

## Assessment of the employed accountants' chances to enter and complete the professional accounting education program utilizing ecological systems theory

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### Abstract

This article aims to assess the opportunities for employed accountants practicing in the economic sector in Algeria to enter and complete the professional accounting education program for the chartered accountant and statutory auditor utilizing Bronfenbrenner's ecological systems theory.

Through distributing a questionnaire to 90 employed accountants in the economic units across eastern Algeria to identify the ecological factors influencing their opportunities, the results revealed that individual factors such as experience, desire, knowledge, skills, and effort have a positive impact to enter the educational program. However, direct environmental factors within the microsystem, notably work hours and family commitments, may lead to the failure to complete it. It is the same type of impact resulting from family financial and social needs and their relationship with the work of employed accountants within the mesosystem.

Within the exosystem, the results indicated that adopting a combination of attendance and cloud-based programs enhances the opportunities for program completion. However, the results related to the factors of the macrosystem had a negative impact due to employed accountants' belief in the obstacles of the professional work environment and the lack of legal agility governing the profession. The researchers suggest considering the ecological perspective when designing the entry requirements for the professional accounting education program to provide employed accountants with a fair chance to complete it.

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## 1. Introduction

The primary objective of professional accounting education is to prepare individuals to work in a certain way with understanding (Littleton, 1942, p.216). Thus, the production of a competent and able selection of professionals makes a positive contribution to the profession and other stakeholders. From these perspectives, it seems that defining the requirements for entry to educational programs has significantly important to attract appropriate individuals and talents. For this reason, the International Federation of Accountants (IFAC) has released, through its International Accounting Education Standards Board (IAESB), International Education Standards (IES) to ensure the quality of accounting education (IAESB, 2019). by making an effective approach to professional competence development (IAESB, 2015, p.4).

On the other hand, many factors, such as individual, social, cultural, and historical factors, influence a developing person (Pae, 2003). Therefore, it is important to consider the ecological perspective when setting the relevant requirements that are not so high as to cause unnecessary barriers to entry, nor so low as to falsely believe that individuals have the potential to complete their education (IAESB, 2019, p.114).

In light of this, it is worth noting that several categories, including employed accountants who are university graduates and have demonstrated a level of competence in their performance through the tasks they carry out in their organizations, may be interested in entering the professional accounting program.

This study uses the Algerian context to address the primary research question, 'What is the ecological perspective assessment of the reasonable opportunity for employed accountants to enter and complete successfully the professional accounting education program of the chartered accountant and statutory auditor?'

This question responds to the situation of the Algerian accounting profession, which has undergone several reforms, both about its content and structure, resulting from the abandonment of the command economy and the adoption of the market economy. Thus, the adoption of International Accounting Standards and International Financial Reporting Standards (IAS/IFRS) in the financial accounting system format, and a trend towards the issuance of auditing standards derived from international standards. The reform also extended to the reorganization of the accounting profession in Algeria, namely, the professions of the chartered accountant, the statutory auditor, and the certified accountant. This matter has resulted in the discontinuation of its accounting education for new entrants to the profession for a long period, punctuated by some legislative and regulatory texts that attempt to establish new rules and structures to pursue the educational path culminating in the profession.

Individuals wishing to enter the professional accounting education program continue to look forward to the requirements that enable them to do so in light of the perceived time gap between the issuance of legislative and regulatory texts since the adoption of professional reforms.

Previous research has attempted to understand the correlation between work duration and academic performance. This study aims to identify the factors expected to influence the fair opportunity for employed accountants to enter and complete the professional education program for the chartered accountant and statutory auditor, according to the ecological system, in light of the disclosed entry requirements in Algerian legal and regulatory texts. The purpose is to develop mechanisms to consider these factors when establishing the remaining entry requirements.

The remainder of the paper is organized as follows: we begin with a literature review on Bronfenbrenner's ecological systems theory and entry requirements to professional accounting education programs in the context of the ecological model. Next, we present the Algerian framework, followed by the method employed to collect data. We then present findings, provide a discussion, and close with the conclusion of the study.

## 2. Literature Review

### 2.1. Bronfenbrenner's Ecological Systems Theory

Several studies have used the ecological model in education (Cowie & Khoo, 2018) to interpret the individual's behaviors (Abrams et al., 1999, p.285) and his development process (Stewart, 2007, p.18). The ecological model represents a tool and contextual map that assist in understanding the numerous factors contributing to the student's depressed behaviors because it considers and incorporates factors inherent both within a student as well as within the student's school, family, and community (Abrams et al., 1999, p.285).

Bronfenbrenner (1979) developed an ecological theory that identifies the interconnected systems influencing human development (Stewart, 2007, p.18). Based on this theory, the developing person is not a passive receptacle; he is an active individual who develops in continuous interaction with his environment (Pae, 2003, p.146). This theory provides an ecological model as a framework that classifies these factors in their system relevant between four systems defined:

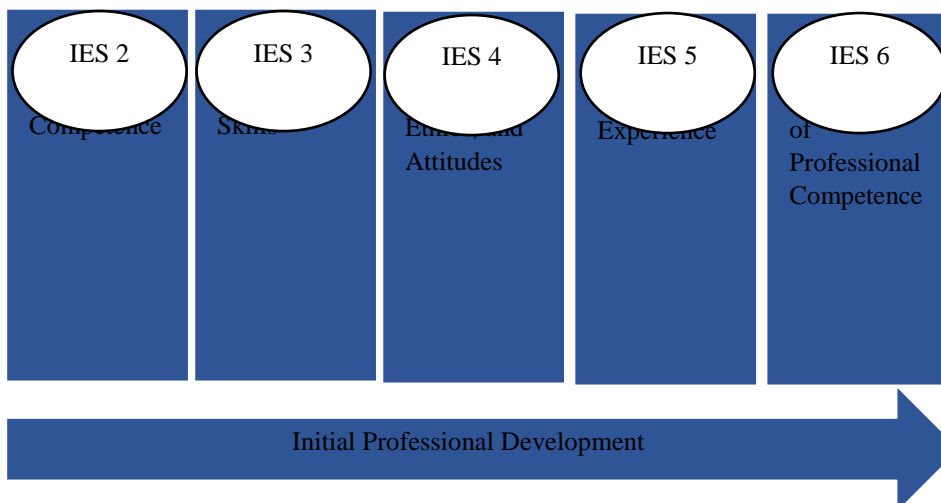
- **Microsystem:** refers to direct environmental impacts(O'Toole et al., 2014, p.122) including family, friend groups, work. The developing person is in the microsystem's center(Sarvan & Muslu, 2022, p.17).
- **Mesosystem:** a system of microsystems, which includes the interrelationships between two or more contexts where the developing person is an active participant (such as family and work) (Bronfenbrenner, 1979, p.25).
- **Exosystem:** designates one or more contexts in which the developing person is not involved as an active participant, but in which events arise that affect, or are affected by, what happens in the context of the developing person(Bronfenbrenner, 1979, p.25).
- **Macrosystem:** it refers to the influence of the broader societal factors(O'Toole et al., 2014, p.122). The economy, society, laws, politics, education, and religion are the practical manifestation of this level(Pae, 2003).

The systems cited above are nested, and with be-directional influences within and between the systems, the former is included in the last, forming a concentric circle structure(Xue, 2012).

## 2.2. Entry Requirements to Professional Accounting Education Programs in the Context of the Ecological Model

### 2.2.1. Entry Requirements to Professional Accounting Education Programs

The basic challenge for all professional bodies and educational institutions is related to the changing environment and maintaining the quality of accounting education that meets the future needs of the accounting profession and its members and maintains integrity in performing the service(Behn et al., 2012). The process by which individuals are "made" into professionals is a fundamental issue in the functioning and maintenance of every profession. The nature of this process will have significant implications for a profession's ability to attract clients and establish its place in society as a whole(Anderson-Gough et al., 2002, p.41). The accounting profession can attract and retain appropriate talent better with the rethinking and fundamental development of continuous education and training and lifelong learning requirements, to cope with the implications of intense competition for mobile talent in the labor market(IFAC, 2022, p.8). This has led the International Federation of Accountants (IFAC), as an international standard-setting body, to define the principles used in determining and communicating requirements for entry into professional accounting education programs under International Accounting Education Standard 1 (IES 1), while the standards listed below have covered the requirements for entry into the profession as follows:



**Figure 1.** Mapping out Initial Professional Development According to International Education Standards

These six education standards constitute the initial professional development embodied in learning and development through which an aspiring professional accountant meets the requirements of his future role in the profession.

In the international accounting education standards (IES) context, entry requirements to professional accounting education programs refer to the conditions that IFAC's member body expects an individual to meet to obtain admission to the accounting education program(IAESB, 2016b). The international accounting education standards board(IAESB, 2019), through IES1, asserts that fair and proportionate requirements, as well as protection of the public interest, is the main objective of the indicated standard. On this account, he determines the requirements for the IFAC's member bodies and other stakeholders as follows:

- Establish educational entry requirements that allow entry only to those who stand a reasonable chance to complete the professional accounting education program successfully without constituting excessive barriers to entry.
- Attach the process of setting educational entry requirements to an explanation of principles used in it for stakeholders, including both the relevant education providers and individuals who are interested in pursuing a career as a professional accountant.
- Availability of relevant information to assist individuals in evaluating their chance of successful completion of the professional accounting education program (IAESB, 2013). This information includes but is not limited to the educational qualification's entry requirement, recognition of prior learning, technology requirements, financial cost, and mandatory attendance hours to complete the program (IAESB, 2016b).

Requirements for enrolment in professional accounting education are important for many reasons such as:

- Protecting the public interest by helping future professional accountants to make informed decisions related to their educational choices, and
- Achieving general protection requirements and allowing adequate numbers of high-quality professional accountants, by setting principles for entry into professional accounting education programs that are not so high as to cause unnecessary barriers to entry, nor so low as to falsely believe that individuals have the potential to complete education successfully (IAESB, 2019, p.114). IAESB(2016b) listed other benefits such as assistance in the preparation of individuals to participate in the professional accounting education program, illustrate the various pathways individuals may follow to access the relevant educational program as well as insurance that the resources of the Federation's member bodies are allocated efficiently (for example, financial and human).

#### 2.2.2. Determinants of Entry Requirements for Professional Accounting Education Programs

Influencing factors of determinate entry requirements for the professional accounting education program include those that may affect the reasonable opportunity of the aspiring professional accountant to complete the professional accounting education program with success. The IFAC (IAESB, 2016a) defined relevant factors :

Cognitive ability, autonomous ability to progress, motivation to study, past academic performance both in total and in specific subjects, in school or in the case of university postgraduate studies, as well as direct environmental factors that are summarized in the amount of time available for study, peer communication networks, and funding matters, including government support. Factors that may contribute to the successful completion of the professional accounting education program are identified within a systemic environmental framework (eco-systemic framework) that views education in the context of an individual's broader environment, such as:

- Individual factors: consider the abilities and qualities of aspiring professional accountants (personality, knowledge, skills, motivation and effort, previous academic success, previous experiential learning...).
- Direct environmental factors: contain the aspiring professional accountant's background, work and home conditions, finances, and other elements that directly affect him.
- Professional accounting education programs: include the nature of the program and the related competencies for its successful completion.
- Factors in the working environment: the world of work and the role that an aspiring professional accountant is likely to play in the field of accounting. This includes the general expectations of the role that an aspiring professional accountant will play in the accounting profession.

IAESB(2016d) states that viewing entry requirements from an eco-systemic perspective, due to several advantages:

- It ensures that entry requirements are considered within the inter-related context of the individual considering a career as a professional accountant, their environment, and the environment in which the professional accounting education program is offered.
- It permits IFAC member organizations with varying professional accounting education programs, obligations, and public interest responsibilities to evaluate entry requirements in light of their particular circumstances.

#### 2.3. The Reform of Algeria's Accounting Profession and Entry Requirements for Professional Accounting Education Programs

### 2.3.1. Overview of Accounting Reform in Algeria

In response to the changes witnessed in the global accounting system, Algeria has adopted IAS/IFRS through the financial accounting system, which was implemented starting in 2010. Algeria has restructured the accounting profession, primarily reflected in Law 10-01 dated June 29, 2010. This law pertains to the professions of the chartered accountant, the statutory auditor, and the certified accountant, and it repealed the provisions of law 91-08, through which the profession enjoyed a degree of self-regulation led by the National Order of chartered accountants and statutory auditors and certified accountants. The National Council of Accounting was established, responsible for accreditation, accounting standardization, organization, and monitoring of the profession, operating under the authority of the Minister of Finance. The new law encompasses the tasks, responsibilities, disciplinary penalties, incompatibilities, and barriers related to the practice of the profession, in addition to its provision for the establishment of supervisory professional bodies.

The practice of any of the aforementioned three professions requires obtaining a qualified certificate, taking into account recognized equivalencies for the certificates. The certificates related to the chartered accountant's and statutory auditor's professions are granted by the specialized education institute under the authority of the Minister responsible for finance. On the other hand, the certificate related to the certified accountant's profession is granted by professional training institutions under the authority of the Minister responsible for professional training or by institutions accredited by him, or by higher education institutions (Law No. 10-01, 2010).

### 2.3.2. The Specialized Education Institute for the Accounting Profession

The decision to establish the Specialized Education Institute for the Accounting Profession was issued under Executive Decree No. 12-288 dated July 21, 2012. It is a public institution with an independent legal personality and financial autonomy, operating under the supervision of the Minister of Finance (Abdessamad, 2022, p.22). Article five(5) (Executive Decree No. 12-288, 2012) states that the institute is responsible for ensuring specialized education for obtaining the certificate of chartered accountant and the statutory auditor. It is specifically responsible for the following tasks:

- Implementing specialized education programs to obtain the certificate of expert accountant and the certificate of statutory auditor,
- Ensuring continuous development directed towards accounting professionals,
- Contributing to the development of research in the fields of accounting, taxation, finance, auditing, and computerized management information,
- Conducting studies and publications related to its tasks,
- Participating in the dissemination of modern techniques for education in accounting, auditing, and financial engineering,
- Establishing relationships of exchange and cooperation with national or international bodies active in the same field of activity, and
- Providing continuous training courses as part of its tasks for the benefit of users from administrative sectors or public and private bodies, according to the specific criteria defined in agreements.

Up until the writing of these lines, the institute has not been realized in practice, but certain requirements have been identified to proceed with the newly established theoretical educational track for the professional accounting education program for both the chartered accountant and the statutory auditor. These requirements include educational level requirements, represented by qualified certificates and specializations. They also include knowledge and skills requirements that are demonstrated through a written competition followed by an oral examination for admission to the institute and, consequently, the educational program.

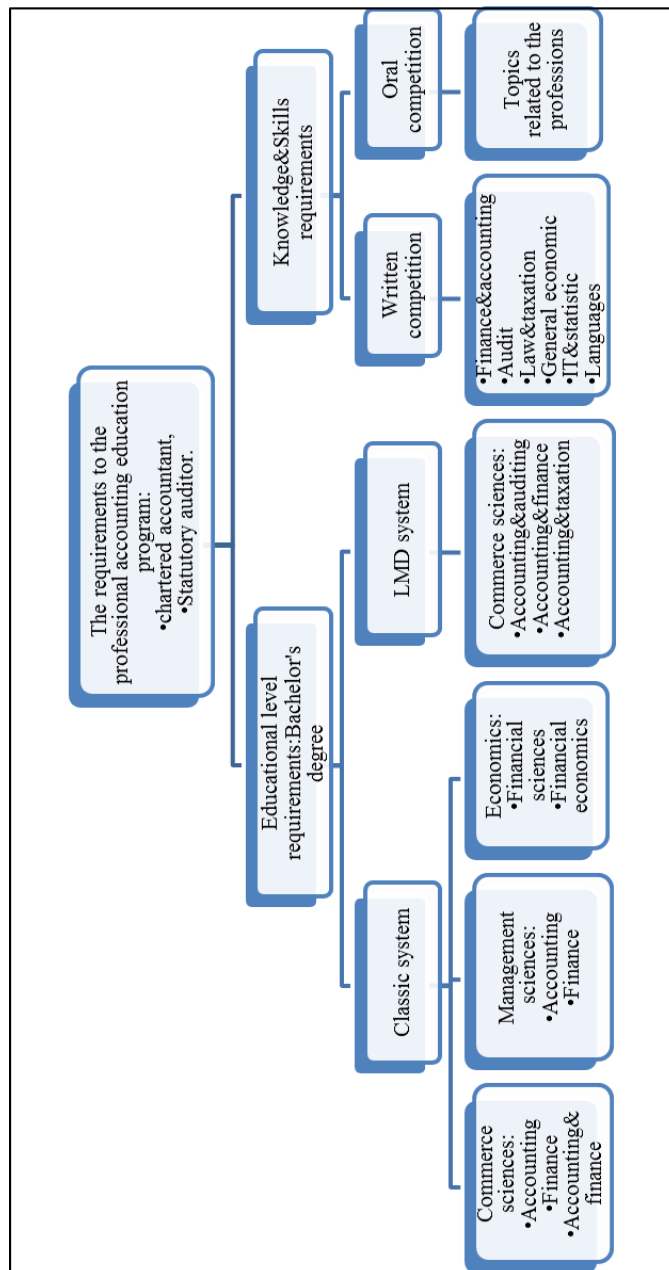
As summarized in Figure 2, the announced entry requirements to the Specialized Accounting Profession Institute and consequently the professional accounting education program for the chartered accountant and statutory auditor can be classified into two categories, as follows:

- Educational level requirements: Algerian legislation stipulates a university degree at the bachelor's level (Baccalaureate + 3 years) or any other university degree obtained from abroad, and recognized as equivalent as a minimum requirement for entry into the professional accounting education program. The specializations are specified as follows:

Accounting, Accounting and Finance, Finance, and Auditing.

- The abilities requirements: Among the requirements set for admission to the professional accounting education program for the profession of chartered accountant and statutory auditor, it is necessary to fulfill a certain level

of knowledge and skills in specific areas, which is demonstrated by passing a competition held annually after the Minister of Finance determines the number of available academic seats. The joint ministerial decision dated March 7, 2017, specifies the number, nature, coefficients, and the program of the tests within the competition that enables entry into the professional accounting education program for the chartered accountant and statutory auditor, conducted at the Specialized Education Institute for Accounting Profession.



**Figure 2.** Entry requirements to the Specialized Education Institute for the Accounting Profession in Algeria

**Source:** Created by authors, based on the regulatory framework of the accounting profession

### 3. Research Methodology

The sample consists of 111 practitioners in different roles in the accounting field in fifteen (15) economic units from the east of Algeria, holding higher education certificates qualifying them to enter the professional accounting education program for the chartered accountant and statutory auditor. These include respondents from Sonatrach DRG Skikda, Sonatrach RA2K Skikda, Sonatrach GL1K Skikda, Sonatrach RA1K Skikda, Naftal GPL Batna, Naftal CLP Annaba, Naftal DASC Annaba, Naftal BITUMES Annaba, Asmidal FERTIAL Annaba, Enamarbre Skikda, Somik Skikda, Sidal Constantine 02, EN GTP Skikda, ENAC El Khroub, STH Skikda. From the total of 111 survey questionnaires that have been distributed, 90 questionnaires were returned. (Rate of return is 81%).

The analysis presented in this article is based on qualitative data collected during January-April 2023. The study employed a questionnaire to ascertain employed accountants' expectations regarding the assessment of their

opportunities for entry and complete the professional accounting education program of the chartered accountant and statutory auditor, following the ecological perspective.

The authors designed and developed a survey questionnaire following the ecosystem perspective (IAESB, 2016c) based on Bronfenbrenner's theory (1979). The indicated ecosystem approach includes factors that can affect the reasonable opportunity for entry and the successful completion of a professional accounting education program adapted to the Algerian environment. The questionnaire used two types of closed questions: the two-pronged question and the multi-choice question, which allows the respondent to have several reasonable and feasible responses, including questions that allow for one answer and others that allow for multiple responses.

The questionnaire contains nine demographic questions and three axes. The demographic questions inquired about the accountant's employers, gender, social status, specialization, nature of the job position, the job area, the type of employment contract, and experience. The axes questions inquired about assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to factors in the microsystem and mesosystem, factors in the exosystem, and factors in the macrosystem, respectively.

#### 4. Findings and Discussion

##### 4.1. Findings

In this part of the study, the data obtained from the survey administered to a sample of employed accountants working in several economic units in eastern Algeria are evaluated.

Aligned with the ecological systems theory, the study findings were statistically analyzed under the headings:

- Descriptive Characteristics of the respondents;
- Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to factors in the micro and mesosystem;
- Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the exosystem; and
- Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the macrosystem.

##### 4.1.1. Descriptive Characteristics

It is seen in table 1, the final sample consists of 90 practitioner accountants in economic units. The majority of the respondents are male (52.2%) and married (84.4%). Most of the respondents hold degrees in finance and accounting and finance, with a percentage of 36.7% and 33.3% respectively.

According to the job area, the useable sample of 90 survey questionnaires consists 35 (38.9%) practitioners in accounting, 16 (17.8%) practitioners in finance, 31 (34.4%) practitioners in accounting and finance, 4 (4.4%) practitioners in internal audit, 2 (2.2%) practitioners in wages, and 2 (2.2%) practitioners in management control, distributed with 27 (30%) occupying positions of responsibility and 63 (70%) holding regular positions. The majority of the respondents are employed on a permanent employment contract (75.6%). Most of them (48.9%) has been an experience in the field of accounting for less than 15 years, following that, a percentage representing approximately one-third of respondents (28.9%) falling within the range of 15 to less than 20 years.

**Table 1.** Descriptive Statistics of the Respondents

Characteristic	Sub-groups	Frequency	Frequency (%)
Sample	N	90	100%
Unit	SH DRG SKIKDA	9	10.0%
	SH RA2K SKIKDA	10	11.1%
	SH GL1K SKIKDA	10	11.1%
	SH RA1K SKIKDA	12	13.3%
	NAFTAL GPL BATNA	10	11.1%
	NAFTAL CLP ANNABA	1	1.1%
	NAFTAL DASC ANNABA	3	3.3%
	NAFTAL BITUMES ANNABA	1	1.1%
	ASMIDAL FERTIAL ANNABA	7	7.8%
	ENAMARBRE SKIKDA	4	4.4%
	SOMIK SKIKDA	10	11.1%
	SAIDAL CONSTANTINE 02	2	2.2%
	EN GTP SKIKDA	5	5.6%

	ENAC EL KHROUB	4	4.4%
	STH SKIKDA	2	2.2%
Gender	Male	47	52.2%
	Female	43	47.8%
Social status	Single	14	15.6%
	Married	76	84.4%
The specialization Degrees	Accounting	20	22.2%
	Accounting and Finance	30	33.3%
	Finance	33	36.7%
Nature of the job Position	Accounting and Auditing	7	7.8%
	Responsibility position	27	30.0%
Job area	Normal position	63	70.0%
	Accounting	35	38.9%
Type of employment Contract	Finance	16	17.8%
	Accounting and Finance	31	34.4%
	Internal audit	4	4.4%
	Wages	2	2.2%
	Management Control	2	2.2%
	Fixed-term contract	22	24.4%
Experience	Permanent contract	68	75.6%
	Less than 15 years	44	48.9%
	15 to less than 20 years	26	28.9%
	20 to less than 25 years	10	11.1%
	25 to less than 32 years	7	7.8%
	32 years or more	3	3.3%

**Source:** Prepared by authors, based on the fieldwork

#### 4.1.2. Assessing the Employed Accountants' Opportunities of Successfully Entering and Completing the Professional Accounting Education Program According to Factors in the Micro and Mesosystem

Individual factors are closely related to the microsystem because the individual is considered the center of this system. For this reason, individual factors have been included in this axis.

Based on Table 2 below, it is seen that the majority of respondents (76.7%) have a desire to enter the professional accounting education program, 57.97% of them choose the program qualifies for the profession of the chartered accountant, while 42.03% opted for the program of the statutory auditor.

Participants were asked about their knowledge area to participate in written completion to enter the professional accounting education program; their answers indicated that all respondents have good knowledge of accounting and finance; this is logical considering that accounting or/and finance constitute the majority of the sample's individuals' field of work. This is followed by audit with 10.7% of the total responses, French language (writing) with 10.4%, both law and taxation and general economics with 9.6%, Arabic language (writing) with 8%, information technology with 7.5%, statistic with 6.4%, French language (translation) with 6.1%, English language (writing) with 4.8%, and English language (translation) with 2.9%.

Participants were asked about their skills area to successfully pass the oral competition to enter the professional accounting education program; 31.2% of the responses stated that the respondents have critical thinking skills. This is followed by analytical skills with 24.5% of the total responses, Familiarity with the Algerian accounting profession with 23.4%, and communication skills with 20.9%.

Participants were asked whether they have the necessary effort to prepare for the competition to enter the professional accounting education program. In all, 66.7% of the respondents stated that they have the indicated effort, while 33.3% stated that they have not. Regarding those who answered 'no', the most important reason for most of them (40%) was limited time. This is explained by the 8-hour daily work system that is in place.

Participants were asked whether they have the necessary commitment to study and complete the Professional Accounting Program in case of success. The responses of the majority were positive (66.7%).

**Table 2.** The Individual Factors

Item	Yes		No		Response detail
	N	%	N	%	
Do You wish to enroll in a professional accounting education program?	69	76.7%	21	23.3%	For the response yes : -Statutory auditor: 29 (42.03%) -Chartered accountant: 40(57.97%)
Item	N		%		Response detail
Knowledge Area :					Multi-choice question
Accounting and Finance	90		24%		
Audit	40		10.7%		
Law and Taxation	36		9.6%		
General Economic	36		9.6%		
Information Technology	28		7.5%		
Statistic	24		6.4%		
Arabic Language(Writing)	30		8%		
French Language(translation)	23		6.1%		
French Language(writing)	39		10.4%		
English Language(translation)	11		2.9%		
English Language(writing)	18		4.8%		
What skills do you possess to Success in the oral competition To enter the professional accounting education program?					Multi-choice question
Familiarity with the Algerian Accounting Profession.	66		23.4%		
Analytical skills	69		24.5%		
Critical thinking skills	88		31.2%		
Communication skills	59		20.9%		
Item	Yes		No		Response detail
	N	%	N	%	
Do you have the necessary effort to prepare for the competition to enter the professional accounting education program?	60	66.7%	30	33.3%	The main reason for 'no': -Age: 3 (10%) -Limited time: 12 (40%) -Certified End of Education Chartered Accountant: 1 (3.33%) -Lack of willingness: 7 (23.34%) -Family Obligations: 6 (20%) -Health Reasons: 1 (3.33%)
Do you have the necessary commitment to study and complete the professional accounting program in case you succeed in entering it?	60	66.7%	30	33.3%	-

**Source:** Prepared by authors, based on the fieldwork

The results in Table 3 below show that the majority of the respondents (51.1%) stated that their employers have not authorized attendance study simultaneously with working times, and the majority of the respondents (74.4%) also stated that their employers do not allow adjusting working time if they follow a professional accounting education program.

In addition, the majority of the respondents (63.3%) expressed the encouragement of colleagues to the worker who is pursuing his education, and the majority of them (61.1%) assured their colleagues' cooperation in performing the tasks in the same situation. The majority of respondents (71.1%) indicated their willingness to pursue a cloud-based educational program.

On the question of whether unpaid leave could be taken to pursue the study, the majority of respondents (82.2%) stated that they were unable to do so. Most of the responses (36.3% of the total responses) were focused on family reasons. In the same context, the majority of respondents (67.8%) confirmed that they were unable to stay away from their families to study, and even those who answered positively mostly (45.1%) focused on the eastern of Algeria, which is the workplace of the study participants.

**Table 3.** Direct Environmental Factors

Item	Yes		No		Response detail
	N	%	%	N	
Does your employer authorize attendance study simultaneously with working times?	44	48.9	46	51.1%	For the response yes Hours/week : -I don't know exactly: 15 (34.09%) -4 hours: 10 (22.73%) -6 hours: 5 (11.36%) -8 hours: 12 (27.28%) -10 hours 1 (2.27%) -16 hours 1 (2.27%)
Does your employer allow adjusting working time if you Follow a professional accounting education program?	23	25.6	67	74.4%	-
Do your colleagues encourage the worker who is pursuing his education?	57	63.3	33	36.7%	-
Do your colleagues cooperate with the worker who is pursuing his education in performing his tasks?	55	61.1	35	38.9%	-
Can you follow a cloud-based professional accounting education program in communication and interaction with the teacher and peers?	64	71.1	26	28.9%	Reasons for 'no'(multi-choice question): -Work commitments: 20 (45.5%) -Family Obligations: 21 (47.7%) -Lack of technology Skills: 3 (6.8%)
Does your financial potential allow you to take an unpaid leave from work to continue a professional accounting education program?	16	17.8	74	82.2%	For the response 'yes' Maximum duration of unpaid leave: -6 months: 7(43.75%) -One year: 6 (37.5%) -One year and 6 months: 2 (12.5%) -Two years: 1 (6.25%) Reasons for 'no'(multi-choice) : Self-causes: 28 (33.7%) Family causes: 55 (36.3%)
Can you stay away from the the family for pursuing a professional accounting education program?	29	32.2	61	67.8%	For the response 'yes' the destination that can approached (Multi-choice question): -Eastern Algeria: 23 (45.1%)

-Central Algeria:  
17 (33.3%)  
-Western Algeria:  
11 (21.6%)

**Source:** Prepared by authors, based on the fieldwork

#### 4.1.3. Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the exosystem

As indicated in Table 4, to know the impact of exosystem factors on employed accountants' opportunities to enter and complete the professional accounting education program, participants were asked whether pursuing an additional educational path, as a condition for obtaining a professional certificate is a barrier to completing the professional accounting education program. The majority of respondents (56.7%) responded 'No'. In addition, the majority (65.6%) confirmed that a combination of attendance and cloud-based education will enhance their chances of completing successfully the program.

The majority of respondents (56.7%) also stated that a two-year professional internship period is insufficient to demonstrate appropriate experience. This is what makes prior practical experience an additional asset for employed accountants entering the professional accounting education program.

**Table 4.** Professional Accounting Education Program

Item	Yes		No	
	N	%	N	%
Do you believe that pursuing an additional educational path, as a condition for obtaining a professional certificate is a barrier to completing the professional accounting education program?	39	43.3%	51	56.7%
<b>Item</b>	<b>N</b>	<b>%</b>		
What is the nature of the professional accounting education program that enhances your chances of completing successfully it?				
-An attendance Program	17	18.9%		
-Cloud-Based Program	14	15.6%		
-A combination of attendance and cloud-based program	59	65.6%		
Item	Yes		No	
	N	%	N	%
Do you believe that a two-year professional internship requirement to demonstrate experience in the professional accounting education program is suitable for completing successfully the program?	39	43.3%	51	56.7%

**Source:** Prepared by authors, based on the fieldwork

#### 4.1.4. Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the macrosystem

Table 5 depicts the results of perceptions of employed accountants on the professional work environment in the macrosystem. The majority of respondents (64.4%) believe that the Algerian environment lacks a culture of support from professional officeholders for aspiring professionals. Meanwhile, 61.1% of respondents think that the accreditation procedures for the right to practice the profession later affect the entry into and completion of the professional accounting education program by employed accountants. In addition, the majority of respondents (56.7%) consider that the legal regulation of Algeria's accounting profession has affected the opportunities of employed accountants wishing to enter the professional accounting education program. The majority of those who responded with 'Yes'(70.59%) confirmed the negative impact, referring to the delayed application of Law No 10-01 dated June 29, 2010.

**Table 5.** Work Environment Factors

Item	Yes		No		Response detail
	N	%	N	%	
Do you think that the Algerian environment has a culture of support from professional officeholders for aspiring professional accountants?	32	35.6%	58	64.4%	-
Do you think that the accreditation procedures for the right to practice the profession later affects the entry into and completion of the professional accounting education program by employed accountants?	55	61.1%	35	38.9%	-
Do you consider that the legal regulation of the accounting profession in Algeria has affected the opportunities of employed accountants wishing to enter the professional accounting education program?	51	56.7%	39	43.3%	For the response 'yes' effect type : -Positive effect: 15 (29.41% of those who responded ' yes') -Negative effect:36 (70.59% of those who responded ' yes')

**Source:** Prepared by authors, based on the fieldwork

#### 4.2. Discussion

Examining the factors that influence the reasonable chance of employed accountants to enter and complete successfully the professional accounting education program for the chartered accountant and the statutory auditor in Algeria, this study adopted an ecological systems theory (Bronfenbrenner, 1979) to the relationship between a variety of factors that were identified by the participants as contributing to enhance or failure their chances to enter and complete the indicated professional program. Specifically, a set of factors that operate micro-, meso-, exo-, and macro-levels.

Firstly, we included targeted questions for the study sample focusing on the individual as the central figure in the microsystem, as well as factors related to the microsystem and mesosystem in a unified axis due to the interplay of elements and direct relationships linking them together, making the questions and reasons interconnected. Regarding personal traits, the results indicated that the majority of participants have a strong desire to enter the mentioned professional education program. This desire primarily stems from their ambition to progress in their professional career, with the potential of pursuing the profession in the future. This is especially significant as these individuals possess knowledge in the field of accounting and finance, which is the specialized area of study and work for most participants. In addition to the acquired skills, they also possess other qualities that support their opportunities to enter and complete successfully the professional education program, such as experience, effort in preparation, and commitment to their studies. It is worth noting that the participants' desire and effort in preparing for and completing successfully the program can compensate for any deficiencies in the areas of knowledge that did not receive sufficient positive responses from participants. The desire and effort create a kind of internal motivation. This finding is consistent with the work of (Credé & Kuncel, 2008) who has been shown, in a similar context, a strong correlation between both study motivation and study skills with both grade point average and grades in individual classes. Therefore, it can be said that the personal traits of the participants support their reasonable chance of entering and successfully completing the professional accounting education program.

In the context of the microsystem, the results showed that participants who expressed a lack of interest in entering the professional education program confirmed that they did not have the necessary effort to prepare. This can be attributed primarily to time constraints, which can be attributed to the full-time work system (8 hours per day) followed in economic organizations, in addition to family obligations. It is worth noting that most individuals in this situation are married. The results regarding study permission from the employer and the possibility of adjusting work hours for pursuing an educational path were mostly negative, with conflicting and

varying responses even among participants working within the same economic unit. This can be attributed to the absence of a binding legal provision in this regard and the reliance of economic organizations on what is stated in collective agreements and the assessments of the hierarchical authority. According to the appendix of the joint ministerial decision dated March 7, 2017 (Joint Ministerial Decision, 2017), which specifies the process of training and specialized training programs to obtain the chartered accountant certificate and the statutory auditor certificate, the total required duration to complete the program is 2390 hours. These hours are distributed over three years as follows: 850 hours during the first year, 810 hours during the second year, and 730 hours during the additional third year, which is exclusively dedicated to the chartered accountant program. Considering that the study period will be eight months per year, we would have an average weekly workload of approximately 25 hours. This exceeds the maximum licensed courier size for the study, as discussed in the participant's responses. Taking into account the centralization of the education institute, it would be challenging for employed accountants to balance work and study, even if they have permission from their employing organization. This would negatively affect their chances of completing the program. On the contrary, the majority of employed accountants expressed positivity about their immediate environment regarding their relationships with colleagues, their support, encouragement, and collaboration in task performance. This is somewhat consistent with the findings reported in the study of (Howieson et al., 2012), where they highlighted the lack of support in their research, suggesting that work itself is inimical to educational engagement. However, the issue primarily revolves around problems arising from the overlap of work schedules with attendance study time. In this regard, the majority of participants expressed their readiness to embrace cloud-based education that involves interaction with educators and peers, which would enhance their opportunities to reduce the required hours of attendance study.

In the next step, we attempted to assess the opportunities of employed accountants in completing successfully the professional accounting education program according to the exosystem. We posed questions regarding the nature of the program, as the profession witnessed the addition of a theoretical education track, estimated to be two years for the profession of the statutory auditor and three years for the profession of a chartered accountant. This is primarily aimed at deepening professional knowledge and the competence acquired by aspiring professional accountants in their initial professional development. The results showed that the addition of a theoretical professional education track does not affect the opportunities for employed accountants to complete successfully the program. The majority of participants stated that this measure does not pose an obstacle. However, they confirmed that their chances of completing the program are enhanced by adopting a professional accounting education program that combines both attendance and cloud-based learning. This is consistent with what we have previously emphasized regarding the importance of using cloud computing in accounting education, particularly interactive platforms that allow for immediate and real-time testing, evaluation, as well as training. This enables aspiring accounting professionals to proactively prepare for modern trends in the professional practice field (Traifi & Zirek, 2022).

In the broader context which includes the impact of factors classified within the macro level on the opportunities of employed accountants to enter and complete the professional education program, the study results revealed negative expectations regarding these factors, as indicated by the participants' responses. They expressed their belief in the lack of support and cooperation from professionals towards aspiring professional accountants, a matter that has been widely debated in the Algerian environment. Graduating students now complain about the lack of opportunities to undergo internships in professionals' offices, while professionals justify their inability to accommodate the large number of students seeking professional training in their offices. Furthermore, the majority of participants stated their belief in the expected negative impact of the complexities of accreditation procedures, a consequence of the reform phase in Algeria. A group of professionals had to wait for approximately 13 years to obtain accreditation. The results also highlighted the participants' perception of the negative influence of the legal regulation of the profession, particularly Law 10-01, on their opportunities to enter and complete the professional education program. This was expected, considering that the provisions of the mentioned law relating to the professional education program have not been implemented in reality, even after 13 years since its issuance. This can partially be explained by the heavy and inflexible legal regulation that characterizes the accounting profession in Algeria, which has resulted in delaying opportunities for many individuals to enter the professional accounting education program for a period exceeding a decade.

## 5. Conclusion

This study examines the assessment of opportunities for employed accountants to enter and complete the accounting education program related to the professions of chartered accountant and statutory auditor from an ecosystem perspective, amidst the reforms witnessed by the accounting profession in Algeria.

The factors that are likely to affect the opportunities for employed accountants to enter and complete the indicated program can be classified, according to the ecosystem model, into factors that fall within the

microsystem, factors that fall within the mesosystem, factors that fall within the exosystem, and factors that fall within the macrosystem. All factors were adapted to the Algerian environment.

Based on the responses of the participating employed accountants in the questionnaire survey, the study revealed that individual factors such as experience, desire, knowledge (especially in accounting and finance), skills, and effort contribute to the favorability of an employed accountant to enroll in and complete successfully the professional accounting program. A higher number of associate accountants are interested in the accounting profession

However, direct environmental factors within both the microsystem and mesosystem may negatively affect the opportunities of employed accountants due to the detrimental impact of work and family commitments, as well as the lack of financial resources that allow the employed accountants to temporarily leave work to pursue a professional accounting education program if they enter one. Additionally, insufficient study time and a lack of empathy toward work scheduling by employers further contribute to these challenges.

Regarding the factors related to the professional accounting education program for the chartered accountant and statutory auditor within the exosystem, the results showed that the majority of respondents from the category of employed accountants did not consider the addition of a theoretical educational track as a barrier to completing successfully the program. Meanwhile, the majority expressed that the provision the resources that ensure a combination of attendance and cloud-based education methods enhances their chances of completing successfully the program. The majority of the respondents consider that the duration of the field internship is insufficient.

In addition, the study results revealed the belief of employed accountants in the negative impact of factors within the macrosystem on their chances of completing the professional accounting education program. This is a result of the lack of a supportive culture among accounting professionals towards aspiring professional accountants in the Algerian environment, and concerns about the influence of accreditation requirements and procedures on their opportunities to enter and complete the program. Furthermore, the majority expressed the negative impact of the legal regulation of the profession embodied in law 10-01 on their opportunities to enter the professional education program.

In light of the results obtained from this study, we present the following suggestions:

- The necessity of providing full disclosure regarding the remaining entry requirements into the professional accounting education program for both statutory auditors and expert accountants.
- Taking into consideration the factors within the ecosystem that may affect the opportunities of employed accountants to successfully enter and complete a professional accounting education program, when releasing any requirement about the program and its implementation.
- Establishing subsidiary institutes spread across the national territory to facilitate the pursuit of the theoretical program.
- Taking into consideration the previous experiential learning acquired by the employed accountant through practical experience in their field, to produce the required in-person attendance hours imposed by the professional educational track.
- Adopting a blended approach that combines attendance and cloud-based education in implementing the program.
- Adopting Competency-based education as a solution to alleviate time constraints and limited seats, especially considering the controlled number of entrants into the professional accounting education program.
- Adopting flexibility in regulation related to the professional education pathway and expediting the process of determining its procedures to ensure sustainability in education, provide opportunities for future generations, and maintain trust in the profession, its members, and the regulating authorities.

## References

- Abdessamad, N. (2022). *Dapt wa tandim mihnet mohafid el hissabet fi ettachri3 el djawairi*. Dar El Houda.
- Abrams, K., Theberge, S. K., & Karan, O. C. (1999). Children and Adolescents Who Are Depressed: An Ecological Approach. *Professional School Counseling*, 8(3), 284–292. <https://about.jstor.org/terms>
- Anderson-Gough, F., Grey, C., & Robson, K. (2002). Accounting professionals and the accounting profession: Linking conduct and context. *Accounting and Business Research*, 32(1), 41–56. <https://doi.org/10.1080/00014788.2002.9728953>

- Behn, B. K., Ezzell, W. F., Murphy, L. A., Rayburn, J. D., Stith, M. T., & Strawser, J. R. (2012). The pathways commission on accounting higher education: Charting a national strategy for the next generation of Accountants. In *Issues in Accounting Education* (Vol. 27, Issue 3). <https://doi.org/10.2308/iace-10300>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard university press. [https://books.google.dz/books?hl=fr&lr=&id=OCmbzWka6xUC&oi=fnd&pg=PA3&dq=Bronfenbrenner,+U.+\(1979\).+The+ecology+of+human+development:+Experiments+by+nature+and+design.+Harvard+university+press.&ots=yzQVK3WSj9&sig=ZN-NooHiAGnErZYabzOUVV\\_0Lho&redir\\_esc=y#v=](https://books.google.dz/books?hl=fr&lr=&id=OCmbzWka6xUC&oi=fnd&pg=PA3&dq=Bronfenbrenner,+U.+(1979).+The+ecology+of+human+development:+Experiments+by+nature+and+design.+Harvard+university+press.&ots=yzQVK3WSj9&sig=ZN-NooHiAGnErZYabzOUVV_0Lho&redir_esc=y#v=)
- Cowie, B., & Khoo, E. (2018). An Ecological Approach to Understanding Assessment for Learning in Support of Student Writing Achievement. *Frontiers in Education*, 3(February), 1–13. <https://doi.org/10.3389/educ.2018.00011>
- Credé, M., & Kuncel, N. R. (2008). Study Habits, Skills, and Attitudes: The Third Pillar Supporting Collegiate Academic Performance. *Perspectives on Psychological Science*, 3(6), 425–453. <https://doi.org/10.1111/j.1745-6924.2008.00089.x>
- Executive Decree No. 12-288 dated July 21, 2012. Concerning the creation, organization, and functioning of the Specialized Institute of Accounting Education for the Accounting Profession, Pub. L. No. 12–288 (2012). <https://www.joradp.dz/FTP/JO-FRANCAIS/2012/F2012043.pdf?znjo=43>
- Howieson, C., Mekechnie, J., Hobbs, S., & Semple, S. (2012). New Perspectives on School Students' Part-time Work. *Source: Sociology*, 46(2), 322–338. <https://www.jstor.org/stable/43497259%0AJSTOR>
- IAESB. (2013). *International Accounting Standard(IES1) Entry Requirements to Professional Accounting Education Programs (Revised) Final Pronouncement*. [https://www.ifac.org/system/files/publications/files/IES\\_1\\_Final\\_February\\_1\\_2013.pdf](https://www.ifac.org/system/files/publications/files/IES_1_Final_February_1_2013.pdf)
- IAESB. (2015). *Framework for International Education Standards for Professional Accountants and Aspiring Professional Accountants*. [https://www.ifac.org/system/files/publications/files/IAESB-Framework-for\\_IES-for-Professional-Accountants-and-Aspiring-Professional-Accountants.pdf](https://www.ifac.org/system/files/publications/files/IAESB-Framework-for_IES-for-Professional-Accountants-and-Aspiring-Professional-Accountants.pdf)
- IAESB. (2016a). *IMPLEMENTATION SUPPORT MATERIALS ILLUSTRATIVE EXAMPLE ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS*. <https://www.ifac.org/system/files/publications/files/FAQ-on-IES-1-Sept-2016.pdf>
- IAESB. (2016b). *STAFF QUESTIONS AND ANSWERS IMPLEMENTATION SUPPORT MATERIALS GUIDANCE PAPER ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS*. <https://www.ifac.org/system/files/publications/files/FAQ-on-IES-1-Sept-2016.pdf>
- IAESB. (2016c). *STAFF QUESTIONS AND ANSWERS IMPLEMENTATION SUPPORT MATERIALS GUIDANCE PAPER ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS*. <https://www.ifac.org/system/files/publications/files/Perspectives-on-IES-1-Sept-2016.pdf>
- IAESB. (2016d). *STAFF QUESTIONS AND ANSWERS IMPLEMENTATION SUPPORT MATERIALS PERSPECTIVES ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS WHAT DO WE KNOW ABOUT THE FACTORS THAT INFLUENCE SUCCESS OR FAILURE WITHIN A PROFESSIONAL ACCOUNTING EDUCA*. [https://www.ifac.org/\\_flysystem/azure-private/publications/files/Perspectives-on-IES-1-Sept-2016.pdf](https://www.ifac.org/_flysystem/azure-private/publications/files/Perspectives-on-IES-1-Sept-2016.pdf)
- IAESB. (2019). *Handbook of International Education Pronouncements*. International Federation of Accountants(IFAC). <https://www.ifac.org/system/files/publications/files/Handbook-of-International-Education-Standards-2019.pdf>
- IFAC. (2022). *IFAC STRATEGIC PLAN: 2022 AND BEYOND*. [https://www.ifac.org/\\_flysystem/azure-private/publications/files/IFAC-Strategic-Plan-2022-Beyond.pdf](https://www.ifac.org/_flysystem/azure-private/publications/files/IFAC-Strategic-Plan-2022-Beyond.pdf)
- Joint ministerial decision dated March 7, 2017. Establishing the modalities for the conduct of the training, as well as the specialized training programs leading to obtaining the diploma of a chartered accountant and the diploma of a statutory auditor, (2017). <https://www.joradp.dz/FTP/JO-ARABE/2017/A2017045.pdf?znjo=45>
- Law No. 10–01 dated June 29, 2010. Pertains to the professions of the chartered accountant, the statutory auditor, and the certified accountant, Pub. L. No. 10–01 (2010). <https://www.joradp.dz/FTP/JO-FRANCAIS/2010/F2010042.pdf?znjo=42>
- Littleton, A. C. (1942). The Meaning of Accounting Education. *The Accounting Review*, 17(3), 215–221. <https://www.jstor.org/stable/239890>
- O'Toole, L., Hayes, N., & Mhathúna, M. M. (2014). A Bio-ecological Perspective on Educational Transition. *Procedia - Social and Behavioral Sciences*, 140, 121–127. <https://doi.org/10.1016/J.SBSPRO.2014.04.396>
- Pae, H.-K. (2003). Chapter Nine: Global Education from an Ecological Perspective: To Become a Global Citizen. In *Counterpoints* (Vol. 218, pp. 139–161). <https://doi.org/https://doi.org/10.2307/42978157>
- Sarvan, S., & Muslu, L. (2022). In the eyes of adolescents, is the pandemic an obstacle or a gain? A qualitative study based on the ecological theory. *Journal of Pediatric Nursing*, 66, 15–22. <https://doi.org/10.1016/j.pedn.2022.05.012>

- Stewart, E. B. (2007). Individual and School Structural Effects on African American High School Students' Academic Achievement. *The High School Journal*, 91(2), 16–34. <https://doi.org/10.1353/hsj.2008.0002>
- Traifi, N., & Zirek, S. (2022). The Reality of Using Cloud-Computing Applications in Activating Accounting Education: An Exploratory Study of the Opinions of Finance and Accounting Department professors in the University of 20 August 1955 Skikda. *Revue Les Cahiers Du POIDEX*, 11(02), 67–89. <https://www.asjp.cerist.dz/en/downArticle/195/11/2/209059>
- Xue, J. (2012). The Construction of Higher Education Entrepreneur Services Network System a Research Based on Ecological Systems Theory. *Physics Procedia*, 25, 1757–1760. <https://doi.org/10.1016/J.PHPRO.2012.03.307>