

EEF en matemática con aplicaciones digitales del sector financiero

EEF in mathematics with digital applications of the financial sector

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Resumen

La Educación Económica y Financiera (EEF) bajo orientaciones del Ministerio de Educación Nacional de Colombia (MEN) tiene la finalidad de potencializar conocimientos, habilidades y actitudes necesarias para la toma de decisiones informadas. Este artículo tiene como objetivo proporcionar al docente de matemáticas un banco de herramientas para la elaboración de estrategias que propendan por el desarrollo de competencias de EEF. Se estudiaron diferentes aplicaciones digitales (Apps) que presenta el sector financiero al ciudadano común para fomentar la cultura financiera. Como resultado se encuentra que el profesor podría usar estas Apps de uso libre en sus secuencias didácticas para desarrollar y fortalecer competencias en EEF. Concluyendo que las Apps del sector financiero constituyen herramientas didácticas en clase de matemáticas pues hay coherencia con los lineamientos del MEN para desarrollar competencias en EEF en cada uno de sus estudiantes.

Palabras claves:

Educación Económica y Financiera, Estrategias, Sector Financiero, Competencias en EEF, Apps

Abstract

Economic and Financial Education (EEF) under guidance of the Ministry of National Education of Colombia (MEN) has purpose to empower the knowledge, skills and attitudes necessary for the informed decision making. This study has the aim of providing the mathematics teacher tools for the design of strategies that promote the development of EEF competences. It were studied different digital applications (Apps) that the financial sector presents to the common citizen to promote financial culture. As a result was found that the teacher could use the free Apps to develop and strengthen the skills in EEF. Concluding that the Apps of the financial sector are tools for the design of didactic strategies since it is possible to establish coherence with the guidelines of the MEN in order to develop competences in EEF in the students.

Keywords:

Economic and Financial Education, Strategies, Financial sector, skills in EEF, Apps.

1. Introduction

According to the Organization for Economic Cooperation and Development (OECD) Economic and Financial Education (EEF) refers to the process by which people improve their understanding of concepts, risks and financial products and services, and develop the skills and confidence to become more aware of financial risks and opportunities, and thus make informed financial decisions to improve their well-being (OECD, 2005).

In Colombia for the year 2014 the MEN, in its commitment to consolidate a quality education and given the low level and last place in the 2012 PISA (Program for International Student Assessment) tests in Mathematics specifically in the EEF component, offers the material *Mi plan, mi vida y mi futuro. Orientaciones Pedagógicas en Educación Económica y Financiera*, as a strategy to develop EEF skills in Colombian students (MEN, 2014).

The main objective of the EEF is the formation of citizens in the awareness of the importance of resource planning in their daily lives, which allows them to relate it to the reduction of poverty and inequality, and ultimately to the quality of education (Romero, Villanueva, Valbuena, 2018).

This being the case, the EEF is constituted in aspects to be approached in the educational establishments as a tool in the process of citizen construction, so that the students recognize the diverse relations that the human being establishes with the management of the resources for the common and individual well-being; that they are formed in the awareness as economic subjects; and that they understand how, in the local and in the global, diverse economic dynamics and practices exist. (Ministry of Finance, 2014, p.1).

The EEF is conceived as a transversal pedagogical project from the purposes of the Decree 1860 of 1994 articulated to the development of competences in the basic and citizen areas (MEN, 2014), in order to integrate and make effective the knowledge, abilities, skills, attitudes and values achieved in the development of such areas, enhancing the capabilities of girls, boys, teenagers and youth for the solution of everyday problems that are directly related to their social, cultural, scientific, technological and economic environment.

To generate this process of change in citizens in search of responsible decision making, a quality education must be provided, which allows them to develop the necessary knowledge and skills based on economic and financial issues, in order to impact their personal life projects.

Colombia has had several initiatives to improve aspects of the EEF, but it still remains at low levels of performance in the PISA tests. By 2015, it had risen only 14 points compared to the 2012 test, and ranked 59th place out of 72 participating countries, with a score of 390 below the average of the OECD participating economies and for 2018 the situation was similar with a score of 391 (OECD, 2019).

In the list of initiatives, Colombia has made multiple public and private efforts to promote FES. However, the measurements on the subject made by the Intersectoral Commission for Economic and Financial Education (CIEEF) show that the population still lacks the minimum financial knowledge and skills required for responsible economic and financial decision-making (CIEEF, 2017, p.9).

Despite having laws, documents and primers that make a great contribution to the EEF in Colombia, there is no evidence of its development in educational institutions or not in the right way, Valbuena Suarez (2020) state that: It is not being put into practice, or at least the way in which it is taught seems to weight the fact that students learn for the moment and not for the development of a competence that improves their quality of life, citizens less and less formed with financial principles, aspect that can establish the difference to have an economic stability in the homes and a responsible management of their economic income (p.2).

Education must adapt itself to the needs and context in order to respond to the challenges of the teaching and learning process. Therefore, our objective is to provide the mathematics teacher with a bank of strategies

based on the Apps of the financial sector for the design of activities that promote the development of EEF competencies in their students, to work on various topics in the search for the management of resources for the well-being of students as citizens of the 21st century who are capable of making responsible decisions thanks to the EFF.

2. Methodology

This research has a qualitative approach, developed through the review of different documents and entities where different digital applications (Apps) were studied, which the financial sector presents and offers to the common citizen to promote the culture in the financial management, applications such as, Banco de Bogotá, Banco Popular, Mobills, Pesos pensados, Daviplata, Nequi; in which aspects related to benefits for the process of teaching in mathematics in what is related to the development and strengthening of the competences in EEF were reviewed. All the Apps are constituted in tools and are provided for the whole population from Play Store and App Store, the access to each one of them is free and it is not required to be banked for its use.

The study of the Apps was carried out under the Guidelines and regulations or norms that Colombia has established from the MEN for the development of the EEF in relation to the themes of economy and finance and the conceptual areas in each of these (MEN, 2014).

3. Conceptual framework

Financial education is defined as: the process by which financial consumers/investors improve their understanding of financial products, concepts and risks, and, through information, instruction and/or objective advice, develop the skills and confidence to be more aware of financial risks and opportunities, make informed decisions, know where to go for help and take any effective action to improve their economic well-being (OECD, 2005).

The benefits of financial education can also extend to the economy in general. In addition the EEF provide tools in order to empower individuals to defend their rights as financial consumers. Moreover, financially literate citizens will have a greater ability to understand the economic and social policies adopted in their economies (Grifoni Messy, 2012), [1].

Article 145 of Law 1450 of 2011 establishes the economic and financial education program, where: "the MEN shall include economic and financial education in the design of programs for the development of basic competencies, in accordance with the provisions of Law 115 of 1994".

The idea of creating a National Economic and Financial Education Strategy (ENEFF) in Colombia had its origin from the authorities' perspective in the evidence observed in surveys related to the lack of basic household competencies in financial decision-making, as well as the need to rationalize several initiatives that were being carried out, which lacked guidance, coordination, and resources. Thus, ENEFF is constituted in a proposal to respond to the lack of leadership and a means to effectively impact the daily lives of Colombians, in addition to providing them with the tools necessary for better economic and financial decision-making (ENEFF, 2017; García, Grifoni, López, Mejía, 2013).

The EEF has as a purpose to develop in children, adolescents and young people the knowledge, skills and attitudes needed to make informed decisions and responsible actions in the economic and financial contexts present in their daily lives; also to encourage the responsible use and administration of resources and participation and solidarity in the pursuit of individual and social welfare (MEN, 2014, p.5).

Decree 457 of 2014 creates the National Administrative System for Economic and Financial Education (SANEFF) as a network for the coordination of public and private activities to achieve an adequate level

of quality FTE for the population and the Intersectoral Commission for Economic and Financial Education (CIEEF) as the coordination and higher guidance body of this system. The functions of the CIEEF are: to propose the guidelines, methodologies and tools for the adoption of a national strategy and to recommend the management, coordination and financing mechanisms between the public and private sectors necessary for the implementation and execution of the Strategy. (ENEFF, 2017).

On the other hand, the Banking and Financial Entities Association of Colombia (ASOBANCARIA) (2018), states about the EEF that "including these skills in the curriculum is fundamental in a world with limited resources and, due to the development of the financial system, in an increasingly diverse context with more opportunities and therefore more risks to evaluate" (p.7).

4. Results

When analyzing the applications that the financial sector presents to the common citizen to promote the culture in the financial management, the following applications such as: Banco de Bogotá, Banco Popular, Mobills, Pesos pensados, Daviplata and Nequi when using crossed references in the study of these Apps in the light of the guidelines offered by the MEN in the matter of EEF it is possible to emphasize and to relate a possible bank of tools that the professor of mathematics could use in the design of his educational sequences for the development of the subjects and conceptual areas that constitute the EEF:

- Banco de Bogotá:

The bank of Bogotá provides contributions on financial education and has a tab on the home page to generate guidance covering various topics and also presents a financial education primer. By selecting the bank's Financial Education tab, the user is presented with guidance through messages to educate citizens financially in order to impact their quality of life (see Figures 1 and 2).

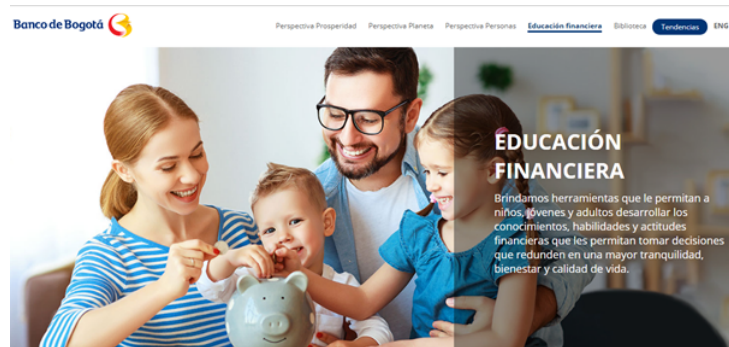


Figura 1. Financial Education



Figura 2. Financial Education Articles

With the tools presented by the Bank of Bogotá; (Figures 1, 2 and 3) support is identified for the development of the conceptual areas: Budget (organize your accounts), Saving (prepare for the future), Loan (debt management), Financial services (tools for progress).

This contributes in the classroom to the deepening of the subject matter by relating it directly to situations that are present in a real context to positively impact them.



Figura 3. Financial Education Primer "The Way to Prosperity. A Helpful Guide to Making Your Money Better

- Banco Popular

The Apps of this financial entity highlights personal finances and details on the page so that citizens are responsible consumers and for that purpose they give some guidelines for what is called intelligent consumption.^{en}couraging analysis before purchase and to determine consumption priorities (Figures 4 and 5), educational aspects very important to form the future adult responsible for their economic and financial life, which gives an added value to this Apps to be taken to the classroom.



Figura 4. Keys to intelligent consumption



Figura 5. Financial tips

In addition, the App of this financial sector entity provides useful and practical financial advice for teachers to implement in the classroom on the EEF, thanks to better guidance in making economic decisions, where they can analyze the benefits at a personal level that they bring as a result, from children and adolescents to the elderly. It also provides a simulator (see Figure 6) where you can control and organize the management of money, tracking their income, savings and expenses. From this App you can highlight the contents of Budget, Savings, Investment, Goals and Financial Services.



Figura 6. Simulator

■ Mobills

This application, Mobills Finanzas y Presupuesto - Control de Gastos, allows the young people to see the importance of resource planning (see Figure 7) and from the daily life generate a point of appropriation by the students towards the EEF.

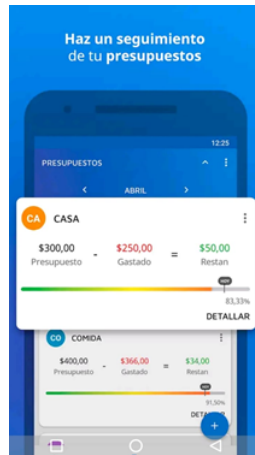


Figura 7. App Mobills

Through this App the teacher can generate in the students in an assertive way the decision making with respect to finances and budgets, thanks to the control of expenses and income that is allowed to take in a daily way, the colors in this App are significant as far as the accounts that are being handled and even to take a graphic record of these, the contents of EEF that can be developed are Budgeting, Finance, Saving and Revenue Control.

■ Pesos pensados

This is an educational campaign for Colombians to make responsible financial decisions, the teacher can implement these tools in a dynamic way (see Figure 8), develop some questions about finances, can develop a budget of economic activities, define their goals and develop a test to draw a savings strategy.

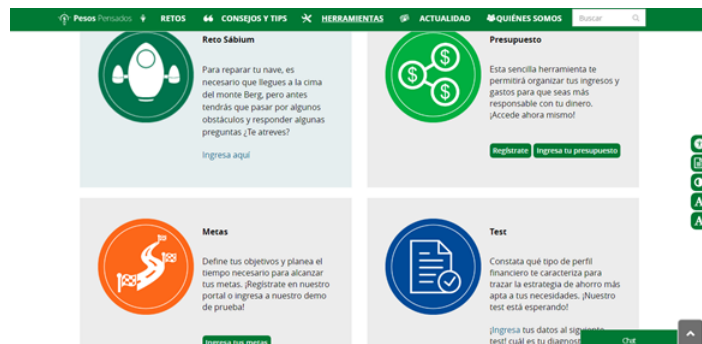


Figura 8. Tools for finance

The topics to work with Pesos Pensados are Budget, Saving, Goals and Budget.

■ Davivienda

This financial sector entity has an application called "Make Accounts"(see Figure 9) it allows to plan according to what you have obtained on a monthly basis; they can keep track of their income for even six months and what you have set aside for other activities. Likewise, a comparison can be made with the real values of income and expenses that have been carried out month by month in order to regulate the budget. The teacher can implement this app as a strategy for their students to analyze what would happen if the expenses were higher than the income in a long period, in addition to handling other issues relating to the EEF to reflect the benefits of it.



Figura 9. Haga cuentas Cover

The topics to be developed with this application are Budget, Real values, Saving, Economic indicators.

■ Nequi

Through this application (see Figure 10) students can establish the habit of planning through each option that this app presents, one of them is "pockets", which offers the development of budgets, Nequi also allows you to see savings and income that are obtained in a period either short, medium or long term, in addition each mattress or pocket can be designated in proposed goals.



Figura 10. Nequi cover

And the theme to be developed would be: Savings, Budget and Goals.

As a general result, it is found that the mathematics teacher from the applications of free use that are provided in the financial sector can use each one of these to make part of the strategies or didactic sequences with which this same one develops the classes of mathematics and by means of them in addition manages to strengthen in each one of its students the competitions in EEF.

5. Conclusions

Education must adjust itself to the needs and context of its educational community, in order to respond to the challenges of the teaching and learning process. Therefore, our objective is to provide the mathematics teacher with a bank of strategies based on the Apps of the financial sector for the design of activities that promote the development of EEF competences in their students, in order to work on different topics in the search for the management of resources for the well-being of the students.

From the study of each one of the digital applications offered by the different entities of the financial sector in Colombia, it is possible to use diverse themes supported by the pedagogical orientations for the EEF, allowing the teacher to make his classes much more dynamic spaces according to the reality of the student in a real context, which they will find when they are active citizen, where the decision making is much more serious, also they can make themselves responsible, because they will already be familiar with these Apps.

This strategy of the EEF using Apps from the financial sector will allow the development of knowledge and skills for planning and management of resources necessary for the awareness of the common citizen about the risks and opportunities that will lead to responsible decision making based on economic and financial issues that are immersed in everyday life. In addition, it allows to generate in them the vision of a citizen construction in the search of the common and individual well-being and mainly in the integrity of the being, all the previous one in a general way.

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