

Article

# Holistic Education for Sustainable Development: A Study of Shaping the Pro-Quality Attitude of Students in the Polish Educational System

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**Abstract:** The scope of this article is fact finding and evaluation of activities for sustainable development in the field of shaping a pro-quality attitude in the educational system. As indicated by UNESCO, education for sustainable development needs a holistic approach. In this perspective, pro-quality education plays a double role—it includes contents that are innovative and closely related to sustainable development and it is a link connecting other activities of the educational system to achieve the objectives of education for sustainable development. This issue, as overlooked in most countries, is an attractive educational innovation, which can affect shaping students' attitudes in a more effective way. For the purpose of this research, the author collected secondary data as a result of literature analysis, mostly including governing and archival acts of law, as well as raw data with the use of a diagnostic survey method with a questionnaire survey technique. The main stage of this method was collecting research data through surveying students, representatives of teaching staff, and school principals from schools in Poland. Research conducted by the author supported the proposed hypothesis, according to which the Polish educational system is not oriented towards shaping the pro-quality attitude of high school students.

**Keywords:** innovative education; education policy; pro-quality education; sustainability; pro-quality culture



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## 1. Introduction

“Quality” is undoubtedly one of the most popular issues both in professional as well as in private life. This phenomenon can be explained in two ways. On the one hand, it is unquestionably connected with the increasing popularity of the concept of quality and the willingness to purchase products and services of a desired level. On the other hand, however, this concept is very frequently overused [1,2] and is used by sellers excessively or simply dishonestly, when it does not match high quality in reality [3].

Regardless of the resolution of this problem, the impact of the pro-quality attitude of societies on the creation of educational innovations is indisputable. Understanding the essence of being guided by quality in decisions and the awareness of the importance of continuous improvement also requires improvement in the field of education [4]. In order to achieve this effect, due to the scale of the problem, the involvement of entire societies is necessary. This conclusion leads to a situation in which only the implementation of holistic education combined with the implementation of educational innovation regarding shaping a pro-quality attitude in students can lead to their becoming future members of society who take up the challenge of the further improvement of the education system towards further innovations and ensuring sustainable development [5]. Moreover, this approach is in line with UNESCO's thesis that education for sustainable development is not a single topic, but rather a “holistic approach to reshaping education to address sustainability challenges” [6].

This growing popularity of the word quality—practically also being a significant component of a sustainable economy [7–9]—is, however, contrary to a low culture of

quality in Polish society. On the basis of historical conditions connected with the times of the People's Republic of Poland and the mediocrity which became almost the symbol of those times, Polish society still too often ignores quality and does not give it enough consideration. The majority of Poles still think that the price is the most important aspect for deciding about the purchase of products for everyday use. According to the EY Future Consumer Index research report, price is the most determining aspect for 56% of those surveyed [10]. Even though 57% of the respondents take adequate price-quality ratios into account, the problem might become worse due to worries connected with private finances, the state of which deteriorated as a result of the COVID-19 pandemic which started at the turn of 2019 and 2020, and the full-scale war in Ukraine which launched in 2022. The consequences of these factors can be noticed now in the form of significantly increased inflation, which financially influences societies in many countries.

The results of such an approach to quality are visible at a number of levels starting from consumers knowingly ignoring the quality of purchased products [11], through employees and their attitudes to performed work [12], producers and products offered by them [13], employers neglecting quality of working conditions of employees [14], public administration disregarding citizens [15], and national authorities with their attitude to the quality of legislation and governing the country [16], which is confirmed by the World Bank's Regulatory Quality Indicator [17]. Worse still, some educators share this opinion about the mediocrity of the Polish educational system which "produces satisfied with themselves ignoramuses who are helpless in life" [18].

The effects of this state of affairs can also be seen in the lack of care for the quality of produced products and for the state of the natural environment. As the Polish Supreme Chamber of Control points out in its report [19], Poland is a leader in terms of exported hazardous products. In the same report, the authors also draw attention to the low quality of the Polish system of control of the food industry, which can be considered as the aftermath of the previously indicated problem with the low quality of the law. In the analysis of the Coastal Bathing Site with Excellent Water Quality indicator, Poland is last in the European Union [20], and the quality of water in Polish water reservoirs is one of the worst in the European Union [21].

Despite how shaping the pro-quality attitude of citizens from different countries all over the world is becoming a more and more important issue [22], in Poland this problem still seems to be imperceptible. Historical conditions of Poland in combination with the complicated issue of the quality concept, lead to the conclusion that only common education regarding quality, aimed at shaping students' pro-quality attitudes and knowledge, will allow for improvement in the current state of affairs, whereas continuous neglect of this issue will only deteriorate the situation. In this view, the common implementation of the quality concept into school education is not only of great importance, but is also really urgent.

## 2. Shaping a Pro-Quality Attitude in the School System

Children should have a pro-quality culture, similar to personal culture, inculcated from the earliest years. School as an institution playing a significant educational and teaching role ought to be fully involved in this process. It is schooling which has a crucial impact on the shape of the workforce in future companies [23]. Children are vulnerable to making the same mistakes and ignoring quality, just like how they grow up in a society accustomed to mediocrity. The significance of education in the scope of quality is especially noticeable at the high school level, which is the result of not only the sufficient maturity of students to understand conveyed knowledge in this field, but also of the first contact with professional apprenticeships and work experience within the educational system, as well as of holiday employment and work started after school graduation.

In spite of the growing number of people continuing education at a university level, there are people with secondary education who have a dominant position in the structure of Polish society. In 2021, the percentage of these people was 32.4%. Moreover, for each

of the last ten years it has increased by one percentage point [24]. Such a situation is a great challenge both for secondary schools and for employers. The labor market is powered by graduates without sufficient knowledge concerning widely understood quality concepts. They also are unaware of the importance of high quality work and all of the benefits arising from this fact. This, in turn, has a direct impact on the continuation of the vicious circle of low quality work, influencing employees, employers, clients, and the whole economy and society in a negative way [22]. Another, even more vivid justification for shaping proper attitudes towards the concept of quality is commonly implemented today as a quality management system according to ISO 9001 [25] norms or its development into a sustainable quality management system in which the general engagement of all workers is perceived as almost a necessity [26]. Shaping the attitudes of workers towards valuing quality should also be treated as one of the steps for creating an organization's quality culture [27]. Including employers whose attitudes towards quality were shaped during their school times into an organization's quality culture will result in the higher effectiveness of subsequently performed actions.

In today's world, education concerning quality already at the school stage is an indispensable aspect ensuring the competitiveness of companies and the whole Polish economy, as well as a crucial factor enabling students to find satisfactory employment in a competitive labor market. C. Kozak [28], in his research work, draws attention to the fact that it is easier to shape attitudes appearing for the first time than change the ones which were shaped in the past. Postponing the process of shaping pro-quality attitudes to each subsequent level of education and life stage is strictly connected with considerable losses for a certain person and the environment. It can also stand for much more difficult and less effective education.

The current literature contains only a few references to the concept of a pro-quality attitude, even though it is complementary with Total Quality Management (TQM) philosophy, which is a total quality management philosophy that has been popular for many years [29]. Eventual examples of references consist almost entirely of workers' attitudes, without explaining the necessity of acquiring proper attitudes towards quality many years before beginning professional work.

Grad students' pro-quality attitudes should refer both to their cognitive processes as well as to their emotional processes and behaviors. The term "attitude", according to T. Mądrzycki, should be understood as "relatively stable and consistent cognitive, emotional-motivational and behavioral organization of an entity, connected with a certain object or a class of objects" [30]. What is important is that the mentioned object should be referred to as a physical object as well as a social one. This definition is based on the so-called three element model, according to which attitude is composed of the following elements: cognitive (knowledge, beliefs, opinions), emotional-motivational (evaluative approach towards an object or phenomenon), and behavioral (reactions to an object or phenomenon). From the point of view of the labor market, economy, and society at large, the concept described above should concentrate on the following features:

- (1). possessing knowledge concerning quality by students (in the field of problems and practical matters, which is, among others, the instruments and costs of quality),
- (2). sense of purpose and reasonableness of appropriate approach towards quality in private life as well as in the course of performing duties at work,
- (3). developed habit of including a proper approach towards quality in private life as well as in the course of performing duties at work.

Attention should be paid to the interpenetration and complementarity of holistic education for shaping the right attitude of students towards quality. On the one hand, an emphasis on holistic education is crucial in this regard, due to its impact on all elements of attitude. As J. Hare points out, "Holistic education prepares a student for lifelong learning in which the educational focus moves towards the life skills, attitudes and personal awareness that the student will need in an increasingly complex world" [31]. What is more, however, is how it directly influences building the habit of continuous improvement in the student

through an objective assessment of their own work that leads to raising standards for improving it [31], thus closely corresponding in this area even with the most popular standard related to the issue of quality, the ISO 9001 standard, as well as the continuous improvement of the Plan-Do-Check-Act cycle.

On the other hand, sensitizing students to the issue of quality will make it possible to increase the effectiveness and efficiency of holistic education, for example through more accurate performance of their duties, assigned tasks, etc. Even more pronounced effects of the mutual interpenetration of both issues can be seen in groups using tools associated with the issue of quality in their daily work [32].

Similarly, a clear relationship between the pro-quality attitude and sustainability can be noted. This relationship can already be seen in the ISO 9000 standard itself, encouraging the implementation of other management systems as well (including the environmental management system based on ISO 14001 [33]) and emphasizing that for an organization to achieve sustained success, it is required to strike a balance between economic and financial interests and those of the social and ecological environment [34]. This connection can also be seen in the effects of the implementation of the quality management system according to ISO 9001. As pointed out by García-Quevedo, Kesidou, and Martínez-Ros, the existence of prior capabilities in the implementation of the ISO 9001 standard makes adopting the environmental ISO 14001 standard easier [35]. Even more important are the practical effects of being guided by quality in work and life, such as by making conscious consumer choices, producing less waste or optimizing processes, and the related reduction of logistics chains. As indicated by D. Zimon, P. Madzik, and R. Sroufe, ISO 9001 focuses on improving internal processes and on cooperation between the links that form supply chains, but it also has direct impacts on improving environmental processes [36].

It should be borne in mind that nowadays it is difficult to consider pro-quality issues without taking into account sustainable development. This is demonstrated by the criteria of the most important quality-related awards, such as the European Foundation for Quality Management Excellence Model (EFQM EM), the Malcolm Baldrige National Quality Award (MBNQA), and the Deming Prize [37]. In the case of the last of the mentioned awards, the Deming Prize, attention should be paid to the characteristic approach to defining the concept of quality, according to which “influence on the third parties, society, environment, and future generations needs to be considered” [38]. This kind of approach seems obvious due to the activities of W.E. Deming and his system of profound knowledge, promoting sustainability in all of its areas: appreciation for a system, knowledge of variation, theory of knowledge, and psychology [39], as well as due to the assumptions of the TQM concept created by him. As the research results show, this most pro-quality concept of organization management refers not only to quality, but also has a positive impact on sustainability [40–42]. R. Isaksson, S. Ramanathan, and M. Rosvall even state that TQM could become sustainable development, and that most principles, practices, and tools from TQM could be used. However, this requires making conscious efforts related to the inclusion of KPIs aimed at sustainable development and changing the approach from focusing on customers’ wants and needs to focusing on the needs of stakeholders [43]. The concept of TQM, as L. Belkhir notes after some minor adaptation work of Deming’s fourteen points originally related to quality, can also be a scaffold for the implementation of courses directly aimed at sustainable development, confirming the close relationship between both concepts [44]. As these researchers note, the implementation of TQM, as a concept of a common pro-quality approach, can bring even better results for sustainable development than the mere implementation of environmental management standards or those relating to social responsibility, i.e., ISO 14001 and ISO 26000 [45]. These are implemented by most companies just to satisfy state laws or because of clients’ requirements [7].

Regardless of the impact on sustainability of the original solutions related to quality, attention is drawn to their extensions, deliberately aimed at sustainable development, such as the Green 5-S Model created by the Standards and Industrial Research Institute of Malaysia (SIRIM) [46], Sustainable Quality Management (SQM) which is based on the

integration of traditional QMS with sustainability [47,48], and Green Quality Function Deployment [49,50] or the Green Quality Circle (GQC) which are based on the quality circle known from pro-quality works, but which also take into account aspects related to sustainable development and the impact of the product and process on the environment [51]. The mentioned integration of quality management with sustainable development currently seems to be not only a free innovative proposition, but—as some researchers argue—a trend in which the development of quality management should follow. At the same time, it is positive that quality managers are aware of the importance of integrating sustainability and quality management [26].

An even stronger impact on sustainable development can be seen in the lean management concept, which is often considered a natural consequence of systemic quality management and an intuitive step following its implementation. Numerous tools used in this concept can also be used in activities for sustainable development. As indicated by G. Langenwarter, these include Value Stream Mapping, which for the purposes of sustainable development should only be extended to include indicators related to the natural environment (such as, for example, hazardous material generated, water used, and energy used), or traditional quality tools such as Pareto chart, Ishikawa diagram, and the “5WHY” that can be used to solve sustainability problems even without any modifications. Due to the low implementation costs, or even their complete absence, quality tools are therefore particularly important for small and medium-sized enterprises that dominate the economy, which often cannot afford professional waste management [51]. The impact of the lean management concept on sustainable development is also indicated by L. Kováčová, who emphasizes that in order to achieve higher levels of environmental performance, an organization “must first adopt the principles and practices of lean manufacturing” [52], and thus primarily its main pillars, including, above all, an appropriate approach to quality.

As research shows, the implementation of the ISO 9001 standard in an organization has a direct impact on sustainable development [53], providing a solid basis for sustainability. What is more, it affects sustainable development in many aspects [54]. The results of research conducted by A. Bastas and K. Liyanage can be considered as a clarification of these conclusions, which not only confirmed the existence of relationships between ISO 9001 and sustainability, but also ranked the ISO 9001 principles according to their importance to sustainability [55]. Against this background, the approach of R. Ramanathan stands out in particular by seeing in quality and Quality Based Management (QBM) “some of the best philosophies, principles, systems and techniques for companies to think ahead and act now for a better future” [56]. At the same time, he emphasizes that the mainstream of quality management should be supplemented by societal quality and can no longer be limited to meeting customer requirements without taking into account the consequences for society and future generations. This paradigm shift, however, absolutely requires shaping the right attitude towards quality in society. Since this must concern both quality suppliers and its recipients, shaping a pro-quality attitude should not start later than at the school level. This is also proven by research conducted by Y.S. Ho and L.C. Fan, which show the impact of a quality management system on sustainable development, but at the same time indicate that this potential is not sufficiently recognized in organizations and there are insufficient activities to use it [57]. The essence of the general shaping of the pro-quality attitude of a society becomes even clearer against the background of research conducted by V. Siva, I. Gremyr, and Á. Halldórsson, indicating the complexity of the issue of competences required from specialists involved in activities combining quality management and sustainability [58]. The usefulness of quality systems and basic instruments related to quality management for influencing sustainability, including the possibility of achieving United Nations Sustainable Development Goals (SDGs) by 2030, is pointed out by W. Vandenbrande [59]. In his work, however, he also emphasizes the need for a much greater involvement of small and medium-sized enterprises, and thus the general promotion of quality.

Given the three-element attitude model, a holistic approach is again crucial in the area of quality education and its impact on sustainability. Focusing on individual elements of the attitude (for example, knowledge about quality tools) from the point of view of shaping a pro-quality attitude, and even more so its impact on sustainability, will not only be ineffective, but may even lead to the incorrect application of the acquired knowledge in practice. Students must not only have knowledge of the selected issues, but they must also understand their purpose, as well as the dangers and ethical dilemmas (as in the case of the “mystery shopper” tool) associated with their incorrect use.

In view of the issue described above, the author of this article developed the following research question: what is the actual situation concerning the process of shaping attitudes focused on quality among high school students in the Polish educational system?

The author simultaneously hypothesized that the Polish educational system is not oriented towards shaping the pro-quality attitude of high school students.

In the following chapters of this article, the author presents the materials and methods used in the research, as well as their results, with three separate subchapters concerning the analysis of pro-quality education in the core curriculums of general education and in those designed for vocational education, as well as empirical studies on shaping attitudes focused on quality among high school students in the Polish educational system. The article ends with discussion and conclusions.

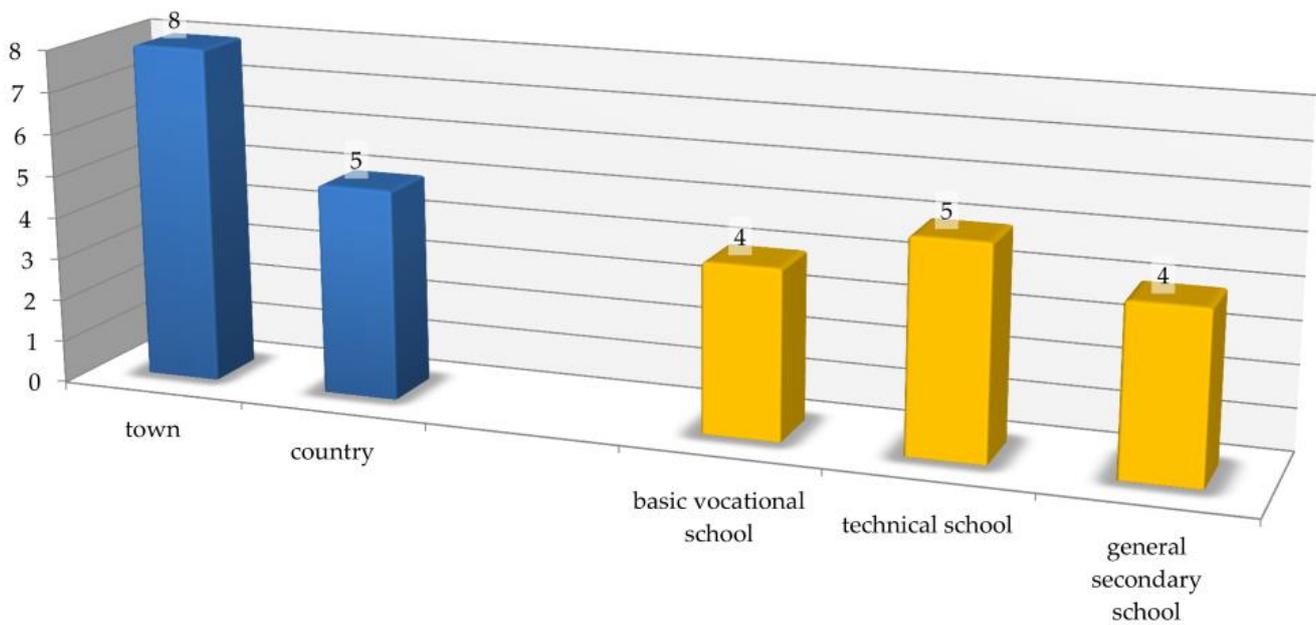
### 3. Materials and Methods

In order to verify the formulated hypothesis, the author decided to collect secondary data acquired on the basis of literature analysis including mainly governing and archival law acts from the years 2012–2018, as well as primary data on the basis of a diagnostic survey method with a questionnaire survey technique. The main stage of this action included surveying a group of 1012 students from 13 high schools (In the course of research conducted in the period from 2010 to 2018, before the educational reform launched in 2017, high schools were formally called upper secondary schools) located in two voivodships: wielkopolskie and łódzkie. The limitation to two voivodships aimed at determining a particular area of research sample selection, and choosing these two indicated voivodships was connected with technical reasons enabling performance of research with the limited resources available. Schools, and then individual classes, were randomly selected. The analysis of the researched schools allowed for stating that there are different kinds of schools (four basic vocational schools, five technical schools, and four general secondary schools) located in different environments (eight from the towns and five from the country) (Figure 1).

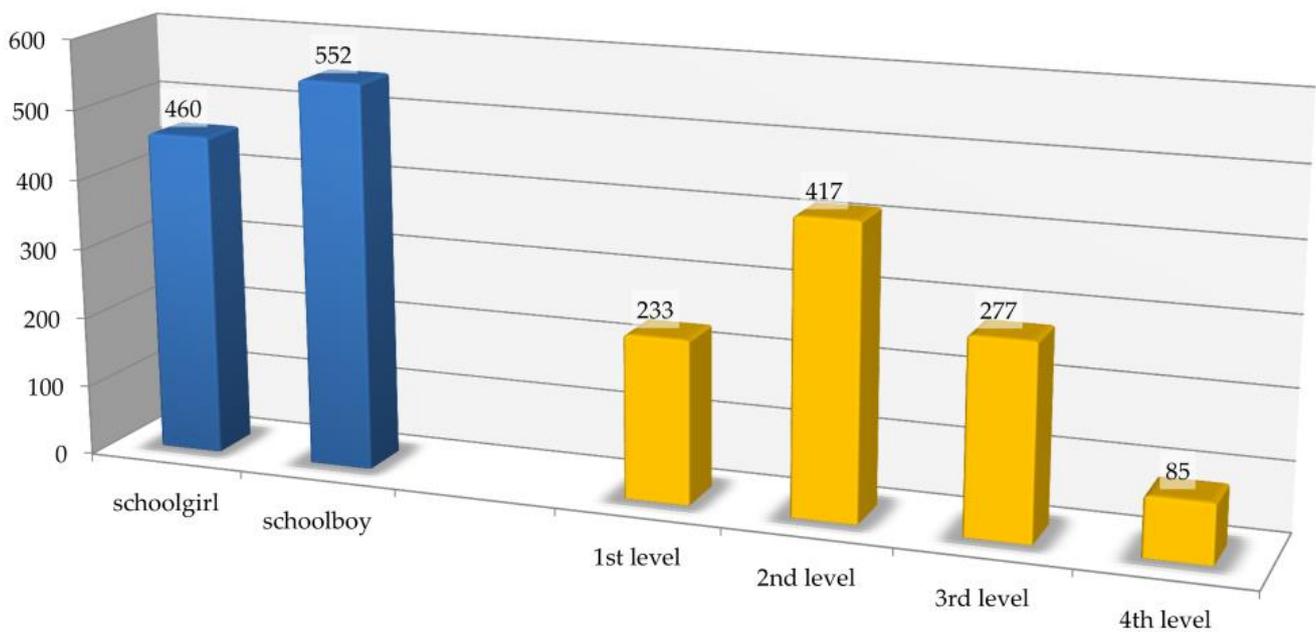
The students included in the study were of different sexes and attended classes at different levels (Figure 2). The possibility of filing surveys only by students with particular learning achievements was eliminated by surveying all classes, without distinguishing certain students.

The research was conducted in schools with the verbal consent of school principals, who have been assured that their schools will not be identified. Principal’s permission is also required to survey teachers and it was granted in eleven schools. Principals themselves agreed to fill in the survey in seven schools. The author collected research data in the period from 2010 to 2018.

The results of performed research are especially important due to the surveyed students’ age structure. Currently, these are people who begin their professional career or are about to start work. Therefore, they constitute a group most vulnerable to the influence of employers who are going to train them. In order to ensure the complementarity of results and counter the situation in which data connected with different circumstances would be analyzed, the secondary sources analyzed by the author (legal status concerning educational system and content provided to students) concerned the period in which primary data was also collected.



**Figure 1.** The structure of the schools covered by the research with reference to location and type. (Source: Own Study).



**Figure 2.** The structure of the surveyed students with reference to sex and class level. (Source: Own Study).

The questionnaire, in accordance with the adopted recommendations, consisted of three main parts: an introductory instruction containing the purpose of the study, the central part which includes questions addressed to the respondents, and demographic questions that make it possible to approximate the profile of the respondents—their age, sex, type of school, and class level [60,61]. All participants were assured of the full anonymity of the collected data, the purpose of the research, that there are no risks associated with it, and that the collected data will be used only for studies that prevent their identification.

## 4. Results

### 4.1. Pro-Quality Education in the Core Curriculums of General Education

With a view to establish the actual situation, the author analyzed core curriculums of particular subjects realized in high schools, paying special attention to the presence of issues regarding quality, as well as other issues indirectly affecting the process of shaping pro-quality attitudes, such as entrepreneurship, diligence, meticulousness, understanding of apparent profit, attention paid to perform duties, etc. Even though these features can be trained during almost all school classes, through developing a habit of performing activities specific to a given subject in a correct way, it should not be forgotten that there are subjects in which the core curriculum ought to include content strictly connected with quality—such as Total Quality Management, quality management system, quality costs, quality instruments, etc.

The core curriculums for particular school subjects realized in the course of education are established by a Minister of Education. Core curriculums determine educational objectives formulated as general requirements and teaching content formulated as specific requirements. The analysis of both kinds of requirements in the old and new core curriculums for the subject called the basics of entrepreneurship that is taught in high schools (in the author's opinion, the key subject for teaching about the concept of quality), which was performed by the author, has proved that students have no obligation to get familiar with issues directly connected with quality, such as TQM, quality tools, quality as an element of competitiveness, etc. [62–64]. Meanwhile, students perceive this subject as the one which will teach them skills necessary in their future life, and above all, in their professional career, and it seems to be almost extraordinary in the scope of its possibility for shaping students' attitudes [65,66].

Teaching content which has an indirect impact on shaping students' pro-quality attitudes can, however, be found in the subject's core curriculum due to single specified requirements, such as:

1. Student can list basic market features, functions, and kinds,
2. Student can characterize ethical and unethical behaviors in national and international business,
3. Student can characterize factors influencing company's success and failure.

However, due to the lack of a clearly specified necessity to promote quality, many activities in this field depend on teachers, their interpretation of certain requirements, and their beliefs connected with the legitimacy of discussing additional matters with students. An interesting fact seems to be that the only record which directly refers to the quality of performed work is the core curriculum of general education for special vocational preparatory schools for students with moderate or profound mental disability and for students with multiple disabilities. According to this core curriculum "while planning students' achievements in the scope of vocational preparation, ( . . . ) the quality of performed work should be especially taken into consideration" [64].

A very important role in shaping attitudes—including pro-quality attitudes—is also played by the authors of educational materials for particular subjects including mainly schoolbooks. The author of this article analyzed six out of twelve schoolbooks for the basics of entrepreneurship, which were accepted by the Minister of Education in this research period [67–72].

The most important conclusion deriving from the schoolbooks indicated above is the lack of issues directly connected with quality, such as the concept of quality, quality tools, TQM philosophy, quality costs, etc., which could have been expected after the analysis of the core curriculum of the basics of entrepreneurship subject. These issues, if discussed at all, have marginal presence. The issue mentioned above concerning the correlation of quality promotion and the author of a certain schoolbook has also been proved. None of the three requirements discussed above resulting from the core curriculum (1. Student can list basic market features, functions, and kinds; 2. Student can characterize ethical and unethical behaviors in national and international business; 3. Student can characterize

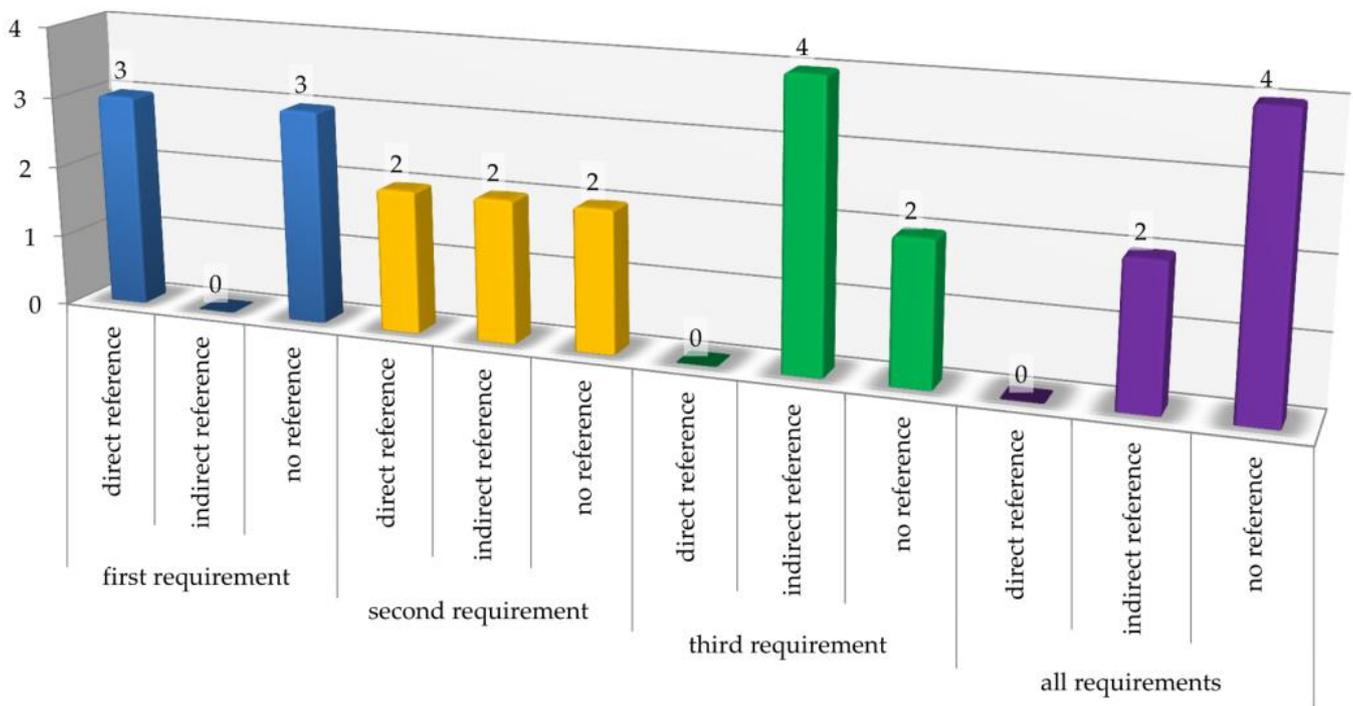
factors influencing company's success and failure.), which could influence the process of shaping student attitudes focused towards quality, are appropriately presented in the six books that were analyzed.

Taking into consideration the first requirement, and especially the phenomenon of competition inseparably connected with the market, quality competition has been described in only one resource [67], and increasing qualitative features have been referred to as an aspect of shaping products within the marketing activities of a seller. The next schoolbook [68] indicated offering purchasers the best products and services—what is interesting—without information about the prices, as the only element of competition between sellers. Borowiec and other authors [69] indicated offering better products and services while describing the phenomenon of competition even before the alternative of reducing the costs of doing business. The remaining schoolbooks not only did not mention the issue of quality competition, but [70] also ignored it while describing non-price competition (only brand popularization and active sales promotion examples have been mentioned). Intriguingly, none of the mentioned schoolbooks indicates quality as a factor influencing demand for a certain product.

Within the scope of the second requirement (“Student can characterize ethical and unethical behaviors in national and international business”), the issue of quality has been mentioned in four schoolbooks, however, in most cases only in an indirect way. In the schoolbook written by Makiela and Rachwał [70], a description of honesty, as one of five ethical values in business, is accompanied by the issue of quality in the scope of honesty towards counterparties and clients (“producing and selling goods of best quality”) and towards receivers of advertisements (“giving reliable information”). The latter element has also been mentioned by Borowiec and other authors [69], where “creating advertisements including only true information” was described as one of the elements of a company's ethical conduct. In the schoolbook prepared by Neneman and other authors [68], the benefits of providing honest information about a product are also emphasized. The significance of quality was also indicated, even more vividly, as an issue greatly influencing a consumer's will to take advantage of a producer's or seller's offer, which directly corresponds with the number of clients and income values [71]. Nevertheless, in some publications, honesty has not been mentioned among business values [67,71].

None of the analyzed schoolbooks mentioned the issue of quality in the scope of the third requirement (“Student can characterize factors influencing company's success and failure”), despite its crucial impact on a whole company's activity in the field of quality of offered products and services, quality of communication between workers, etc. (Figure 3). Against this background, however, some recognition should be granted to the fact that innovativeness is at least mentioned. It is understood as “continuous perfection of a product or service, placing new products, which receive clients' recognition, on the market” [68,70,72]. Innovativeness was additionally accompanied by client satisfaction, which is very close to the pro-quality approach not mentioned in any other analyzed publication [70]. Some authors presented “satisfactory quality of produced goods” as one of the examples of success already achieved by a company [69].

A summary of the above analysis, with an indication of the number of direct and indirect references to quality in the scope of selected requirements in the analyzed schoolbooks, is presented in Figure 3. It is noteworthy that a direct reference to quality can be observed in none of them when meeting all the requirements, and only in two can indirect references be noted.



**Figure 3.** The presence of references to quality in the scope of selected requirements in the analyzed schoolbooks. (Source: Own Study).

The book written by Borowiec and other authors [69] draws attention while assessing the content of the analyzed schoolbooks in view of information connected with quality. Notwithstanding the fact that it lacks information connected with quality, such as TQM, costs, and tools of quality, etc., it still emphasizes the value of quality to a greater extent than other books. Alongside issues that have been already indicated, this fact can also be noticed in the description of economic development, defined as “process of quantitative and qualitative transformations, where quantity and quality of produced goods and services increases and the process is accompanied with transformations in the structure of economy”. In the rest of the mentioned schoolbooks, this definition, if there was any, lacked the term quality. A more serious perception of the quality issue can be also noticed together with the suggestions concerning the choice of suppliers. The quality of offered products was listed in the first place, even before price. The quality issue was also emphasized while defining the real product, which according to presented information creates—primarily—quality, right next to material (raw material), model, price, packaging, brand, trade sign, style, and contact with a purchaser and seller’s look and behavior. The quality of offered products and services was also indicated as one of the premises used to evaluate potential coworkers cooperating with a company.

Economy in practice constitutes an expansion of a subject called the basics of entrepreneur, which was realized in upper secondary schools before the educational reform in the form of a supplementary subject. This subject, by definition, should be realized in a project form, enabling students to use their knowledge to take decisions in a real economic situation on their own. Despite, as it may seem, very good conditions to convey information concerning quality within this subject, the core curriculum of “economy in practice” does not provide space for this concept.

#### 4.2. Pro-Quality Education in Core Curriculums Designed for Vocational Education

Education that corresponds to the needs of different professions has been a significant educational feature in technical schools, previous basic vocational schools, as well as Level 1 and Level 2 Vocational Schools introduced by an educational reform. It differentiated these schools from general secondary schools and schools from earlier educational levels. As well

as the so far analyzed core curriculums for general education, subjects described by a core curriculum for vocational training are of great significance in all of the mentioned schools. Analyzing the document, it is easy to notice stronger emphasis put on the issue of quality in the scope of both educational effects and educational aims in particular professions. Effects presented in it have been described within three sets:

1. Effects shared for all professions divided into five groups:
  - (a) *Occupational safety and health OSH*
  - (b) *Taking up and pursuit of business*
  - (c) *Foreign language aimed at professional needs*
  - (d) *Personal and social competences*
  - (e) *Organization of small teams' work (only for professions taught on a technical school level)*
2. Effects shared for professions within particular educational areas, constituting a foundation for training in a profession or group of professions:
  - (a) *Administrative—service*
  - (b) *Construction*
  - (c) *Electrical—electronic*
  - (d) *Mechanical and mining-smelting*
  - (e) *Agricultural and forestry with environmental protection*
  - (f) *Touristic and catering*
  - (g) *Medical and social*
  - (h) *Artistic*
3. Effects appropriate for qualifications identified in professions in the process of division into educational areas (as mentioned above) and for particular qualifications.

Among effects shared for all professions—the ones enumerated in the first set—the issue of quality directly appears in only one group—the organization of small teams' work, which applies only to professions taught at a technical school level. According to specifications, students should be able to evaluate the quality of performed actions and implement technical and organizational solutions influencing work conditions and quality improvement. The discussed set, however, lacks the directly presented requirement of having knowledge about issues connected with quality. As it was the case while discussing the previously analyzed requirements related to teaching content, at least a few other effects deserve attention. Quality education can be used to achieve these effects. This will allow for becoming familiar with the issue of quality in practice. Attention should be paid, among others, to effects, according to which a student:

- “organizes his workplace in accordance with ruling requirements of ergonomics, occupational safety and health provisions, fire protection and environment protection regulations” (it can be achieved using the 5S method),
- “updates knowledge and perfects professional skills” (it can be simplified by Deming cycle),
- “cooperates in a team” (numerous quality tools can be used to achieve it).

In the second set of educational effects shared for professions within particular educational areas, constituting a foundation for training in a profession or group of professions, more detailed effects corresponding with particular professions' characters were included. These effects, in many points, have been presented not only as directly influencing students' pro-quality approaches, but also as directly relating to the issue of quality. The following effects can be enumerated among the most important ones:

- student obeys commodity and quality standards concerning storage and preservation of goods—a skill for the following professions: seller, trade technician, bookselling technician, post office, and financial services technician,
- student characterizes systems of quality, safety, and environment management—useful for the following professions: analytical technician, chemical technology technician,

- student obeys quality standards and garden products standardization rules—skill for the following professions: gardener, garden technician,
- student obeys quality standards and agricultural products standardization rules: skill useful for the following professions: technician of apiculture, agriculture, agribusiness,
- student differentiates quality assurance and food safety systems—skill useful for the following professions: nutrition and catering services technician,
- student characterizes quality assurance and food safety systems—skill for the following professions: food technology technician, milk processing technician.

The third set includes effects related to qualifications specified in particular professions. Just as in the previous sets, it is possible to find effects directly connected with quality issues such as quality standards and quality management systems. However, it is clearly noticeable how this most specialized knowledge is so far attributed to a small part of the more advanced skills, which are not required from all future workers. According to the core curriculum, the following people, among others, have to demonstrate solid knowledge of these issues: people who are responsible for train traffic organization and management, technological processes organization, control and organization of technological processes in the chemical industry, organization and supervision of foodstuff production, and those who provide medical services in the scope of medical imagining, electro-medical diagnosis, and radiotherapy.

A relatively large number of professions in which workers, according to the core curriculum, ought to pay attention to quality, should also be emphasized. Students educated in these fields gain knowledge concerning quality assessment and identification of threats which can influence quality. Special attention should be paid to quality promotion aimed at developing an attitude of following quality while making specific choices, thus determining the influence of selected materials and components on the quality of a final product and classifying properly due to quality.

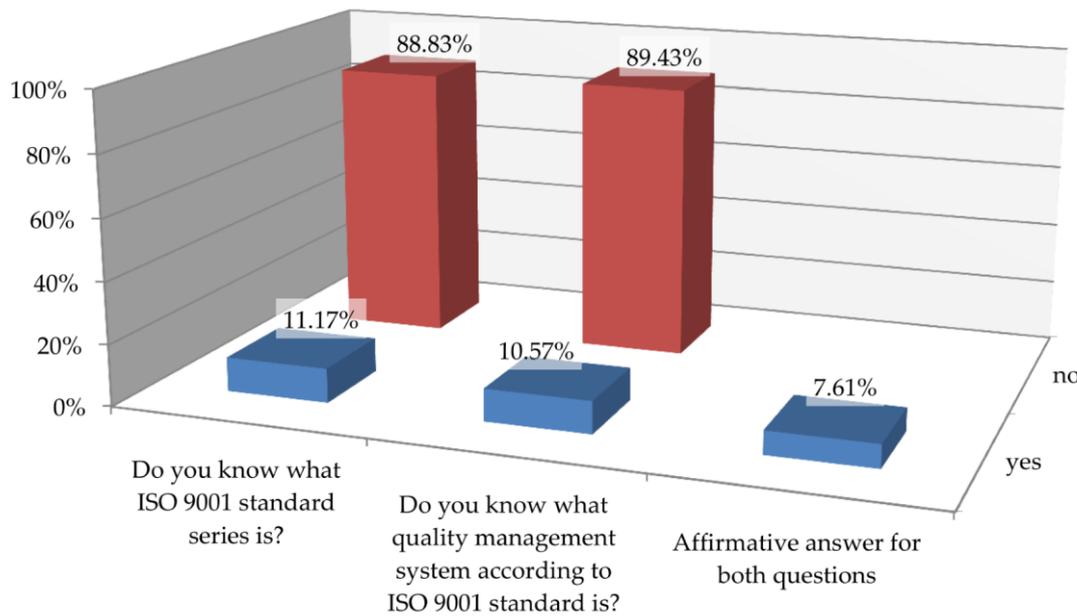
Another issue worth highlighting is the fact that all of the guidelines analyzed above concerning vocational education, both in the old and new core curriculum, are almost convergent.

The requirements discussed above which are to be met by students in the course of their education correspond with schools' infrastructure and supply. Educational institutions, training particular professionals, should be equipped with the required software for quality control, tools and machines for quality control, quality control stations, and even a quality control laboratory, just as takes place in a milk processing technician's education.

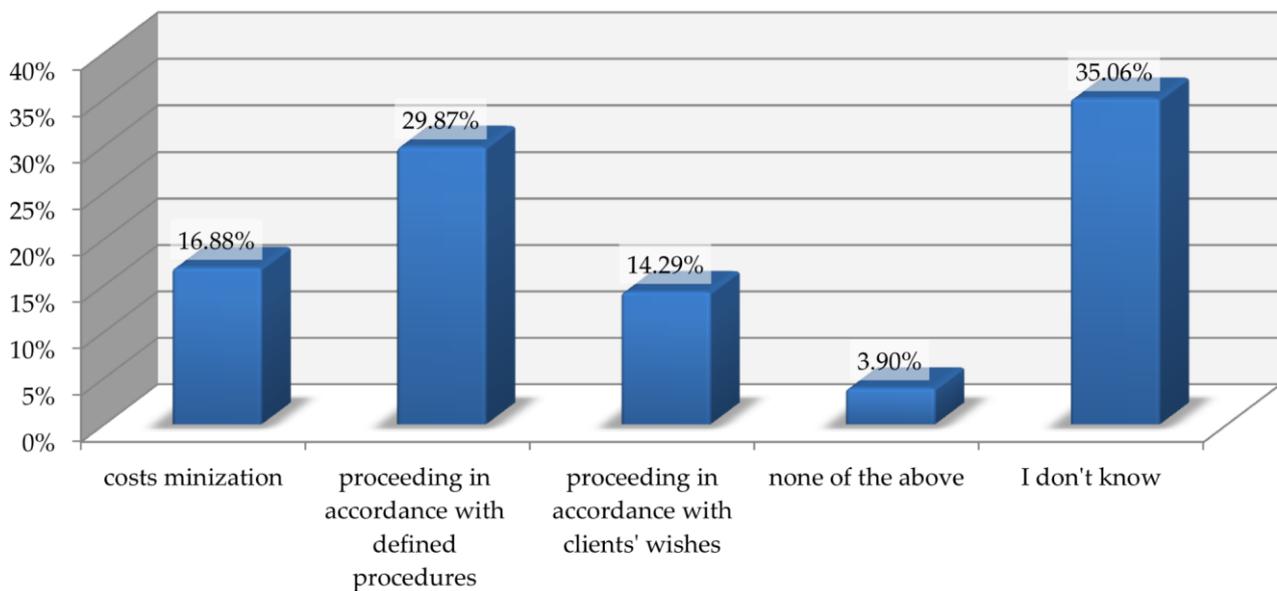
#### *4.3. Shaping Attitudes of High School Students towards a Focus on Quality in the Polish Educational System—Empirical Studies*

Exactly 11.17% of students who were the subjects of this research gave an affirmative answer to the question: "Do you know what ISO 9001 standard series is?" A similar result was noticed when it comes to the question: "Do you know what quality management system according to ISO 9001 standard is?" Exactly 10.57% of respondents gave an affirmative answer. Interestingly enough, an answer of "yes" in both cases was given by only 7.61% of students (Figure 4).

In order to verify students' real knowledge in the fields of the indicated areas, the following additional question was asked "What is the main assumption of quality management system according to ISO 9001 standard?" Only answers collected from respondents who previously declared their knowledge about this issue were considered appropriate. Answers given by respondents were distributed among four suggested answers: proceeding in accordance with defined procedures (29.87%), costs minimization (16.88%), proceeding according to the clients' wishes (14.29), and none of the above (3.90%). More than one third of respondents (35.09%) admitted they did not know the answer to this question (Figure 5). This may indicate fairly ineffective education concerning quality issues, as a result of which students did not acquire information presented to them well.

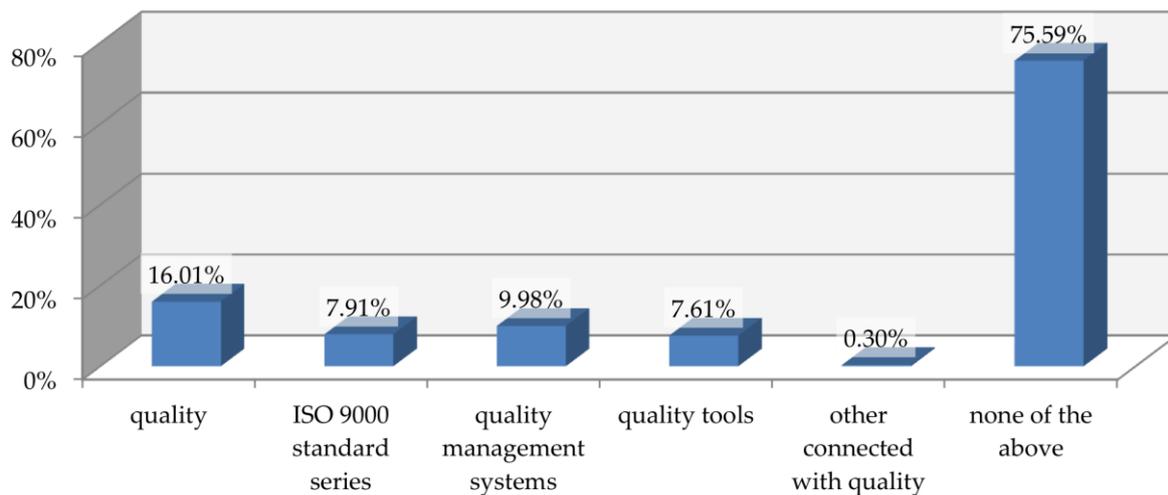


**Figure 4.** The structure of answers for questions concerning ISO 9001 standard series and quality management system according to ISO 9001 standard. (Source: Own Study).



**Figure 5.** The structure of answers to the question “What is the main assumption of quality management system according to ISO 9001 standard?” (Source: Own Study).

In response to a request to present the subject matters that students were taught, 75.59% of them said that they learnt about quality issues (Figure 6). The rest of the respondents most often indicated quality in a general outline (16.01%), quality management system (9.98%), ISO 9000 standard series (7.91%), quality tools (7.61%), and other matters connected with quality (0.30%) (Due to the possibility of marking more than one answer, the percentage contribution of particular answers altogether exceeds 100%. This remark also refers to subsequent cases where an excess over this value was indicated) including: quality of food products, quality of teaching, and HACCP (Hazard Analysis and Critical Control Point).



**Figure 6.** Subject matters connected with quality that students are familiar with. (Source: Own Study).

As a response to a request connected with the subject which gave them knowledge about the matters described above, 40% of students indicated the basics of entrepreneurship. The rest pointed out different kinds of general subjects and the ones which are specific for their course of education. These were, among others, economics of enterprises, commodity science, environmental law, agricultural market organization, agribusiness, principles of nutrition, hygiene and environment protection, and landscape architecture, but also Polish language, physical education, history, and mathematics. Special attention should be paid to these answers which showed that students gained this knowledge on their own, not in school. It emphasizes the importance of knowledge connected with discussed issues and shows that it can also be the students' field of interest.

Detailed analysis of collected data shows at the same time different and often mutually exclusive answers within the same groups of students. Despite presence at the same lessons, students interchangeably indicated different subjects during which they gained knowledge concerning quality or said that this issue was not presented during any lessons.

The majority of students (75.71%) who studied quality issues regarded this knowledge as necessary.

The fact that the above-mentioned information is partly contrary to information given by teachers is also worth emphasizing. The representatives of seven out of eleven schools in which teachers took part in this research declared that students in their schools are taught about quality. The same answer was given by five out of seven principals who participated in this research. The analysis of one case seems to be especially intriguing. One of the principals said that in his school this kind of education had not been realized. Interestingly enough, teachers in this school admitted that this material had been realized.

According to these teachers, quality issues are mainly presented to students during such subjects as the basics of entrepreneurship, vocational subjects, social studies, geography, form period, and partly during every subject of different scope. As can be noticed, these are, to a large extent, subjects realized from the first grade, so the majority of students taking part in this research had been familiarized with these issues. This data, on the one hand, can give rise to doubt that teaching quality issues may be ineffective, and students may not remember presented information well. On the other hand, answers negating the realization of issues related to quality emphasize the fact that it may depend on certain teachers or schoolbooks' authors.

In view of this research topic, it is worth emphasizing that a lack of quality issues in the core curriculum is not dictated by teachers, principals, or students' reluctance regarding this subject matter. As the conducted research shows, a great majority of students (73.81%) expressed their interest in lessons connected with quality. Exactly 36.36% of respondents want to study topics related to quality within a series of several lectures and workshops.

Exactly 28.95% wish to study this subject matter during extra noncompulsory lessons, and exactly 14.43% within an additional subject implemented into the curriculum (Figure 7). Exactly 4.25% expressed their opinion on studying issues related to quality in a different way, indicating, among others, the following solutions:

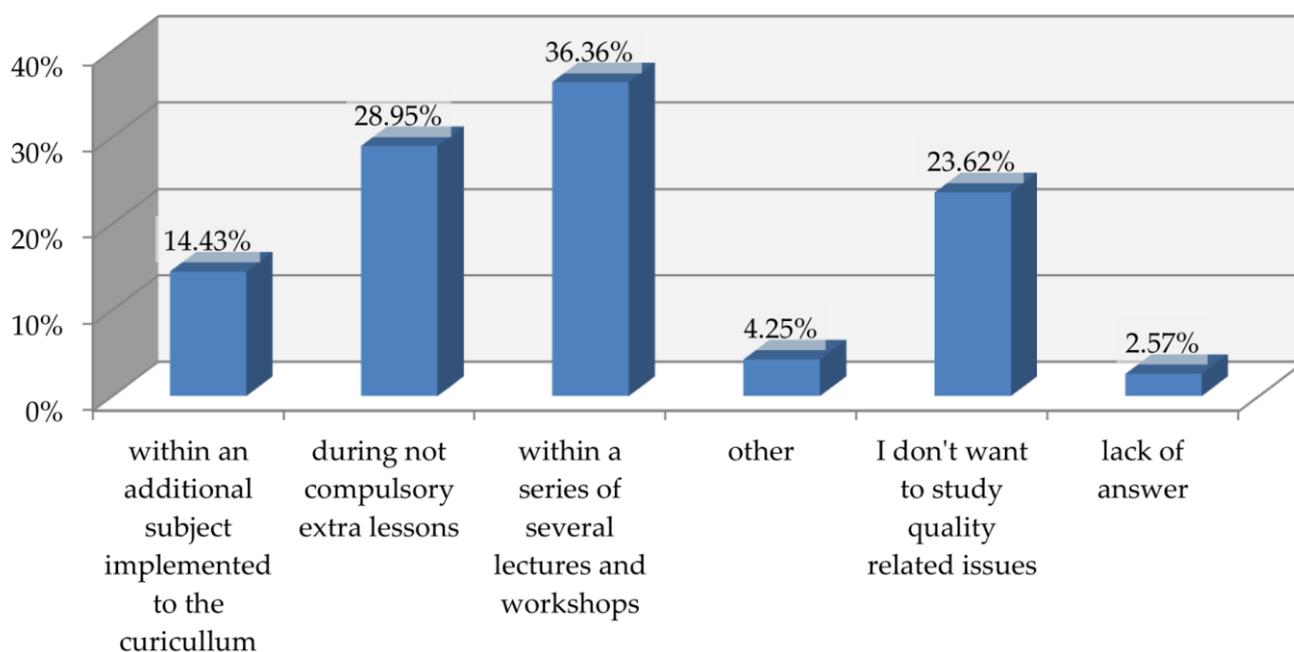
(a) Studying quality issues during other subjects, such as:

- The basics of entrepreneurship
- Economics in practice
- Form period
- Preparation for family life
- Polish language
- Mathematics

(b) References during lessons

(c) Creating projects, performing tasks

(d) Change with a different subject



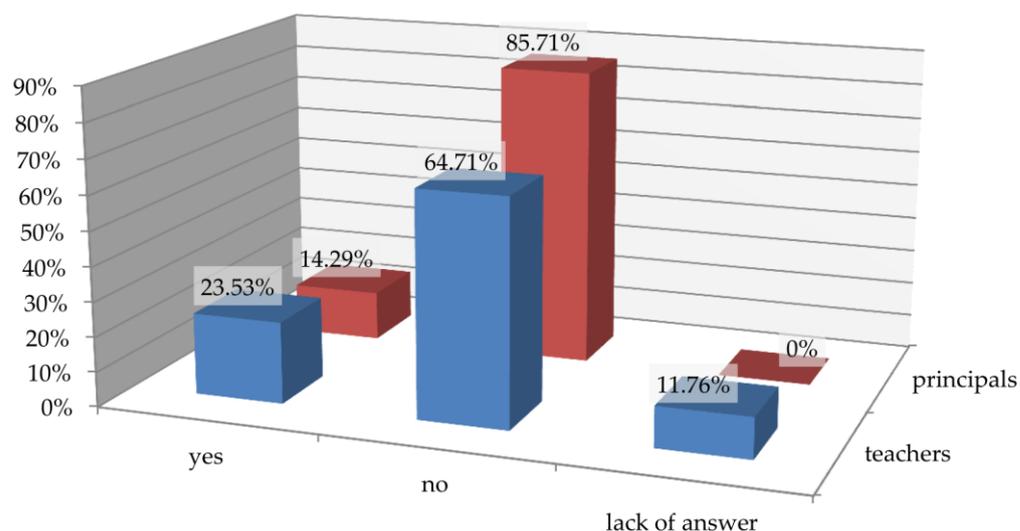
**Figure 7.** The structure of answers to the question “Specify how you want to learn about quality”. (Source: Own Study).

The respondents also specified subjects characteristic for their field of studies, such as:

- Environmental law
- Commodity science
- Agricultural machines
- Food technology
- Agricultural market organization
- Agribusiness
- Decorating and maintenance of landscape architecture objects
- The basics of gardening
- Hygiene and health protection
- Catering technology

The same question asked to school principals showed that they are willing to teach about quality in a series of lectures and workshops (five answers) and within not compulsory extra lessons (two answers). What is very important is that none of the principals denied willingness to conduct such lessons.

Teachers and principals were also asked about the potential problems which may arise while teaching high school students issues connected with quality. The majority of teachers and principals admitted that they did not see such problems (Figure 8). Some respondents who saw such problems were of the opinion that they may arise as a consequence of subject matter complexity, difficulty with understanding, immaturity of students, and the necessity to hire a specialist who could conduct lessons in a convincing way and stimulate students' interest in this field.



**Figure 8.** The structure of answers given by teachers and principals to the question: “Do you think that there might be any problems in teaching high school students issues connected with quality?” (Source: Own Study).

## 5. Discussion

Data collected in the course of this research allowed for drawing clear-cut conclusions related to the process of shaping the pro-quality attitudes of high school students in the Polish educational system.

- (1) High school students in Poland have limited knowledge about quality. Among respondents who declared being familiar with the ISO 9001 standard and quality management system, the majority did not know answers to rudimentary questions related to these issues. It is mainly a result of the lack of systemic conditions for shaping Polish students' pro-quality attitudes. Systemic activity for teaching about quality is, at most, limited to single pieces of information concerning quality. Their practical realization depends to a large extent on teachers and authors of schoolbooks published for the needs of schools. However, in this field, Poland does not seem to be an exception, as lack of education about quality is a problem characterizing many educational systems all around the world [73,74]. This topic is, however, insufficiently researched and there are only a few related publications.
- (2) The majority of students admitted that they did not learn about quality. At the same time, some students indicated such studies within their specialist subjects, such as food processing. This proves the analysis of the systemic assumptions of vocational education conducted by the author of this publication [75].
- (3) Information about a lack of education concerning quality acquired from students is contradicted with data collected from teachers and principals, who proved that such knowledge was conveyed to students. This indicated discrepancy may suggest a low effectiveness of the conducted lessons, which did not correspond to shaping students' pro-quality attitudes. It is a situation characteristic to this level of education which implicates dated teaching methods [76,77]. However, the reasons for this state of

affairs may also be sought in many other sources, connected, among others, to school environment, as well as to student and teacher engagement [78].

- (4) The assumption previously made by the author is demonstrated, according to which the key subject most useful for conveying knowledge about quality is “the basics of entrepreneurship”. It constituted the subject, most often indicated by students, within which they gained knowledge about quality. However, the appropriate approach of a teacher is of great importance in this aspect [79].
- (5) The majority of school principals and teachers did not see problems which could hamper the implementation of education about quality into the core curriculum. Moreover, the majority of surveyed students expressed their interest in participating in such lessons. Some students already acquired knowledge related to quality on their own. These research results confirm the general interest of educational system participants in quality issues [80].
- (6) Without implementing urgent changes regarding attitudes towards quality, the educational system that is functioning in Poland may lead problematic situations to increase. It may not build students’ pro-quality attitudes and it may present a pattern of improper approaches to quality, affecting students’ opinions and behaviors in a negative way. A similar situation can also be observed in different educational systems, where teachers lack knowledge about basic rules connected with pro-quality concepts [81]. The effect of such situations may be their unconscious contribution to maintaining school as a mediocrity platform. Meanwhile, examples from different countries show that educating about quality brings tangible effects, confirmed, among others, by school graduates [82].

## 6. Conclusions

As follows from the above, the secondary and primary data collected in the course of this research proved the hypothesis developed by the author, according to which the Polish educational system is not oriented towards shaping the pro-quality attitude of high school students. The analysis of legal provisions regulating the Polish educational system that have been in force for the last few years, as well as data collected in the survey, prove that students are taught about issues related to quality to a very negligible extent. Education about quality, which is realized in some schools in a limited way, seems to be ineffective. This fact is proved by divergent information collected from students which concern subjects within which education about quality was to be performed and the detailed scope of this education. It is also verified by students’ lack of knowledge concerning rudimentary issues connected with quality, even though they participated in classes during which this topic had been realized. Moreover, contradictory information related to the realization of such classes was also gathered from particular representatives of teaching staff and school principals.

At the same time, these data confirm the need to urgently address the problem and implement an educational innovation aimed at holistically shaping the pro-quality attitude of students. Without this, society will be at risk of less effective and less efficient impacts from the education system, which has to foster a pro-quality attitude in order to further improve it, implement subsequent innovations, and use them to ensure sustainable development. Irrespective of the “basics of entrepreneurship” subject, which was indicated by the author as the best platform for providing students with knowledge about quality, it is important to remember the need to provide activities that affect students in a comprehensive way. Bearing in mind the three elements of a pro-quality attitude, it seems necessary to introduce in the course of teaching both issues related to specific areas of quality and those that will build students’ pro-quality awareness. While the first area should concern information related to, *inter alia*, standardization, quality management systems, quality tools, and quality costs, the second should include, among others, the relationship between quality and safety, the essence of continuous improvement, the benefits of paying attention by employees to the quality of their work, and the value of taking quality into account in con-

sumer decisions. While information from the first area may be provided in specific lessons (e.g., the “basics of entrepreneurship” subject), building awareness should cover various subjects at various educational stages, and it may start with solving school problems using quality tools or quality circles, as well as with paying attention to the diligence of duties performed. Nevertheless—what is significant—it should be accompanied by explaining to students why it is important.

It should be borne in mind that shaping the pro-quality attitude alone is not sufficient to ensure sustainable development. However, as the results of numerous cited studies show, the impact of pro-quality activities on sustainable development is so significant that it constitutes an important element in all activities aimed at ensuring sustainable development.

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**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

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