

# Multi-Level Image of a Successful University Graduate in the Information Management for the Supply Chain in Education System

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**Abstract**— The paper presents the results of a study devoted to the analysis of the criteria for the success of graduates in information management of educational system for supply chain. The relevance of the study is dictated by the increased interest of universities to the success of their graduates, which is associated not only with positions in the prestigious world ranking of QS Top universities, but also with problems of managing the competitiveness of universities and communications with potential consumers of educational services. The proper supply chain in educational system needs proper information, so lack of information integration makes difficulties in high schools, universities and careers. The study used such methods of data collection as a content analysis of scientific publications, a survey of respondents, and statistical data analysis implemented in the SPSS statistical package were used as data analysis. Results: analysis of survey data allowed us to describe a multi-level image of a successful graduate, formed in the minds of respondents, in the context of personal qualities, approaches to building a career, rating of personalities of successful people, time of interest in the profession, job characteristics of a university graduate in the first year. For the first time, the work presents a comparative description of the image of a successful university graduate and a rating of successful personalities in the context of senior students 'and students' points of view. Practical significance: the results are of interest for departments and structural divisions of universities, working with high school students and their parents, in the context of building communication, building a dialogue for directional impact and developing advertising materials. The results of the study allow to determine the successful graduates, information about which should be broadcast in the content of the university (on the website, in groups of social networks, Indoor- and print advertising).

**Keywords**— *criteria for success of a specialist, career management, success of a university graduate, field research, survey, information management, supply chain management, statistical methods of analysis, multi-level image, education system, career.*

## 1. Introduction

The aim of this research is to explore and analyses some of the problems facing education supply chain from schools, universities to career market. multilevel image segmentation is a technique that divides images into multiple homogeneous regions, which can be deduced by information and operation managements. The interest of universities in the success of their graduates is not only connected with the strengthening of their positions in the prestigious world ranking QS Top universities (the most successful universities for graduate employment), which is an indisputable competitive advantage in the international space. Also, a clear understanding of the components of success of a university graduate and their interpretation from the point of view of real and potential consumers of educational services (students and high school students) allows the universities competently managing not only competitiveness, but also building effective communications with all participants of the educational service market.

A clear mismatch between the outcome products of schools and universities (supply) from one hand and the private sector needs (demand) from the other hand. A large amount of research is devoted to issues of professional career management, its models and career success criteria, and influence factors (determinants), the diversity of which is due to the continuous evolution of the external environment. The study relevance is dictated by an increased interest of universities to the success of their graduates, the stereotypes of which have a different interpretation from the point of view of participants in the educational service market. The problem that requires research is the image of a successful graduate, formed in the minds of potential and real consumers of educational services - high school students and students of all forms of university education.

Content analysis of scientific publications and comparative analysis of the criteria for the success of students and high school students, conducted according to the results of field research in the form of a survey, allowed the author formulating a multi-level image of successful university graduate in the

context of opinions of high school students and students.

## 2. The Theoretical Basis of the Study (information management for supply chain)

The flow of data and information is indispensable to the operation of any supply chain. No educational system can be delivered without the exchange of data and information between links in a supply chain. The success of a university graduate is often transmitted by researchers to the success of his/her professional career. However, interpretations of career in the works of domestic

and foreign authors range from a narrow understanding of career as moving up the career ladder to a broad understanding of career as the success of a lifetime [1-4]. It should be emphasized that success shall be understood as a dynamic process of human activity aimed at achieving constantly changing and flowing from one another, consistent goals leading to a certain life result. In other words, success is a way of life, the nature of person's activities and, in fact, the final result to which the individual tries to come [5].

The main directions of content analysis of scientific publications in the field of career success, conducted by the article author, are presented in Table 1.

**Table 1.** The main directions of content analysis of scientific publications in the field of career success, 2004-2019.

Directions	Career models	Criteria of career success	Criteria of career success for students and schoolchildren
Author, year	<ul style="list-style-type: none"> <li>- Tomlinson et. al., (conceptual model of graduate's capital);</li> <li>- Vos et. al., (conceptual model of career);</li> <li>- Ozkan &amp; Solmaz, (Generation Z). [7, 9, 12]</li> </ul>	<ul style="list-style-type: none"> <li>- Inkson, (9 points of contact in all career models);</li> <li>- Jiang et. al., (personal-internal and contextual-external factors);</li> <li>- Vos et. al., (personality, context and time);</li> <li>- Shockley et. al., (objective and subjective criteria groups). [6, 9-11]</li> </ul>	<ul style="list-style-type: none"> <li>- Bagdadli &amp; Gianecchini;</li> <li>- Hirschi &amp; Jaensch ;</li> <li>- Baluku et. al.;</li> <li>- Donald et. Al.;</li> <li>- Dobrev &amp; Merluzzi;</li> <li>- Lizunkov et. Al.;</li> <li>- York, et. al.;</li> <li>- Karabanova &amp; Bukhalenkova;</li> <li>- Marfuga et. al., [2, 13-20]</li> </ul>

A large number of works is devoted to the study of the criteria for successful career, including those, within the framework of the concept of a limitless career, the analysis of which made it possible to identify the main groups of features describing the career of young specialists [2].

Different career concepts have defined the diversity of its models, in which nine common points of contact described by Kerr Inkson in 2004 can be distinguished, when a career is perceived as an inheritance, continuous engineering (construction), closed cycle, constant comparison, travel, meetings and relationships, role, resource and history [6]. Michael Tomlinson describes the graduate's conceptual capital model as a new way of understanding employment opportunities, important for managing graduate's careers and developing strategies for developing resources to accelerate their transition and advance into the labor market [7, 8]. Three dimensions (personality, context and time) are described by Anse De Vos and co-authors within the conceptual career model [9]. Zhou Jiang and co-authors suggest that the entire set of factors that determine a career shall be divided into two large groups: personal (internal) and contextual (external) factors [10], objective and

subjective criteria for career success [11]. Certain imprint on the criteria of success is imposed by the belonging of modern students and high school students to the Generation Z, born from 1995 to 2012 [12].

Young people are characterized by such a personality trait as narcissism. The study of Andreas Hirschi and co-authors is devoted to the description of its influence on the career success [13]. Career success issues are addressed in the works of Martin Mabunda Baluku, Uljam Donald, Stanislav Dobrev and co-authors [14-17].

It should be noted that there are certain points of contact and obvious differences between the criteria for the success of students and high school students, describing academic success [18, 19]. Absatova Marfuga and co-authors think that there are the following characteristics of the social success of students: improvement of professional knowledge; commitment, ability to set goals; formation of human values: kindness, humanity, justice, compassion, respect for others, tolerance; confidence, determination, faith in one's strength; ability to act in a situation of uncertainty, business communication experience; building interpersonal relationships; ability to mobilize; ability to defend

the interests of the social environment; readiness to solve special problems; space capabilities analysis; formed ability to self-assessment and reflective activity, high level of social responsibility; pursuit of self-improvement [20]. Olga Karabanova and Daria Bukalenkova identified three types of success perception among high school students: social recognition and achievement, self-development and self-realization, and diffuse awareness [19].

### 3. Methods

The study purpose is the analysis of success features of a university graduate from the point of view of consumers of supply chain management in educational services. Knowledge of these features will allow creating a multi-level image of a successful university graduate in the context of the points of view of high school students and students by the information and operation managements

In the context of the point of view of high school students and students, the following questions remain little studied: How do respondents rate their success relative to their peers? What specific people do they consider successful people? What personal qualities, in their opinion, do distinguish people who have achieved success? What workplace features do indicate the success of a university graduate in the first year? The time of professional choice: when did the interest in the profession appear?

This study is devoted to the search for answers to these questions, the results of which are of interest to the departments and structural subdivisions of universities working with high school students and their parents in the context of building communication, building dialogue for directional impact, and developing promotional materials. The study results allow determining the successful graduates, information about which is broadcast in the university content (on the website, in the groups of social networks, on the indoor- and print advertising).

The following hypotheses were put forward in the field study:

H1: The set of criteria for success of a university graduate, describing the image-stereotype formed in the minds of consumers of educational services, is a multi-level structure. The point of contact is the composition of levels in an image that is common to students and high school students. The successful graduate's multi-level image is based on the narcissism, the subsequent levels will include two sets of criteria: internal, determined by the personality and temperament of the respondents, and external, reflecting the influence result of the external environment.

H2: There are differences in the composition of the levels of a single image of a successful university graduate for the students and high school students.

These differences will allow identifying the correlation analysis and frequency analysis of the criteria in the context of the views of students and high school students.

H3: Narcissism is peculiar to young people, so the image of a successful university graduate will be based on the second point of contact between two images.

Let us give a brief description of the study, the purpose of which was to study the opinions of high school students and students regarding the success criteria of university graduates.

The study was conducted from January 26 to March 10, 2019; the data was collected using CAWI technology on the online service <http://ianketa.ru/> and using a survey method of printed questionnaires.

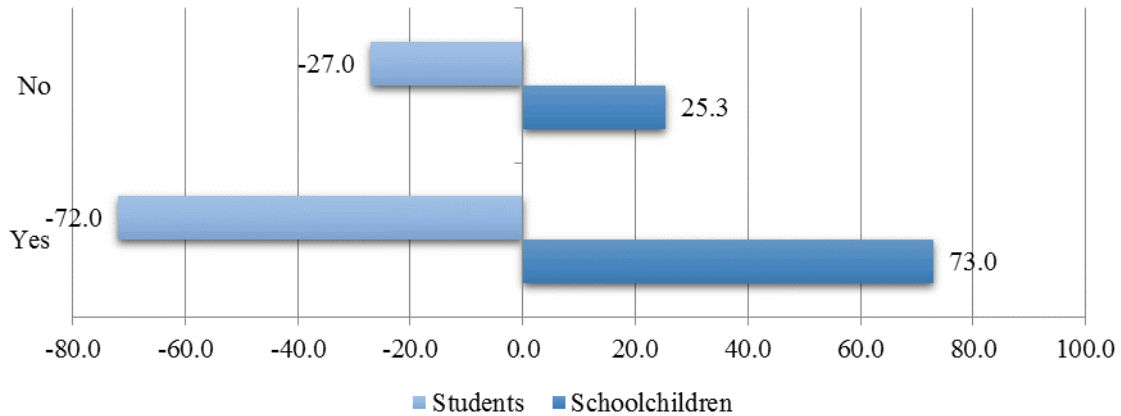
We developed a survey questionnaire toolkit, which contained 12 questions, among which four questions allowed describing the respondent portrait (gender, age, status - student/schoolchild, course or classroom). Three single option questions: "Do you consider yourself a successful person regarding your peers?", "Indicate the level of expected monthly income of university graduates in the first year, thousand roubles" And "Indicate the time of your professional choice - when the interest in the profession have arisen". Open question - "Identify the identity of a successful person, if you feel the potential to be like him/her". Four questions with the possibility of multiple answers, directly describing the image of a successful graduate: "Who is an example of successful person in the future for you?", "What (personal) qualities, in your opinion, do distinguish people who have achieved success?", "Indicate the definitions that correspond to your understanding of success of a university graduate" and "What features of a job do testify about the success of a university graduate in the first year?"

The general population covered high school students (grades 10-11) and university students. The sample was deliberate, deterministic, with a confidence interval (error) of 5% and a probability (accuracy) of 95%, the sample size was 384 respondents living in the Russian Federation. A total of 484 respondents were surveyed. Geographic boundaries of the study were extended to the city of Vladivostok of the Russian Federation. It should be emphasized that the deterministic deliberate sampling is not representative, as in the process of online survey respondents make answers using the Internet. But this type of sample is allowed, and the survey results allow getting a cut according to the success criteria of a university graduate.

#### 4. Results

First, a descriptive (frequency analysis) of the survey results was conducted in the context of the views of students and high school students in the SPSS statistical package. The main study results were formulated as follows:

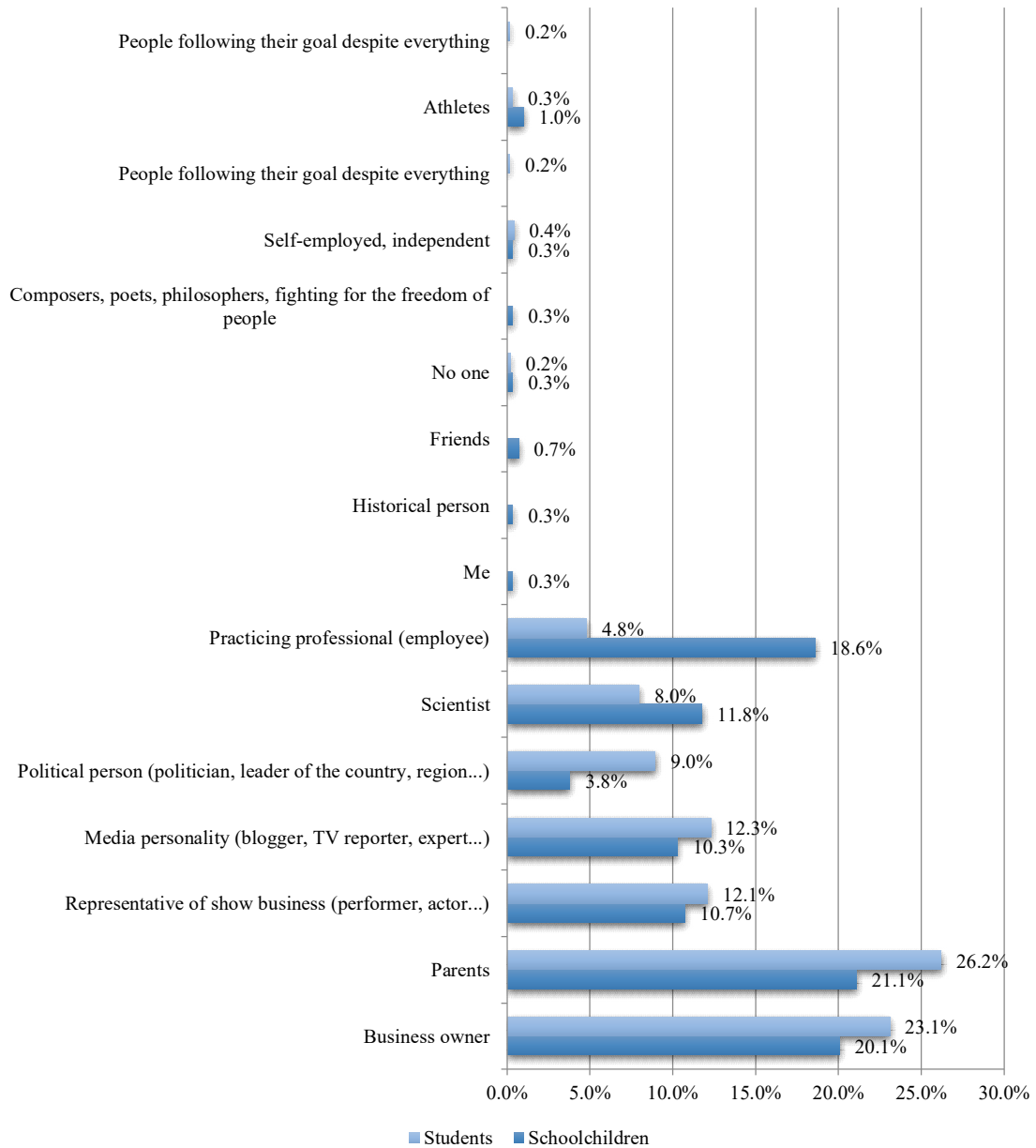
– 73% of respondents consider themselves successful people in relation to peers, which indicates a high degree of narcissism among respondents (Figure 1).



**Figure 5.2.** The structure of respondents' opinions on the assessment of personal success in the context of schoolchildren and students, % of answers, 2019 (n = 174 and 307)

– Among successful people, parents (26.2% of students and 21.1% of schoolchildren) and business owners (23.1% of students and 20.1% of schoolchildren), and practicing professionals

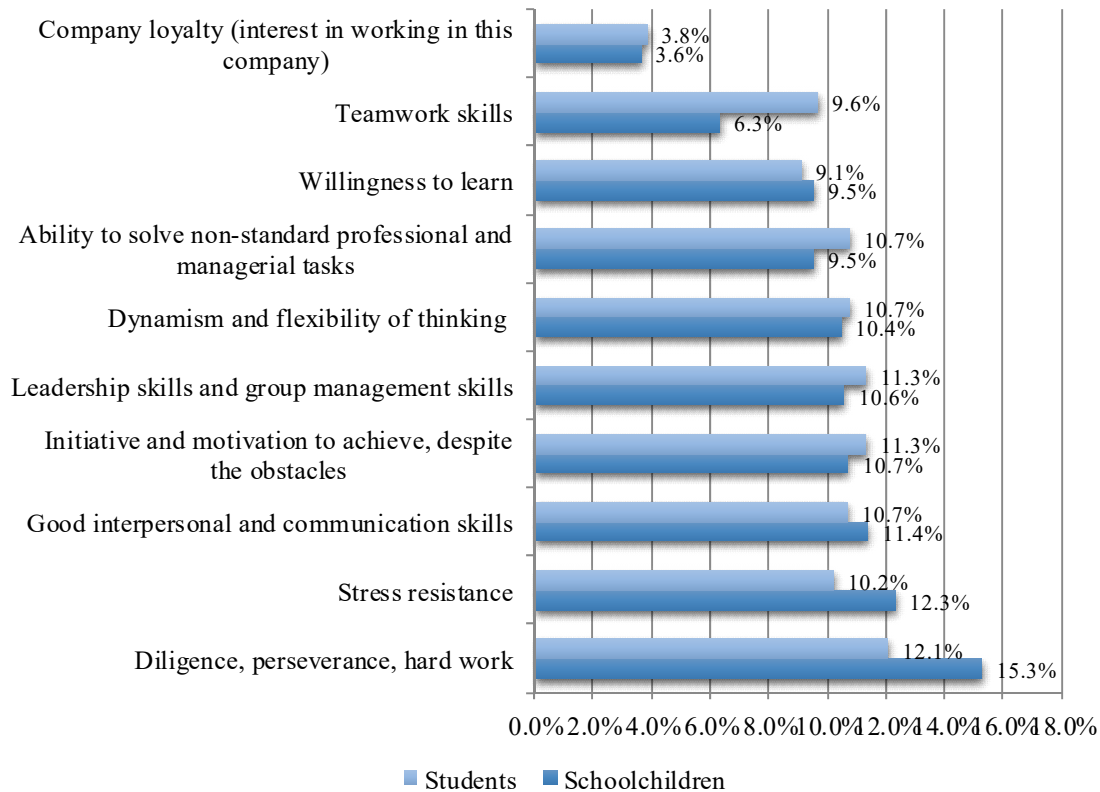
among schoolchildren (18.6% ) and media personalities among students (12.3%) are the leaders (Figure 2).



**Figure 2.** Distribution of respondents' answers by examples of successful person in the future in the context of schoolchildren and students, % of answers, 2019 (n = 174 and 307)

– Among personal qualities of successful people, persistence and hard work (15.3% of schoolchildren, 12.1% of students), as well as stress

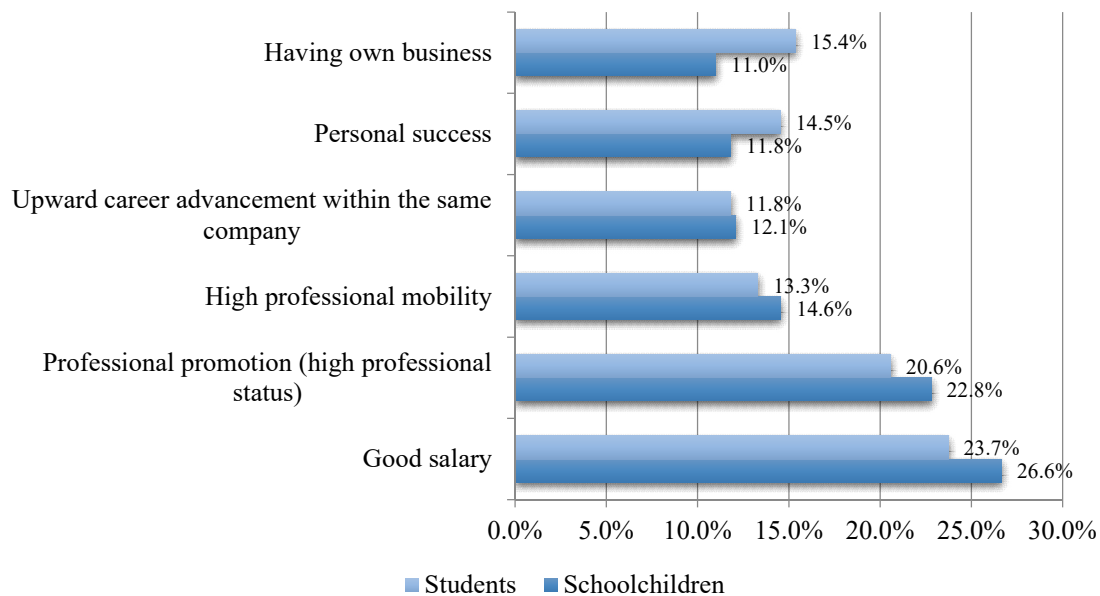
tolerance and good interpersonal and communication skills are the leaders (Figure 3).



**Figure 3.** TOP-10 personal qualities of successful people in the context of opinions of schoolchildren and students, % of answers, 2019 (n = 174 and 307)

– First and foremost, the graduate's success is determined by good wages and professional advancement, as well as high professional mobility

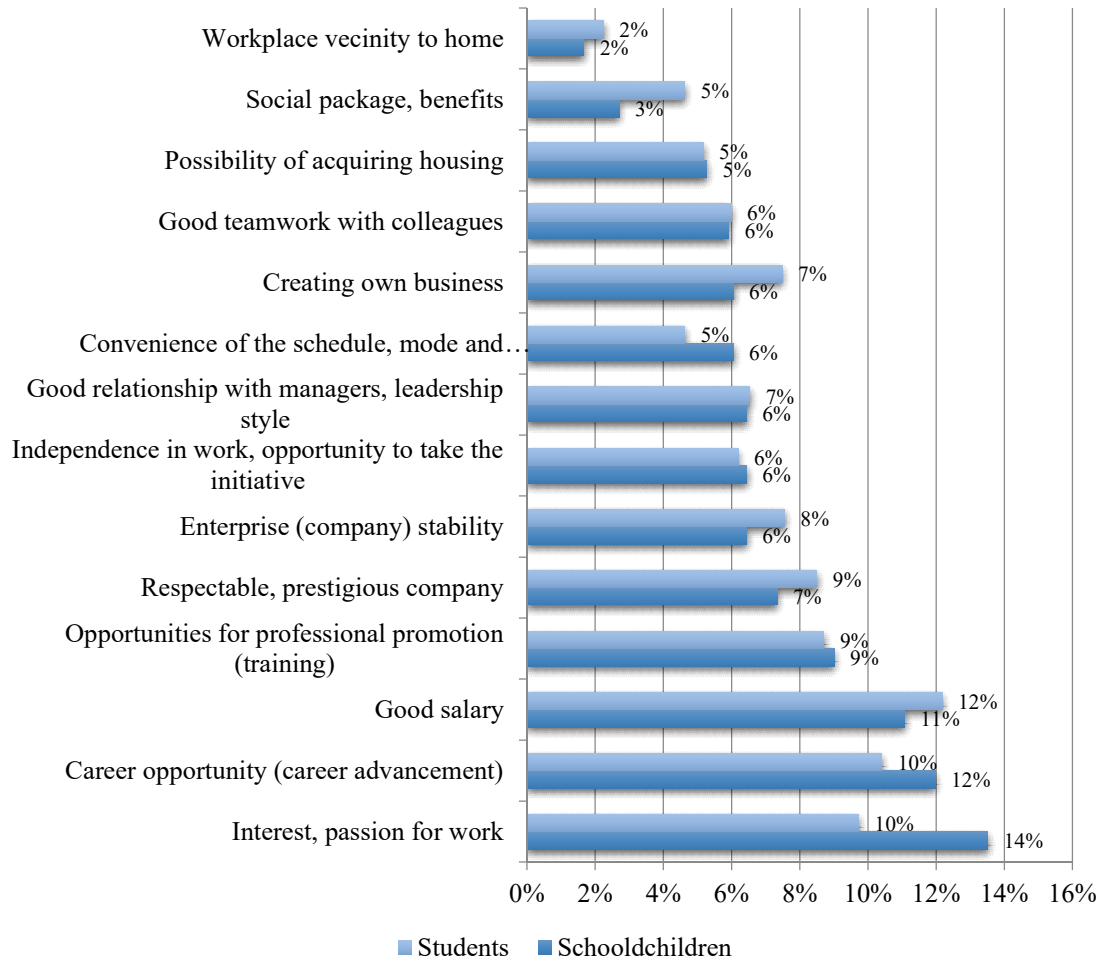
(short career cycles at each job) prevails over job promotion within one company (Figure 4).



**Figure 4.** TOP-6 definitions corresponding to the understanding of success of a university graduate in the context of the opinions of schoolchildren and students, % of answers, 2019, Russian Federation (n = 174 and 307)

– Among the features of the place of work in the first year, good salary is slightly in the lead, but social package, benefits and proximity to the place of work are least of all interested. For schoolchildren, the main thing is interest,

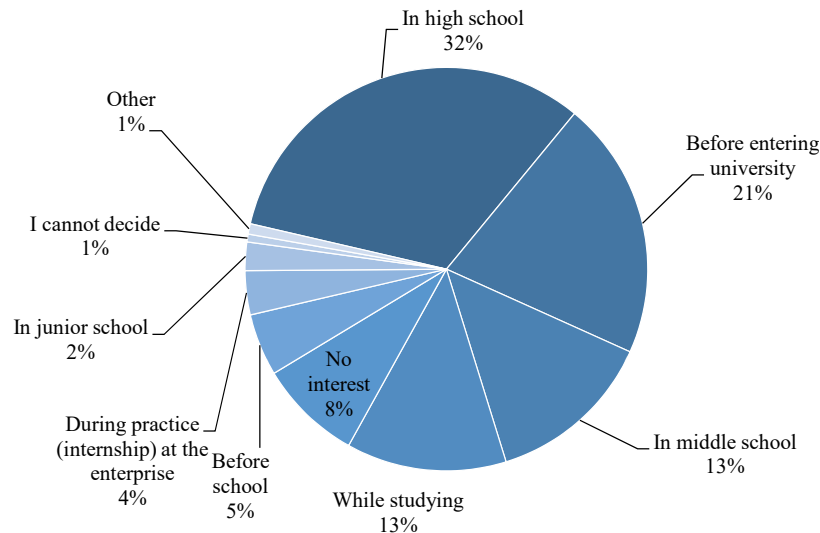
enthusiasm for work and opportunity for career growth, and for students, the main thing is good wages and career opportunities. Interest in the social package, benefits, workplace vicinity to the home is higher among the students (Figure 5).



**Figure 5.** TOP-14 features of the place of work, indicating the university graduate's success in the first year, in the context of the opinions of schoolchildren and students, % of answers, 2019, Russian Federation (n = 174 and 307)

– The majority made a professional choice in high school (32%) or before entering (21%), 13% made

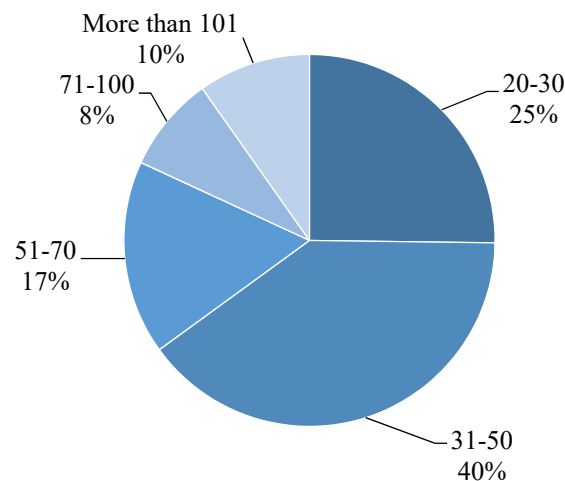
their choice in middle classes and already during their studies (Figure 6).



**Figure 6.** Structure of responses by time of professional choice, % of respondents, 2019, Russian Federation (n = 484)

– Among the expectations, the salary from 31 to 50 thousand roubles takes place in the first year

after graduation (40%), and only 8% expect more than 101 thousand roubles (Figure 7).

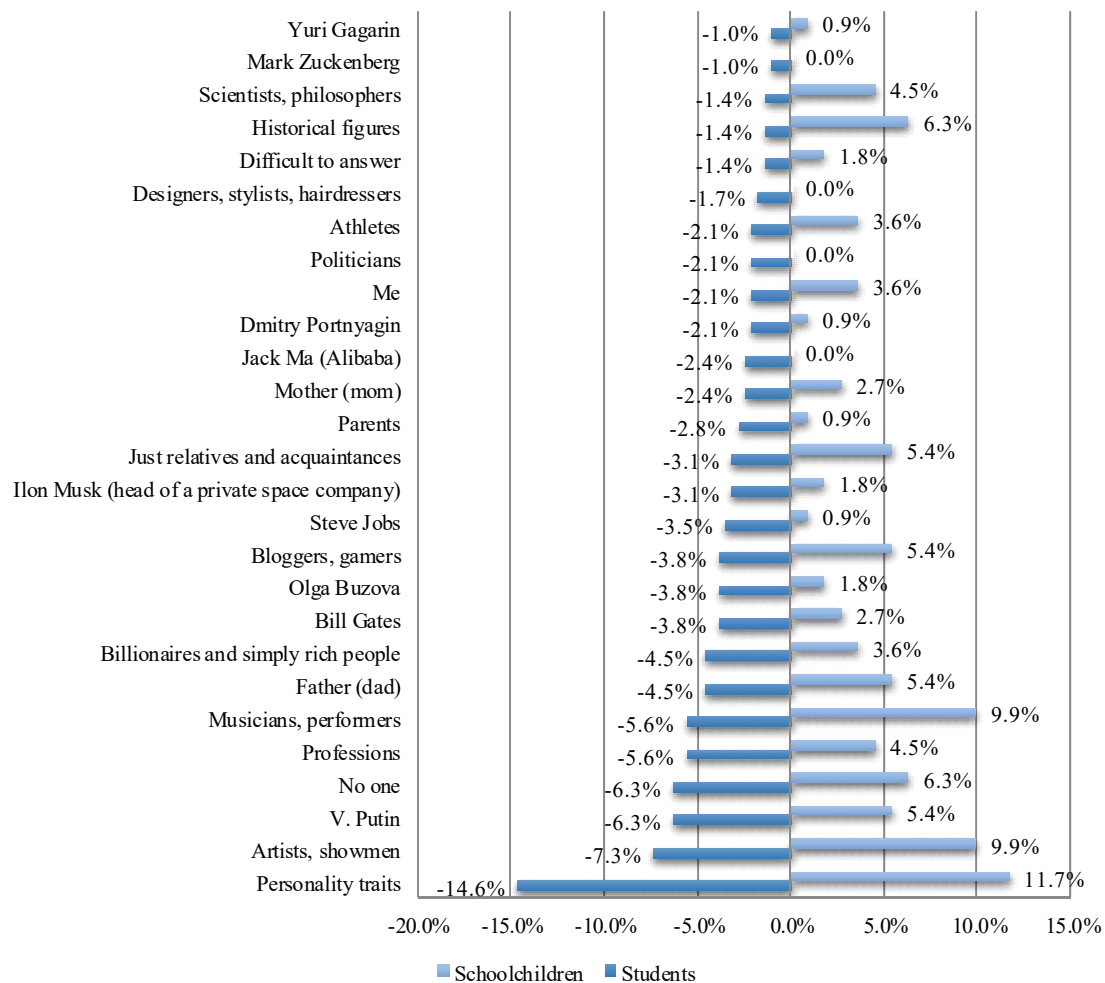


**Figure 7.** Structure of answers to the level of expected income of university graduates in the first year in thousand roubles, % of respondents, 2019, Russian Federation (n = 484)

– In the general ranking of individuals, to which respondents feel the potential to be similar, the following respondents received the most answers: Putin V., President of the Russian Federation (26 answers); father (16 answers); Bill Gates - one of the creators of Microsoft (14 answers); Steve Jobs - one of the founders of Apple Corporation (12 answers); Olga Buzova - Russian TV presenter, singer, actress (12 answers); Elon Musk - CEO and main ideological inspirer of Tesla (11 answers); mother (10 answers); "me" (10 answers); parents (9 answers); Jack Ma - Founder and Chairman of

the Board of Directors of the Alibaba Group (7 answers); Dmitry Portnyagin - blogger, host of the popular Transformer video channel on Youtube (7 answers); Ivleva Anastasia - host of the telecast "Orel i Reshka. Perezagruzka" (4 answers); Mark Zuckerberg - one of the developers and founders of the social networking site Facebook (3 answers); Yuri Gagarin - USSR pilot-cosmonaut (3 answers). The rating of successful personalities in the context of the views of students and schoolchildren is presented in Figure 8.





**Figure 8.** Rating of successful people in the context of opinions of students and schoolchildren, % of respondents, 2019, RF (n = 174 and 307)

– The remaining individuals were grouped into personality traits (56 answers), actors, showmen and dancers (35 answers), musicians, performers (26 answers), professions (17 answers), bloggers (16 answers), just relatives and friends (15 answers), billionaires and simply rich people (13 answers), poets, writers, artists (11 answers), historical figures (9 answers), sportsmen (10 answers), scientists and philosophers (9 answers), political figures (6 answers), designers, stylists, hairdressers (6 answers).

– It is the students who are more focused on the personality traits of successful people (77 answers against 23) and have shown themselves to be more read and erudite. Among the personality traits inherent in a successful person, the following are the leaders: dedication, perseverance; sociability and interpersonal skills; confidence in oneself and abilities; activity.

– It should be noted that the schoolchildren did not indicate any personalities that could be

included in the groups of politicians and designers, stylists and hairdressers.

## 5. Discussion

To study the hypotheses H1 and H2, a Chi-square was calculated for multiple questions in terms of respondent status (schoolchild/student), the summarized results of which are presented in Table 2.

**Table 2.** The summarized results of calculating the Chi-square for the study of hypotheses H1 and H2 in the context of the respondent's status (schoolchild/student).

	Statistical significance, %	Chi-square (Independence test, Chi-square)	Dependency features
Q4 (personality traits of a successful person) and Q12 (respondent's status)	0,1	81,444	Statistically significant, weak dependence
Q2-3 (rating of successful individuals, which are an example for the respondent) and Q24 (respondent's status)	4.2 4.4	92.880 582.851	Statistically significant, dependence of average force
Q6 (features of a future job in the first year after graduation) and Q24 (respondent's status)	3.6	67.009	Statistically significant, weak dependence
Q5 (professional mobility) and Q24 (respondent's status)	14	48.559	Statistically insignificant, absent

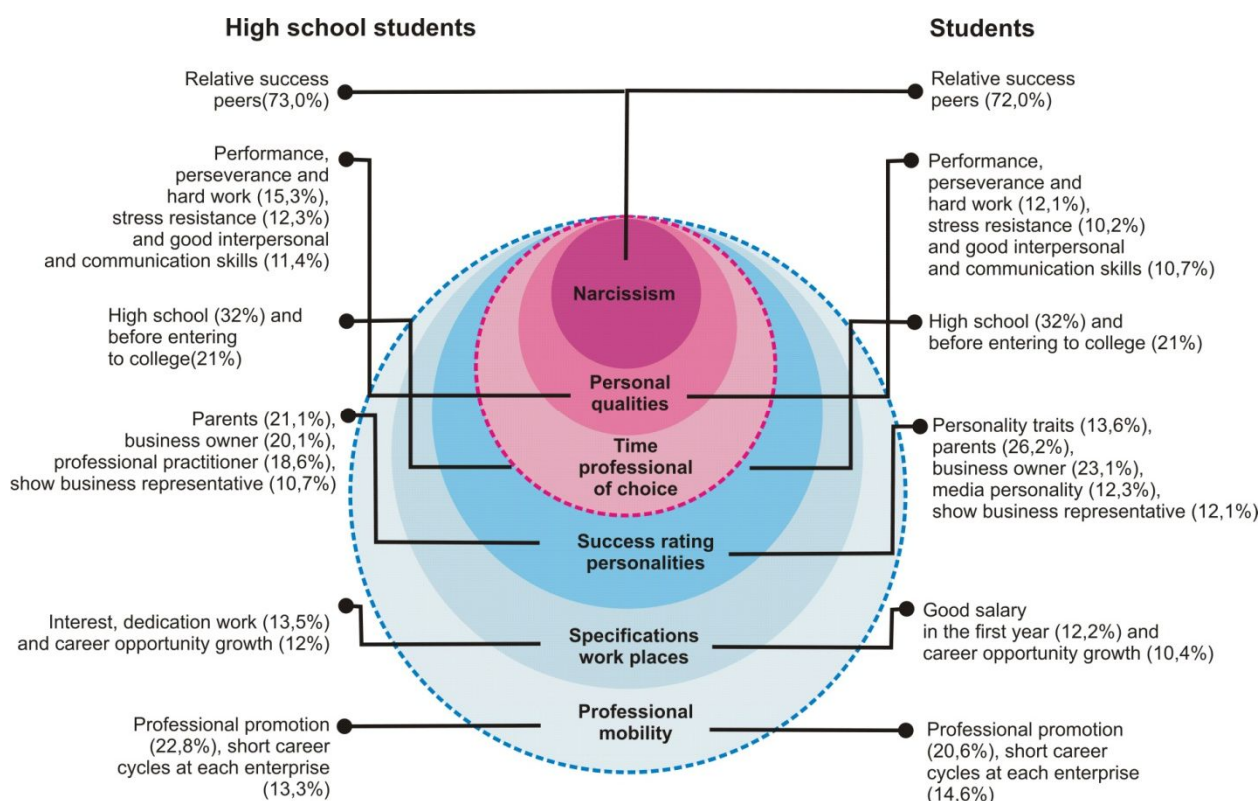
Consequently, within the framework of hypotheses H1 and H2, the analysis results demonstrate differences in the composition of the levels of a single image of successful university graduate for students and high school students only at the following levels "rating of successful people" and "features of a future job in the first year after graduation".

A paired correlation analysis of the question of the respondent's success (single option) and his/her status as a high school student or student (single option) demonstrates a complete lack of dependence - the dependence is statistically insignificant (statistical significance is 88%), and the Pearson correlation ratio is 0.021. Consequently, the hypothesis H3 is fully confirmed

- the basis of a multi-level image and the second point of contact is such a level as narcissism.

The pair correlation analysis of the question about the time of professional choice, when an interest in the profession arose (single option) and his/her status as a high school student or student (single option) shows the presence of a statistically significant (statistical significance is 0%), but a very weak dependence (Pearson correlation ratio is 0.183 ). Consequently, the distribution of answers of the respondents with different status is almost close.

Based on the correlation analysis of the survey results, a multi-level image of a successful university graduate in the context of the opinions of high school students and students was developed, which is presented in Figure 6.



**Figure 6.** Multi-level image of a successful university graduate in the context of the opinions of high school students and students

According to the study results, the following general conclusions were formulated:

- Conventionally, the success criteria of a university graduate can be divided into two groups: internal (narcissism, personal qualities and time of professional choice) and external (rating of successful people, job features in the first year after graduation, and professional mobility).

- The multi-level image of a successful graduate is based on the narcissism (excessive self-love and excessive self-esteem inherent in young people), the subsequent levels cover such aggregates of criteria as: personal qualities that distinguish people who have achieved success; time of professional choice, when there was an interest in the profession; rating of successful individuals, which are an example for the respondent; features of the future job in the first year after graduation; professional mobility.

- Schoolchildren and students often see not only owners of successful businesses, professional practitioners, actors, showmen, musicians and just rich people, but also their parents and relatives, people with certain personality traits and scientists as successful graduates of universities, which gives rich material for choosing successful graduates and many opportunities for presenting their achievements to high school students and students.

## 6. Conclusion

The purpose of this paper was to implement the supply chain strategy in the education environment so as to suggest innovative management ideas in education and careers managements. It can be enhanced by proper information management from high schools and universities. The image of a successful graduate, formed in the minds of high school students (potential consumers) and students (real consumers), is of interest to the departments and structural subdivisions of universities working with high school students and their parents in the context of building communication, building dialogue for directional impact, and developing promotional materials. The universities have to pay a lot of attention and strength to communication, using marketing communications as one of the main tools of competition to ensure their competitiveness in the national and international educational space [21-26]. The study results allow determining the successful graduates, information about which is broadcast in the university content (on the website, in the groups of social networks, on the indoor- and print advertising).

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