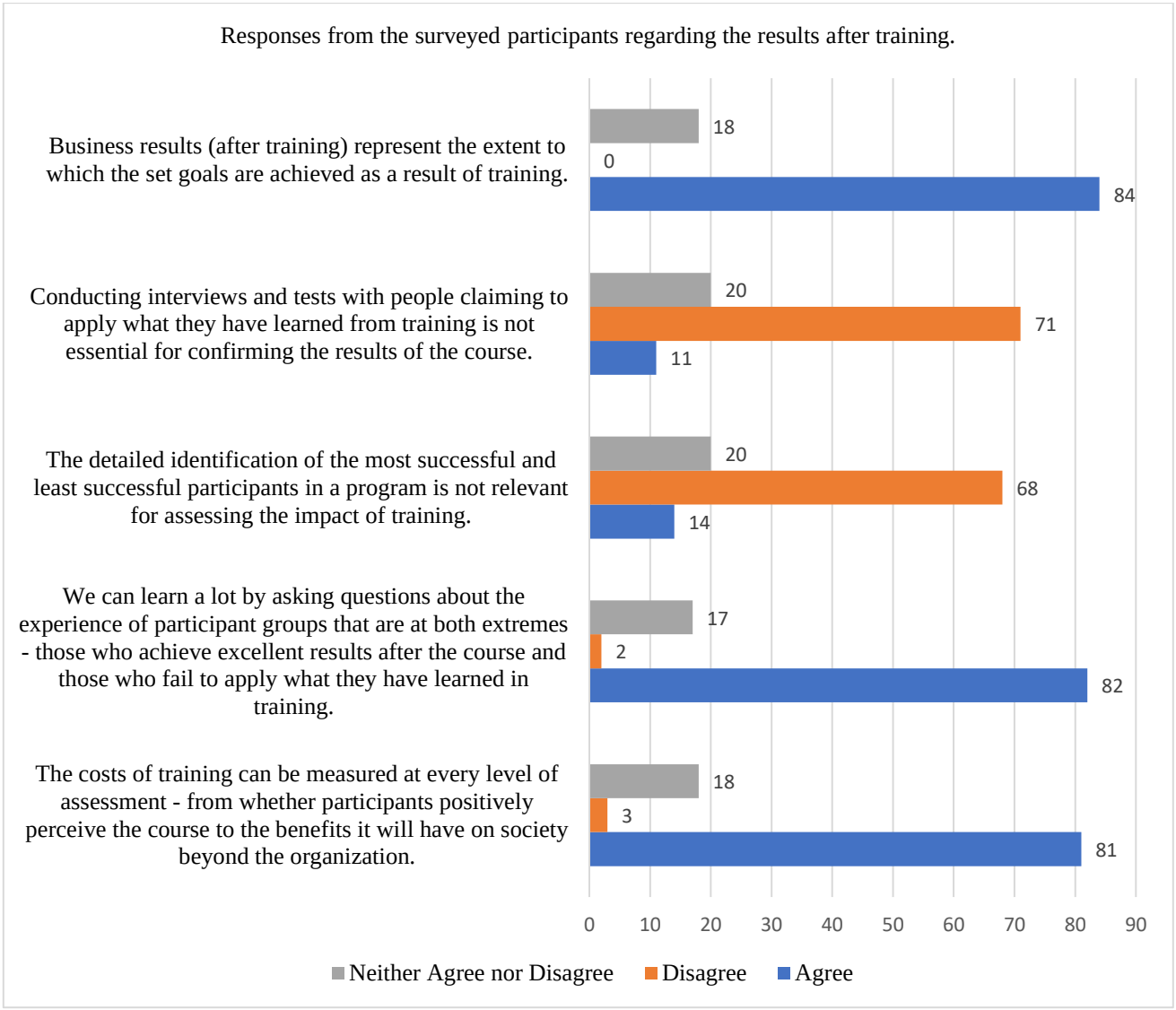

Figure 24 - Responses from surveyed participants regarding the results after training. (Source: Own research)

According to the results from Questionnaire 3, each of the 9 statements (see Figure 31 on the next page) indicates that training is perceived as successful (its costs are justified) if some positive change has occurred in the organization afterward – economic, financial, production-related, personnel-related, etc.

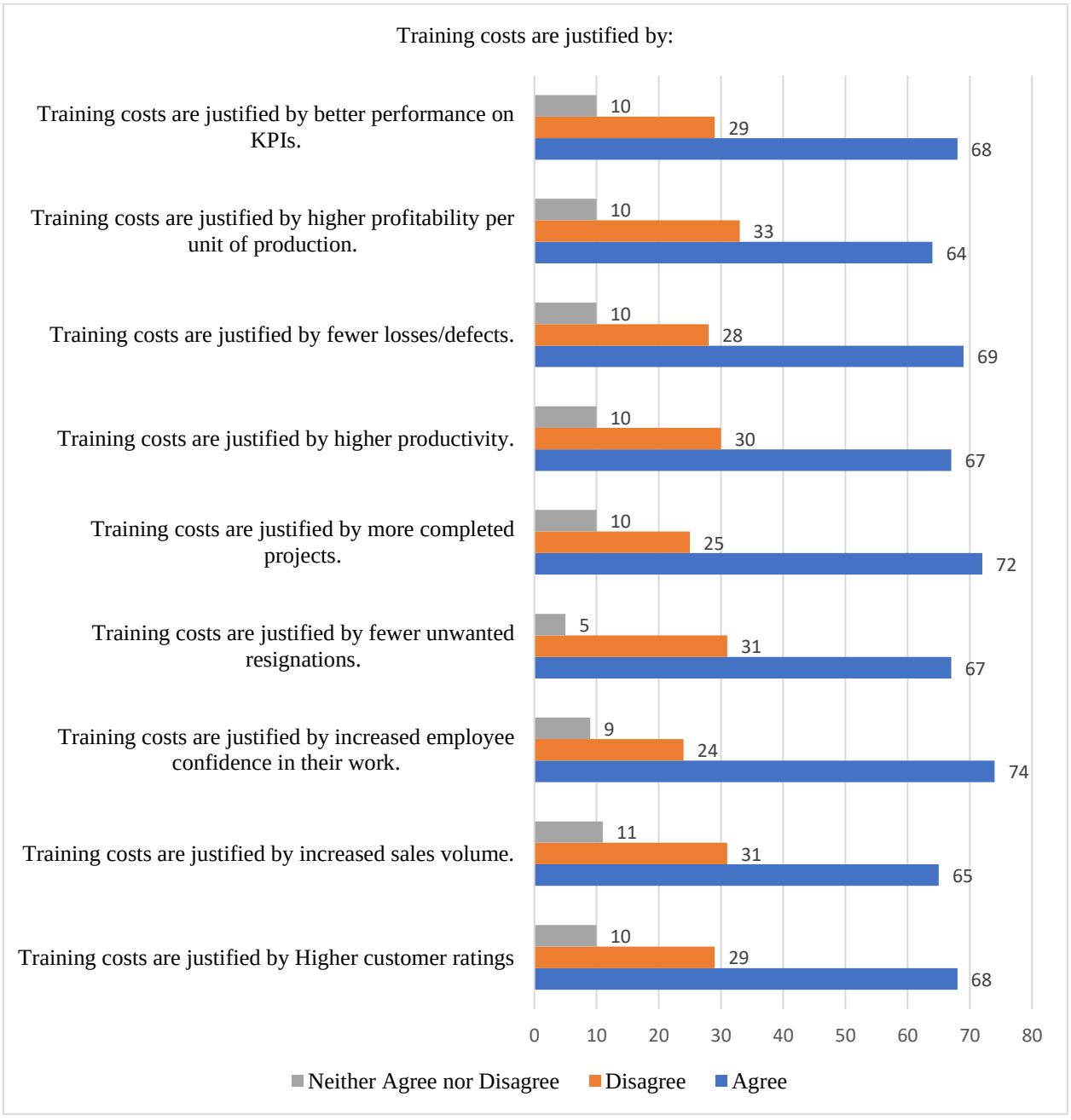

Figure 31 - Justification of Training Costs. (Source: Own Research)

To conduct a more in-depth exploration of the impact of technology, learning, and behavior on training outcomes, interviews were conducted. The results are presented below along with subsequent comments.

Questions	Summary of Responses
When are training costs justified?	• When there are increased sales • When there is higher productivity • When there is lower turnover • When there is increased confidence in the work.
How is a change in employee behavior expressed after training?	• Employees work more efficiently, with higher quality and confidence • Employees exhibit specific behaviors that are deliberately monitored and linked to set goals.
What is the role of the manager after training?	• The role of the manager after training is to support the employee in the change • The role of the manager after training is to have follow-up conversations with the employee to reinforce what has been learned.
How do you connect technology and training?	• Through technological tools used in training and afterward – training materials, presentations, case studies, etc • In the development and administration of training • In online training.
What is the benefit of talking to employees who have/haven't changed their work habits after training?	• Identifies successful/unsuccessful elements of training • Improves the training • - In conversation, a way to turn failure into success can be found.

Figure 32 – Summary Data from Conducted Interviews with Organizational Personnel. (Source: Own Research)

The purpose of these questions is to provide commentary on some of the key themes from the questionnaires. Figure 32 summarizes the data obtained from interviews with organizational personnel.

During interviews with representatives from training companies involved in both training and assessment, a set of 12 questions was posed. The six participants engaged in these discussions were from four companies offering corporate training in soft skills (communication, negotiation, etc.)—one of the companies was represented by two partners.

The training companies interviewed shared that the firms ordering training from them are predominantly from three sectors: information technology (IT), manufacturing, and shared-service centers (outsourced services for foreign companies in the country). When asked "What is successful training for you?" the trainers responded in three directions: successful training is one with good feedback, one with active participant involvement and subsequent training, and one where set goals are achieved. The assessment methods most commonly used by trainers include feedback questionnaires, observation, evaluation against key performance indicators set for the organization, and the Kirkpatrick Model.

2. Testing the Training Assessment Model

For the creation of the questionnaires, Lime Survey was used, and subsequently, the data was transferred to SPSS for analysis.

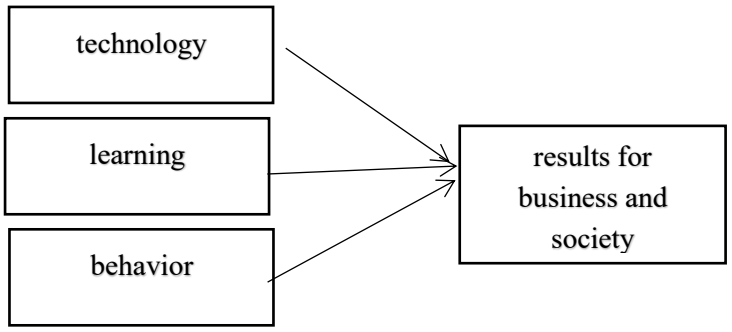

Figure 33 - Influence Scheme in the Proposed Model for Evaluating Training Results. (Source: Own Research)

With the help of multiple regression, the significance of the elements below for the organization's performance was examined. Multiple regression shows the strength with which independent variables influence the dependent variable. In this case, we investigate the impact of technology, learning, and behavior on the results of training.

The variables for each element and the names of the elements are taken from the theoretical framework, specifically from the following models: Kirkpatrick's model, Mahapatra and Lai's model, and the Success Case Method (Kirkpatrick, 1998; Mahapatra and Lai, 2005; Brinkerhoff, 2009).

Element 1 – Technology (Mahapatra and Lai, 2005)

It assesses the significance of the technology used for the training outcomes. It includes six variables – statements that have been examined in studies. These specific statements are chosen as they are used in the theoretical review to describe technology and its importance in training. They are crucial for understanding the element and set the direction for its investigation to demonstrate its influence on training outcomes and the overall training program. This element is also crucial when examining online training in future analyses.

Element 2 – Learning (Kirkpatrick, 1998; Kirkpatrick, 2019)

It examines the extent of knowledge and skills acquired as a result of training. The element includes six variables selected as significant from Kirkpatrick's Model presented in his work from 1998 and from the New Kirkpatrick Model (2019), which focuses on the return on investment in training and return on expectations. The statements are descriptive of the meaning of the element and the fields for analysis that need to be explored to form results that will be significant for the organization.

Element 3 – Behavior (Kirkpatrick, 1998)

It assesses the degree of behavior change resulting from training and includes seven variables. These variables are chosen from the book "The New Kirkpatrick Model" (Kirkpatrick, 2019). They are significant because they define the meaning of the element, focusing on important behaviors, competencies, and the involvement of managers, which is crucial for behavior change after training. The behavior element is key for both Kirkpatrick's Model and the model proposed here. It is the backbone of the model since behavior change after training is a clear indicator of the course's impact.

Element 4 – Results

The results of training are measured, and the impact of training on the business is assessed. It includes thirteen variables, eleven of which are taken from the book "The New Kirkpatrick Model" (2019). These variables define what is meant by "business results," and what is important to evaluate in this element. They show what justifies business expenses for training. These are key variables for understanding business expectations of training, connecting the investment in courses with expected visible/measurable results. Two of the variables are part of the Success Case Method (Brinkerhoff, 2009). They involve identifying

the most successful and least successful cases after training, conducting detailed interviews and tests to directly show how training affects employees' change and, consequently, business results. This is related to the importance of these direct encounters with employees for team managers. Including these two variables contributes to the evaluation of training results by helping identify and correct weaknesses in a training program.

Cronbach's alpha was calculated for each element. This is a reliability coefficient that assesses the consistency of the scale (Hair, 2010, p.124). The values of this coefficient range from 0 to 1. It is accepted that the scale is reliable if the Cronbach's Alpha value is at least 0.70 (Hair, 2010, p. 91).

For **Element 1** - Technology, the **Cronbach's alpha value is 0.835**, indicating a high level of consistency for the scale. The presented six variables form the technology element and are significant for its definition.

For **Element 2** - Learning, the Cronbach's alpha value, including all 6 variables, is 0.259. This value is very low. To have consistency in the scale, the value should be above 0.7. Reviewing the *Cronbach's Alpha if item deleted* table, we see which variables lower the Cronbach's Alpha value. Removing them increases the **Cronbach's Alpha value to 0.807**, showing consistency in the scale.

For **Element 3** – Behavior, the Cronbach's alpha value, including all 7 variables, is 0.315, which is less than 0.7 and indicates that the scale is not consistent enough. We proceed similarly to the previous element and recalculate the indicator. This increases the **Cronbach's alpha value to 0.842**, demonstrating consistency in the scale.

For **Element 4** – Results, the **Cronbach's Alpha value is 0.861**, and the scale is consistent. The element remains with 13 variables.

The influence of elements 1, 2, and 3 on element 4 was tested through multiple regression. There is a discussion in the literature about whether single-item indicators can be used instead of entire elements in more complex regressions like those with structural equations. In this case, I rely on the opinion of authors who support this possibility (Petrescu, 2013; Hair et al., 2009). We use variables from each element, selecting those that theoretically have significant importance.

Independent Variables:

- When evaluating the participants' skills in training, the assessment should take place in an environment that is as close to real as possible.
- When reviewing the technology used, it should be assessed how easily IT-based tools are utilized.
- Organizations are more effective when led by significant behaviors, and competencies should be selected that support these behaviors.

Dependent Variable:

- Business results (after training) represent the extent to which set goals are achieved as a result of training.

I calculated **R, R2, Adjusted R,** and **the standard error of the estimate**. The value of "Adjusted R Square" in our case is 0.651. This shows that the model is good, as this value is greater than 0.5. The standard error of the estimate is different from 0, with a value of 0.455.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,815[a]	,665	,651	,455

a. Predictors: (Constant), [Organizations are more effective when led by significant behaviors, and competencies should be selected that support these behaviors.] To what extent do you agree with the statements:, [How easily IT-based tools are utilized.] To what extent do you agree with the statement: When reviewing the used technology, it should be assessed..., [When evaluating the participants' skills in training, the assessment should take place in an environment that is as close to real as possible.] To what extent do you agree with the statements:

Figure 40 – Model Summary (Source: Own research)

In calculating the coefficients of the regression model, it can be seen that VIF (Variance Inflation Factor) < 3, which is an important condition for no multicollinearity. This is confirmed by collinearity diagnostics. The most widely used level of significance is 0.05,

and coefficients below this value are considered significant (Hair, 2010). In this study, the significance coefficients Sig. < 0.05 for all variables.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	,812	,287		2,829	,006	,242	1,381					
	[When evaluating the participants' skills in training, the assessment should take place in an environment that is as close to real as possible.]	,324	,096	,345	3,378	,001	,134	,515	,748	,326	,200	,335	2,987
	[How easily IT-based tools are utilized.]	,226	,067	,272	3,363	,001	,093	,360	,685	,325	,199	,534	1,874
	[Organizations are more effective when led by significant behaviors, and competencies should be selected that support these behaviors.]	,142	,068	,150	2,088	,039	,007	,277	,554	,208	,123	,678	1,476

Figure 43 – Coefficients (Source: Own research)

The test of the model showed the influence of the elements of **technology, skills**, and **behavior** on the dependent variable – **results**, through their representing individual variables. They significantly predict the dependent element.

The proposed and studied new model builds upon Mahapatra and Lai's model (Mahapatra & Lai, 2005), Donald Kirkpatrick's model (Kirkpatrick, 1998), the new Kirkpatrick model (Kirkpatrick, 2019), and the Success Case Method (Brinkerhof, 2009), showing the importance of assessing training results not only for the organization but also

for trainers and firms offering training. This model, in several steps, highlights key elements influencing training results and emphasizes the crucial role of managers, leaders, and Human Resources specialists in this process. The focus on used technology and employees' behavior after training makes the model relevant today and aims to benefit not only organizations that can measure course results, trainers who can gain much information for building and improving training programs, but also employees who would have accessible training tailored to their real work environment and applicable in practice.

CONCLUSION

The dissertation thoroughly examines the topic of assessing the outcomes of corporate training as an integral part of the training and development process in organizations. The work highlights the **relevance and significance** of this process, pointing out that achieving a return on investment in training can lead to improvements in organizations, such as increased profitability, greater productivity, more qualified and motivated employees, reduced turnover, better performance on key performance indicators (KPIs), and fewer losses. Additionally, the correct assessment of training gives meaning to the entire process, transforming training into a tool for achieving organizational results, which, in turn, can benefit society.

The **goal** of the study is to propose and test a new model for evaluating training courses based on a comparative analysis of existing models and methods. The set goal is achieved by fulfilling the following main tasks:

- Reviewing existing models and methods for evaluating training, with a focus on Donald Kirkpatrick's training evaluation model.
- Providing a comparative analysis of 8 models based on their elements and applicability.
- Presenting data in tabular form and indicating the advantages and disadvantages of the models.
- Identifying four key elements from existing models and methods for training evaluation.
- Conducting quantitative empirical research through three surveys, each with over 100 respondents, to verify whether the model works for organizations, training firms, and training evaluators.
- Analyzing the collected data using MS Excel and IBM SPSS.
- Conducting qualitative research through semi-structured interviews to provide in-depth commentary and confirmation of the quantitative research data.

The study **confirmed three hypotheses**:

- **Hypothesis 1:** Information technology-based tools influence business outcomes after training. (Represented by the Technology element)

- **Hypothesis 2:** Acquired knowledge and skills as a result of training influence business outcomes after the training. (Represented by the Learning element)
- **Hypothesis 3:** Changes in participants' behavior due to training influence business outcomes after the training. (Represented by the Behavior element)

The research results are achieved with the following **limitations**:

- The study involves only Bulgarian offices of medium and large companies without sector restrictions.
- Training and learning are understood solely as corporate training offered by the company to its employees.

The practical application of this model considers the outcomes of training through the prism of technology used before, during, and after training, knowledge acquired as practical skills applied in work, changes in employee behavior after the course, and outcomes for the organization and society regarding the impact of changes in business results.

Given the research and literature review, the following areas are of **future interest**:

- Specific impacts of corporate training on society and the benefits it brings beyond the organization.
- A more specific examination based on the Phillips model, which adds a level of "Return on Investment from Training." Exploring how the financial indicators of the company change after training and adding this to the current model.
- The field of online training has not been widely researched. Its evaluation is briefly mentioned in Kirkpatrick's model. This is an area that can be further explored, as it has its specificities that need to be reflected in the development of an evaluation model – whether the proposed model is applicable for assessing online training and how it can be adapted for this purpose.
- A comparison can be made between the assessment of training based on the sector in which the company operates or based on the type of training, with separate studies at the sector level.

MAJOR CONTRIBUTIONS OF THE DISSERTATION

- Systematization of theoretical and empirical research in the field of training evaluation. A comparative analysis of the elements, characteristics, and application of eight leading models for corporate training evaluation has been carried out.
- Proposal of a new model for training evaluation in organizations. Original research has been conducted, revealing the opinions of evaluators, managers, and specialists from organizations in various industries in Bulgaria on the topic of training evaluation and the applicability of the proposed model.
- Confirmation of the influence of three factors - technology, learning, and behavior - on the outcomes of training for business. The conclusion has been drawn that training also has an impact on society.
- The practical significance of the results is expressed in the identification of the key elements of the proposed training evaluation model that influence the degree of achievement of predetermined goals in the organization.

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PUBLICATIONS ON THE TOPIC OF THE DISSERTATION

(1) Licova, I., Petkova-Gurbalova, I. (2020). Training and development of leaders. TU-Sofia, 18th International Scientific Conference "Management and Engineering '20," pp. 419-427. [Online] Available at: https://dox.abv.bg/download?id=c35465083b

(2) Licova, I. (2020). Training and development of employees working remotely. Knowledge International Journal, vol. 42, pp. 115-119. View of TRAINING AND DEVELOPMENT OF EMPLOYEES IN A REMOTE WORKING ENVIRONMENT (ikm.mk)

(3) Litsova, I. (2021). Developing and Measuring Soft Skills after Online Trainings. 2nd International Conference on Economic and Business Trends Shaping the Future. URI: http://hdl.handle.net/20.500.12188/15931; DOI: http://doi.org/10.47063/EBTSF.2021.0018.

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