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FUNCTIONAL LITERACY AS AN EDUCATIONAL PRIORITY: SELF-ASSESSMENT OF TEACHERS‘ AWARENESS LEVEL

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Abstract. This study examines the understanding of Bulgarian teachers of functional literacy and their role in building it in students. Theoretical statements and definitions that have become established worldwide are analyzed, including those of UNESCO, PISA and leading scientists. The study is based on a survey among 121 teachers from various educational institutions in Bulgaria. The study aims to assess teachers' awareness and attitudes regarding functional literacy. The results show a high awareness of its importance, but significant deficiencies in methodological preparation and institutional support. Teachers are perceived as primarily responsible for the development of these skills. There is a weak relationship between knowledge about PISA and understanding of functional literacy. The systematic lack of monitoring, qualifications and modern approaches limits effectiveness. The findings suggest the need for strategic measures in education policy. The study contributes with recommendations for improving pedagogical practices.

Keyword: functional literacy; education policy; teaching

This article examines functional literacy through the lens of the competency-based approach and the international assessment frameworks of UNESCO and PISA, which emphasize students' ability to apply their knowledge in real-life and social contexts. The object of the study is the development and understanding of functional literacy in Bulgarian schools, while the subject of analysis is teachers' awareness, attitudes, and self-assessment regarding their role in this process.

The aim of the study is to determine the extent to which teachers understand the essence and importance of functional literacy, how they assess their own competence to foster it, and which institutional factors support or hinder its implementation in pedagogical practice. In line with this aim, the following research tasks have been formulated:

1. To examine teachers' awareness of the concept of functional literacy and related international frameworks – e.g., PISA;

2. To analyse teachers' self-assessment and attitudes toward developing functional literacy in students;

3. To identify relationships between teachers' age, experience, qualifications, and attitudes toward functional literacy.

The study is grounded in the competency-based approach, according to which functional literacy constitutes an integrated set of knowledge, skills, and attitudes that enables students to act effectively across diverse social and cognitive situations. The theoretical framework draws on Vygotsky's sociocultural theory, which highlights the role of cultural tools and social interaction, as well as on conceptual models developed by UNESCO and OECD/PISA, which define functional literacy as a key prerequisite for successful adaptation to the dynamic demands of contemporary societies.

In accordance with the overall analysis, the following research questions are posed:

1. To what extent are teachers aware of the essence, characteristics, and significance of functional literacy?

2. How do teachers assess their own competence in developing functional literacy, and how familiar are they with international assessment frameworks such as PISA?

3. Which institutional factors support or impede the practical implementation of functional literacy in the school environment?

4. Is there a relationship between teachers' age, professional experience, qualifications, and attitudes toward functional literacy?

Functional literacy is a concept that has been developing dynamically in recent decades, as it reflects the ability of each individual to apply basic skills such as reading, writing and arithmetic in real-life situations. It is not limited to the mechanical mastery of letters or numbers, but includes the ability to understand, analyze and apply information in a variety of social, cultural and professional contexts. Today, the importance of functional literacy is greater than ever. In a rapidly changing world marked by technological innovation, globalization and the increasing complexity of social relations, the ability to handle information, analyze texts, make informed decisions and communicate effectively is key to the success of every person. Historically, ideas about functional literacy have been shaped by a number of key researchers and theorists and this is summarised in the following Table 1:

Table 1. Researchers and their interpretation of functional literacy

Researcher/organization	Definition/Interpretation
(UNESCO)[1], p. 147	The ability not only to understand text, but also to create meaningful messages, perform calculations, and build strategies for personal and social development
(Freire, 1970)	A tool for social emancipation, it is related to critical thinking and a person's ability to recognize and overcome social inequalities through active participation in public life.
(Vygotsky, 1934, 1986)	Higher mental functions develop through interaction with cultural tools, including literacy.
(Olson, 1994)	The influence of written language on the way of thinking, allowing for abstract reasoning and self-reflection – skills critical for applying knowledge in new contexts.
(Leontiev, 2003), p. 35	A functionally literate person is one who is able to use all the knowledge, skills, and abilities acquired throughout life to solve the widest range of life tasks in various areas of human activity, communication, and social relations.
(Hutorski, 2025)	Functional literacy is the basic level of mastery of the elementary actions necessary to perform activities in a particular field.
(Pugalee, 1999, p. 19) (Pugalee, 2015)	Functional literacy is the ability to apply mathematical knowledge in real-world situations, such as data analysis, decision-making, and problem-solving. An important element is the use of technology and digital tools to develop these skills.
(Bishkov, 2004, p. 24)	The formation of functional literacy is a process that begins first in the family, then passes through school and finally reaches the personal realization of the individual.
(OECD)[2], p.75	Do 15-year-old students who have completed compulsory general education possess the knowledge and skills necessary for full functioning in modern society, i.e. for solving a wide range of problems in various spheres of human activity, communication and social relations?

Over the past two decades, the concept of functional literacy has undergone significant development, linking it to the competencies required for participation in complex social, technological, and professional contexts. According to the OECD (2021), functional literacy encompasses the ability to interpret information, read critically, reason, and apply knowledge to real-world problem-solving. UNESCO

(2006) views functional literacy as a dynamic and socially conditioned capability that develops throughout the lifespan and reflects the interaction between individual characteristics and contextual factors.

Contemporary research places strong emphasis on the interconnections among functional, digital, media, and scientific literacy. Ananiadou and Claro (2018) highlight the need to cultivate critical thinking, information-processing skills, and technological competencies as integral components of modern literacy frameworks. Voogt and Roblin (2012) demonstrate that international 21st-century competence models promote an integrative approach in which fundamental language and mathematical skills are combined with communication, collaboration, and creativity.

As a result of studying the content of the concept of functional literacy, the following priority characteristics can be identified:

1. the focus is on solving everyday problems;
2. characterizes the personality that is revealed in specific social circumstances;
3. connection with solving standard (stereotypical) tasks;
4. is always associated with a basic level of reading and writing skills;
5. makes sense in the context of the problem of finding ways to accelerate the elimination of illiteracy.

In the context of the competency approach, the level of functional literacy reflects the individual‘s ability to act in accordance with the norms, rules and instructions established in society. This implies not only mastering knowledge, but also the formation of skills for solving both standard and non-standard life tasks related to the effective performance of social roles and functions.

In the Bulgarian context, functional literacy is considered mainly through the prism of the international frameworks of PISA and UNESCO, but is adapted to the specific educational challenges in the country. The 2014 National Literacy Strategy defines functional literacy as “the ability to manage information in a dynamic environment” including digital literacy, critical evaluation of sources, and ethical use of data (NSPEL)[4]. This approach reflects the global transition to competencies associated with the fourth industrial revolution, where traditional skills are combined with technological innovation.

The studies of Stamenova (2016), Hristemova (2015), Milanova (2014), and Mihaylova (2021) highlight the key role of the teacher as a mediator of knowledge and competencies and stress the importance of methodological preparation and the use of active learning approaches. However, existing data indicate a gap between the theoretical understanding of the concept and its actual pedagogical implementation, particularly in relation to international frameworks such as PISA. It is within this scientific gap that the present study is positioned, examining teachers’ awareness, attitudes, and self-assessment within the Bulgarian educational context.

In modern pedagogical research, there is a consensus on the understanding that the formation of functional literacy is not a one-time process that ends with the

completion of formal school education. In the context of the information society, characterized by dynamically changing conditions in all spheres of human activity, this process acquires a sustainable nature and is realized throughout life. The continuous development of technologies, social practices, and professional requirements implies the need for constant mastery of new norms, rules, and adaptation strategies.

Research

In order to investigate the role of the teacher in the formation and development of functional literacy among students, an empirical survey was conducted among practicing teachers within the Bulgarian education system. A total of 123 respondents participated in the study, with data from two of them not included in the analysis due to lack of consent to the processing of personal information. Therefore, the valid sample includes 121 participants ($N = 121$). The research instrument is structured in four main blocks of indicators: (1) demographic characteristics of the participants; (2) level of awareness of the concept of functional literacy and the international PISA study; (3) self-assessment and attitudes towards the importance of functional literacy in the educational process; (4) real pedagogical practices applied for its stimulation and development.

Five-point Likert scales were used to assess attitudes and self-assessments, while the remaining questions had pre-set answers. In the analysis of the empirical data, standard methods of mathematical statistics were applied, including descriptive analysis, calculation of Pearson's correlation coefficient, Cronbach's Alpha coefficient for assessing the internal consistency of the scales, as well as Spearman's rank correlation coefficient for examining dependencies between ordinal variables.

Demographic profile of participants

The study covers a diverse sample of respondents, differing in age, professional experience, subject taught and institutional environment. The demographic profile reveals several key characteristics:

– A significant part of the participants (67%) have over 20 years of professional experience as teachers, of which 32% have experience between 20 and 29 years, and 35% between 30 and 39 years.

– Regarding the type of school in which they teach, 40% of the respondents teach in high schools, 35% in middle schools, 24% in primary schools and 1% in integrated schools.

– The educational and qualification preparation of the studied group is high – 91% of the participants hold a "master's" degree.

– In terms of the subject taught, 56% of the respondents teach mathematics. The rest include: information technology (13%), natural sciences (20%) and other academic disciplines (11%).

– Regarding the location of the school where they teach, 53% work in educational institutions located in regional centers, and 36% – in municipal centers.

– The distribution by teaching level is relatively balanced – 36% of the participants teach at the lower secondary level, and 39% – at the upper secondary level.

– The analysis of the professional qualification level (PQL) shows that the largest share of teachers with the fourth PQL – 27%, and the smallest – with the first PQL (12%). Nine percent of the participants do not have a qualification level.

The presented demographic profile of the participants is of significant importance for the interpretation and validity of the results obtained. Since the subject of the analysis is the role of the teacher in the process of forming functional literacy, the inclusion of participants with many years of pedagogical experience and high educational qualifications ensures depth of empirical data and high expertise of opinions. The diversity of subjects taught and stages of the education system allows for generalizations valid for different school contexts, and not only for a limited pedagogical environment.

The territorial distribution of participants (between regional and municipal centers) further strengthens the objectivity of the results by ensuring the representativeness of different socio-economic and institutional conditions in the secondary education system. In this way, the sample performs a key function in ensuring the internal validity of the study and allows the transfer of conclusions to broader pedagogical realities.

Information component

This component of the study includes questions related to the main characteristics of the international PISA assessment: objectives, performance of Bulgaria in PISA 2022, priority literacy areas in PISA 2025, levels of assessment of mathematical literacy in PISA 2022.

The results obtained show that a significant part of the respondents (51%) assess themselves as "familiar", and 29% as "well familiar" with the objectives of PISA. However, only 37% of respondents demonstrate awareness of Bulgaria's performance in PISA 2022, while 45% of respondents indicate that they are "somewhat familiar" with this aspect, representing almost half of the sample.

Regarding the priorities of the PISA 2025 survey, only 44% of the survey participants correctly identified scientific literacy as the main focus of the upcoming assessment. In addition, 60% of respondents cannot indicate the number of levels for assessing mathematical literacy in PISA 2022, indicating a significant lack of knowledge on this issue. There is a clear deficit of institutionalized knowledge about the nature of PISA and Bulgaria's positioning in the context of this international assessment. This is of particular importance, as insufficient awareness among pedagogical specialists hinders the effective implementation of strategies oriented towards functional literacy in teaching practice (OECD)[3]. The lack of information about assessment criteria and the country's PISA results limits the ability of teachers to adapt their methods and approaches to meet modern requirements for developing critical and analytical skills in students.

Activity component

The survey results show that 69% of the study participants rated their knowledge of functional literacy as "good" and 17% as "excellent". When considering the questions related to actual teaching activities, 41% of the respondents indicated that

they were not yet fully competent in implementing tasks similar to those used in the PISA framework, while 58% noted that they regularly use them in the teaching process.

Regarding participation in PISA-related projects and training courses, 48% of the respondents stated that they had not participated in such initiatives, while 85% of them had participated in training focused on the development of functional literacy. These results highlight the limitations in the institutional and methodological support for initiatives to develop functional literacy, which may have an impact on its implementation in schools and, consequently, on the formation of the necessary skills in students.

Particularly worrying is the fact that only 28% of teachers say that their schools conduct systematic internal monitoring of functional literacy, while 43% indicate that such monitoring does not take place. This may indicate a lack of institutionalized mechanisms for assessing and developing functional literacy in the learning process.

The data analysis shows that teachers, in general, rate their knowledge of functional literacy slightly higher (average 4.01) compared to their familiarity with the PISA objectives (average 3.55). The correlation analysis reveals a weak positive correlation ($r = 0.185$) between these two variables, suggesting that there is no strong relationship between them. This can be explained by the fact that teachers acquire knowledge of functional literacy through different sources and training, and not only in the context of PISA. In addition, self-assessment of knowledge can be influenced by subjective factors and different personal perceptions. It is also possible that PISA is a more specific study, while functional literacy is a broader concept encompassing different skills and approaches.

These results suggest that efforts to raise awareness of PISA do not necessarily lead to an increase in self-assessment of knowledge of functional literacy. In this context, further research could be conducted to examine the factors influencing teachers' self-assessment, as well as the development of specialized training to facilitate an in-depth understanding and application of the concept of functional literacy in pedagogical practice.

Affective component

The analysis of this component shows that the majority of respondents assessed the level of functional literacy of their students as "average" (45%), "low" (40%) or "very low" (10%). Despite these assessments, 77% of participants considered the development of functional literacy to be "very important" for students.

The analysis of the level of responsibility confirms that teachers perceive themselves as the most responsible for the development of functional literacy, while the school administration is defined as having an average level of responsibility. This shows that teachers to a significant extent accept the main responsibility for the training in functional literacy, and the work in the school

must be supported not only by them, but also by the school management and interaction with colleagues.

38% of respondents assess the school‘s efforts as sufficient in the context of the development of functional literacy, while 34% consider them neither sufficient nor insufficient. The remaining 24% of participants indicate that the school‘s efforts are insufficient. These results highlight the need for greater attention and resources to support the efforts of pedagogical specialists in the field of functional literacy.

Regarding the interaction between colleagues, 90% of the respondents stated that such exists in the context of the development of functional literacy, while 10% indicated that such interaction is absent, i.e. although there is a great deal of cooperation between teachers, there are also certain obstacles that limit full interaction. In addition, 83% of the respondents agreed with the proposal to include specific activities for the development of functional literacy in the mandatory mathematics and science classes in the curricula, and nearly 13% could not assess.

Statistical methods and conclusions

1. Distribution of responsibilities: The calculated value of the Cronbach‘s alpha coefficient (α = 0,7) for the question related to the distribution of responsibility for the development of students‘ functional literacy between different entities confirms the reliability of the scale. Teachers consider themselves and students to be the most responsible, while external entities (parents, administration, governing bodies) are assessed as less involved.

Based on the data provided, the descriptive analysis showed that teachers consider themselves the most responsible for the development of students‘ functional literacy, with an average score of 2.72 (with a maximum possible score of 3), followed by governing bodies with an average score of 2.55. The school administration receives the lowest average score (1.99), which indicates that the study participants perceive it as the least involved in this process.

The distribution of scores reveals interesting patterns. Opinions about teachers are the most homogeneous, with the lowest standard deviation (0.49), indicating a relative consensus about their high responsibility. On the other hand, the ratings about parents demonstrate the greatest variability (standard deviation 0.75), suggesting significant differences in the perceptions of the participants. This can be explained by the different experiences and interactions of teachers with individual parents.

The analysis of the asymmetry of the distribution confirms that in all groups, except for the administration, higher ratings prevail. The strongly negative asymmetry (–1.42) in the ratings about the role of teachers is highly indicative, meaning that most of the answers are concentrated at the upper end of the scale. The positive kurtosis (0.98) in the same group further supports this conclusion, indicating a relative concentration of ratings around the mean.

The sum of all ratings confirms the general trend, with teachers receiving the highest overall rating (329) and the administration the lowest (241).

These results suggest that teachers perceive the responsibility for functional literacy primarily as an individual, rather than a collective commitment. The revealed disproportion in the assessments of different stakeholders can become the basis for further discussions and measures for a more effective distribution of responsibilities and the creation of true partnership relationships between all participants in the educational process.

2. Distribution of efforts: The Cronbach's Alpha coefficient (0.71) was calculated analogously to determine the degree of importance of the following conditions: Methodological, material and organizational provision for teachers; Assigning the task of developing functional literacy to a specific teacher; Increasing the professional competence of teachers; Developing students' functional literacy throughout the entire period of training; Developing students' 21st century skills.

The results of the study reveal several more important trends in the positions of teachers. It is obvious that teachers give more weight to institutional and systemic factors than to individual decisions, which is confirmed not only by the mean values, but also by the distribution of the answers. An interesting paradox is observed when analyzing the medians and modes - while the mean value of „Assigning the task of developing functional literacy to a specific teacher" is 2.12 (which is below the average level), the median and mode are 2 and 2, respectively, indicating that the majority of teachers still accept this condition as moderately important, but there are enough ratings of 1 that pull the mean value down. This can be interpreted as a polarization in opinions – one part of the teachers clearly reject this approach, while others accept it as adequate.

A particularly valuable conclusion from the data is that the conditions with the highest scores (development of literacy throughout the period and 21st century skills) are precisely those with the lowest standard deviations (0.46 and 0.52), which means that the more important the teachers consider the given factors, the more homogeneous their ratings are. Conversely, in the lower rated conditions, a greater dispersion in opinions is observed. This can be explained by the fact that in the fundamentally important aspects, teachers are more convinced and unanimous, while in the secondary conditions, opinions are more heterogeneous.

Additional analysis of the sums of the ratings confirms the general trend – "Development of functional literacy throughout the period of education" receives the highest overall score (339), which is another argument in favor of the conclusion about prioritizing the systemic approach. It is interesting to note that the difference between the sums of the highest and lowest rated conditions is 83 points (with 121 participants), demonstrating a significant difference in perceptions.

These results have important practical implications for educational policy. They show that teachers consider approaches that require instinstitutional changes and long-term investments in professional development, rather than one-off or individual measures. The data also suggest that when planning such initiatives, it is necessary to take into account the existing diversification of opinions on certain aspects, which requires a more individualized approach to teacher training and support.

3. Age/experience and opinion on the importance of developing functional literacy: Based on the data provided and the calculations of the Spearman and Pearson correlation coefficients, the following interpretations can be made regarding the relationship between teachers' age and experience and their opinion on the importance of developing functional literacy.

3.1. A negative Spearman correlation coefficient was found between teachers' age and their assessment of the importance of developing functional literacy (– 0.12) and Pearson (R= –0.12). This result indicates the presence of a statistically significant inverse relationship between these two variables. In the context of the study, this can be interpreted as a tendency for older teachers to attribute less importance to functional literacy compared to their younger colleagues.

3.2. Similar to the relationship with age, the negative Spearman and Pearson correlation coefficients between teachers' experience and their opinion on the importance of functional literacy (respectively – 0.15 and R = – 0.14) indicate that teachers with longer professional experience tend to rate the importance of this skill lower. This fact can be explained by several potential factors related to changes in educational paradigms and emphases over the years: changes in educational paradigms, the need to raise awareness or participate in qualification courses, access to resources, etc.

4. Experience and assessment of one's own ability to solve PISA tasks The analysis of Spearman's correlation between teachers' experience and their self-assessment of the ability to solve tasks that resemble PISA reveals interesting interrelationships. The obtained coefficient of 0.43 indicates the presence of a moderate positive relationship between the two variables. This result suggests that teachers with longer professional experience generally tend to rate their abilities to cope with tasks requiring functional literacy and application of knowledge in practical contexts more highly, as is typical for PISA studies. This may be related to the accumulation of experience, which leads to a better understanding of educational standards and methodologies, as well as to increased confidence in their own abilities. It is also likely that teachers with longer experience had more opportunities for professional development and qualification, which further improved their skills. The established moderate positive correlation between experience and self-assessment of the ability to solve PISA tasks suggests that experience plays an important role in the development of skills necessary to cope with tasks requiring functional literacy, but is not the only determining factor.

5. Location of the educational institution and the degree of responsibility of the different entities (teachers, parents, students, administration, governing bodies) according to teachers.

The applied χ^2 test did not reveal statistically significant differences in the assessments of teachers from different types of settlements regarding the degree of responsibility of the five main groups:

– Teachers: $\chi^2 = 0.214$, d$f = 2$, $p = 0.899$
– Students: $\chi^2 = 1.472$, d$f = 2$, $p = 0.479$
– School administration: $\chi^2 = 2.707$, d$f = 2$, $p = 0.258$
– Education management bodies: $\chi^2 = 2.201$, d$f = 2$, $p = 0.333$
– Parents: $\chi^2 = 2.203$, d$f = 2$, $p = 0.332$

Since all p-values exceed the threshold of statistical significance ($p > 0.05$), it can be concluded that the type of settlement does not influence teachers' perceptions regarding the distribution of responsibility for functional literacy. The results indicate a consensus among teachers from different regions – be it regional or municipal centers, or other settlements. This suggests a common understanding and shared attitudes regarding the roles of the main participants in the process of developing functional literacy.

Conclusion

The results of the conducted empirical study categorically confirm that there is a significant gap between the high level of awareness of the importance of functional literacy and the degree of its real integration into pedagogical practice. Despite the reported positive attitude among Bulgarian teachers, the application of the concept of functional literacy remains limited due to a deficit of methodological support, institutional vision and sustainable mechanisms for professional development.

The study reveals deficits in knowledge of international studies such as PISA, as well as limited awareness of assessment frameworks and priorities. The lack of internal school monitoring, as well as insufficient participation in qualification courses and projects aimed at developing functional literacy, emerge as key barriers to the effective implementation of innovative pedagogical approaches.

The age differences identified – with younger teachers tending to attach greater importance to the topic – highlight the need for targeted support for teachers with longer professional experience. The correlation analysis shows a moderate relationship between internship and confidence in solving tasks typical of international assessments, which confirms the importance of experience, but also the need for systematic qualification.

Among the most significant conclusions from the study is the desire expressed by the majority of teachers to include specific activities for the development of functional literacy in the mandatory curricula. Over 80% of respondents support the idea of integrating such elements in mathematics and science classes, which shows a clear awareness of the need for structural change in the educational content. Such a measure would facilitate the development of key competencies – critical thinking, problem solving, data analysis and effective communication – necessary for successful adaptation to modern social and professional reality.

Of particular concern is the finding that responsibility for developing functional literacy is perceived almost exclusively as a teacher's task, while the role of school

institutions, parents, and the educational administration is viewed as insufficient. This indicates that contemporary challenges cannot be addressed solely at the individual level—they require the establishment of sustainable partnerships and the distribution of responsibilities among all stakeholders in the educational process.

Based on the analysis, a series of strategic actions are recommended at the institutional and national levels. First of all, a clear educational policy is needed, aimed at institutionalizing the assessment of functional literacy. In addition, sustainable opportunities for teacher training and qualification should be created, including the development of cross-curricular practices and the creation of resource (methodological) support centers.

Functional literacy must be recognized as a foundational element of 21st-century education, rather than a supplementary skill. It plays a central role in the successful social integration, personal growth and professional realization of young people. In the context of dynamic socio-economic transformations, the ability to apply knowledge in real-life situations is an indispensable factor for full participation in the modern world.

The effective development of functional literacy requires a shift from declarative recognition to practical action – through coordinated efforts, political will, institutional commitment, and professional reflection. Only through synchronized, evidence-based reforms and a shared commitment among teachers, schools, and families can Bulgarian education provide students not merely with knowledge, but with genuine life skills – skills essential for full participation in the modern world.

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