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**THE CULTIVATION OF FUNCTIONAL LITERACY BY  
HOLISTIC EDUCATION**  
**Literature Review**

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***Abstract***

Holistic education comes as an answer to the needs of modern society, more precisely the needs of a younger generation in constant search for a balance between rational and emotional thinking. One important resolution of holistic education, with a major impact upon the development of the individual is functional literacy. This can be defined as one's ability to independently use reading-writing in his everyday life and at work, beyond a minimum level, in order to adapt to an ever-changing society. Functional literacy is imperative in permanent education and lifelong learning both so important in nowadays society. This article's goal is to bring to light new trends at an international and national level which have as goal holistic education. Amongst these directions we can distinguish the STEAM (science, technology, engineering, arts, mathematics) curricular model and the integrated approach to learning at a primary level. These two perspectives, through their revolutionary approach to learning, require a rethinking of teacher's competencies by adding new competence domains. Moreover, such an approach would mean teaching has a whole new meaning, starting from the planning phase and continuing with the implementation and evaluation. Also, the concept of learning should be rethought as a process but especially as a product. In conclusion, holistic education can be regarded as an important foundation in the development of functional literacy.

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**Keywords:** Holistic education, functional literacy, STEAM, inter disciplinarity.



## 1. Introduction

It has become obvious that rapid changes in nowadays society seem to require enhanced capacities for teenagers and adults to adapt to new situations. Preparing oneself for professional and social insertion is one of the targets constantly followed by formal education, successfully completed by the non-formal one or by the educational influences in the informal environment.

Teenagers' inclusion in the labour market is a clear indicator of the efficiency of educational systems in many countries. Even if in our country the educational ideal is not a signally pragmatic one, the focus is, though, upon the performance of the teenager after the completion of his studies with a view to equally respecting his personal needs of development. Thus, in this situation as well, a fast social insertion is followed, surely completed by an enhanced capacity to adjust to what is new. The path to reaching a goal is lengthy and the educational acts need to be convergent. An important aspect in this sense would be the way school reacts to teenagers' needs to change and adapt to what is new. If teachers, as representatives of the educational process, are reluctant to conform to changes, then the teenagers will have less convincing models on their path to innovation. In Romanian school, changing the concept of teaching and, implicitly, that of studying, would be an important step in achieving what we eagerly desire: teenagers able to successfully face life's challenges, counting upon capacities, abilities and learning acquisitions. Therefore, it is recommended that the student's involvement in his own process of study should not just remain a wishful thinking but become a current educational practice. Our wish is that, at the end of the course of study, the students should have performances equal to their expectations but also to the social ones, that is, graduates equipped with the skills that would enable them to value cognitive acquisitions and at the same time to offer them the satisfaction of complete development and fulfilment in their personal and professional life.

All these aspects could be formed by a holistic education in schools which will determine students to become proficient in functional literacy.

## 2. Main Body

### 2.1. Functional literacy. Conceptual delimitations

Functional literacy or functional alphabetization should be found among the abilities and skills acquired in school. Functional alphabetization defines the ability of a person to read, interpret and apply in their daily life information in a written text. The term was initially defined in 1956 for UNESCO by Gray (The Teaching of Reading and Writing, 1956, p. 21) by educating adults "how to use their reading and writing abilities independently".

A more modern definition of the concept formulated by UNESCO for a person with functional literacy abilities is for that person to "engage in all activities where alphabetization is necessary for the efficient functioning of the group and of the community, but also in order to enable the group to continue to use reading, writing and calculus for their own development and for the development of the community".

In time, the term has suffered many changes, according to the changes in society and on the labor market.

Functional literacy is also defined as "the acquirement of those verbal, cognitive and computational abilities" (Concise Oxford Companion to the English Language (n.d) that are adequate for practical activities from daily life. As it can be seen, in time, the definition became more and more complex, adapting to the evolution in modern society. In this way, besides writing and reading abilities, functional literacy also includes tech-skills.

In current, global usage, functional literacy can be defined as: "the level of skill in reading and writing that a person needs in order to face adult life" (A Research Report Commissioned by Cambridge Assessment, 2013). Functional alphabetization is considered to be the right of all students and it is the school's obligation to enforce it (A Research Report Commissioned by Cambridge Assessment, 2013).

In general, literacy cannot be seen as a set of static abilities that can be put in a pattern, but it must be analyzed actively, when it's changing, from the point of view of adapting to the evolution and needs of society. (Bailey, 2004, p. 286, as cited in A Research Report Commissioned by Cambridge Assessment, 2013)

Some of the principles of literacy could be the following ((Bailey, 2004, p. 286, as cited in A Research Report Commissioned by Cambridge Assessment, 2013)

1.Literacy is an action. Alphabetization is not a generalized ability that a person has or hasn't got. Alphabetization is a set of actions where people use reading and writing for personal and social purposes.

2.Literacy is a continuous activity within a practice. When people engage in actions of literacy, they do more than coding and decoding text. They must answer to a social practice based on a set of principles and social conventions.

3.To become literate depends on the knowledge of social conventions and on the ability of the individual to solve problems.

4.The action of literacy offers the perspective for meta-cognition. In other words, from a cognitive point of view, literacy offers opportunities for strategic thought and reflection.

In the context of a globalized world, functional literacy changes its meaning, it moves from a simple process of acquiring some basic cognitive abilities to "using those abilities in ways that contribute to social-economic development, to the development of the ability of social awareness and critical reflection as a basis for personal and social change" (Education for all, 2006, p19).

In order to deal with the challenges of contemporary society, functional literacy must be seen from a complex point of view, as a condition for helping the adult adapt to the social dynamic and scientific progress.

## **2.2. The impact of literacy in forming the skill of learning all life long**

Literacy is the foundation of education. Writing and reading are fundamental intellectual abilities. You can't claim that you're an educated person if you didn't acquire basic literacy (Perry, Shaw, Ivanuka, & Tham, 2017). Starting from the skill of reading to understanding written text, from the skill of writing to the correct transmission of the written message are stages that come gradually, but each of them is of maximum importance for forming learning abilities. In order to reach the level of functional literacy, the basics of literacy in various fields are offered in school. Receiving and decoding a text should be common practices in each field that is taught, not only when studying the mother tongue or foreign

languages. Afterwards, associating new notions with familiar ones, the transfer of theory into practice, formulating coherent, synthetic or detailed messages about a certain subject supports the student in self-learning, in forming the skill of learning for his entire life. These aspects are particular to the strategies of literacy. In this way, one can move from basic literacy, alphabetization, to higher levels of using written text.

Of course, in learning, motivation is very important. Even though they started to study a discipline with a lot of enthusiasm, many students lose their motivation along the way because, they say, they learn only theory, without practice, so it's a meaningless work to learn something that won't be of use to you. The strategies of literacy that are particular to various disciplines provides students with the abilities listed above, including the ability to put into practice the theoretical notions that they've studied. This aspect positively influences the intrinsic motivation for study, so it's an important stage in learning all life long. In addition, with the strategies of literacy acquired in school, the student is equipped with working techniques that can be used in learning after school, meaning in constant education, thus being ready to widen his horizon of knowledge. Therefore, abilities of literacy are essential in learning all lifelong.

### **2.3. The situation of functional literacy in Romania**

Literacy skills are insufficiently formed in students from our country. Even if the basics of literacy are laid in primary school starting with writing, reading and calculus, they remain at this level in the case of many graduates. Studies show that in PISA tests, Romanian students score very low, even if in 2015 a slight increase in performance was recorded.

What are PISA tests?

"The OECD-PISA program evaluates the extent in which students close to finishing mandatory education hold one of the key-components, knowledge and essential skills needed for continuing their studies, as well as for the full participation in social life or for integration on the labor market" (Rezultatele elevilor români la testarea OECD-PISA, 2015).

The results of the PISA tests are published in the same official document. "35% of the Romanian students are on the 2nd level. Under the 2nd level, meaning 1a, 1b and under 1b are 38.6 % of the students. Cumulatively, on the higher levels – 3, 4 and 5 – are 27.5% of the Romanian students" (Rezultatele elevilor români la testarea OECD-PISA, 2015).

The 2nd level is considered to be the basic level that must be reached at the end of mandatory studies for a 15 year old youngster to be able to continue his studies effectively or to be integrated on the labor market. From the data shown above, it can be seen that 35% of the Romanian students are on the basic level and almost 39% are under this basic level. It doesn't mean that these students are illiterate. They know how to read, they probably memorized lots of information as well, but they don't know how to use it. Their illiteracy is functional, meaning they don't understand what they're reading and don't know how to apply the given information. This is an alarm signal for the current educational system which demands urgent changes in the educational activity in our country, starting from the restructuring of the framework, the overcharged school curriculum, until a new perspective on teaching and learning is reached at the same time.

#### **2.4. Forming functional literacy in students**

Functional literacy is formed during mandatory schooling through systematic activities of coding and decoding texts, through connecting and/or applying information (Mallows, 2017). Early school dropout by youngsters could stop them from completely forming "their necessary literacy abilities needed for a full participation in society" (Mallows, 2017). Functional literacy represents the ability to cope with a wide spectrum of areas of the social and professional life, not just for reading or writing, and "poor literacy may constitute a major obstacle on the path of fulfilling the true potential of the youngsters. Their participation may be necessary in educating the adults" (Mallows, 2017). In cases of early school dropout, the involvement of people in various forms of educating the adults is recommended for the formation of these abilities.

#### **2.5. Holistic education**

Holistic education is an integrative concept which includes aspects of human development from multiple perspectives. The concept of holistic education starts from the premise that each person learns their identity, meaning and purpose in life through their ties with the community, with the natural world and with spiritual values such as compassion and peace (Miller, 2000). Holistic education aims to form the internal motivation for learning starting from the joy of knowledge. This can be done through a curriculum that offers students the possibility to get involved in their own learning process and to discover information through direct contact with the environment. Holistic education offers a feeling of amazement and joy.

Holistic education wishes to develop the intellectual, emotional, social physical, artistic, creative and spiritual potential of a person. The aim is to create complete, complex and emotionally balanced personalities that can face the challenges of life by understanding their relationship to the world. Holistic education can be seen as an educational model that is focused on preparing the students for facing the challenges of life and of their academic career. The most important theories that lie at the basis of holistic education are: self-learning, developing positive social relationships and behaviors, social and emotional development and the ability to see beauty and truth. (*What is Holistic Education?* <http://www.teach-nology.com/teachers/methods/holistic>)

A few ways to increase the motivation for learning suggested by the promoters of holistic education are: encouraging collaboration and not competition in the classrooms, using real life experiences, current events and dramatic arts by encouraging reflection and interrogation rather than memorizing 'facts' passively. In this way, teachers can keep alive the epistemic curiosity of their own students which means so much more than the abstract ability to solve problems.

### **3. Methodology**

The analysis presented here reflects the way in which some current pedagogical guidelines: STEAM and the integrated approach aim at the formation of functional literacy through holistic education. There is also an example of the application of the theories presented in the school activity incurrriculum in Romania at primary level for 2<sup>nd</sup> Grade, highlighting the integrated approach to learning and contribution to the formation of functional literacy.

### **3.1. Pedagogic orientations that promote forming functional literacy through holistic education: STEAM**

Yakman (Georgette Yakman's Professional Biography, 2014) presented and then implemented a new educational concept: STEAM. His model includes a way for all subjects to relate to one another, but also with a quickly changing world, with the purpose of developing learning skills based in reality, called Functional literacy for all, which means: learning and using science and technology through engineering and art (social, linguistic, physics, music), all based on elements of Maths.

The STEAM model is presented as a pyramid and at the root of the pyramid lay specific concepts from all fields of knowledge (Yakman, 2008). On the second level, these concepts are grouped into disciplines of study: Science, Technology, Engineering, Maths, united through Art (music, literature, visual arts, drama). The STEAM educational model implies an integrated teaching of all these disciplines, this being the third level of the pyramid. Each discipline comes with specific literacy skills, so that through integrated teaching and a holistic approach on learning functional literacy takes shape, an ability that is necessary for the entire life. This aspect is positioned at the top of the pyramid and it's one of the objectives that the STEAM educational model aims for (Why STEAM Education, 2016).

Each of the disciplines that is part of the STEAM group potentiates learning through the possibility of inter-correlating contents and the applicability of theory in the immediate reality. This aspect is essential in education through STEAM for the formation of functional literacy. It's important for the students to develop their creativity by realizing products or projects through STEAM, but it's equally important to decipher correctly a text in order to use the information for the completion of the final product (Long & David, 2017).

In addition, the holistic approach on learning represents a major aspect because by correlating information from various fields, the students manage to organize their knowledge in a unitary whole. In this way, STEAM aims for the formation of functional literacy, but at the same time, education and learning are approached from a holistic point of view. Starting from the formation of a complex cognitive system to the joy of discovering the new information through one's own effort, to the acceptance of diversity and collaboration with other colleagues in team activities, as well as the formation of a positive attitude towards learning through STEAM, the components of holistic education are reached. Thus, it can be said that STEAM has a very complex role and the benefits of a holistic approach on learning are multiple for the formation of functional literacy.

It's worth mentioning that the STEAM approach implies very good knowledge and skills from the teacher in many areas: technical, mathematical, scientific, artistic etc., especially for the intermediate level of education and high-school for which the pedagogical project was intended.

Another way of doing educational activities in the STEAM system is teaching using teams of teachers (team-teaching) who are competent in various fields or curricular areas. In this way, students will benefit from diverse styles of teaching, models and complex educational conceptions. Of course, this requires teamwork, lots of time for the preparation and unfolding of activities, but with lots of educational benefits.

In Romania, the STEAM model is perceived only on a theoretical level in schools. On a practical level it is successfully implemented in centers of non-formal education for children. These centers are

open to innovation, they are well equipped and they value the technical education of youngsters, but they also have specialists in the technical and artistic field.

The STEAM model is an integrative pedagogical concept that offers a new perspective on the act of teaching, supporting the student for the formation of abilities of functional literacy through a complete, complex and holistic approach on learning.

### **3.2. Curricular integration**

The demands of modern society from the educational field are more and more ample, taking into account the rapid need of adaptation of the individual to the daily reality. Therefore, the integrated approach of teaching and learning offers a modern perspective on the educational action that leads to the formation of youngsters with well-established personalities, numerous competences, but also with an increased ability of adapting to the changes of the environment.

Integrated teaching on an interdisciplinary level is a constant concern in school practice and the new curriculum from Romania that is centered on competences offers opportunities of application for this pedagogical concept. The interdisciplinary approach implies the development of the ability to transfer quickly and effectively knowledge, skills and competences accumulated through the study of various disciplines for solving problematic situation (Ciolan, 2008).

“Interdisciplinarity implies a certain degree of integration between the various fields of knowledge and various approaches, as well as the use of a common language that allows conceptual and methodological exchanges” (Văideanu, 1988).

Interdisciplinarity has numerous advantages: it encourages collaboration and the exchange of ideas between specialists in different disciplines; it encourages the application of active-participative methods, it contributes to the formation of problem solving strategies; subjects are analyzed from multiple perspectives; transverse, integrated, key-competences and trans-disciplinary competences are formed (Ciolan, 2008).

As a starting point, integrated teaching doesn't have a discipline of study, but a unitary theme that is common to many disciplines. Starting from a thematic unity, the teacher realizes an instructional design so that specific competences are formed, based on contents from the school curriculum, correlated with the transposition of information in the surrounding, immediate reality.

A few of the advantages of integrated teaching are: the responsible engagement of the student in the process of learning; the teacher is a mediator, a facilitator; information is assimilated in-depth, (Manolescu, 2004), since we're talking about a complete, holistic formation and encouraging communication and interpersonal relationships by valuing formative valences of the learning tasks in a group. Also, a holistic approach on education can be found in the perspective on knowledge, as well as in the complex development of the student's personality.

Among the limits of integrated teaching can be found: a lot of time allocated by the teacher for the instructional design; difficulties in correlating the entire informational spectrum comprised in the disciplines of study that are particular to the curriculum on different levels.

### 3.3. Applications on a primary level – the Romanian Curriculum

In primary school and high-school, integrated teaching implies teaching in teams of professors of different fields which implies a large investment of time and high material costs, and this is an obstacle for integrated teaching.

Integrated activity that implies an inter-disciplinary approach may also be a first step in realizing key-components for students from primary school.

An example of inter-disciplinary activity on a primary level (2<sup>nd</sup> grade) will now be presented. Competences are correlated with contents from the following fields: Communication in Romanian, Mathematics and the exploration of the environment, Visual arts and practical abilities and Personal development.

Contents are studied in the subject "Pumpkins". This theme was chosen because it's close to the universe of children, but also in accordance with the moment of the year, autumn, when the activity can be unfolded. Specific competences from the 2<sup>nd</sup> Grade curriculum can be correlated with certain key-competences. In the following table, specific competences associated with key-competences are given: (Table 01).

**Table 01.** Specific competences associated with key-competences-2<sup>nd</sup> Grade curriculum

Discipline	Specific competences	Key-competences
<b>Communication in Romanian</b>	3.2. Identifying the message of a text where events and phenomena are described from the known universe 4.1. Writing messages, in various contexts of communication 4.3. Expressing some ideas, feelings, opinions using conventional language Programa școlară pentru disciplina <i>Comunicare în limba română, Clasa pregătitoare, clasa I și clasa a II-a (2013)</i> . Retrieved from <a href="http://programe.ise.ro/Portals/1/2013_CP_I_II/01_CLR_CP_II_OMEN.pdf">http://programe.ise.ro/Portals/1/2013_CP_I_II/01_CLR_CP_II_OMEN.pdf</a>	Communication in the mother tongue
<b>Maths and Natural Sciences</b>	1.3. Ordering of numbers in the 0-1000 concentre, using the positioning on the axis of numbers, estimates, approximations; 3.1. Problem solving within an investigation by observing and generalizing some models or regularities from the immediate environment 4.2. Formulating some consequences after observing relationships, phenomena, simple processes 6.1. Using some unconventional measures to determine and compare masses, lengths and capacities 6.4. Identifying and using common units of measure for length, capacity, mass (meter, centimetre, litre, millilitre, kilogram, gram) and appropriate instruments Programa școlară pentru disciplina <i>Matematică și explorarea mediului, Clasa pregătitoare, clasa I și clasa a II-a (2013)</i> . Retrieved from <a href="http://programe.ise.ro/Portals/1/2013_CP_I_II/25_Matematica_explorarea_mediului_CP_II_OMEN.pdf">http://programe.ise.ro/Portals/1/2013_CP_I_II/25_Matematica_explorarea_mediului_CP_II_OMEN.pdf</a> ,	Competences in Maths and basic competences in science and kid-friendly technology
<b>Personal Development</b>	1.1. Establishing similarities and dissimilarities between the self and others, using specific criteria 2.3. Exploring the area of relational abilities with others Programa școlară pentru disciplina <i>Dezvoltare personală, Clasa pregătitoare, clasa I și clasa a II-a (2013)</i> . Retrieved from <a href="http://programe.ise.ro/Portals/1/2013_CP_I_II/55_Dezvoltare%20personala_CP_II_OMEN.pdf">http://programe.ise.ro/Portals/1/2013_CP_I_II/55_Dezvoltare%20personala_CP_II_OMEN.pdf</a>	Competences of forming interpersonal relationships and civic competences
<b>Visual art And Practical Skills</b>	2.5. Exploring usages in useful and or aesthetic contexts of the objects/works that were made through personal effort 2.3. Making useful and/or aesthetical products by combining materials that are easy to work with and accessible techniques Programa școlară pentru <i>Arte vizuale și abilități practice Clasa pregătitoare, clasa I și clasa a II-a (2013)</i> . Retrieved from <a href="http://programe.ise.ro/Portals/1/2013_CP_I_II/37_AVAB_CP_II_OMEN.pdf">http://programe.ise.ro/Portals/1/2013_CP_I_II/37_AVAB_CP_II_OMEN.pdf</a> ,	Cultural awareness and artistic expression



Examples of learning activities could be the following:

1. *Personal development*: A game for breaking the ice – I can do it too! - The teacher has a special (orange) ball and on it's written I CAN DO IT TOO. When the student receives the ball, he will express a personal aptitude or skill.

2. *Language and communication*:

2.a. Using the method of prediction, the students will make up a story in teams starting from the words: pumpkin, mouse, contest.

2.b. The students will read the story *The biggest pumpkin in the world* by Steven Kroll. Various aspects of the story will be discussed, as well as the behaviors of the characters.

2.c. Different sheets with the following tasks will be assigned to the students:

2.c.1. Discover on the given sheet the words from the story (Anagram).

2.c.2. Make a booklet or a poster of the group starting from the statements: A pumpkin is.../, A pumpkin is so large that.../, A pumpkin is round like a.../ The answers will be written on the contour of the drawing of a pumpkin.

2.d. Task: Color the letters from the word PUMPKIN by answering to the following requirements (example: If you like autumn, color the letter D in yellow. If you don't like the season autumn, color the letter D in green).

3. *Mathematics and exploring the environment*:

3.a. How tall are you? Completing an observation sheet and measuring the height of students from the classroom using "pumpkins" made of cardboard on a vertical stand as a unit of measure.

3.b. How much do pumpkins weigh? Three real pumpkins of various sizes will be used. The students will take notes on the sheet: How much do they think the pumpkin weighs? How much does each pumpkin weigh? How much do the pumpkins weight in total? How much should the pumpkins grow so that they weigh the same?

3.c. Experiment: Will the candles burn inside the pumpkins? Everything will be verified and argued.

3.d. Three-four pumpkin seeds are planted in pots. The evolution of the plants is periodically monitored. An observation sheet is filled in with the evolution of the plants.

4. *Visual arts and practical skills*

4.a. Make Jack-o'-lantern! Each team will receive a pumpkin. They'll clean it and turn it into a lantern.

4.b. A collage will be made out of pumpkin seeds, in teams. The students will pick themselves the theme that they'll represent.

*The evaluation* of the activity could be done by putting together a portfolio. The portfolio will include the following: the sheets that were filled in during each activity, as well as two sheets that will be filled in as homework, with the following tasks:

a) Write a text with at least five sentences starting with *If I was a pumpkin...*

b) Seek information, in various resources, about the use of pumpkins. Present it in a preferred way. The following aspects will be evaluated: the existence of pieces in the portfolio; the correctness of accomplishing the tasks; pagination, correct spelling (punctuation marks, orthography, layout, authenticity).

A few conclusions can be formulated at the end of this application: the tasks determine students to work with enthusiasm; the teacher is a guide, a collaborator in helping the students to accomplish the tasks; learning tasks offer students the possibility to correlate information from various fields, they train the mind through analysis and synthesis, they develop imagination, memory, language; the active-participative methods place the student at the center of the learning activity; the methods of organizing the collective of students in teams and individually facilitate interaction, inter-knowledge and self-knowledge, thus contributing to the development of emotional intelligence.

Integrated, interdisciplinary teaching offers students the possibility of grouping information in a holistic system, ensuring the durability of the assimilated knowledge, as well as the increased applicability of the new acquisitions. In addition, the tasks that emphasize the formation of literacy abilities (read, write, formulate, argue, apply etc.) are essential elements in forming functional literacy through holistic learning activities.

The benefits of interdisciplinarity from the point of view of learning are numerous. This is why it is so important that this type of organization of the teaching activity to be found in all levels of schooling.

#### 4. Conclusion

To conclude, the STEAM model and integrated teaching as particular models of *holistic education* are basic elements in forming *functional literacy*, because:

1. They impose on students continuous information and the selection of basic information that is necessary in doing the activities.
2. The students use knowledge in new situations and thus the transfer of information is done.
3. Theoretical knowledge is transposed in practical situations, emphasizing the applicability of information. This aspect is beneficial for the motivational support of learning.
4. Applied situation where students are involved teach them to successfully face the challenges of real life, to manage their emotions, to solve problems by combining personal experience with cognitive acquisitions.
5. Functional literacy is an essential element in modern society and integrated activities offer students diverse and complex learning situations that lead to multiple learning experiences, thus discovering the practical importance of cognitive acquisitions. This aspect is a starting point, but also an important finality for the teaching activity.

In this way, through holistic education an important manifesto of education can be reached, which is to form in students functional literacy.

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