



**PLOVDIV UNIVERSITY
“PAISII HILENDARSKI”**

DEPARTMENT OF MARKETING AND INTERNATIONAL
ECONOMIC RELATIONS

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**INFLUENCE OF DUAL EDUCATION ON THE BRAND
IMAGE OF VOCATIONAL HIGH SCHOOLS**

ABSTRACT

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The author is a full-time doctoral student at the Department of Marketing and International Economic Relations according to Order ПД-21-267/03.02.2022 of the Rector of Plovdiv University "P. Hilendarski". The dissertation contains an introduction, three chapters, a conclusion, a bibliography, 1 appendix, a summary of scientific contributions and directions for future research. The used literature consists of 168 literary sources, of which 16 are in Bulgarian and 152 are in foreign languages (147 in English, 3 in German, 1 in Indonesian and 1 in French).

The defense of the dissertation will take place on 13.06.2025 at 12:00, in room 126 of the Rectorate of Plovdiv University "Paisii Hilendarski", Plovdiv before a Scientific Jury. The materials for the defense are available on the specialized website of the Department "Development of the academic staff and doctoral studies" at PU "P. Hilendarski".

I. GENERAL CHARACTERISTICS OF THE DISSERTATION

The development of the dual secondary education is one of the most important priorities of the Ministry of Education and Science (MES) of Bulgaria, described in the “Strategic Framework for the Development of Education, Training and Learning in the Republic of Bulgaria (2021 - 2030)” (MES, 2021) and the “Strategic Vision for the Development of Dual Vocational Education and Training (dVET) in Bulgaria – 2030” (MES, 2023). This is in line with the objectives of the European Union, as set out in the “Council Resolution on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030)”, namely - “The share of recent graduates from VET benefiting from exposure to work-based learning during their vocational education and training should be at least 60%, by 2025.”. In this sense, dual training and its effects on students, companies, schools and the national economy are a particularly **relevant** issue.

Bulgaria is still at an early stage of the implementation of dual VET (dVET), compared to advanced countries such as Germany and Austria. At this particular stage it is of utmost **importance** to study the effects of introducing work-based learning in secondary education. For schools, which are essentially the main driving force behind dual education, it is especially important to study whether this change in the educational process has a positive impact on their brand image and which aspects of the education process have the strongest impact on consumer perception of the brand.

A literature review revealed a limited number of studies on the Bulgarian dual education system, a significant number of which were conducted by organizations external to Bulgaria. The literature does not address the marketing aspect of the issue of providing dual education and does not address the effects on the brand image of high schools.

The aim of the dissertation is to establish the role and degree of influence of the attitudes towards dual education on the brand image of vocational high schools by examining the perceptions of the users of the educational service – the students. To achieve this aim, the following research objectives have been set:

- 1) To conduct a literature review in the field relevant to the dissertation topic.

- 2) To carry out a comparative analysis of the dual training system in Bulgaria and those in the pioneering countries – Germany and Austria.
- 3) To construct a model for a two-phase research program to study the factors that determine the brand image of vocational high schools.
- 4) To develop a methodology for conducting an empirical study of the brand image of educational institutions providing dual vocational training and education in Bulgaria.
- 5) To formulate conclusions and recommendations regarding the building of the brand image of vocational high schools based on the results of the two surveys conducted.

The object of the research is the vocational high schools in the Plovdiv district, which offer dual education to their students.

The subject of the study is the brand image of vocational high schools explored through the opinions of the users of the educational service (the students in work-based training) and the creators of the corporate image (the schools' management).

The research thesis is that among the factors influencing brand image - perceived quality of the educational service, brand satisfaction, attitudes towards dual vocational education and training, and brand associations - vocational high schools should prioritize fostering positive attitudes toward dual vocational education, as these have the strongest impact on their brand image.

Research hypotheses:

H1: There is a statistically significant unidirectional causal relationship between the perceived quality of the educational service and the brand image of the vocational high school.

H2: There is a statistically significant unidirectional causal relationship between brand satisfaction and the brand image of the vocational high school.

H3: There is a statistically significant unidirectional causal relationship between the attitudes towards dual VET and the brand image of the vocational high school.

H4: There is a statistically significant unidirectional causal relationship between the brand associations and the brand image of the vocational high school.

Due to the identified lack of data related to the topic, a two-phase study was selected. The first phase is a qualitative study among the administration of schools in the Plovdiv district that actively use the method of work-based learning. The aim is to collect information about the policies and opinions of the leadership managing the school brand and to serve as a basis for developing the questionnaire used in the second phase - conducting a quantitative study on the opinions of students in dual classes. The results of both studies will provide answers regarding the impact of dual learning on the brand image of schools that work with the method.

The main data collection methods, in line with the two-phase research program, include unstructured in-depth interviews and on-site written surveys conducted with the primary units. Data processing was carried out using the software tools Excel, IBM SPSS V26, and SmartPLS 4. The statistical analysis was performed using descriptive statistics and Structural Equation Modeling (SEM).

The dissertation experiences the following limitations:

- The scope of the research program only includes educational institutions within the Plovdiv District.
- Secondary schools that offer dual education but are not vocational high schools are excluded from the study.
- The opinions of other stakeholders, such as partner companies of the schools; parents of prospective and current students in vocational high schools; experts from ministries, municipalities and regional governments, etc., are not included.
- Due to the large number of respondents, a questionnaire with closed-ended questions was used, which excludes the possibility of discussing and clarifying other aspects of the subject area.

II. STRUCTURE AND CONTENT OF THE DISSERTATION

Structure:

The dissertation has 131 standard pages of main text and consists of an introduction, three chapters, a conclusion, a list of used literary sources and appendices. It includes 17 tables, 7 figures and 1 appendix. A total of 168 literary sources are cited, of which 16 are in Bulgarian and 152 are in foreign languages (147 in English, 3 in German, 1 in Indonesian and 1 in French).

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III.BRIEF PRESENTATION OF THE DISSERTATION

CHAPTER ONE: THEORETICAL ASPECTS OF BRAND IMAGE AND DUAL TRAINING

The first chapter of the dissertation presents the definitions and conceptual framework that form the essence of the research problem. The brand image in the context of the vocational high school is analyzed, as well as the factors influencing it. A review of dual education as an educational method is presented, a comparison of dual systems in selected countries, their problems and strengths is presented.

1. Brand image and related concepts

Marketing is a science and practice with many manifestations in different sectors of production and consumption, which determines the presence of diverse understandings of its substantive scope. The American Marketing Association (AMA) defines that: “Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large.” (AMA, 2024). “Marketing identifies unfulfilled needs and desires. It defines, measures and quantifies the size of the identified market and the profit potential.” (Kotler, 2024). One of the main elements of marketing is brand marketing. For the AMA, it is an “approach used by companies to promote and establish a brand in a market by creating a unique identity, values, and perceptions that differentiate it from competitors.” (American Marketing Association, 2024).

Brand marketing aims to create emotional associations with the brand among consumers in order to stimulate sales and increase profit. Branding, on the other hand, can be defined as „the act of making a product, organization, person, or place easy to recognize as different from others by connecting it with a particular name, design, symbol, set of qualities, etc. “, (Cambridge dictionary, 2024) i.e. by associating them with a given brand. Brand management refers to the management of branding as a process. The very concept of a brand can be defined as “a brand is a name, term, design, symbol, or any other feature that identifies one seller’s goods or service as distinct from those of other sellers.” (AMA, 2024).

The key concepts directly related to the topic of this dissertation are “identity”, “image”, “reputation”. Brand identity refers to the unique set of brand associations that a company aims to create or maintain. Corporate image is the constructed perception (a purposefully constructed “image”) and can be modified through persuasive communication aligned with corporate goals. Brand image reflects the way the brand is perceived by the consumer or the set of brand associations and feelings that remain in the consumer’s memory (Kumaravel & Kandasamy, 2012; Keller, 1993). These associations can be based on specific characteristics of the object or person, but also on unrealistic ideas. Thus, an important aspect of brand image is the mental picture that buyers form about the brand. Corporate reputation, on the other hand, is the assessment, the evaluation of the imposed image, i.e. it is a collection of all the "snapshots" of the image and their reception, accumulated over the years. It is a general idea of the identity of the organization in the eyes of external recipients (Dimitrova & Desev, 2020).

1.1. Brand image of the vocational high school

In the field of education, the terms "brand image" and "corporate image" often overlap, which is a significant difference compared to the private sector, where the brand is often independent of the name and assets of the manufacturer. In the context of schools, the brand includes not only the name of the institution, the logo and the slogan, but also the material, technical and information infrastructure, the staff, the teaching methods used, the quality of administrative services, as well as the promise of future professional realization of the graduates. Another specific aspect of the brand management of the educational institution is the diversity of stakeholders involved - the current and also the prospective high school students, the parents of these students, representatives of potential business partners of the institution, teachers, and others.

2. Factors influencing the formation of brand image

And the midge is designed and modeled by external stimuli. The consumer perceives, analyzes and stores the provided stimulus in his mind depending on the degree of its significance (Srivastava, 2009). Based on the literature review, the following ten factors for forming brand image have been systematized by popularity over the past ten years: brand associations, perceived quality, brand satisfaction, brand loyalty, brand trust, attitudes toward the brand, brand awareness, brand love, brand experience, participation in brand communities in social media.

2.1. Factors influencing the brand image of the vocational school

For the purposes of the dissertation, six variables have been conceptualized, whose influence on the brand image of the vocational high school can be monitored: brand associations, brand loyalty, perceived quality of the educational service, brand relevance, student satisfaction, attitudes towards dual vocational education and training.

3. Dual education in the secondary education system

3.1. The essence of dual training

The Preschool and School Education Act of the Republic of Bulgaria (MES, 2023) introduces the definition of dual vocational education and training as a form of education in which the student acquires a professional qualification through school-based learning, combined with practical training in a real work environment. Theoretical instruction in schools is supplemented by practical training in grades XI and XII for students who have reached the age of 16 and is carried out in educational and production facilities at the employing enterprises by a qualified mentor - an employee of the company. This type of education leads to an increase in the quality of education and the abilities acquired by the students. The curriculum and materials are updated and supplemented to correspond to modern technologies used by the private sector. Students receive the professional skills, knowledge, qualifications and experience necessary to perform qualified work (BMBF, 2022). Youth unemployment levels are reduced (BMBF, 2023), and the needs of the business for qualified personnel are met, as the employer directly ensures the availability of workers on the labor market who meet all workplace requirements.

3.2. Dual education in Bulgaria and Europe

Bulgaria is at an early stage in the implementation of dual education, especially when compared with advanced Western European countries. In Austria and Germany, over half of the high school students participate in work-based learning and the challenges that the countries face are related to the development of education towards the inclusion of disadvantaged groups and a shift to a focus on digital skills and training on "green"/ecological topics. In Bulgaria, the system is significantly more flexible than it is abroad, but is characterized by problems, typical for an earlier stage of development - a mismatch between the needs of business and the school curricula, a lack

of interest in the program, an absence of research focusing on the dual vocational training. On the other hand, prerequisites for success have been noted, such as Bulgaria's efforts to develop the system through laws, strategic plans, projects and a well-functioning institutional framework for communication with business. There is a trend towards an increase in the number of students in dual training from 8,877 in the 2020/2021 school year to 8,877 in 2022/2023.

CHAPTER TWO: METHODOLOGY OF RESEARCHING THE INFLUENCE OF DUAL TRAINING ON THE BRAND IMAGE OF THE SECONDARY VOCATIONAL SCHOOL

Chapter Two presents the methodology of the research, which occupies a central part of the dissertation. It contains a review of the existing literature on the chosen topic, the structure and objectives of the study, the hypotheses formulated by the author, a justification of the type of research program and the methods used, the preparation and conduct of the actual primary data collection.

1. Review of Literature Related to Research on the Brand Image of Dual Education

The review of scientific publications shows that there are no available studies focused on the impact of dual education on the brand image of vocational high schools in Bulgaria. There are similar studies in a foreign context, but they do not directly address the specifics of the Bulgarian education system. The literature review identified several main components that influence the brand image of educational institutions: good treatment of the students and competence of the teachers and mentors, well-maintained infrastructure, curriculum relevance to the studied profession, opportunities for career development after graduation, etc. The need for a two-phase study was identified and the target population was selected.

2. Justification for the need for a two-phase research program

In view of the specificity of the research subject, the author of the dissertation decided to analyze the opinions of the two key sides of the educational branding process - the consumers (high school students) and the

creators or facilitators of the image (the heads of educational institutions), in order to form a more complete understanding of the effects of the implementation of dual vocational training. Due to the identified lack of secondary data, a mixed-method design was adopted, combining qualitative and quantitative research to gather the largest possible volume of primary data, consistent with the characteristics of the target group and the information that the study seeks to cover.

3. First phase – qualitative research

3.1. Purpose of the qualitative research

The qualitative research is conducted among principals and deputy principals of educational institutions offering secondary dual vocational education and training and aims to explore the opinions of the managers regarding the dual training process, the challenges in implementing this method, the plans for its development, the actions taken to build and improve its brand image and the factors that have a presumed impact on the image in the eyes of consumers - students in vocational high schools.

The scope is limited to vocational high schools (VHS) in the Plovdiv region. Secondary schools that offer dual education but are not vocational high schools are excluded from the scope of the study. Schools whose students are part of the dVET program but have not yet reached grades XI and XII and therefore do not actively participate in work-based learning are also not included in the target population, because neither the students nor the administrators have the necessary experience to share.

According to data from the Education Information Assurance Center (CIAC) of the Ministry of Education and Science, for the 2022/2023 academic year, as of December 16 2022, 9 vocational high schools in Plovdiv district meet the conditions set out in the study - the Vocational School "Tsar Ivan Asen II", Asenovgrad; the Vocational School of Viticulture and Enology "Hristo Botev", Perushtitsa; the Vocational School of Transport and Construction Technologies "Gotse Delchev", Plovdiv; the Vocational School of Food Technology and Engineering, Plovdiv; the Vocational School of Electrical Engineering and Electronics, Plovdiv; the Vocational School of Fashion Design "Ana May", Plovdiv; the Vocational School of Interior Architecture and Woodworking "Hristo Botev", Plovdiv; the Vocational School of Mechanical Engineering "Professor Tsvetan Lazarov", Plovdiv; and the Vocational School "General Vladimir Zaimov," Sopot.

3.2. Development of a guide for conducting the study

The guide for conducting in-depth interviews is composed of 10 open-ended questions of an indicative nature.

1. *What are the problems that the administration and students encounter when implementing the dual form of education?*
2. *Do you plan to increase the number of dual classes in the next school year?*
3. *What do you think can be done to facilitate the development of dual training?*
4. *What methods do you use to promote the school brand and its dual classes to potential students?*
5. *What are the reasons that students give for choosing this educational institution?*
6. *What are the most important factors for forming a positive brand image of your school?*
7. *What are the 3 most important advantages of your school that you emphasize in promotional campaigns?*
8. *How often do you conduct surveys regarding the school's brand image among students?*
9. *How do you think offering dual education has affected the image of your school?*
10. *What 3 words do you most strongly associate with the dual training program?*

3.3. Conducting the survey

In the period April 15, 2024 - April 20, 2024, seven of the nine educational institutions were visited in person and representatives of their management in the position of director or deputy director were interviewed. An interview with a representative of the Vocational School of Viticulture and Enology "Hristo Botev", Perushtitsa was not initiated, due to the fact that there are only 4 students in the dual form of education, another educational institution did not participate in the first phase of the study due to the busy schedule of the management. The answers were recorded via audio recording.

4. Second phase – quantitative research

4.1. Objective of the quantitative study

The aim of the second phase of the research is to establish the attitudes and perceptions of students in a dual form of education regarding a set of factors influencing the brand image of the vocational high school.

4.2. Selection of respondents

Students in dual form of education in grades XI and XII from the 9 schools listed above were selected as participants in the survey. Through data obtained from the Education Information Assurance Center as of December 2023, it was established that the target population consists of 608 individuals.

4.3. Development of a tool for conducting the quantitative research

Following the literature review, seven sources were selected by the author as most relevant to the current educational context in Bulgaria. Two second-order constructs and three first-order constructs were selected. Four of the five selected constructs were validated through studies in higher education institutions and were adapted to reflect the context of vocational high schools. Respondents were asked to express their agreement or disagreement using a 5-point Likert scale. After the translation from English, the questionnaire was tested for clarity, completeness of responses and duration among 35 respondents (possessing characteristics similar to those of the target population).

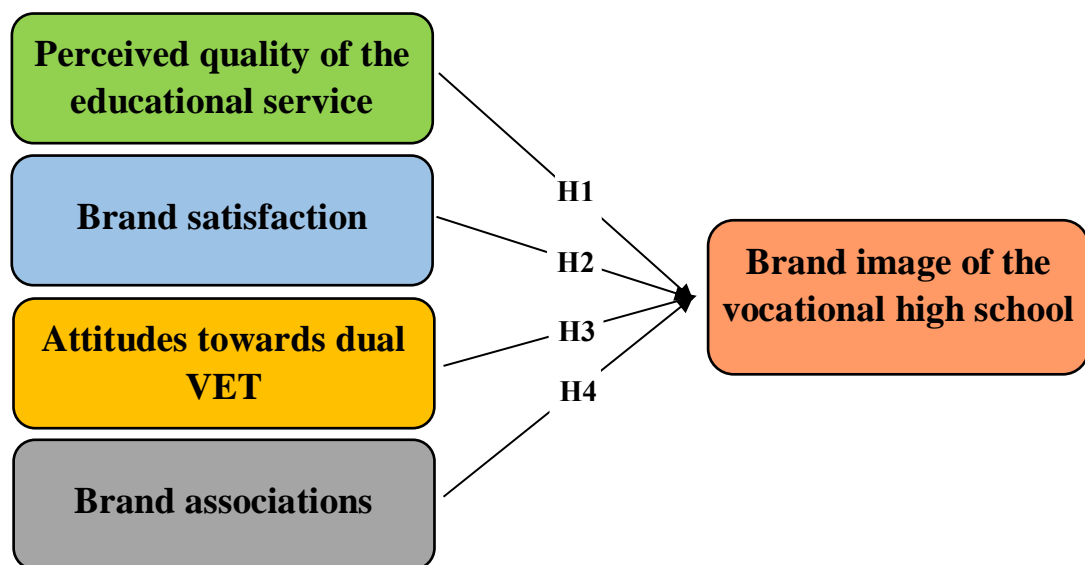


Fig. 1. Conceptual model of quantitative research.

Figure 1 shows the four constructs selected for testing the hypotheses related to the influence of certain factors on the brand image of VHS.

Construct 1: *Perceived quality of the educational service* (Hasan, Ilias, Rahman, & Razak, 2008), is a complex second-order construct with sub-constructs: Service quality, Assurance, Reliability, Responsiveness, Empathy.

Construct 2: *Brand Satisfaction* is adapted from the work of Hasan, Ilias, Rahman, and Razak (2008).

Construct 3: *Attitudes towards dual VET* (Dang & Hathaway, 2015) contains the following sub-constructs: Entry requirements, Facility and equipment in the training company, Mentors' ability, Recognition of qualification, Student career and job potential, Quality of the dual education, Social skills, Soft skills, Future study choice, Earning potential.

Construct 4: *Brand image of the vocational high school* - adapted from Tran and Duc (2022).

Construct 5: *Brand associations* – based on the study of Girard and Pinar, (2020).

The questionnaire used contains 56 statements, 9 of which are evaluated using a rating on the scale of 1 (not satisfied at all), 2 (somewhat dissatisfied), 3 (neutral), 4 (somewhat satisfied) and 5 (completely satisfied), and 47 are assessed on the scale of 1 (strongly disagree), 2 (somewhat disagree), 3 (neutral), 4 (somewhat agree) and 5 (completely agree).

5.1. Conducting the survey

The survey was conducted on-site in eight of the nine schools in the period April 21, 2024 - April 30, 2024. The students from the Vocational School of Viticulture and Enology "Hristo Botev", Perushtitsa were surveyed by the teachers at the school, without the presence of the author of the dissertation, due to the fact that only 4 students fall into the target group. The total number of questionnaires collected is 559, 52 of them were removed due to missing answers, incorrect completion, etc. There are 507 valid questionnaires available or 83% of all students from the target population.

CHAPTER THREE: ANALYSIS OF THE RESULTS OF THE TWO-PHASE RESEARCH PROGRAM

Paragraph 1 of Chapter Three provides a description of the responses gathered from the in-depth interviews, while Paragraph 2 presents the results of the survey. The statistical analysis was conducted using descriptive statistics and Structural Equation Modeling (SEM).

1. Results of the qualitative study

The following lines summarize their responses while maintaining their anonymity:

Question 1. What are the problems that the administration and students encounter when implementing the dual form of education?

A major issue mentioned by almost all school representatives is the difficulty in finding partner companies, with some respondents also mentioning plans to close dual classes due to a lack of interested companies. Additional challenges include transportation and travel expenses for students and school staff to internship locations, which are often out of the city. Respondents also pay attention to the burden of the process of preparing curricula for students and the volume of documentation related to dual training. Respondents also pointed out the complexity of preparing student training plans and the volume of documentation associated with dual education. Other issues include mismatched expectations between companies and schools, and the employer-student relationship.

Question 2. Do you plan to increase the number of dual classes in the next school year?

The responses again highlight the difficulty of finding partner organizations to offer internships to students, although some schools do not encounter insurmountable difficulties with the program and plan further expansion.

Question 3. What do you think can be done to facilitate the development of dual training?

The main response to this question points to the need to reinstate the suspended funding by the Ministry of Education and Science under the project BG05M2OP001-2.014-0001 "Support for the Dual Education

System", part of the Operational Program "Science and Education for Smart Growth" 2014 - 2020.

Question 4. What methods do you use to promote the school brand and its dual classes to potential students?

Most high schools participating in the study engage in ongoing or periodic communication initiatives to establish their brand, including social media presence, outdoor advertising, involving students in creating promotional content, participating in career fairs, and organizing open house days.

Question 5. What are the reasons that students give for choosing this educational institution?

Several factors are identified for making such a choice. The dominant factor is the influence of parents, followed by recommendations from relatives/acquaintances and the desire for training through work.

Question 6: What are the most important factors for forming a positive brand image of your school?

It can be summarized that for the majority of respondents, the most important factors are dual training, practical internships, career opportunities, quality of the educational service, satisfaction with the education received, attachment to the school and teachers, recommendations from alumni.

Question 7: What are the most important factors for forming a positive brand image of your school?

The majority of VHSs position their educational activities primarily through the following competitive advantages - good facilities and equipment of the school, professionalism/competences of teachers, opportunities provided for training through work (dual education and internships). The next most popular features include - the career realization of students and mutually beneficial relationships with business. Consequently, the VHSs advertising messages include messages reading "dual training", "training through work", "good partnerships with companies", "opportunities for career development of students".

Question 8: How often do you conduct surveys regarding the school's brand image among students?

Four of the schools conduct surveys annually, two - every 2 or 3 years and one school has not conducted such a survey. The purposes cited for these

surveys include addressing negative perceptions, highlighting school strengths in marketing campaigns, and improving the school's image.

Question 9: How do you think offering dual education has affected the image of your school?

Most respondents share that the introduction of dual training has significantly improved the image of their school. Therefore, despite the difficulties identified in the initial interview questions, administrators still recognize the positive effect of work-based learning.

Question 10: How do you think offering dual education has affected the image of your school?

The most common associations for the dual education program are - partnership between business and school, high-quality education, opportunity for students to develop their knowledge, and strong image of the high school. None of the respondents associated dVET with negative connotations.

2. Results of the quantitative study conducted

The first step in analyzing the survey results is their presentation. In the analysis, the selected option 1 or 2 is perceived as a negative response, option 3 (neutral) is not included in the analysis and options 4 and 5 are accepted as a positive response.

The first construct examined is “Perceived quality of the educational service” and its sub-constructs “Service quality”, “Assurance”, “Reliability”, “Responsiveness” (Fig. 2).

Students express general dissatisfaction with the Service quality a.k.a. the facilities and infrastructure. Only 10.9% are satisfied with the conditions in which they study. This is in contradiction with the responses of the administration, which indicate the facilities as one of the competitive advantages of schools. There is a discrepancy between the efforts made by schools and the expectations of students. Agreement with the responsiveness of the staff and trust in the teachers of educational institutions is higher. The reliability - the competence of teachers and mentors is rated the highest.

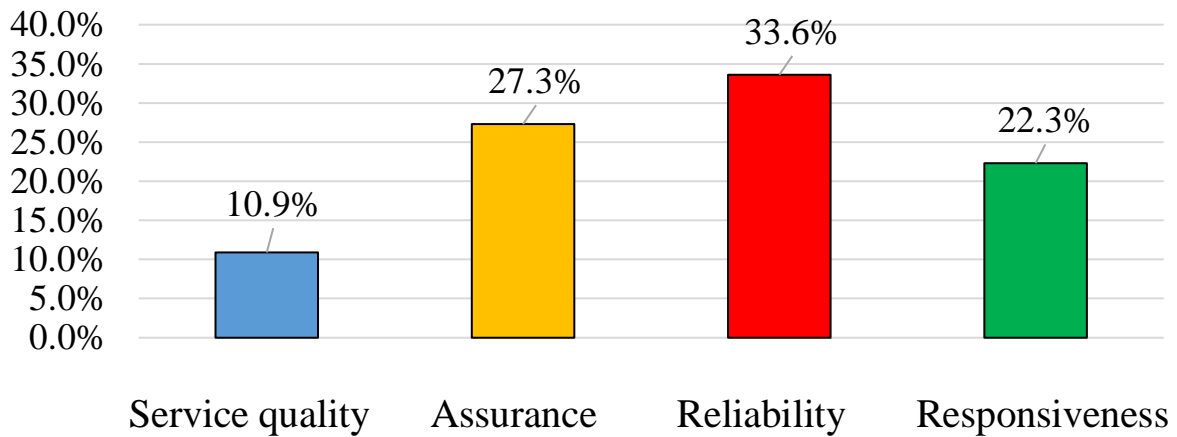


Fig. 2. Distribution of respondents' assessment regarding the construct "Perceived quality of the educational service"

The agreement % with the statements for the construct "Attitudes towards dual VET" and its 8 sub-constructs can be visualized in Fig. 3.

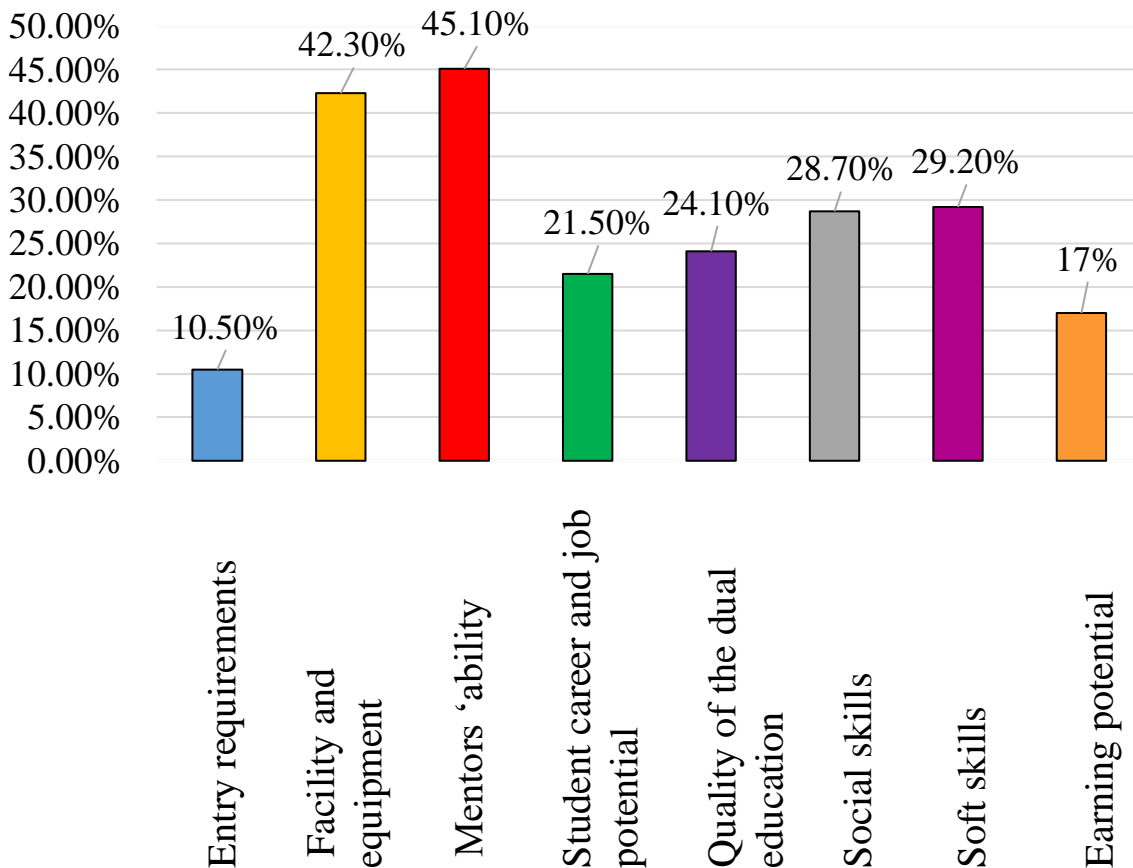


Fig. 3. Percentage distribution of respondents' assessment regarding the construct "Attitudes towards dual VET"

The results show that students understood the negatively phrased items in the sub-construct "Entry requirements" and show strong disagreement with the idea that the requirements are low.

The level of agreement with the statements in the sub-construct "Earning potential" is significantly below average. This shows that respondents perceive themselves and their classmates as having good social and soft skills and believe that they could easily find a job. However, skepticism prevails about the possibility of this job being highly paid and providing them with a good standard of living.

During the in-depth interviews, the school administration also did not indicate access to high-paying jobs" as an important factor when popularizing the specialties they offer, but this is in contradiction with data from the National Statistical Institute (NSI) and the Municipality of Plovdiv, which show that average salaries in the region for individuals with vocational education - such as that provided in the studies VHS - are relatively competitive.

Satisfaction with the quality of dual training is at a relatively high level, and the most highly rated sub-constructs are those related to the facilities and equipment in the training company and especially to the mentors at the workplace. This is consistent with the opinion of the school administration that partnering with good companies is among the most important factors for the image of the school.

The constructs "Brand Satisfaction", "Brand Associations" and "Brand image of the VHS" do not have sub-constructs. Respondents' agreement with the statements in them is relatively high - 24.1% agree that the school is recognizable and its name is associated with quality education, 37.9% are happy with their choice of school, and the highest percentage of the survey - 53.6% of respondents agree that the educational institution offers sufficient opportunities for practical internships and connects employers with students.

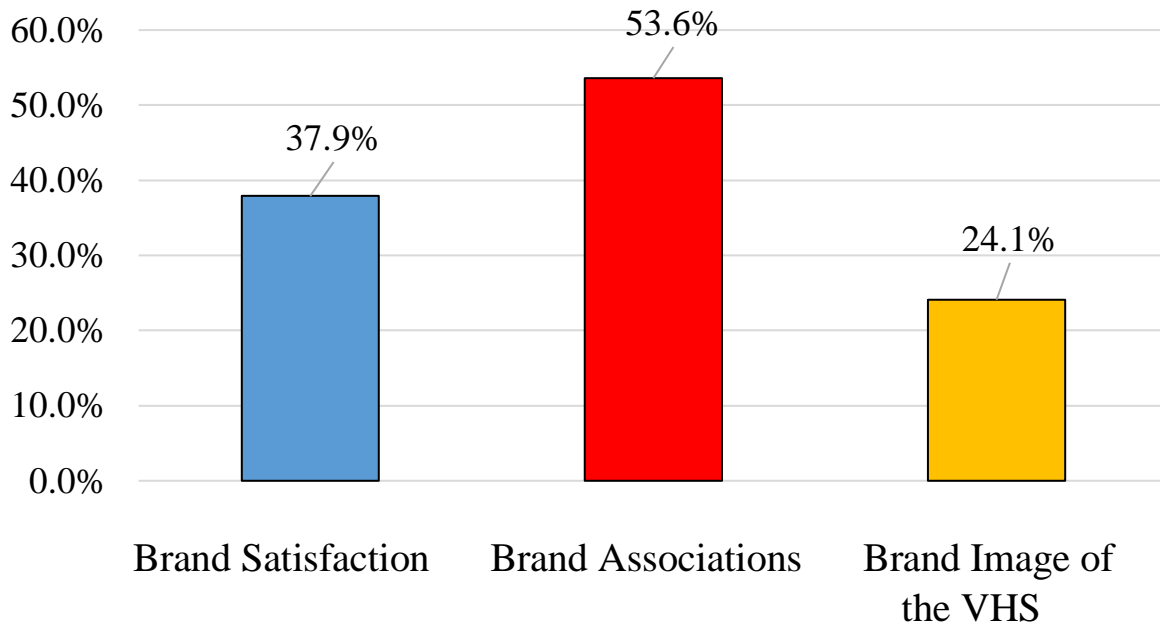


Fig.4. Distribution of the score on the constructs “Brand Satisfaction”, “Brand Associations” and “Brand image of the VHS”

In order to study the alleged relationship of certain factors with the brand image of vocational high schools, the author chooses to make cross-tabulations and compare the percentage agreement between the different constructs/sub-constructs and the construct "Brand image of vocational high schools".

Table 1. Percentage distribution of respondents' assessment of the constructs "Perceived quality of the educational service " and "Brand image of VHS"

			Brand image of VHS	
			Disagree	Agree
Perceived quality of ed. service	Service quality	Disagree	27.6%	3.4%
		Agree	0%	69.0%
	Assurance	Disagree	10.8%	6.2%
		Agree	7.7%	75.4%

	Reliability	Disagree	18.1%	7.4%
		Agree	2.1%	72.3%
	Responsiveness	Disagree	11.1%	3.7%
		Agree	1.9%	83.3%

Source: created by the author based on own calculations.

A relatively high percentage of respondents agree with the statements in the constructs "Perceived Quality of the educational service" and "Brand Image of the Vocational High School" (Table 1). The following conclusions can be drawn: among respondents who declare satisfaction with the responsiveness of the staff, positive assessments of the brand image also prevail - the percentage of agreement with both groups of statements is the highest - 83.3%. A similar pattern is also observed with the sub-constructs "Reliability" and "Assurance" - a large proportion of respondents give a high score to these statements and at the same time - positive statements regarding the brand image.

The highest percentage of simultaneous disagreement with both constructs (27.6%) is observed with "Service quality", which can be interpreted as a bad opinion of the students about the educational institution, whose building and equipment they perceive as old and unhygienic. This sub-construct also addresses irrelevant material in the curriculum - a major issue of vocational education according to all the studies reviewed.

The construct "Attitudes toward Dual VET" is among the most important in the present study, and the results presented carry information of high significance (Table 2).

Table 2. Percentage distribution of respondents' assessment regarding the constructs "Attitudes towards dual training" and "Brand image of VHS"

			Brand image of VHS	
			Disagree	Agree
Attitudes towards dual VET	Entry requirements	Disagree	27.3%	25.0%
		Agree	2.3%	45.5%
	Facility and equipment [in the training company]	Disagree	16.5%	4.9%
		Agree	6.8%	71.8%
	Mentors' ability	Disagree	8.0%	2.3%
		Agree	8.0%	81.8%
	Student career and job potential	Disagree	18.6%	8.5%
		Agree	10.2%	62.7%
	Quality of the dual education	Disagree	25.0%	5.0%
		Agree	3.8%	66.3%
	Social skills	Disagree	20.9%	17.6%
		Agree	1.1%	60.4%
	Soft skills	Disagree	23.3%	12.2%
		Agree	2.2%	62.2%
	Earning potential	Disagree	13.2%	22.1%
		Agree	8.8%	55.9%

Source: created by the author based on own calculations.

As expected, the negative statements in the sub-construct “Entry requirements” received a significant number of “1” and “2” responses. As many as 52.3% disagree with the negative statements about VET, for

example, low admission standards and poor academic performance of pupils in vocational high schools.

There is also over 70% overlap in positive responses regarding the perception of brand image and the facilities/ infrastructure and mentors in the partner companies where the respondents intern.

66.3% of the respondents show a positive attitude towards the statements in the constructs “Quality of dual education” and “Brand image of VHS” and a high percentage - 25%, express disagreement. These results can be seen as an indication of students’ desire for a greater variety of opportunities for their practical training, as well as for increased confidence that the theory and practice they are being taught are aligned with the needs of the labor market - an issue frequently highlighted in research and strategic documents related to vocational education. The relatively low rates of agreement with statements about the potential of graduates to earn money and occupy high-value jobs can be interpreted as an expression of distrust in the system. In order to positively influence their brand image, schools should focus their attention on updating curricula, ensuring the visibility of good career opportunities for graduates, as well as promoting the strong social and soft skills of their students.

Table 3. Percentage distribution regarding the constructs “Brand Satisfaction”, “Brand Associations” and “Brand Image of VHS”

		Brand image of VHS	
		Disagree	Agree
Brand satisfaction	Disagree	10.9%	11.7%
	Agree	4.7%	72.7%
Brand associations	Disagree	19.0%	8.0%
	Agree	3.0%	70.0%

Source: created by the author based on own calculations.

A high level of agreement overlap is observed among the constructs “Brand Satisfaction”, “Brand Associations” and “Brand Image of VHS” (Table 3). A reference can be made to the conclusions from the literature review in Chapter I, which indicate that brand satisfaction among consumers is associated with an increase in perceived brand image. Agreement with the statements from the brand associations construct, related to internship opportunities, is also logically connected to satisfaction and the brand image of the high schools.

2.1. Structural equation modeling

In the second part of the analysis of the results of a quantitative study, the Structural Equation Modeling (SEM) method is applied. SEM is widely used in various fields of science, and especially in the socio-economic sciences, when it is necessary to analyze complex relationships between a number of variables. It is often perceived as a combination of regression analysis and factor analysis. The SEM model makes it possible to determine which independent variables will affect the dependent variables, and subsequently the dependent variables can be treated as independent in other relationships (Collier, 2019).

In this paper, the Partial least squares method (PLS-SEM) was chosen, since both multi-indicator constructs and composite constructs participate in the structural model.

Before starting the SEM procedure, the data from the present quantitative study were checked for normality. In this dissertation, the data were analyzed using the coefficients of skewness and kurtosis and it was concluded that the variables under consideration are normally distributed.

Thirteen indicators had to be removed in the course of this study. Four of them (q12, q46, q47 and q48) were excluded due to compromising the reliability of internal consistency (Cronbach's alpha coefficient (α)). Indicator q12 was removed in order to improve the value of the Cronbach's alpha coefficient for the sub-construct "Reliability".

The sub-construct "Future study choice" (composed of questions q46, q47 and q48) was excluded because its coefficient α was below the threshold of 0.7, which compromised its reliability. Additionally, nine indicators (q4, q17, q18, q19, q20, q21, q32, q33 and q34) were removed because their

factor weights were below the minimum permissible value of 0.5. The value of the factor weights of the other questions exceeds the minimum threshold of 0.5.

Furthermore, the inspection of cross-loading and the fact that all AVE values are higher than the minimum threshold of 0.5 are evidence of the presence of convergent validity of the model. All other values of composite reliability and Cronbach's alpha for each indicator are above the accepted 0.7.

Discriminant validity was also assessed. The Fornell-Larcker criterion - that the square root of the AVE for each construct must be greater than its correlation with any other construct - was met, and all HTMT values were below 0.85.

It can be concluded that the proposed model is reliable and valid.

The adequacy of the model is assessed using several special indices - the value of the SRMR index should not exceed 0.080, and those of d_{ULS} and d_G should not be too different for the theoretical and estimated model (Henseler et al., 2014). All three indices meet the necessary conditions and it can be concluded that the proposed research model is adequate.

The structural model assessment is presented. Table 4 depicts the relationships between Brand Image of the VHS (BIVHS) and Brand Associations, Attitudes towards dual VET, Perceived quality of the educational service and Brand Satisfaction.

Table 4. Path coefficients

Hypothesis	β - coefficient	Standard deviation	t - statistics	p -value
Perceived quality of educational service → BIVHS	0.297	0.052	5.730	0.000
Brand Satisfaction → BIVHS	0.070	0.046	1.502	0.133
Attitudes towards dual education → BIVHS	0.311	0.056	5.544	0.000
Brand associations → BIVHS	0.126	0.048	2.639	0.008

Source: created by the author based on own calculations.

The factor with the strongest influence on the brand image of VHS is the attitude towards dual education ($\beta = 0.311$). The next strongest correlation is the one with the perceived quality of the educational service ($\beta = 0.297$). Brand associations ($\beta = 0.126$) also turn out to be a significant predictor, although with a weaker influence. On the other hand, the relationship between brand satisfaction and brand image ($\beta = 0.070$) is not statistically significant ($p = 0.133$).

Hypothesis one (H1), hypothesis three (H3) and hypothesis four (H4) are confirmed. Hypothesis two (H2), which assumes a significant relationship between brand satisfaction and the brand image of vocational high schools, is rejected due to a lack of statistical significance.

Although the available studies used as sources of the constructs in this dissertation suggest the existence of a relationship between brand satisfaction and brand image of the vocational high school, the empirical data obtained from the dissertation study fail to confirm it within the framework of the present study. This result could be explained by the wording of the questions, which probably affects the way in which the respondents interpret the content. Additionally, the specific context of the study could also have an impact on the data obtained. Respondents' attitudes can be influenced by external factors such as the fact that the study was conducted at the very end of the school year.

The coefficient of determination is 0.512, i.e. 51.2% of the variation in the dependent variable is due to changes in the variation of the independent variables. All VIF coefficients are below the critical value of 5.

Conclusions from the second phase of the study

1) The results of the empirical study confirm the thesis of the dissertation that the factor “Attitudes towards dual VET” has the strongest influence on the brand image of the vocational high school. Crucial to this image is student satisfaction with mentors and the conditions in practical training facilities, as well as the existence of a strong partnerships between schools and businesses. It is particularly important that the academic content be linked to real-world practical tasks.

2) The second most important factor is the "Perceived quality of the educational service". Although the facilities are important, the attitude and support provided by the teachers have a stronger effect on the image. Dissatisfaction with outdated curricula has also been reported.

3) The third most important construct is “Brand associations”, which indicates the desire of students to have the opportunity to choose from different options for conducting their internship.

3. Recommendations for enhancing the brand image of vocational high schools

1. **Regular student satisfaction surveys** - Collecting feedback enables schools to identify the most influential factors for their image, undertake targeted improvements, and track their effect over time.

2. **Targeted Marketing** - Despite making efforts, most high schools do not use targeted professional marketing strategies. A clear definition of the brand identity, messages, and target audiences is needed. Campaigns to overcome negative stereotypes and share alumni success stories can significantly improve public attitudes.

3. **Active partnership with business** - Cooperation with companies in the relevant industry is key to the success of dual education. Schools should initiate meetings, events and campaigns to attract partners, building clear communication and mutual expectations.

4. **Improving the facilities** - Clean and pleasant interiors, as well as modern technology in classrooms and halls, contribute to the positive perception of the school. This can be achieved with minimal resources or through external funding and partnerships.

5. **Investment in teachers** - Increasing the qualifications and motivation of teachers, especially in the field of modern teaching methods and communication skills, leads to higher trust in the institution and strengthens the connection between students and the brand.

CONCLUSION

The brand image of a vocational high school offering dual vocational education and training overlaps with its corporate image. Its effective management requires an understanding of the influencing factors. One of them - dual training (or the combination of traditional classroom training with learning in a real work environment) - still lacks in-depth empirical research in Bulgaria. This is a relatively new approach, introduced to the country less than ten years ago, but it is one of the main focuses for the Ministry of Education and Science, as well as for many schools.

In the first chapter of the dissertation, a literature review is conducted, key concepts in the field of brand management are defined, and a set of factors influencing the brand image of the vocational school is presented. The dual training system is presented along with a comparative analysis of its implementation in Bulgaria, Germany and Austria.

The second chapter explores previous research on the brand image of educational institutions, on the basis of which a two-phase research methodology is developed. Four hypotheses are formulated and a toolkit is developed for researching brand image in the context of VET in the country.

The third chapter analyzes the results of the two phases of the empirical study. The first provides information from senior management in high schools, and the second tests the influence of selected factors on the image of the school according to students. Three of the four hypotheses are confirmed, with the following having a strong impact on brand image: perceived quality of educational service, attitudes towards dual VET, and brand associations.

The study achieves its goals and objectives, and the conclusions drawn provide a basis for specific recommendations for improving the image of vocational high schools offering VET. This study lays an important foundation for future scientific research and practical steps in brand image management in the field of vocational education. The development of the dual education model in Bulgaria requires not only institutional support, but also a strategic approach to building a positive public image of these educational institutions, which reflects their role as a link between education and employment.

SUMMARY OF SCIENTIFIC CONTRIBUTIONS

1. Theoretical – further development and enrichment of existing scientific knowledge in the field of brand image of educational institutions offering VET has been achieved.
2. Methodological – a methodology has been developed and approved for conducting a two-phase study of the factors influencing the brand image of the vocational high school. For this purpose, a critical analysis and original interpretation of the existing literature in the field of the brand image of educational institutions has been prepared, as well as a comparative analysis of the educational system in Bulgaria, Germany and Austria.
3. Practically applied - the results of the research conducted and the recommendations made can serve to improve the image of secondary vocational schools in Bulgaria.

DIRECTIONS FOR FUTURE RESEARCH

Due to the specificity of the topic and the large number of educational institutions in Bulgaria and abroad, some of the conclusions in the study need wider testing. Possible directions for further research include:

1. Expanding the comparative analysis of education systems (Chapter I) by covering all countries with dual training and examining how the method is adapted to the local economic environment.
2. Additional research on the brand image of vocational high schools (Chapter III), including:
 - Conducting in-depth interviews with students from the target group to confirm the results;
 - Expanding the survey to a national level for greater representativeness;
 - Comparing results with opinions of students from other countries to assess the effectiveness of different education systems;
 - Including perspectives from all stakeholders – business, parents, public sector experts, etc.;
 - Conducting periodic research to track trends and the impact of changes in the system on the image of high schools.

PUBLICATIONS RELATED TO THE TOPIC OF THE DISSERTATION

1. Toncheva, V. (2022). The case of Plovdiv Municipality, in Vladikov, A. et.al. The reindustrialization of Bulgaria - Mission possible. Best Practices and Cases from the Region of Plovdiv and Trakia Economic Zone., p. 100-110, Plovdiv University Press, ISBN: 978-619-7663-34-1
2. Toncheva, V. (2024). The Influence of Dual Education on the Brand Image of Vocational High Schools. For the Jubilee International Scientific Conference "The interdisciplinary approach in economic and social sciences", Plovdiv University "Paisii Hilendarski", under print.
3. Toncheva, V. (2024). Issues and opportunities for dual vocational education in the secondary schools of Bulgaria, Germany and Austria - a comparative analysis. For the Jubilee International Scientific Conference "The interdisciplinary approach in economic and social sciences", Plovdiv University "Paisii Hilendarski", under print.