People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

Oran Graduate School of Economics

Educational handout

Courses in English Writing Skills for Research in Economics

for First, Second and Third Year Doctoral Candidates Specialized in Energy Economics and Digital Economics.

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Academic year 2023/ 2024

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Introduction

This handout is a collection of courses intended for first, second and third year doctoral candidates of Oran Graduate School of economics specialized in Energy Economics and Digital Economics. The upper intermediate to advanced level in English language skills is required.

The handout includes six parts.

The first part, Research in Economics, is composed of definitions of various concepts related to research in economics and its types, research methods and methodology.

The second part, entitled Research Papers in Economics, tackles the writing of a research paper in economics. In this part, examples from multidisciplinary papers involving economics are given.

The third part is devoted to the APA 7th Referencing and Citation Style. In these three parts, candidates are constantly tested through "over to you" tasks. A "test-teach-practice" approach is applied.

An "Over to you" type of exercise is proposed in the aforementioned parts to allow the candidates the application of the theoretical concepts by illustrating from their research subject.

In the fourth part, namely; Grammar in context, grammatical, syntactic and lexical features of research papers are given.

The fifth part is named Graphic Representations. In this part, the candidate is given different ways of naming, describing, explaining and referring to a graph in a research paper or dissertation.

Parts four and five are presented at the outset to illustrate and highlight various skills needed to produce a research paper in English.

In the sixth part, exercises with suggested answers are given as a practice of parts four and five.

The handout incorporates a references section.

PART I : Research in Economics

Part I : Research in Economics

Over to you

Read the following definitions and examples of basic concepts of research in economics, discuss and back up with examples from your own subject of research.

1. Research Methods and Research Methodology

Procedures and methods involved in carrying out a research activity are provided by research methods. It primarily focuses on how to do research, but it also offers precise and comprehensive methods for starting, conducting, and finishing research projects. The general procedures or rules for carrying out research are the subject of research methodology. It can't tell you exactly how to carry out a particular, individual study; it can only offer general guidelines for organizing, planning, designing, and carrying out research.

Conducting practical and quantitative economic research requires a number of necessary backgrounds. Prior to conducting any research, the researcher should possess a strong foundation in economic theory, quantitative methods (econometrics and statistics), data analysis techniques, and sufficient knowledge in microcomputer technology.

2. Types of Research

2.1. Applied versus Basic Research

The main factor separating applied from basic research is the focus on its application. This differentiation arises from the study of applied vs basic science. Engineering and physics are two examples. Without considering any real-world applications, basic research focuses on identifying or developing the fundamental or basic relationships within a discipline. On the other hand, applied research is typically carried out in order to address a specific, tangible issue.

2.2. Descriptive versus Analytical Research

Based on the question it poses, descriptive and analytical research can be distinguished from one another. The goal of descriptive research is to define, describe, or identify an issue, whereas

analytical research is to determine how or why something came to be that way. Descriptive research describes things by classification, measurement, and comparison. In analytical research, cause-and-effect interactions are typically of interest.

As an illustration: Analytical study explains why and how the U.S. trade balance moves in a specific way over time, whereas descriptive research examines the changes of the country's foreign trade balance between 1974 and 1995.

Another example: Starting from late 1986, the value of U.S. dollar value has steadily increased against the Japanese yen and German Mark. Examining the magnitude of this trend in the value of U.S. dollar is another example of descriptive research; while explaining how and why this surge in the value of the U.S. dollar is occurring. If one attempts to explain how and why this surge in the value of U.S. dollar is going to affect the U.S. economy, as well as the economies of Japan and Germany, this is another example of analytical research.

2.3. Disciplinary, Subject Matter and Problem Solving Research

We refer to research "designed to improve a discipline" (Johnson, 1986) as disciplinary research. It focuses on the discipline's theories, connections, and analytical methods and approaches. Examples include social research or economic research.

Within a discipline, research "on a subject of interest" is what we mean when we refer to subject-matter research. For instance, research in international or resource economics. Research "designed to solve a specific problem for a specific decision maker" is what we mean when we refer to it as problem-solving research. It frequently involves multiple disciplines. For instance, a multidisciplinary research combining sociology, economics, and civil engineering was conducted to determine the need for new mass transit. Or a multidisciplinary study of new medical surgery involving physicians, engineers, and economists.

3. Scientific versus Non-scientific Methods of Gaining Knowledge

Having finished a brief discussion of the meaning of research and related terms, we are now ready to take the discussion of the scientific method. Let us start by stating that there are essentially two up methods of obtaining knowledge: scientific and non-scientific methods. Let us start with non- scientific method.

3.1. Non-Scientific Method

The first method of gaining knowledge is through senses, experience, intuition, and revelation, all of these may be classified as non-scientific methods. Some gain knowledge through physical senses: sight, sound, touch, taste, and smell, and experience.

Senses and Experiences

Some knowledge is obtained by senses and experiences. When one gets too close to a fire and gets burned once, he or she gains the knowledge that it is dangerous to be too close to the fire. Others gain knowledge by intuition or revelation.

Intuition

Some rely on intuition as a source of knowledge. Intuition is the strong hunch or feeling that what one perceives to be the case is indeed true. If one strongly believes what one perceives is real and true, knowledge thus is obtained. While there is no reason to doubt the truthfulness of the knowledge obtained by intuition, like knowledge obtained from senses and experiences, it is subjective.

Revelation

Some knowledge are obtained by revelation. Revelation is the presentation of the truth from a supernatural source, such as deity. Knowledge acquired via experience, intuition, revelation, and even measurement remain as private knowledge. The validity of knowledge obtained through nonscientific methods cannotbe subject to objective testing.

3.2. Scientific Method

The second method of obtaining knowledge is the scientific method. This method of gaining knowledge is learning by reasoning. It is considered today to be the most reliable method of gaining knowledge.

In contrast with the scientific method, the validity of knowledge obtained by scientific method can be subject to testing.

In all science, research proceeds within the framework of the scientific method. According to Lastrucci, "science may be defined as an objective, logical, and systematic method of analysis of phenomena devised to permit the accumulation of reliable knowledge". His definition of science contains all essential elements of scientific methods. First it defines science as the method of analysis. Second, it highlights three major characteristics of the scientific methods as objective,

logical and systematic.

Let's explore the meaning of these three characteristics. First, scientific method is objective, not in the sense of being value free. But it is objective in the sense that the analysts are not biased or prejudiced or subject to personal whims.

Second, scientific method is logical in the sense that science follows logical reasoning. Logical reasoning is thinking in reasonable fashion. It is sufficient to point out two types of reasoning process, namely deductive and inductive logic.

Third and finally, the search for truth in science is systematic. This means that researchers follow a systematic set of procedures through which knowledge is gained.

4. Deductive and Inductive Logic

Logical process

There are two types of reasoning process, namely deductive and inductive logic. Deductive logic is the process of reasoning from general conditions or premises using assumptions to specific conclusions. Economic theory rests largely on deductive logic. We establish a set of assumptions about conditions and behaviors to arrive at conclusions throughlogical process.

Examples: utility maximization in the consumer behavior; profit maximization in the producer behavior.

Inductive logic is reasoning form the specific outcomes to generalized conclusions. This is usually done by observing many individual experiences and cases to formulate a general conclusion. The inductive logic of reasoning is followed in most empirical economic research.

5. Hypothesis, Theory, and Law

We *deduce* from facts and assumptions to a hypothesis. "A hypothesis is a tentative assertion of a relationship between factors or events that is subject to verification or rejection." In short, a hypothesis is a testable proposition of the relationship between oramong variables.

How is hypothesis related to theory? And theory to law?

Hypothesis is a single statement that attempts to explain a single interesting or puzzling phenomenon. In other words, a hypothesis is a testable proposition on an interesting or puzzling phenomenon. It usually takes the form of an educated guess or conjecture. Usually the hypothesis is based on facts and assumptions.

Theory is a whole system of thought (or systematic explanation) that refers to many phenomena and whose parts are related to one another in deductive, logical form.

Law: A theory that has been subjected to extensive testing over time and across space, and that has won virtually universal acceptance, is called a law. For instance, the law of supply and demand refers to the commonly observed phenomena that, in a free market, the forces of supply and demand generally push the price toward its equilibrium level, the priceat which the quantity supplied and quantity demanded are equal. Another example is the law diminishing marginal returns.

6. Language of Scientific Method

We first learned that the essential element of science lies in its method of analysis, and that the three main characteristics of the scientific method are that it is objective, logical, and systematic. Then we learned about the process of scientific method beginning from, say, deductive logic to hypothesis, from hypothesis to theory, and from theory to law. Now we need to learn the operational aspects of the scientific method by focusing on terms and concepts of research. In particular, we need to learn basic concepts such as assumptions, variables, parameters, and functional forms. Finally, we need to learn something about ceteris paribus.

7. Assumption

In our study of gasoline price hike, we first assume that consumers are "rational" in that their decision-making in the purchase of gasoline is consistent with maximization of consumer satisfaction. Likewise, suppliers of gasoline (retail gasoline merchant) are also assumed to be rational in that their decision-making in pricing, inventory, etc. is consistent with profit maximization. We theorize that the retail gasoline price is jointly determined by the forces of demand and supply of gasoline. On the demand side, the quantity of gasoline demanded depends inversely on the retail price of gasoline, positively consumer income, and a host of other factors. On the supply side, the quantity of gasoline supplied depends positively on the price of gasoline price, cost of production (including price of crude oil and refinery cost), and a host of other factors, including the gasoline tax and environmental cost. Once we introduce the role of assumption in the research, it appropriate to further introduce related basic concepts of research: variables, functional relationship and parameters.

8. Variables

A **variable** is a quantity of something which varies and you are interested in. Price of gasoline is a variable to an economic analyst studying the recent gasoline price increase in 1996 but not to most motorists and not even to an economic analyst studying the relation between stock and bond prices.

The researcher chooses his or her variables. Choosing variables correctly is one of the first essential step of carrying out research. Therefore, choose variables with extreme care. Tochoose variable correctly, one has to know the two types of variables: the dependent variable and independent variable.

8.1. The dependent Variable

The dependent variable is that quantity whose change the researcher wants to find out, explain, or predict. In the cause-effect relationship, the effect variable is the dependentvariable. In the study of the demand for gasoline, the quantity of gasoline demanded is the dependent variable, because the quantity of gasoline demanded changes in response to changes in gasoline price, consumer income, and other demand side factors. This researcheris ultimately interested in measuring the impacts of these changes on gasoline price In some cases, however, the dependent variable is not quantity, but represents a qualitative choice. Anexample of the latter is decision to buy or not; or marry him (or her) or not.

8.2. The Independent Variable

The **independent variable** is a variable whose effect upon the dependent variable one is trying to understand, explain, and predict. In the cause-effect relationship, it is the cause variable. Using the study of the demand for gasoline, the independent variables are the price of gasoline, consumer income, and other variables such as fuel efficiency and population characteristics.

9. Correlation and Causation Relationship

When variables are related in certain fashion, there are two kinds of relationships. When one variable is related with another variable, we say that there exists correlation between the two variables. More precisely, correlation or more precisely simple correlation measures the degree of

a linear association between the variables. When one measures correlation among more than two variables, one measures partial correlation.

When analysts are interested in measuring the degree of correlation. If they move together in the same direction, there is a positive correlation; if they move in opposite directions, there is negative correlation.

The share of health care spending in GDP and the relative price of health care are positively correlated. More examples of correlation.

When there exists a cause and effect relationship between two or more variables, we say that causation runs from cause variable to effect variable. Causation then means changes in one variable brings about changes in another variable. The cause-effect relationship is often called the dependence relationship.

Using the example of share of health-care spending out ofGDP and relative price of health-care, health care share is the effect or dependent variable; and the relative price of health care is cause and independent variable. Does that mean that the health care share is ways the dependent variable and the relative price of healthcare is always the independent variable? In other words, is the dependence or causality inherent in the variable themselves? Obviously, the answer is no.

But then *how* does a researcher decide on which variable depends on what variable? It is deliberately chosen and imposed by researchers, usually from theory or existing studies on the subject. Importance of determining the causal-relationship in research: Art of specifying causal relationship? Experience and knowledge?

In the study of gasoline demand, the quantity of gasoline demanded is assumed to depend on the price of gasoline. There are two reasons for the direction of causality running from the gasoline price to the quantity of gasoline demanded, but not the other way around. When we study the individual demand for gasoline, the price of gasoline is determined by aggregate decisions of all consumers and suppliers. When there are many consumers in the market, a reasonable assumption, the role played by an individual consumer is small enough to be ignored in the determination of retail gasoline price. Analysts then are interested in studying how an individual consumer responds to changes in gasoline price.

When economists are interested in studying the feedback effect from aggregate quantity of gasoline demanded to gasoline price, they build simultaneous equation model where the forces of aggregate demand and supply are allowed to interact in determining the gasoline price. -two stage method of estimating gasoline price. Regression analysis to study the dependence relationship.

Most economists consider economics as a science because they follow the scientific method. Nobel Prize in natural science (physics, chemistry, and medicine). Some economists argue that their discipline does not qualify as science for specific reasons and ensuing controversy. Regardless of the merit or demerit of whether economics should be viewed as science or not, it is true that economic research uses the scientific method. It is good for us to learn the language and process of the scientific method.

Part II: Research Papers in Economics.

Part II: Research Papers in Economics

1. Objectives, Content and Structure

Why does a researcher write articles?

- To spread it widely and disseminate their research;
- To protect their scientific findings and proffering their contribution to the academic field; To find employment in the academic field;
- To win research grant, like a scholarship for instance;
- To create and further their research reputation.
- What determines the content and the structure of your article?

The selected topic :

- The potential reading audience; (the target audience, therefore, choose a journal that best reflects your potential readership)
- Previous research in the same field or for the same topic.
- What are the general factors considered by editors before the publication of your article?
- Originality of the ideas;
- Significance of the ideas;
- Quality of the writing;
- The guide to journal style. It is critical to take into account the journal style guide and adhere to its requirements. For more on margins, referencing styles, fonts, and spacing, visit the journal's website.

How to distillate your ideas from thesis to paper(s)?

- Synthesis by title ;
- Refining your research work by abstract;

What does it entail?

1.1 Synthesis by Title

You narrow your ideas down to the central idea(s) of your work through the right title(s).

James Hartley (2008) distinguished between thirteen types of titles used in the academic article. The types vary according to the discipline. He categorized these titles into three groupings as follows:

1. The colon

1.1 Title with colon (short: long)

Example:

- Divergent pathways: the road to higher education for second-generation Turks in Austria.

1.2 Title with colon (long: short)

Example:

- The influence of curricula content on English sociology students' transformations: the case of feminist knowledge.

1.3 Title with colon (equal: equal)

Example:

- Digital Innovations in Public Administrations: Technological or Policy Innovation Diffusion?
- Let's stop the pretence of consistent marking: exploring the multiple limitations of assessment criteria.

2. The single sentence

2.1 Short (less than 8 words)

Example:

- Digital Connectivity and African Knowledge Economies.

- Reforming university autonomy in Kazakhstan.

2.2 Medium (8-15 words)

Example:

- Human Resources Training Effectiveness of Enterprises in the Digital Content Industry in Vientnam.

2.3 Long (16+ words)

Example:

- A structural model of the relationship between student-faculty interaction and cognitive skills development among college students.

3. The question

3.1 Basic

Example:

- What brings medium sized enterprises to digitization?
- Digital Innovations in Public Administrations: Technological or Policy Innovation Diffusion?

3.2 Question short followed by long text

Example:

- Informed choice? How the United Kingdom's key information set fails to represent pedagogy to potential students.

3.3 Question long followed by short text

Example:

- Does independent research with a faculty member enhance four-year graduation and graduate/professional degree plans? Convergent results with different analytical methods.

Over to you

Which type of title would you choose for your article? Give examples of titles which conform to these styles.

1.2 Synthesis by Abstract

Refining your ideas and conclusions can be accomplished by creating an abstract. This 200–300 word document offers a succinct summary or description of the paper. Different types of abstracts can be used for various objectives.

Descriptive - Informative – mixed

How to create an abstract?

Brown's series of questions (in Murray, 2013 : 131):

- Who are the intended readers? List three to five of them by them.
- What did you do? (50 words)
- Why did you do it? (50 words)
- What happened [when you did that]? (50 words)
- What do the results mean in theory? (50 words)
- What do the results mean in practice? (50 words)
- What is the key benefit for readers? (25 words)
- What remains unresolved? (No word limit)

How do these questions help the researcher to write a comprehensive abstract and to develop an outline for your paper?

- Take the keywords in each sentence of your abstract.
- Write them into section headings.
- Use them in the topic sentence and throughout the section.
- Define and explain the terms, as needed. (Murray, 2013, p. 136)

When do you write your abstract? before or after the whole article?

Many researchers would rather write the abstract after finishing the article. Composing it first has the benefit of helping you build an argument's structure. Nonetheless, a post-writing abstract will more accurately represent your work and ought to be incorporated into your final manuscript for publication.

Examples of abstracts in:

Market fundamentals, competition and natural-gas prices (Hulshof, Maat and Mulder, 2015, p. 2)

After the liberalisation of the gas industry, trading hubs have emerged in Europe. Although these hubs appear to be liquid market places fostering gas-to-gas competition, the efficiency of the gas market remains a topic of interest as a fair share of gas is still traded through long-term contracts with prices linked to the oil price while the number of gas suppliers to the European market is limited. In order to assess the efficiency of the gas market, we analyse the day-ahead spot price at the Dutch gas hub over the period 2011–2014. We find that the oil price had a small positive impact on the gas price. Changes in the concentration on the supply side did not affect the movement in gas prices. The availability of gas in storages and the outside temperature negatively influenced the gas price. We also find that the gas price was related to the production of wind electricity. Overall, we conclude that the day-ahead gas prices are predominantly determined by gas-market fundamentals. Policies to further integrate gas markets within Europe may extend this gas-to-gas competition to a larger region.

Digital Innovations in Public Administrations: Technological or Policy Innovation Diffusion? (Attour and Chaupain-Guillot, 2020, p.195)

Defined as digital innovation in public administrations, electronic government (e-government) diffusion has been studied by two bodies of work in the literature. The first has mainly focused on e-government, drawing on the theory of innovation diffusion as a general framework, while the second has mainly applied the administrative policy diffusion framework to the specific case of American states. Inspired by institutional theory, this second framework has not been applied to the case of European local governments. Furthermore, each framework has been mobilized by studies examining separately one of the two levels of e-government diffusion: website

implementation or website services development. The aim of our paper is to examine if technological and administrative policy innovation factors impact the level of e-government development by municipalities. For that purpose, the paper collected data from a sample of 5,108 municipalities located in the French Grand Est region.

2. Types of Papers in Economics

What are the types of papers in Economics?

In economics, we can distinguish between two types:

- Empirical papers (articles)
- Theoretical papers

What is common to both types?

- Title
- Abstracts
- Sections with subtitles or subheading

2.1 Title

It reflects the subject of your paper and the question it tries to answer.

- Use two or three keywords that would apply to your paper.
- It may be composed of title and subtitle.

Example

- The Economic Costs of Conflict: A Case Study of the Ukraine.

Note: Avoid too general titles or insufficiently descriptive.

Example:

- An Analysis of Retirement Plans

2.2 Abstract

What is an abstract?

- In one paragraph, figure out one central and novel contribution of your paper.
- The ideas must be clear and concrete
- Help your readers to skim by giving the most important ideas in this very abstract. Distilling your one central contribution will take some thought. It may cause some pain to throw out content.

Example on Corona Virus 19.

DON'T WRITE

"I analyzed data on the Covid 19 epidemic and found many interesting results."

WRITE rather

I estimate behavioral response using a new instrumental variables strategy, instrumenting for COVID 19 prevalence with distance to the origin of the virus. I find low response in average, consistent with existing literature, but larger responses for those who face lower non-COVID 19 mortality and for those who are richer.

- Although you don't use journalistic style but organize the paper in "newspaper style"
- Use triangular style

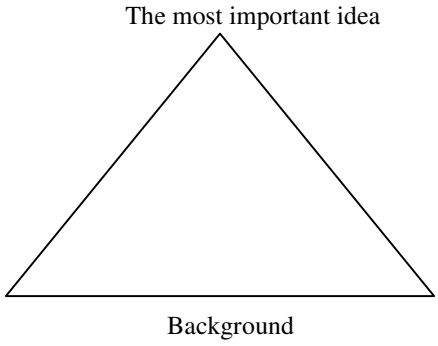


Fig 1. Writing Triangular Style

i.e, start with the most important part then fill in background later.

What is not common to both types?

In empirical papers, the sections include:

- Introduction (literature review)
- Data
- Methodology/model
- Results
- Conclusion

In theoretical papers, the sections include:

- Introduction: where we find a section introducing the basic model
- Subsections and sections outlining potential situations that could be revealed or proposed as the basic model is refined and extended. It also contains a great deal of mathematics, with the proofs typically placed in an appendix[1].

2.3 The Introduction Section

It contains two kinds of information:

- What the paper will do eg: In this paper I will estimate the effect of X on Y
- The contributions made by the paper or the difference or extension improvements upon existing studies.
- It also contains a literature review:

  Determining what has and has not been done on the subject. You give a brief overview of the prior research on the subject, point out any gaps, issues, or controversial topics (public

[1] A section at the end of a paper including information that is too detailed which is cumbersome to be included in the body. It is not an essential part of the text, it contains supplementary material that helps understanding the research problem. It contains a descriptive title.

dispute, intense debate, etc.) in the existing research, and then describe how your article fills these gaps or addresses the issues raised.

- It indicates briefly the limits of your paper.
- It almost always ends with a table of content (in section one I will do this, in section two I will demonstrate this …etc)

Optional information:

- The principle findings;
- The general subject on the paper. Eg: the paper is on the impact of a particular change in the minimum wage, it may or may not begin with a paragraph discussing the minimum wage in general.

What is not included?

- The motivation of the writer, why he or she came to be interested in the topic;
- The weaknesses of the paper (trial or judgment on quality and errors in conducting the study).

Some Suggestions for points to cover in the introduction section

Introduction/Motivation

In this section, you clearly state:

- Upper limit is a single-spaced page or two;
- The question you are trying to answer (a smart method to do this is to directly state the hypothesis to be tested);
- The reason this issue is important (is it an unproven theoretical result? A crucial question of policy? Why should we care from an economic perspective?). A lengthy study of the literature is not appropriate here. Just briefly explain the uncertainty if, for instance, there has been discussion of this subject in the literature. For example, you may want to point out the range of previous results;

- It's a good idea to use this part to surprise or confound the reader's intuition in order to pique their interest in reading the rest of the work. Humans are inherently inquisitive. If you can invoke the curiosity of the reader with a puzzle in your introduction, it will make for a much more engaging reading;
- Remember to specify your contribution in that part. What response are you giving to the query? It is important to specify if you are testing a model, evaluating a policy change or program, as well as the data you are utilising (but only in a preview manner!).;
- What are the primary outcomes? Give a brief explanation of how your findings differ from earlier research and their consequences. If your analysis is inconclusive (which is acceptable!), be honest and forthright about it and briefly explain why.

Examples of the introduction section from articles:

Algerian Energy Policy: Perspectives, Barriers and Missed Opportunities (Haddoum, Bennour and Zaid, 2018, p. 1)

The world of energy is facing unprecedented uncertainty. The global economic crisis of 2008–2009 has plunged energy markets around the world into turmoil and the pace at which the global economy is recovering will impact the energy outlook for the future. But it will be governments, and how they address the dual challenge of climate change and energy security, that will shape the future of energy in the longer term. Despite the uncertainties of the energy market and the falling oil prices, Algeria continues to make huge efforts to bring energy access to its people. Electricity needs are rising very rapidly, with an average increase of 6% over the ten last years. Lower oil prices are already having a large impact on the deployment of renewable energy technologies in the power tor, even if policymakers keep on providing the necessary market rules, policies, and subsidies. Indeed, the integration of renewable energies into the national energy mix is a major challenge for the preservation of fossil fuels, the diversification of electricity production chains, and the contribution to sustainable development. Algeria is also committed to reduce its greenhouse gas (GHG) emissions by 2020–2030. An incentive mechanism based on feed-in tariffs is established by regulation since 2014. A Renewable Energy Fund was also planned to be financed through a 1% levy on oil revenues. Despite all these efforts, the RE

Program is slow to materialize. This paper examines some of the barriers that explain this shortcoming and advocates a better energy demand management and pricing policy.

Analysis of the State of E-commerce in Algeria (Chaabna and Wang, 2015, pp. 44-45)

The considerable development in information and communication technologies in the past few decades has significantly changed the ways in which business is conducted around the world. Amongst these, e-commerce, brought about by the Internet, is one of the most significant scientific accomplishments since the industrial revolution, with a deep influence on mankind (Qin, 2009). It greatly increases the productivity and efficiency of economic operations, lowers economic operating costs and makes possible many things earlier deemed impossible. It also influences people's lifestyles and social aspects and therefore changes their world outlook and methodology (Qin, 2009). E-commerce means different things to different people, rendering a clear-cut definition somewhat problematic (Yousefi, 2009). As such, there is no standard definition for the term and different organizations have defined it in diverse ways. From a trading perspective, e-commerce refers to the exchange of products and services via electronic networks that may include value-added networks (VANs), the Internet and corporate intranets and extranets (Le & Koh, 2002). From an information exchange and activity perspective, e-commerce encompasses a wide range of pre- and post-transaction exchanges that facilitate seller and buyer discovery, product and service search, payment settlement, order fulfillment and customer care. In other words, e-commerce refers to the electronic execution of all transactions supporting commerce among buyers, sellers and third-party intermediaries, such as financial institutions (Le & Koh, 2002). E-commerce is no longer an alternative but an imperative. At the microeconomic level of retail, wholesale and labour market transactions, it has an enormous impact on the performance and productivity of companies and the economic welfare of consumers and workers. It lowers costs and increases the choices available to consumers and firms (Heil & Prieger, 2010). These microeconomic changes work their way through the economy and ultimately influence macroeconomic conditions. Some of the macroeconomic gains from e-commerce are static in nature, whereas others are dynamic (Heil & Prieger, 2010). The static gains come from the efficient allocation of existing resources; for example, increases in productivity increase a nation's GDP. In addition, the continued expansion of e-commerce may lead to downward pressure on inflation through greater competition, cost savings and changes in sellers' price-

setting behaviour (Willis, 2004). Dynamic gains alter the path taken by national growth. By lowering the cost of transferring and employing knowledge, greater R&D and innovation efforts re enabled, which are crucial to long-term economic growth (Heil & Prieger, 2010; Prieger & Heil, 2010). Algeria is the tenth largest country in the world by land area and has a population of approximately 35 million. The country's oil and gas reserves have made it one of the wealthiest nations in Africa. The Algerian economy is www.ccsenet.org/ijms International Journal of Marketing Studies Vol. 7, No. 2; 2015 45 heavily dependent on the petroleum and natural gas sectors; other sectors are less developed and suffer from negligence. However, the government began an economic reform programme in 1994, focusing on macroeconomic stability and structural reform, which has met with some success in certain sectors. In Algeria's case, giving more attention to the non-oil sectors, such as e-commerce, is very important because such sectors exert a great influence on economic growth and have long-term benefits. The country has one of the highest teledensities in Africa, with fixed-line penetration of around 8% and mobile penetration close to 100% (Lange, 2012). Meanwhile, the number of Internet users in Algeria has greatly increased, from 50,000 users in 2000 to approximately 6,700,000 in June 2014, with a broadband penetration rate of 17.2% according to Internet usage statistics for Africa (Internet World Stats, 2014). The development of e-commerce and building an effective platform for it presents a real opportunity for the country to become a member of the information society and make e-commerce one of its main, vital sectors. Therefore, this study aims to investigate the country's current status in e-commerce development and to identify the barriers it faces. E-commerce has been widely discussed in the academic and practitioner literature, focusing on both developed and developing economies. These studies are a mix of empirical and non-empirical works. They have employed several theoretical frameworks from various disciplines, such as information systems (IS), management and social sciences. Nevertheless, there isa lack of literature investigating e-commerce in Algeria and defining the most significant prerequisites for successful development. Said (2011) focused on the role of e-commerce in the growth of the Algerian economy. Another study, conducted by Medjedel (2013), surveyed local SME managers' perceptions and attitudes towards e-commerce in the Ghardaia province in Algeria. Neither of these studies investigated the state of e-commerce in Algeria or defined the main factors for successful development. Therefore, the research questions addressed here are: What is Algeria's current position in implementing e-commerce? Why has it not taken off there as

expected and what are the barriers that have caused the country to lag behind many others with similar economic conditions? To answer the above questions, Porter's diamond framework is employed in this research to express and cover the main factors affecting the development of e-commerce in Algeria. The model has been widely used in the literature to determine the status and measure the competitiveness of particular nations, industries (Al-Mamun et al., 2013), mobile communications (Sun et al., 2003), e-commerce (Yousefi, 2009), education (Sum & Jessop, 2013), and firms (Rugman et al., 2012), as well to identify the barriers experienced by industries and companies which have failed (Aghdaie et al., 2012; Chen & Ning, 2002). Porter's diamond framework identifies four sets of factors that are necessary for the sustained performance of an industry in a nation: national factors; related and supporting industries; firm strategy, structure and rivalry; demand conditions. These determinants, individually and as a system, form the context in which a nation's firms can compete internationally. Thus, according to Porter, the availability of factors of production, strong demand, supporting industries and firm strategies that encourage innovation are prerequisites for a successful national industry. A deficiency in any of these determinants weakens the basis of the industry and its international competitiveness. Therefore, the framework can be used to evaluate the conditions required for an industry to be successful in a particular nation (Chen & Ning, 2002), such as e-commerce in this specific case. This research is exploratory in nature: it is based on a literature study and contains no direct empirical research. The research issue is investigated based on qualitative information and early evidence related to e-commerce in Algeria. The data used for the analysis were collected from secondary sources and were taken from different time periods. The main sources are statistical survey reports on e-commerce, such as Internet World Statistics reports, the academic literature, industry reports and reports taken from some other governmental organizations, such as the National Office of Statistics and research centres in Algeria. The rest of this paper is organized as follows. Section 2 illustrates the research framework and provides a literature review. Section 3 adopts Porter's model to provide an appropriate framework for the economic analysis of e-commerce in Algeria. Section 4 presents conclusions and some recommendations.

2.4 The Literature Review Section

Separate it off or otherwise mark it so that readers have the option to skip it.

- Give it a title that accurately describes this section rather than calling it a "literature review";
- For instance: if your research work focuses on the question, “Do fiscal laws Constraint Entrepreneurship?”;
- You may title your literature review section “Fiscality in Algeria”.

I explain:

The literature review has two important functions:

Function 1:

- Demonstrating knowledge of academic literature on your subject Then, without delving into the specifics (statistics, methodology, conclusions, etc.) of earlier research, begin to think about the fundamental fact by summarising the parts of the literature that are most pertinent to your issue.
- It is not necessary to cite all the papers on the same topic you work on. Choose the 4 to 5 closest current papers and operate with priority giving proper credit to people who deserve it. (the main point of the article and how does it relate to your topic? Do other authors offer a similar position? An opposing one?

Function 2:

- To inspire you and lay the foundations of your paper;
- You should clarify the specific topics you plan to discuss, the concepts you use, and the strategy you will follow in light of earlier scholarly works;
- By drawing on such sources you can find sanction (official permission or an approval for an action) for your own approach and invoke the authority of those who have written on the topic before you;
- For example: If the main contribution of your paper is to extend an existing model, you can then focus your review on a discussion of the models used in other papers. Organize your review along those same lines. For example, you may first describe the papers that use the

model you will extend. You may then describe the papers that have extended that model in a certain way.

Both functions will pull in opposite directions:

The first is to incorporate as many sources as you can, and the second is to narrow down your selection to those that are pertinent to your point of view.

When you write it, you can start by giving a brief general assessment of the literature.

Eg:

- It is abundant,
- There is not much there,
- Most topic focus on methodological issues,
- Data problems beset research on this topic (trouble, enclose)
- Most studies look at X
- Little has been done in the last thirty years …

Some suggestions for points to cover in the Literature Review Section:

- This section should basically consist of two brief parts;
- Try to keep the paper to no more than two single space pages;
- The first section should address prior research that is directly relevant to your work (not every single paper written on the topic). The review need not only be topical, but can include research that employs the same methods you are using, analyzes a similar model, uses the same dataset, etc;
- Remember that your main contribution will be to the economics discipline. Thus, the majority of your work should be able to be related to earlier economics articles! It is fine to cite a few publications from another discipline, such as epidemiology, that look at a relevant problem if you are working on an interdisciplinary topic (like health), but the majority of the evaluation will be dependent on how your work relates to earlier

economics research. Thus, make sure the majority of the papers in your literature review come from economics journal;

- A fuller explanation of your contribution should be provided in the second section. You should talk about how your method differs from previous approaches: Is it new data? An updated model? An updated strategy of identification? Are you responding to a query in a general or targeted manner? It is helpful to explain in detail how you are enhancing an earlier work. In this section, you should consider the following external validity issues creatively: Are your results applicable to a population or institutional environment and does it differ from prior research, and could this be the reason your findings differ?

Example of this section is taken from the following article:
Cultural interpretation of E-commerce Acceptance in Developing Countries: Empirical Evidence from Malaysia and Algeria (Belkhamza, Seyed Azizi, 2009, pp. 200-203)

Culture and information and communication technologies

The study of the relationship between culture and information technology has taken several directions in cultural anthropology. The reference discipline of anthropology provides additional insight as well as support for focusing on the relationship between cultural and information technology. Anthropologists like Bertolotti (1984) points out that the culture of a country or region greatly affects the acceptance of technology through its beliefs and values about modernization and technological development. Thus, ignoring the cultural context can result in delays or, at worse, failures in information technology adoption process (Matta and Boutros 1989). Straub (1994) suggests that cultural factors have a significant effect on technology diffusion process ranging from evaluation to adoption, use and performance. Burn (1995) believes that cultural values affect the efficacy of technology transfer across national boundaries. Particularly, culture is considered to be the most important factor in technology transfer from industrialized countries to developing ones. As the way technology is perceived and used in organizations is embedded in certain cultural environment, successful information technology implementation across cultures addresses both the technological readiness and the wider cultural and national setting within which the organization operates (Cummings and Guynes, 1994; Tricker, 1988; Robey and Rodriguez-Diaz, 1989).

Cultural Interpretation of E-Commerce Acceptance in Developing Countries

Limaye and Victor (1991) argue that although information technology in business organizations around the world would converge, the conveyed meaning and the outcomes of information technology use may remain culturally oriented. There have been ample evidences in information systems literature on cultural differences regarding to the perception and use of information technology, and the way it is managed and transferred. Since information technology design conveys the cultural elements inherent in its environment, successful information technology deployment, development, user acceptance and use in a different culture would require understanding of the cultural factors that account for the possible gaps in related behaviors (Hofstede, 1980).

Understanding behavioral beliefs and attitudes

According to Ajzen and Fishbein (1980), external variables influence beliefs associated with performing a behavior, which in turn shape attitudes toward performing a behavior. Attitude, however, influences the behavior itself. As articulated in the theory of reasoned action (TRA), these relationships will be predictive of behavior when the attitude and belief factors are specified in a manner consistent with the behavior to be explained in terms of time, target and context (Ajzen and Fishbein, 2005; Fazio and Olson, 2003). Within the information technology management literature, these ideas have taken shape in the form of technology acceptance model (TAM), which has been widely applied to understand attitude about the use of technology, and to predict the adoption and use of information technology. The attitude construct in TAM represents attitude toward the behavior of using technology. Davis' goal in developing TAM was to provide a theoretically justified explanation of the determinants of technology acceptance across a wide range of applications and user populations (Davis, 1989). A key purpose of TAM is to provide a basis for tracing the impact of external factors on internal beliefs, attitudes, and intentions as reference for managerial intervention. TAM was formulated in an attempt to achieve these goals by identifying a small number of fundamental variables dealing with determinants of computer acceptance, and, at the same time, adopting TRA's well-established logic chain of belief–attitude–intention-behavior as the basic theoretical relationships among these variables. One of the salient contributions of TAM is the development of the two key beliefs that specifically account for technology acceptance. The original TAM (Davis, 1986)

postulates that actual usage behavior is solely affected by intention, which is in turn influenced by attitude and perceived usefulness, while attitude is jointly determined by perceived usefulness and perceived ease of use. However, TAM later excludes the attitude of the user (Davis et. al., 1989), due to its weak influence on usage and its weak direct link with perceived usefulness. The researchers argue that people might intend to use a technology because it was useful even though they did not have a positive attitude toward using. Their study tested the original version of TAM on the voluntary usage of a word-processing package by 107 first year full-time U.S. MBA students. Findings suggested that perceived usefulness and perceived ease of use fully mediated the influence of external variables; that perceived ease of use affects perceived ease of use, and that intention is an indicator of usage (Venkatesh and Davis, 2000; Gefen and Straub, 2000) Recently, scholars have begun to explore the link between culture and technology user acceptance and have indicated that national culture affect user technology acceptance (Gefen and Straub, 1997; Rose and Straub, 1998; Srite, 2000; Straub, 1994; Straub et. al., 1997; Straub et. al., Cultural Interpretation of E-Commerce Acceptance in Developing Countries 2002; Ho et. al., 1989). For example, TAM did not explain user acceptance in a study conducted in Asia, along with Straub, Keil and Brenner's (1997) finding of the non-applicability of TAM in Japan, contrary to the generally supportive evidence reported in North America.Since different technology acceptance patterns existed when cultural differences are taken into account, technology must adapt to new cultural environments to be accepted. TAM-based studies also found that gender difference, viewed as part of cultural difference, has significant impact on technology user acceptance (Venkatesh and Morris, 2000). Gefen and Straub (1997) found that men and women differ in their perceptions of email acceptance. They called for future research to include gender in IT diffusion models along with other cultural effects.

Conceptual development

Cultural Differences

The importance of culture on various aspects of management and organizational behavior has long been recognized, along with being a major concern in much of the earlier work in anthropology. The cultural environment for certain behavior is found to have a significant impact on one's values, beliefs, and attitudes (Brislin, 1993). Various disciplines have defined culture differently. According to Kroeber and Kluckhohn's (1952) review of culture, over 150

different definitions of culture have been proposed in the literature. The wide range of connotations in culture includes the beliefs, value system, norms, traditions, myths, and structural elements of a given organization, tribe, or society, that exists at different social levels. An individual usually belongs to cultural groups at different levels at the same time. One may carry many layers of "mental programming" depending on situational states. The different levels of culture include: (1) national or country level; (2) a regional and/or ethnic and/or religious and/or linguistic affiliation level; (3) a gender level; (4) a social class level; (5) an organizational level; (6) an individual level (Hofstede, 1991; Lu and Lu, 1995).

In different academic disciplines, researchers tend to define culture based on their respective backgrounds. As a result of this practice, the effects of culture on human performance have

been generally described rather than actually defined. The most widely accepted cultural framework is based on the research of Hofstede (1980). He posited that cultural differences manifest themselves through different aspects of the national culture. He looked at values and attitudes of workers and managers in over forty countries in a multinational company. Based on a survey using nationality as a precursor of culture, he identified individualism, power distance, uncertainty avoidance and masculinity as significant cultural value dimensions. After a decade of further study, he proposed a fifth dimension—time orientation. In view of academic and theoretical perspective, the effects of culture on technology diffusion have been studies by information systems researchers (e.g. Straub et. al., 1997; Kettinger, 1997). Several studies assert that culture plays a significant role in information technology diffusion (Ein-Dor and Orgad, 1993). Hofstede's (1980, 1991) studies are well-known in the cultural dimension values, and deemed important in information technology diffusion as well as in global research. The major motivation behind this classification framework is that it is able to establish the degree to which cultural environment systematically influence employees' attitudes and behavior. According to Hofstede, culture is a set of shared assumptions representing the system of socially constructed meanings and preferences of a group (Hofstede, 1980; Schein, 1985). This cultural framework has also received strong empirical support. Most of the cultural research in information systems literature has Cultural Interpretation of E-Commerce Acceptance in Developing Countriesadopted the framework of Hofstede's cultural dimensions or cultural values because of its extensive validating support (Kumar et. al., 1993; Jordan, 1994). In

particular, Hofstede's research on cultural dimensions has been regarded as a major theoretical foundation for exploring the impact of cultural differences on the adoption and diffusion of IT-based innovations such as e-mail (Straub et. al., 1997).

Power Distance

Power distance is a core cultural value distinctive in the workplace, capturing the extent to which

unequal distribution of power in organizations is accepted. High power distance societies tend to be hierarchically ordered, while low power distance societies tend to be egalitarian (Ho et. al., 1989). In a high power distance culture, superiors and subordinates consider each other as unequal in power, and contacts between superiors and subordinates are to be initiated only by superiors. It is common that subordinates defer to superiors and avoid questioning their authority (Watson et. al., 1994). Status differences among individuals are pronounced in high power distance countries, but are less significant in low power distance cultures (Tan et al., 1998). High power distance values indicate that hierarchical structures and centralized decision making are the organizational norms that help preserve the existing social order and its related distribution of power. For example, Teng et. al., (2000) found that while decision decentralization appears to facilitate business process reengineering success in a low power distance culture (i.e., the U.S.), decision centralization is related to success in a high power distance culture (i.e., Taiwan). This finding suggests that innovation diffusion in a high power distance culture may depend on certain mandate from the top management. Straub et. al., (1997) found that higher power distance country show low technology adoption. People who have low power distance are likely to be more willing to take new responsibilities that are essential to the business process reengineering through e-commence acceptance (Grover et. al., 1995). On the other hand, people with high power distance will be reluctant to accept empowering initiatives with respect to both physical and information-based activities. Specifically, low power distance perception would influence the antecedents of technology adoption, because empowering initiatives would affect the belief of computer ability of the organization member according to social cognitive theory (Bandura, 1986; Compeau and Higgins, 1995).

In high power distance cultures, technology could threaten the hierarchy, which reflects the existential inequality between higher-ups and lower-downs because it suggests

decentralization (Hofstede, 2001). Conversely, in low power distance cultures individuals are more interdependent whatever their ranks in the hierarchy; therefore, they will be more favorable to information technology, which doesn't contradict their perception of power distribution. Thus, it is hypothesized that: Perceived ease of use has a greater influence on intention to use e-commerce in low power distance culture than in high power distance culture Perceived usefulness has a greater influence on intention to use e-commerce in low power distance culture than in high power distance culture. Uncertainty Avoidance Hofstede defines uncertainty avoidance as the degree to which members of society feel uncomfortable with uncertainty and ambiguity. He argued that uncertainty avoidance is related to anxiety that is the general feeling of anxiety when confronted with problems or challenges. Computers and database can reutilize jobs, and Cultural Interpretation of E-Commerce Acceptance in Developing Countries telecommunication products such as e-mails, telephones, fax machines, and cell phones can reduce uncertainties in communication (Bagchi et. al., 2003). Given that surprise and uncertainty are though to be an adverse state for individuals who desire ownership, organizational members will use formal information sources that are attributed and proven to reduce these uncertainties. Increased feedback-seeking behavior with formal sources will be beneficial to reduce these uncertainties. Uncertainty avoidance is believed to lead to a reduction of ambiguity and predictable structures. In uncertainty avoiding societies there are many formal laws and/or informal rules controlling the rights and duties in the work place. Individuals with weak uncertainty avoidance tend to have low stress and therefore higher in their subjective feeling of well-being, while individuals with strong uncertainty avoidance tend to have high stress levels and therefore the subjective feeling of anxiety (Hofstede, 1991). Individuals who perceived they are in an organization with high uncertainty avoidance without anxiety of control or instruction would perceive that system is easy to use. Transaction cost theory (Williamson and Masten, 1995) shows the possible linkage between uncertainty avoidance and perceived ease of use, where uncertainty reflects the inability to predict relevant contingencies. It has been found that those having high uncertainty avoidance are averse to technologies that present ambiguities and unnecessary complexities in their use. Thus, perceived ease of use is a very important variable to such individuals. The hypothesis supported is therefore: Perceived ease of use has a greater influence on intention to use e-commerce in high uncertainty avoidance culture than in low uncertainty avoidance culture. However, individuals who are high in uncertainty avoidance, the use of media such as Web sites

to conduct shopping present ambiguities and uncertainties that impact on perceptions of usefulness (Straub et. al., 1997). The lack of face to face interaction with a vendor, the inability to touch and feel any physical products that are to be purchased, and the uncertainty surrounding the privacy and security of personal information are all instances where ambiguity and uncertainty arise. These will be of greater concern to those high in uncertainty avoidance. Thus, the hypothesis supported is: Perceived usefulness has a lesser influence on intention to use e-commerce in high uncertainty avoidance culture than for in low uncertainty avoidance culture.

Individualism/Collectivism

Generally, individualism refers to the extent to which members of a culture view themselves as distinct persons, rather than as part of a collective (Hofstede, 1980). Erez and Earley (1987) suggest that the individualistic versus collectivistic orientation of a society has profound implications for how individuals work. Individualism-collectivism has consistently featured in many empirical studies as the most important dimension of crossnational culture. Hofstede (1980) notes that in individualistic cultures, people tend to place greater emphasis on personal time and emotional independence from their work. Individualists usually value challenge and autonomy on the job and encourage individual initiative. Paralleling with their search for personal fulfillment, individuals high in individualist value tend to be more non-conformist and less loyal to the group than people from collectivistic cultures. In conclusion, a more individualistic culture tends to encourage personal initiative, where people tend to be more non-conformist, searching for personal fulfillment and emotional independence. Individuals with collectivism are integrated into strong cohesive group, valuing the group's

Cultural Interpretation of E-Commerce Acceptance in Developing Countries well-being more that individual desires (Ford et. al., 2003). People holding collectivist values will be more concerned about the maintenance of the group cohesiveness, and they are expected to show more interest in e-commerce adoption. Chung and Adams (1997) suggest that countries reflecting more collectivist tenancies such as China, or Korea may actually adopt collaborative software such as enterprise resource planning more effectively that individualistic cultures like those of the US or Australia. Haythornthwaite and Wellman (1998) found that, in strong ties such as collectivism, e-mail-based communications were increased as supplements to face to-to-face communications.

Thus, high collectivism with strong ties of social network would positively influence on individual's belief of both usefulness and ease of use: Perceived usefulness has a greater influence on intention to use e-commerce in high collectivism culture than in low collectivism culture Perceived ease of use has a greater influence on intention to use e-commerce in high collectivism culture than in low collectivism culture.

2.5 Data Section

This section should be approximately one single-spaced page.

It should cover two parts:

- The first should simply describe the name and source of the data you are using and the period it covers. Describe whether you have a panel, cross section or time series, what the unit of observation is and how many observations you have. Discuss limitations of the data such as missing variables, missing observations, survey response, small number of observations, etc. Other obvious shortcomings (i.e. no income data; no men interviewed, only people attending school interviewed, etc.). You may want to highlight the important limitations (e.g. those that you might address in a falsification or robustness check later) in the body of the paper and put the rest in a footnote. It is useful to think about what the idea dataset would be for the hypothesis you want to test and compare your data to it.
- Do not forget to provide the sources of your data and to help the reader by making a table that offers summary statistics on each variable. You should define each variable carefully and, if necessary, point out how the empirical measure deviates from its theoretical counterpart. Typical summary statistics that are offered include: max, min, average, and SD values for each variable. It is not unusual to offer histograms and other information for variables with skewed distributions. Excel is a fabulous tool here, and it is easy to get carried away. Remember, your goal should be clarity!
- This section is the place to offer interesting information about the data. You should also point out the limitations, if any, of your data.
- You should pay attention to what aspects of your data will be most relevant to your project; you might spend more energy discussing your dependent variable than a control variable. And it bears repeating that the best way to learn how to write a data section is to

read several data sections in the literature and pay attention to the kinds of information they contain.

- The second section should present (relevant) descriptive statistics of the data. You should have a couple of tables with means and standard deviations for the variables you will be using in the analysis (all of the outcomes, independent variables and controls). You may want to present these descriptive statistics for different subgroups (e.g. treatment vs. control; attriters vs. non - attriters; pre vs. post, etc.). The names of the variables you will be using should be clear to the reader.

Example of the data and methodology section from the following article:

Unlocking the value of digitalization for the European energy transition (Loock, 2020, p. 2)

Definition, data and methodology:

2.1. What is digitalization-based business model innovation? Digitalization-based business model innovation differs from other business model innovation in three important ways. First, business models in e-business have a strong focus on the relationships between a focal firm and its various stakeholders [19]. It has been shown how these relationships and their activity-systems enable novel ways of creating and capturing value. If business model innovation addresses bottlenecks in such activity systems, this provides opportunity to innovate value creation and value capture. Second, digitalization-based business models are often pursuing an asset-light strategy [33]. Thus, digitalization-based business models do not stick with earlier investments or investments at a certain location or industry. In such, digitalization-based business models can be transferred across location and industry. Third, digitalization-based business models are highly scalable. For instance, platform business models have been found to scale much more efficiently compared to traditional business models, as they avoid gatekeepers [26]. Considering these peculiarities digitalization-based business model innovation can be defined along-side three design elements: (1) Digitalization-based business model innovation is centering around a bottleneck and a particular challenge within the activity system of a focal firm and its stakeholders. (2) Digitalization-based business model innovation offers an efficient strategy to address the given bottleneck, and (3) digitalization-based business model innovation is utilizing digital technology for manufacturing the proposed solution.

2.2. Data and methodology

In order to understand the consequences of digitalization on business model innovation in the Energy domain, this paper processes data from a large research and innovation project for "Local electricity retail markets for prosumer smart grid power services" of the European Union's Horizon 2020 Research and Innovation programme: "The EMPOWER concept aims to encourage and enable the active participation of citizens that consume and produce energy in the electrical system. It is based on the insight that a significant reduction of greenhouse gas emissions and an increase of energy efficiency require radical changes in the way we produce and consume energy." (http:// empowerh2020.eu). Different data sources of the EMPOWER project have been used in the analysis for this paper. Table 1 provides an overview. A central role for the analysis at hand is the EMPOWER business model collection, which can be assessed in the respective technical project reports [31,32]. As a research method, I build on conventional case-study analysis, which is an established practice in energy and social science research [34]. In order to account for the specific contingencies of the European energy transition the case study data is complemented with industry data to reveal the contextual specifics. Some of the current dynamics in the electric energy industry – the emergence of new technology (such as decentralized energy production) and the emergence of new stakeholders (such as private, sustainability-oriented investors) – are similar to the dynamics of other industries, as for instance discussed in the sharing economy [23–25]. But the changes in the energy industry are also specific: For instance, stakeholders in the energy industry are forced to share existing infrastructure, the electric grid and its respective physical requirements [e.g. the maintenance of a stable 50hz power level, see for instance 33]. In this paper a specific focus is given to the analysis of bottlenecks, which are an important element in entrepreneurship [29,30]. Taken together, this enables to identify different types of business models addressing salient bottlenecks in the European energy transition. Developing typologies has a long tradition in the social sciences, and it relates to the managerial practice of business model making.

2.6 Identification Strategy

This section should be approximately 1.5-2 single-spaced pages.

In this part you are doing and writing empirical work and the most important thing here is identification. Identification is just another term for your particular approach of estimating causal effects. Describe your identification strategy clearly. (Understand what is, first!) Much empirical work boils down to a claim that “A causes B,” usually documented some sort of regression. Explain how the causal effect you think you see in the data is identified.

The literature review sets out the issues that motivate your paper and demonstrate your familiarity with what others have written on the topic. The next step is to formulate a specific question, problem, or conjecture, and to describe the approach you will take to answer, solve, or test it. Often, this will take the form of an empirical hypothesis : “social security depresses personal savings ;” “high levels of employment are related to high levels of inflation,” etc. An empirical hypothesis makes a claim about how some part of economy works, and can be assessed by analyzing the relevant data.

In presenting your hypothesis, you need to discuss the data set you are using and, in most cases, the type of regression you will run. You should say where you found the data, and use a table, graph, or simple statistics to summarize them. You should explain how the data relate to your hypothesis and note any problems they pose. If you have only a small set of observations, or have to use proxies for data you cannot directly observe, you should explicitly acknowledge this.

The section describing how you estimate causal effects related to your hypothesis is the heart of an empirical economics paper in answering your specific "A causes B," question. Having set out the question, reviewed the previous literature, explored the theoretical perspective, (probably) worked with the data, and formulated a hypothesis, you are finally ready to do some analysis. But not yet! You want to lay out your plan of action before you do the analysis. This is precisely the part of the paper in which you should tell the reader what your plan of action is.

In this section, you want to set up a compelling argument about your identification strategy in identifying the causal effect of interest. There are various identification strategies that allow you to estimate causal effects. Be clear about specific identification strategy you use. Assume your reader knows the basics of each method.

For example, if you use an instrumental variable approach, be specific why instrumental variable estimation is appropriate here, what your Y is, what your key X variable is, what instrumental variable you use.

If you use a regression discontinuity (RDD), discuss the context of the actual RDD rule, how participants are assigned to program or comparison groups solely on the basis of a cutoff score on a pre-program measure.

Each method has its benefits, downsides and embedded assumptions. Be upfront about what assumptions you'd be making here. It will be good practice to defend some of these assumptions in your analysis/results section later:

For example, if you use a Difference-in-Difference (D-in-D) approach, don't discuss the parallel trend assumption here, but be ready to discuss how you can convince the reader that it is not a problem for you in the results section.

You should write out the basic econometric specification first and explain each of the variables and the parameters of interest. Why is it the correct specification for the question you wish to address? Was it derived from theory and has it been used in previous empirical work? Why are certain variables included and others not? You should be very clear about where identification is coming from and what assumptions you need to make in order to interpret the parameters as you wish to interpret them (e.g. discussing exclusion restrictions if you wish to interpret certain parameters as causal). After discussing the basic specification, write out any elaborations or additional tests you will perform and why.

Example of this section is taken from the following article:

Cultural interpretation of E-commerce Acceptance in Developing Countries: Empirical Evidence from Malaysia and Algeria (Belkhamza, Seyed Azizi, 2009, pp. 200-204)

2.7 Results

Here are some suggestions for points to cover in the results section and measurement issues:

- Try to stick to about 3-5 single space pages;
- Interpret coefficients on key variables only presented;

- Interpret your results: Explicitly mention the estimated coefficient of the crucial explanatory variable in your analysis and comment on what it means;
- Note both statistical significance point estimates, interpret magnitude of estimated effect;
- Are any other coefficients strange/large/unexpected?
- Provide units: When discussing numbers, such as estimated coeffcients or predicted Y values, remember to present the units of the numbers;
- If you are testing a hypothesis, present the null hypothesis, compute the test statistic, and report the P-value. State whether you reject or do not reject the null;
- If you are estimating a parameter, report the estimated SE and a 95% confidence interval;
- Discuss any potential remaining biases/shortcomings;
- Suggest ways to check these shortcomings ;
- Present and interpret results from various other result runs;
- Compare your results to others in the literature. Do they support or contradict the relevant economic theory?
- At the end of the empirical section of your paper, you should be able to draw a conclusion, even if it is a negative one. For example, you may find that there is no relationship between divorce and schooling in your data; this is still worth reporting.
- Remember this: No study is absolutely perfect, but if you have done a thorough job in your empirical section, you should be able to reach some answer to your research question. This conclusion will then be inserted into your introductory paragraph in a slightly different form.

Example of this section is taken from the following article:
Cultural interpretation of E-commerce Acceptance in Developing Countries: Empirical Evidence from Malaysia and Algeria (Belkhamza, Seyed Azizi, 2009, pp. 203-204)

2.8 Discussion Section

Many of the topics that interest economists have real world policy implications. Your own research may present strong findings about the effects of existing or proposed policies. While this is fine, you should not conclude that "this should be done" or (this should not be done." You

should avoid making value judgments and rely instead on economic facts and analyses. Even when you have reached your own conclusions about which policy is desirable, your reader should be able to consider the facts and make the policy decision for himself or herself.

For example, you may find that substituting policy X for current policy Y would raise GDP by 2 percent. That is an appropriate conclusion in a term paper. Be careful, however, not to simply assert that policy X should be substituted for policy Y. For one thing, it can be very difficult to measure the welfare consequences of a given set of policies. Dollars and cents may be easy to measure, but individuals' well being is not. In addition, your own research may not have accounted for certain distributional issues, legal issues, matters of national sovereignty or any number of other things that ultimately affect the desirability of a given policy.

In the discussion of your result, you should also point out the limitations of your research, say the relatively small number of observations you have or the simplicity of the functional form you have tested. In an undergraduate term paper such limitations are expected. In general, it is better to show your instructor that you understand the limits of your method than make broad claims you do not support. You can also suggest questions or alternative approaches for further research.

Once you have completed the discussion of your results, you can add a short conclusion summarizing what you have done. Then go back and write an introduction that provides a road-map for the reader. If you have budgeted your time, you should have a chance to revise the paper, with the goal of achieving greater clarity. Finally, ask a friend to proofread your work. Make necessary corrections and then submit.

Some suggestions for points to cover in the discussion section

- Try to stick to about 2 single space pages;
- What are the ambiguities of your results?
- What are the different possible interpretations?
- What are the strongest arguments for one interpretation or the other?
- What directions for future work suggested by your results?

The example for this section id taken from the article *Analysis of the State of E-commerce in Algeria* (Chaabna and Wang, 2015, pp. 54-55)

2.9 Conclusions

Really, a conclusions section should not be necessary. If you did a good job of explaining your contribution in understandable prose in the introduction, and then documenting those claims in the body of the paper, (writing in good triangular style), then saying it all over again is pointless. It is true that some people skip to the conclusion to look for the main result, but that's because they are used to authors who don't explain it well enough in the introduction.

Thus, conclusions should be short and sweet. Do not restate all of your findings. One statement in the abstract, one in the introduction and once more in the body of the text should be enough! You can include a short paragraph or two acknowledging limitations, suggesting implications beyond those in the paper. Keep it short though. And don't speculate; the reader wants to know your facts not your opinions.

After writing the conclusion, you should then go to the beginning of the paper and write/rewrite the Introduction with a brief overview of the results and their implications. It should be a snap.

"And then I turn it in?" No, not quite yet. The last thing you should do is PROOFREAD your paper. Even after spell checking the paper with your word processor, you should take the time to read it one last time before turning it in. Fix typographical errors, improve wording, and make sure the numbers make sense.

Some suggestions for points to cover in the conclusion section

- Try to stick to about 1 single space page;
- "Brief policy" of your study:
    - What were the main findings;
    - Why important;
    - What does this imply for policy.

An example of this section is taken from the following article:

Analysis of the State of E-commerce in Algeria (Chaabna and Wang, 2015, pp. 55-56)

The development of successful e-commerce relies largely on a number of different factors. This study focuses on the current condition of e-commerce development from fourset of perspectives introduced by Porter. The study shows that the factors that hinder e-commerce development in Algeria are: (a) lack of a reliable and secured backbone, in terms of a widely accessible and fully interconnected high-speed network that will guarantee the availability of bandwidth sufficient for the requirements of e-commerce, (b) lack of a comprehensive regulatory framework that supports and controls the adoption of e-commerce in the country and clearly defines and protects the rights of all parties, (c) the lack of highly skilled professionals, (d) the limited use of credit cards due to the lack of existing culture and awareness of the usage of credit cards, as well as the lack of trust in electronic means, coupled with an insecure financial platform, and (e) unreliability and inefficiency of logistics infrastructure. Even though Algeria is aware of the role that can be played by ICT and e-commerce in the economic development, but this awareness as well as the reactivity for the implementation took place differently. The majority of North African countries (such as Egypt, Morocco and Tunisia) has made a significant progress in the area of e-commerce because they considered it as an important component of their ICT strategies. Whereas in Algeria, it is relegated to a secondary stage reliant on the results achieved by the ICT strategies. In addition, the www.ccsenet.org/ijms International Journal of Marketing Studies Vol. 7, No. 2; 2015 56 previous neighbor countries have already succeeded in the integration of e-commerce in many fields, whereas Algeria is still at the stage where it studies the legal environment prior to the development of e-commerce. For policy makers and corporate leaders, this study gives insights as to why Algeria is so far from a real implementation of e-commerce. By understanding the reasons behind the lack of e-commerce in the country, appropriate procedures and incentivessystem can be better provided to encourage e-commerce adoption. One limitation of this study is the lack of literature on the adoption of e-commerce in Algeria markets. Finally, in Algeria, the development of e-commerce has been relatively slow, but is expected to pick up speed in the coming years.

Part III : American Psychological Association (APA) 7th Referencing and Citation Style

Part III : American Psychological Association (APA) 7th Referencing and Citation Style

1. In-Text Citations

It is about how the source material is documented in the body of the paper by citing the author(s) and date(s) of the sources.

2. Books and Journals (periodicals)

2.1 Including the Author's Surname into the Sentence Itself

Consider the following example:

- Grant, Oswick, Hardy, Putman and Phillips (2004, p.3) define organizational discourse as "the structured collections of texts embodied in the practices of talking and writing (as well as a wide variety of visual representations and cultural artifacts) that bring organizationally related objects into being as these texts are produced, disseminated and consumed".
- Veish and Langer (2015, p. 39) found that microneedle patches for monitoring a diabetic patients' blood glucose levels helps them to easily manage their need for insulin.

2.2 Excluding the Authors' Names from the Sentence

Consider the following example:

- Reviews of research on religion and health have concluded that at least some types of religious behaviours are related to higher levels of physical and mental health (Agli et al., 2014; DeAngelis & Ellison, 2018; Krause & Hayward, 2016; Jones, 2018; Salsman et al., 2015; Vanderweele, 2017).

- Other researchers are less interested in specific domains of discourse and instead focus on discourse (or critical discourse, big D discourse, little d discourse) as their explicit consideration (Alvesson & Kärreman, 2000; Hardy et al., 2004; Ledema, 2003; Putnam & Fairhurst, 2001).

2.3 Multiple Authors

- A source with one or two authors:

Consider the following examples:

- (Luna, 2020)

  Luna (2020) states…

- (Salas & D'Agonostino, 2020)
  Salas and D'Agonostino (2020) argue that …

- A source with three or more authors:

Consider the following examples for in-text citation:

- Reviews of research on religion and health have concluded that at least some types of religious behaviours are related to higher levels of physical and mental health (Salsman et al., 2015, p. 3761).
- Salsman et al. (2015, p. 3761) showed that …

Consider the following example for the reference list:

Kalney, E., Kanamitsu, M., Kistler, R., Collins, W., Deaven, D., Gandin, L., Iredell, M., Saha, S., White, G., Woolen, J., Zhu, Y., Chelliahn M., Ebisuzaki, W., Higgins, W., Janowiak , J., Mo, K.C., Ropelewski, C., Wang, J., Leetmaa, A., … Joseph, D. (1996). The NCEP / NCAR 40-year reanalysis project. Bulletin of the American Meteorological Society, 77(3), 437-471. http: / / doi.org/fg6rf9

And in the citation, it is (Kalney et al., 1996)

3. Avoiding Ambiguity – Which One is Which?

3.1 Works Sharing the Same Author(s) out of a Group of Authors with the Same Year

Consider the following examples where two works have the following authors:

- Maxwell, Scourfield, Holland, Featherstone, and Lee (2012)
- Maxwell, Scourfield, Featherstone, Holland, and Tolman (2012)

Both these citations shortened to Maxwell et al. (2012). To avoid ambiguity when citing them both in your work, cite them as follows:

- Maxwell, Scourfield, Holland, et al. (2012)
- Maxwell, Scourfield, Featherstone, et al. (2012)

When only the final author is different, spell out all names in every citation.

- Hasan, Liang, Kahn, and Jones- Miller (2015)
- Hasan, Liang, Kahn, and Weintraub (2015)

3.2 Works with the Same Author and Same Year

Consider the following examples:

- (Judge & Kammeyer-Mueller, 2012a)
- Judge and Kammeyer-Mueller (2012b)

And

- (Sifuentes, n.d.-a, n.d.-b)

How do you assign a, b, c…?

Examples:

Judge, T. A., & Kammeyer-Mueller, J. D. (2012a). Job attitudes. Annual Review of Psychology, 63, 341-67. https://doi.org/10.10.1146/annurev-psych-120710-100511

Judge, T. A., & Kammeyer-Mueller, J. D. (2012b). On the value of aiming high: The causes and consequences of ambition. Journal of Applied Psychology, 97(4), 758-775. https://doi.org/10.1037.a0028084

3.3 Authors with the Same Surname

For example:
(J. Taylor & Neimeyer, 2015; G. Taylor, 2015)

If the authors have the same surname and the same initials, then you write out their given names in full.

For example:
(James Taylor, 2015) and (John Taylor, 2015)

3.4 Citing a Source Multiple Times in One Paragraph

Introduce the source early in the paragraph, with the author as part of the sentence rather than in brackets.

For example: Bryman (2016, p. 100) describes several aspects of the data gathering process.

For the rest of the paragraph, you can refer back to the author by name or pronoun when elaborating on their ideas.

For example: He notes that the relevance and number of questions can affect participation rates. Bryman also found that...

3.5 Selecting Sources

Think about the sources you are choosing when you write your assignments. Ask yourself:

- Is there a date?
- Is there a name?
- Is there evidence of some kind of review process before it has gone on the internet?

Academic writing and APA referencing is about quality of sources. Ideally your information should have quality.

3.6 Sources that you haven't read yourself

Consider the following examples:

In-text citation:

Hayes (as cited in Bell & Waters, 2014, p. 183) stated that research focus groups…

OR

Research focus groups... (Hayes, 2000, as cited in Bell & Waters, 2014).

Reference list:

Bell, J., & Waters, S. (2014). Doing your research project: A guide for first-time researchers (6th ed.). McGraw-Hill Education.

3.7 Personal Communications

These may be letters, memos, email, personal interviews, telephone conversations, and the like.

- A quotation from a personal communication with someone can be used only if you ask permission from this person and the researcher must make notes of the interview or phone call. This is simply ethical.
- When a person is interviewed for this type of information, they may request that you give them a copy of your notes of the conversation to be approved by them, prior to you using it in your assignment.
- Because personal communications are non-recoverable data, they are not included in the reference list. Cite them in the text only. Give the initials as well as the surname of the communicator and provide as exact a date as possible.

Examples of in-text citation:

E.M Paradis (personal communication, August 8, 2019)

Or

(T. Nguyen, personal communication, February 24, 2020)

3. 8 DOIs and URLs

- DOIs (digital object identifier) can be found in database records and the reference lists of published works.
- URLs (uniform resource locator) in references should link directly to the cited work when possible.
- Present both DOIs and URLs as hyperlinks (i.e. beginning with "http:" or "https:").
- It is ot necessary to include the words "Retrieved from" or "Accessed from" before a DOI or URL.
- It is acceptable to use either the default settings for hyperlinks in your word processing program (eg. usually blue font, underlined) or plain text that is not underlined.

The format for the DOl in the reference list is:

https://doi.org/xXXXX

The string "https:/ /doi.org/" is a way of presenting a DOI as a link, and "xxxxx" refers to the DOI number.

This DOl format is a direct link to the work. It simplifies and standardizes retrieval.

- Copy and paste the DOI or URL from your web browser directly onto your reference list to avoid transcription errors.
- DO not change the capitalisation or punctuation of the DOI or URL.
- DO not add line breaks manually to the hyperlink, it is acceptable if your word processing program automatically adds a break or moves the hyperlink to its own line.
- Do not add a period (full stop after the DOI or URL because it may interfere with the link functionality.
- When a DOI or URL is long or complex, you may use a shortDOIs or shortened URL if desired. Use the shortDOI service provided by the International DOI Foundation (http://shortdoi.org/). Enter a cut and paste of the DOI and this service will create a new shortDOl.

3.9 Online Sources

- If there is an author use the author-date format, just like you would for a book or article, for example (Smith, 1990).
- If no author is identified, use the first few words of the title in place of the author. These must be placed within double quotation marks, for example, ("Eating Tomatoes," 1990).
- If no date is provided, use "n.d." in place of the date, for example, ("Eating Tomatoes," n.d.)

- To cite a specific part of a source, indicate the page, chapter, figure, table, or equation at the appropriate point in text. Always give page numbers for quotations. Note that the words page and chapter are abbreviated in such text citations:

Example:
(Cheek & Buss, 1981, p. 332)
(Shimamura, 1989, chap. 3)

For electronic sources that do not provide page numbers, use the paragraph number, if available, preceded by the abbreviation para.
Example:
(Myers, 2000, para. 5)

Do not cite the URL in the body of the essay. This information will be put into the reference list (at the end of the essay).
The only exception to this is if you are referring to an entire website in general in your essay, then you would provide the name of the website in the text and include the URL in parentheses.

For example, you might write:
We created our survey using Qualtrics (https://www.qualtrics.com).
OR
Marketing and branding of the All Blacks is an integral part of their co modification. This is exemplified by Allblacks.com (http: //www.allblacks.com/).

3.10 Social Media

Provide a reference list entry and in-text citation (author and year)

Author. (year, month, day). *Title* [format]. Website name. https:/ / ...

Unkown date use “n.d.”

Author. (n.d.). *Title* [format]. Website name. https:/ / ...

The date can be approximated use “ca.” (for circa)

Author. [ca. 2017]. *Title* [format]. Website name. https:/ / ...

Facebook examples:

Invercargill City Council. (n.d.). About Invercargill City Council [Facebook page]. Retrieved November 29, 2019, from https://www.facebook.com/pg/InvercargillCityCouncil/about/?ref=page_internal

New Zealand Red Cross. (2019, November 27). As the number of people suspected to have contracted *measles* [Status update]. Facebook. https://www.facebook.com/NewZealandRedCross/posts/2745164498860631

Instagram examples:

University of Canterbury Lib [@uclibrary]. (2018, November 27). UC's architectural drawings declared a national heritage treasure! Housed at the Macmillan Brown Library, the Armson Collins Architectural Drawings Collection [Photograph]. Instagram. https://www.instagram.com/p/Bqr]g7Agu75/

University of Canterbury Lib [@uclibrary]. (n.d.). Posts, followers, following [Profile]. Instagram. https://www.instagram.com/uclibrary/

Twitter examples:

Ministry of Health [@minhealthnz]. (2017, April 3). Typhoid [Tweet]. Twitter. https://twitter.com/aklpublichealth/status/849041745186660357

Trump, D. J. [@realDonaldTrump]. (2017, March 7). I am working on a new system where there will be competition in the drug industry [Tweet]. Twitter. https://twitter.com/realDonaldTrump/status/839110000870109184

3.11 Direct Quotations

Short quotation: fewer than 40 words

Example:

Patients receiving prayer had "less congestive heart failure, required less diuretic and antibiotic therapy, had fewer episodes of pneumonia, had fewer cardiac arrests, and were less frequently intubated and ventilated" (Vance, 2001, p. 829).

Long quotation (block quote): 40 words and more

Example:

Wetli (2019), in her literature review about inclusivity in archival spaces, noted that:

> Scholar's Sic view archives as the custodial spaces of history and its artifacts, a model which predicates ownership, power, and control. To negate this, many organizations have moved towards a model of stewardship. These institutional archives work cooperatively with the communities whose histories they are preserving by providing stable infrastructure, training, and technological support. (p. 4)

Note that pp. is the plural version of p. For example: (Smith & Jones, 2018, pp. 123-125).

Direct quotation of material without page numbers:

Consider the following examples from webpages or websites:

Osteoarthritis, "although often described as simply due to wear and tear, it is now thought to be the result of a number of factors including inflammation, injury or ageing" (Arthritis New Zealand, n.d., "What is osteoarthritis" section).

"Singing is distinguished from speaking by the manner in which the breath is expended to vibrate the vocal cords" (Encyclopedia Britannica, 2018, para.2).

3.12 Paraphrasing

APA 7th edition suggests that the page number is "encouraged" when paraphrasing, as it helps interested readers locate the relevant passage with a source.

4 Referencing

Generalities about APA 7th edition

1. The reference list begins on a separate page;
2. Entries in your reference list appear in alphabetical order by the surname of the first author;
3. APA uses a hanging indent (retrait negative de première ligne). This is where the lower lines hang inwards underneath the top line;
4. APA has opposite rules for capitalisation of titles between the in-text citations and the reference list (sentence case);
5. If you refer to the title of a source, capitalise all word that are four letters long or greater within the title of a source (this is called little case). Example: *Permanence and Change.* Exceptions apply for short words that are verbs, nouns, pronouns, adjectives, and verbs: *Writing New Media.* Italicise all the words;

   Sentence case is used for capitalisation of reference list titles. Capitalise only the first letter (and any proper nouns) of titles and subtitles of any book, articles, reports, webpages chapters, and titles of unpublished periodicals in reference list entries. Capitalise the first letter of all significant words in periodical titles (they are treated like proper nouns);

6. APA citations and references use an ampersand (&) between authors' surnames, NOT "and". But if you are using the authors' surnames in a sentence then "and" is used, as per the normal rules of writing;
7. Present both DOIs and URLs in your reference list as hyperlinks (i.e. beginning with "http:" or "https:"). It is acceptable to use either the default display settings for hyperlinks (e.g. usually blue font, underlined) or plain text that is not underlined. Leave links live if the work is to be published or read online. THIS IS A SIGNIFICANT CHANGE FROM APA 6th edition;
8. When a DOI or URL is long or complex, you may use a shortDOIs or shortened URL if desired. Use the shortDOI service provided by the International DOI Foundation (http://shortdoi.org/). Enter a cut and paste of the DOI and this service will create a new shortDOI;
9. DO not include a retrieval date (the date you located an online source) for a reference, unless it is from a webpage that is inherently designed to change (e.g. a dictionary entry, Twitter profile, Facebook page, map generated by Google Maps) or reflects information that changes over time (a website that updates information frequently, such as Stats NZ). Provide a retrieval date, when needed, before the URL, e.g., Retrieved December 2, 2019, from https:/ /xxxxx
10. APA 7th edition DOES NOT REQUIRE that the city, state (US) or country where the book was published to be provided. THIS IS A SIGNIFICANT CHANGE FROM APA 6th edition.

Over to you

Illustrate every point in this section from research works of your choice.

Part IV : Grammar in Context

Part IV : Grammar in Context

1. Papers' Grammatical and Syntactic Features

1.1 Tenses Used for Abstracts

The present simple tense:

Used for:

- General truth (or to generalize)
- Description
- Definition
- Giving a feature/characteristic

What is the difference between the present simple tense and the present continuous?

The first places the action out of context and the second one places it within the context.

The past simple tense:

The author uses it when he wants to indicate that the activity, experience or action had been realized at a given moment in the past, whether the date is given or not in the text. It is used for methods' and results' presentation.

Over to you

Situate the present simple tense and the past simple tense in an abstract of your choice.

The Passive / active voice:

When do we use the passive voice in an abstract?

In an abstract, the passive voice is used to focus on the actions rather than the author. Generally, it is more frequent to find the passive voice form in abstracts than in the body of the article. Yet, it is not incorrect to use the active voice instead.

1.2 Tenses Used in the Body of the Article

We classify the different verb tenses according to their use in different parts of the article. Of course, their use, as shown below, is not systematic. NB: The choice of verb tense reflects the author's point of view: whether he modalises the verb or not, whether he uses the present perfect or the simple past tense, whether he uses the progressive aspect (present continuous) or not: it's up to the author.

1.2.1. The "Introduction" Section

In a publication to set the scientific context or give a definition, the author uses the present simple when describing something in the scientific field concerned.

- If the context is historical, the author usually uses the past simple or the present perfect.
- When the author refers to the literature review, he or she usually uses the present perfect.
- To develop a hypothesis, the verbs are often modalised, i.e. the author qualifies his or her statements with modals (can, could, may, might, etc.) or expressions indicating a greater or lesser degree of certainty ("is likely to", "seems to", "probably", etc.).
- The present simple or past simple tense is used to define objectives.

1.2.2. The "Methods" Section

In most publications, the "methods" section has one of two aims:

- To explain the past experimentation in an objective way, the verbs are in the passive voice and in the past simple tense.
- However, when it is not a question of narration, but rather of supporting an argument or validating a logical demonstration, the present simple tense is used in reference to theories, laws, definitions, etc.

Nb: Avoid all forms of modality ("could" in particular) in this section.

1.2.3. The "Results" Section

In a scientific publication, the "results" section is written as follows:

- When the author refers to the experiment, he or she mainly uses the past simple tense.
- When analysing a figure or piece of data, the author often modalises the action: he or she qualifies his or her statements with modals (can, could, may, might, etc.) or expressions indicating a greater or lesser degree of certainty ("is likely to", "seems to", "probably", etc.).
- This section also uses the present simple tense to describe figures.

1.2.4. The "Discussion" and "Conclusion" Sections

In a scientific publication, the "discussion" and "conclusion" sections are written as follows:

The author uses the present perfect tense to refer to the literature review and research. Verbs are often modalised, i.e. the author qualifies his or her statements with modals (can, could, may, might, etc.) or expressions indicating a greater or lesser degree of certainty ("is likely to", "seems to", "probably", etc.).

- Verbs are modalised when the author interprets the results of his work.
- When the author recapitulates, repeats or summarises, he or she often uses the past simple tense.

2. Lexical Features of Abstracts

Different words are used to bring precision to a noun:

1. Adjectives, present participle (-ing), past participle (-ed) with or without adverbs.
2. Prepositions (in, of, for, etc.)
3. Words of coordination (and, or, as well as, etc.)
4. Relative clauses (that …, which…, whose…, etc.)
5. Definite or indefinite articles (the, a, an)

Over to you

Underline the use of the passive voice and highlight the different lexical features in the abstracts of your choice (the use of the passive voice and the use of adverbs such as: recently, currently, conversely, properly, widely, frequently, ...)

3. Frequent Verbs, Nouns and Adverbs

Here are the verbs, nouns and adverbs most frequently encountered in abstracts.

List of the most common verbs, adverbs and nouns: these verbs, adverbs and nouns most often describe the approach taken in research work. It is particularly useful to be familiar with them as they are used in all scientific disciplines. Here, in alphabetical order, are the most common verbs, adverbs and nouns used to describe the scientific approach, experimentation or methodology in an abstract.

List of verbs:

A B
Acquire
Address (someone)
Agree with
Analyse
Apply (something to)
Argue
Assess
Associate (something with)
Base (something) on

C
Calculate
Carry on
Characterise
Check
Compare (something to / with)
Conclude
Conduct
Confirm
Consider

Contribute
Control

D
Debate
Decrease
Define
Demonstrate
Describe
Determine
Differ
Discuss

E
Elucidate
Emphasize
Establish
Estimate
Evaluate
Examine
Exclude
Explain
Explore
Extrapolate

F G H I
Find
Follow
Gather
Highlight
Identify

Illustrate
Include
Increase
Indicate
Induce
Infer
Integrate
Interpret
Introduce (something to / into)
Investigate
Involve

JLM
Justify
Label
Lead (to)
Measure
Minimize
Modulate
Monitor

N O P
Need
Note
Observe
Obtain
Perform
Permit, allow, enable
Prefer
Present (something to)
Proceed

Produce
Programme
Prove

R
Range (from...to)
Refer (to)
Relate (to)
Report
Represent
Require

S
Search
Select
Show
Solve
Study
Suggest (avoid using propose)
Summarize
Survey
Synthesize

TUV
Test
Treat
Underline
Use
Validate
Verify

List of adverbs:

A C D

Accurately

Closely

Consequently

Considerably

Deeply

E

Easily

Effectively

Especially, specially

Essentially

Experimentally

Extensively

F G H

Fairly

Frequently

Fully

Generally

Greatly

Highly

I L

Immediately

Indirectly

Largely

Linearly

M N

Minutely

Negatively

Not necessarily

P

Positively

Possibly

Precisely

Predominantly

Previously

Primarily

Probably

R

Rarely

Reasonably

Regularly

Relatively

Respectively

Roughly

Routinely

S

Significantly

Slightly

Strongly

Substantially

Systematically

T U W

Theoretically
Typically
Usually
Widely

List of nouns:

A B
Analysis
Approach
Argument
Article
Author
Behavior

C
Characteristic
Cohort
Comparison
Compatibility
Composition
Concentration
Conclusion
Correlation

D E
Data
Decrease
Effect
Evidence
Example

Experiment

F H I

Findings

Formation

Hypothesis

Increase

Information

L M

Level

Measure

Measurement

Method

Model

P

Presentation

Procedure

Process

Proportion

Range (to be in the range of)

Rate

Ratio

Resource

Result

Role

S

Sample

Scale

Solution
Structure
Study
System

T V W
Temperature
Template
Theory
Tool
Value
Work

Over to you

Select five verbs, adverbs and nouns from the list and write sentences of your own using them in an economic research context.

4. Thought Connectives

Writing clearly, clarifying your approach, announcing an argument... all this involves using words and expressions used in all types of scientific disciplines. They indicate the logical relationship between the different parts of the written text. They are not essential to the syntax of the sentence and are usually placed at the beginning of a.

NB: They occur much more frequently than in non-scientific language.

- Chronological tense: In the past / Today / In the future:

• At that moment,
• In the past,
• Some X years ago,
• By the early 21s century,
• Until the mid-90s,
• In retrospect,

• Over the past ten years,
• During the last decade,
• During the last thirty years or so,
• Looking back over the last fifty years or so,
• From the earliest times,
• In a previous investigation,
• After nearly a decade of intensive study in a number of laboratories,
• Recently,
• In more recent times,
• Very recently, At the present time,
• For now / up to now / at the moment,
• For the time being,
• Soon / In the near future,
• For a further ten-year period,
• Over the next few months,
• By next year,
• Within 8 weeks,
• In the short term,
• Over the long term.

The narrative time: First, Next, Finally

• As previously noted / described, As indicated / discussed above,
• As mentioned in section 3 / above,
• As we have stated before / as previously mentioned, in previous chapters,
• In the light of the discussion in the previous part, As shown in fig. 1 / in this study / previously,
It is clear from the figure that ...
• Our recent study presented the results of an investigation ...
• In the system just described,
• In this article / chapter / section / figure ...,
• It consists of two parts:

• First / firstly / later / then / secondly / in the first place / lastly
• Initially / finally
• For now / up to here,
• At this point / stage,
• So far/ up to now,
• To begin with / First of all / in the first place,
• In the first instance,
• At first / to start with / for a start,
• In the present context,
• In this study / survey / chapter,
• As summarized in table 4,
• For the discussion so far,
• One final point:
• The different items can be listed as follows:
• Figure 3 bears witness to this,
• As we shall see later / in subsequent chapters,
• In the next step / stage,
• In the following section,

Clarifications and precisions: Moreover, Furthermore

• In particular
• In general / more generally, In other words, That is to say / ie.
• For example / eg. / for instance
• Besides,
• Actually / In fact / As a matter of fact,
• In addition / additionally for this reason,
• In some other aspect,
• It is needless to say / needless to say,
• In support of this idea,
• Among other things,

• Roughly / generally speaking,
• As expected / As might be expected ...
• To pursue the analogy,
• This deserves a word of comment:
• It can be classified as follows: / classified into two categories:
• By the same token,
• Similarly / in most cases / In all other cases,
• On an experimental basis / On a theoretical level,
• Namely / In other words / That is to say,
• Incidentally / By the way,
• On a large scale
• At a later stage
• Let us now illustrate these general principles,
• Consider the following theorem / experiment / lemma / data
• The observations reported raise a question:
• This concept prompts further investigation.
• These observations have / carry certain implications
• There are two possible answers / reasons / alternatives
• Its validity can be demonstrated as follows:
• The second question is:
• This article focuses on two main topics:

Restriction and opposition: Nevertheless / Nonetheless
• Yet,
• However,
• On the contrary,
• By contrast,
• Contrary to what might be thought,
• Contrary to earlier assumptions,
• To some extent / to a certain extent,

• On the one hand .... on the other hand,
• In some ways,
• In the first alternative,
• In other cases,
• There are a few exceptions,
• Setting aside one or two exceptions,
• Although little is known,
• Whatever the reasons,
• Contrary to what has been written,
• In spite of this,

5. Present your Approach

Scientific writing is full of sentences presenting and commenting on objectives, results, analyses, experiments … You can use the following examples to write in any scientific field.

• Cite the objectives:
• This paper shows that ...
• The objective of this study was to extend this concept
• It has been studied in order to ...
• In this paper, we present ...
• We are currently investigating ...
• This study has demonstrated the value of ...
• This study could be used to ...
• This paper presents an approach which may be followed to investigate the likely source of the signals
• The current work describes the synthesis and characterisation of
• The results we have presented in this paper demonstrate how / that ...
• The results of the present study demonstrate that a single administration of the
• In conclusion, this study examined...
• A discussion on the acceptability of risk is beyond the scope of this paper.

6. Give Results

• Our data indicate that ...

• The preliminary data suggests that ...

• Measurements indicate that ...

• The present study confirms that ...

• This study further confirmed that ...

• Our model indicates that for ... the rate is inconsistent with ...

• These data confirmed..

• It was found that ...

• It has been shown that ...

• We have found / shown / demonstrated / indicated that ...

• The results provided convincing evidence for ...

• These results corroborate those shown in Fig. 2.

• Taken together, these observations demonstrate the importance of ...

• However, the results shown in Fig. 4 suggest that for this sample, pretreatment does not appear to have any impact ...

• Laboratory tests suggest that this material exhibits anomalous ...

• These results (Fig. 8) corroborate those shown in Fig. 4 and Fig. 5 and suggest that the ...

• Taken together, these observations demonstrate the importance of the effective chemical removal of the component of these samples prior to measurements.

• The process shows that the method is simple to apply.

• The rates suggest that

• The tests confirm that ...

• The average population ratios obtained above suggest ...

• Our results provide an indication on the errors that may occur when ...

• These data contribute to our knowledge of the properties of ..., and support previous suggestions that ...

• In summary, the present experiments demonstrated that a single administration of ... resulted in a dramatic and long-lasting increase in ...

• Recent examples based on the pioneering work of Dr.... have shown that ...

7. How to Insist?

• It should also be noted that ...

• This can be illustrated by examining the data from an arbitrarily selected dose

• As shown in the previous section, it was not possible to isolate ... from ...

• The observations for both fractions were the same, and therefore in the discussions that follow, ...

• this does not alter the fact that the derivatives reported here have molecular weights which are significantly lower than ...

• Two values were determined for each ...

• We can also assume that ...

• Measurements were made using a preheat temperature of ...

• This information is presented in a form which draws the attention of the designer to the key elements of a design and indicates the most effective way of improving it.

• The methods presented for estimating the effects of changes in nominal value and variability do rely on the assumption of normally distributed parameter and performance variations.

• It is noticeable in Fig. 2 that the data taken ...

• This is in striking contrast with the total absence of such ...

• Some indications of such a change can also be found in a previous report.

•As we have noted, with increasing temperatures, the well defined ...

• As we can see, our theoretical curve explains the experimental dependence reasonably well.

• Related to this observation, we note that data show a ... at low temperatures.

• Finally, let us comment on the nature of the ... seen in our data.

• Using this method, we scored ...

• We were therefore surprised to discover that ...

• We observed that ...

• We have chosen to use the latter method to ...

• These new derivatives were characterised by ...

• the agreement between model prediction and actual measurement was found to be acceptable

• We currently cannot distinguish between ... and ...

• An obvious difference between these two facts is ...

• the method is adequate and reliable

• This is supported by the findings that ... and ... are closely related in terms of structure and activity

• Recent attention has been focused on the ...

• for the first time, we have explored the technical viability of using ... as a ... for ...

• The approach taken was based on method B

• this process was then repeated prior to a laboratory dose

• only the data for the ... material is presented and considered,

• Indiquer des perspectives More research is necessary to ..

• These findings may have wider implications for other samples when ...

• Work is in progress to assess the significance of this assumption and to eliminate it.

• Two main questions remain to be answered in future investigations:

• We are currently developing experiments to address both of these questions.

• It constitutes a research challenge to be met by further laboratory and field studies currently in progress

• Indicating that we still have much to learn ...

• To further study the ... of the suggested model, the effect was investigated for ... and compared with ... Further studies are needed to confirm our results.

• The application will also be considered together with ...

• Further work will involve applying the method

• To further enhance and improve our model, ... One could envision a case in which the question would arise.

• This technology has the potential to provide information in a more rapid and less error-prone manner.

• We anticipate that this technology could be used as a tool for ...

• Further studies would be required to demonstrate whether...

• However, such assumptions can not be completely ruled out.

8. How to Interpret and Analyze

• This might be due to ...

• It may be that as a consequence of this ...

• We believe it more likely to be caused by a ...

• Due to the theoretical and analytical approaches involved ...

• The effect of prolonged etching is clearly shown here, with a reduction in intensity by almost 3 orders of magnitude being observed over the etch duration when compared to unetched material.

• this may in part explain the lower values observed for ...

• A similar pattern is also observed when stimulating ...

• No clear trend of decay over time is noted

• However, no such instability is noted for material

• Data are shown normalised to the first data point in each case.

• The broad response observed above the transition temperature is consistent with the fact that ...

• although we notice some discrepancies between the data and the line ...

• We did not find any relationship between ... and

• In contrast to other studies, the overall analysis did not reveal the expected increase

• Clearly, this model, without any term accounting for the order parameter or any interaction term, fails to reproduce the experimental results.

• The general conclusion from these analyses supports the view that ...

9. How to Comment

• Calculations are found to range from .... The values were much higher than those estimated.

• However despite this shortcoming, the standards are commonly used to estimate the ...

• Again, this treatment is shown to be particularly significant over the first 4 days of treatment,

• Before presenting the low temperature and high field data, let us first discuss a strong temperature dependence seen in the data.

• We can imagine that the agreement would improve once one carries out more elaborate calculations with several terms

• To complete our discussion, we comment on some important differences between the two aforementioned models

• It would be rather misleading to distinguish between these parts • The assignment necessarily includes many arbitrary decisions.

• the model predicted that the difference between ... and ... would be small • One could question whether this technique is necessary

• This is a fair criticism because the differences between X and Y are not subtle • The key difference here is that this technology can ...

• ... without any delay or further procedures.

• We have divided our reviews of known results into three broad categories according to the type of ...

10. How to Thank

Here are different ways to thank in the section « Acknowledgments» :

• The author of this article is grateful to the department of ... in which the research was started and completed.

• The authors are grateful to Professor ...

• We extend gratitude to Dr....

• We are most grateful to Professor ...

• We thank Drs ...

• We also thank the members of ...

• Thanks to the curators in all of these institutions ....

• Many thanks to ...

• We are especially thankful to ...

• The authors would like to thank Professor / Dr. / Mr. / Mrs. ...

• We / The authors wish to thank ...

• Thanks are due to ...

• Many thanks to all our colleagues and friends ...

• We especially thank all the other members who joined us for the field missions

•J.P. also acknowledges the ... Foundation / University / Laboratory / Hospital / Council / Department ...

• The authors also gratefully acknowledge ...

• The authors acknowledge the expert technical assistance of ...

• We acknowledge ...

.. for his work in developing the … used in this work.

. for the hospitality extended to him / us / her during his / our / her visits and all his team at ...

... for hospitality, where the final manuscript was prepared.

... for preparing the ... so skilfully.

.. for making and providing us with ... samples.

... for useful / illuminating discussions .

.. for most useful discussions and inspiration for support, encouragement, and useful discussions

... for valuable discussion of this project.

... for the daily care of

... for kind / varied help with the preparation of ...

... for their help and discussion

... for help in procuring fresh specimens

... for bringing our attention to the latest theoretical developments

... for his intensive / useful / efficient / friendly collaboration

... for her collaboration / involvement / participation

...for organizing and funding our field work

... for his helpful advice and encouragement

... for assistance in the field

... for financial / logistic support.

... for their patience and support of ...

.. for providing access to their property

... for his valuable input into this project.

... for the invitation to take part in the workshop.

.. For giving us the opportunity to work with their collections

... for administrative guidance.

• We dedicate this article to ...

• We thank an anonymous reviewer / two anonymous referees ...

... for valuable comments on an earlier version of this manuscript.

... for critical readings of the manuscript.

... for helpful / constructive comments on and suggested corrections to the manuscript.

... for his / their helpful comments on an earlier version of this paper

• This work / research / study / experiment was / were primarily / partially supported by grants from ..

• This work was funded by a ... studentship / grant n° X / Fellowship

• This material is also based in part upon work supported by ... This work was performed in the frame of the activities sponsored by ... This material is based on / upon the work supported by ...

• ... was supported by the ... Research Foundation Grant No. / Contract No. / Discovery Grant / Professorship / National Research Initiative

• The authors would like to acknowledge funding from ...

• A portion of the research described in this paper was performed in the ... Laboratory,

• Chromatograph / HPLC etc. courtesy of ...

• Professor / Dr. X

...provided technical expertise in several parts of this project.

... kindly facilitated field logistics.

... provided useful discussions in the course of this project.

... is gratefully acknowledged for her careful assistance in carrying out the various treatments.

... facilitated access to his database and to many of the publications cited in this paper.

... is warmly thanked for generous financial support.

... is thanked for testing this script.

...provided technical assistance and expertise

... kindly provided space and material ...

... kindly loaned specimens under their care.

Part V : Graphic Representations

Part V : Graphic Representations

1. Names of Graphs

Here are some examples of graphs.

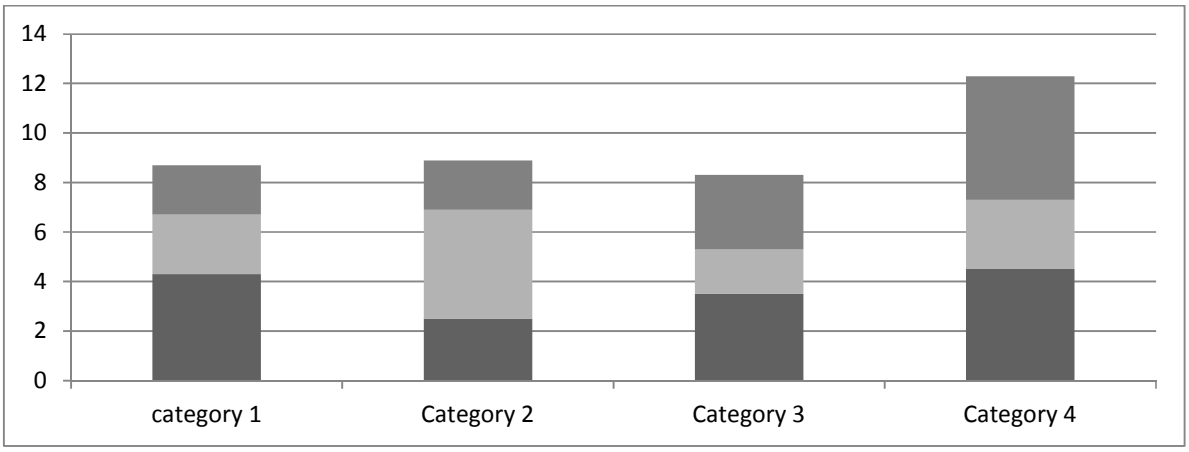
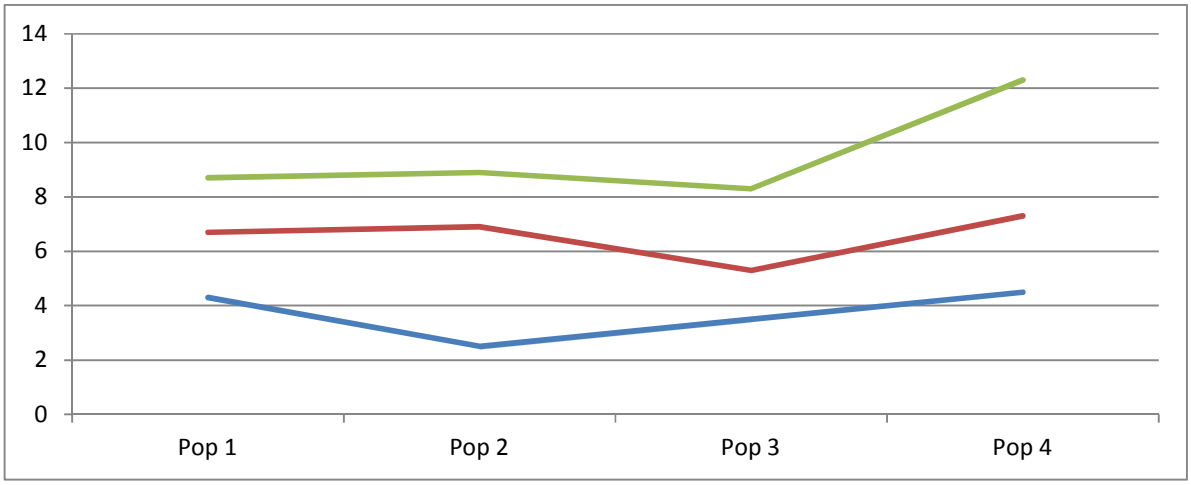


Fig.2 Bar Chart



Fig;3 Line Chart

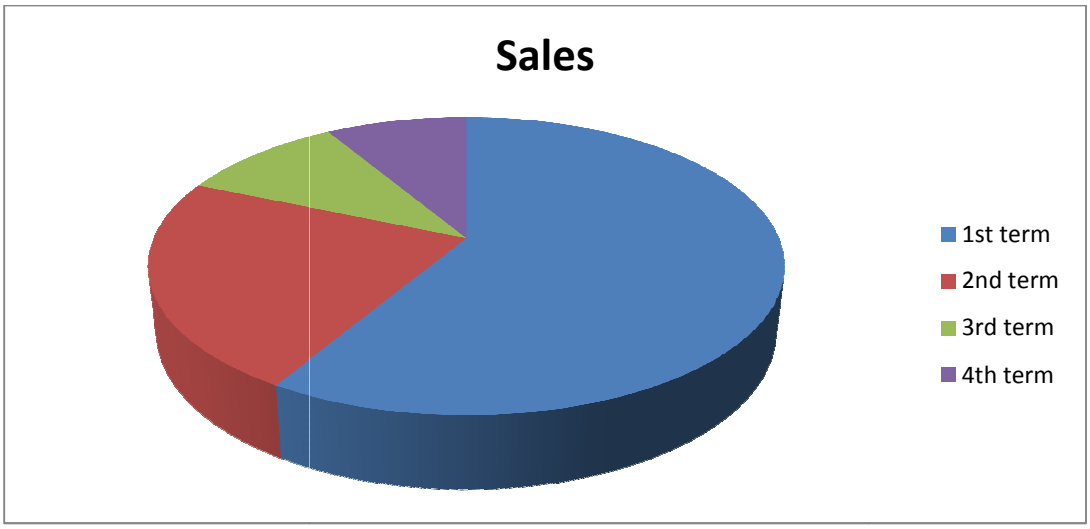


Fig.4 Pie Chart

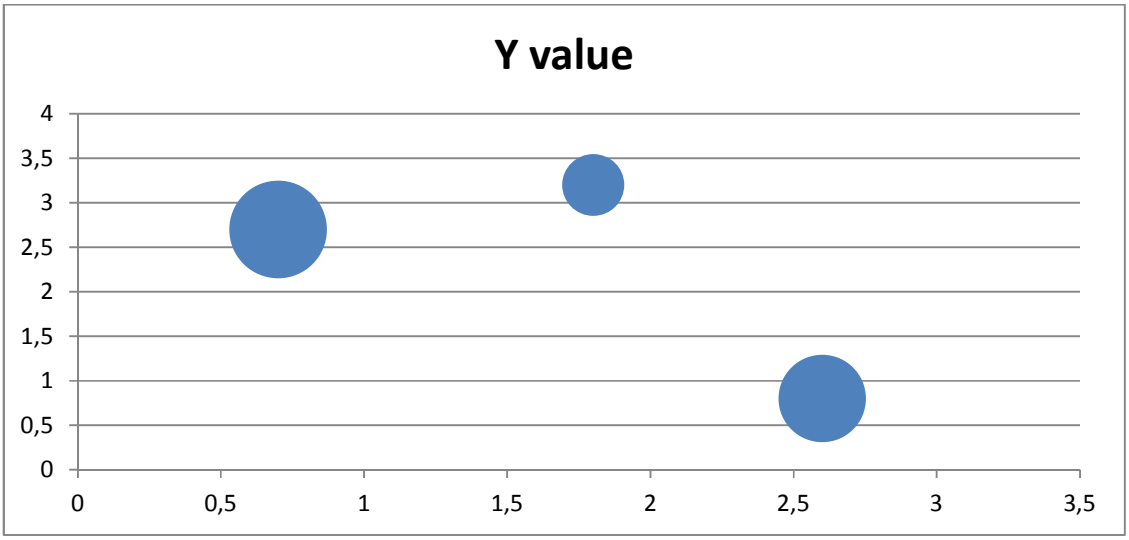


Fig.5 Bubble chart

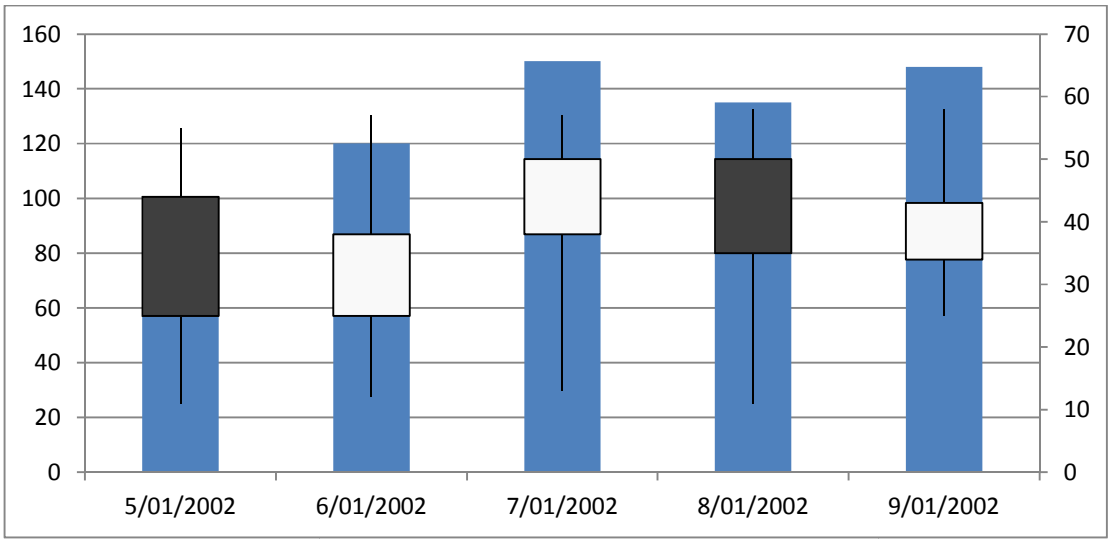


Fig.6 Box plot

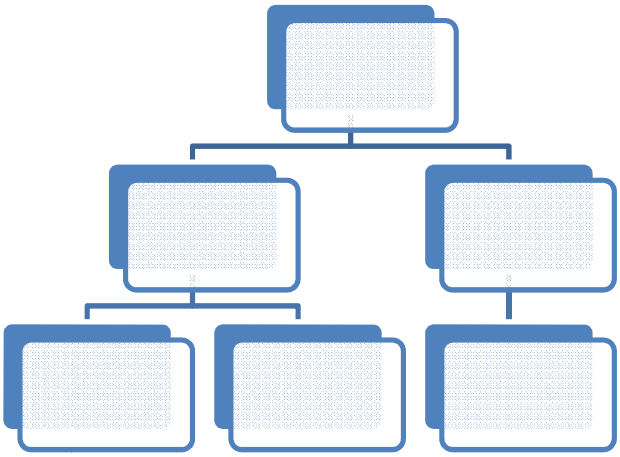


Fig.7 Cluster chart

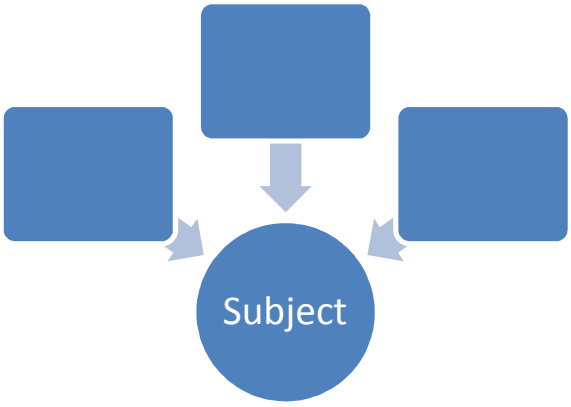


Fig.8 Tree chart

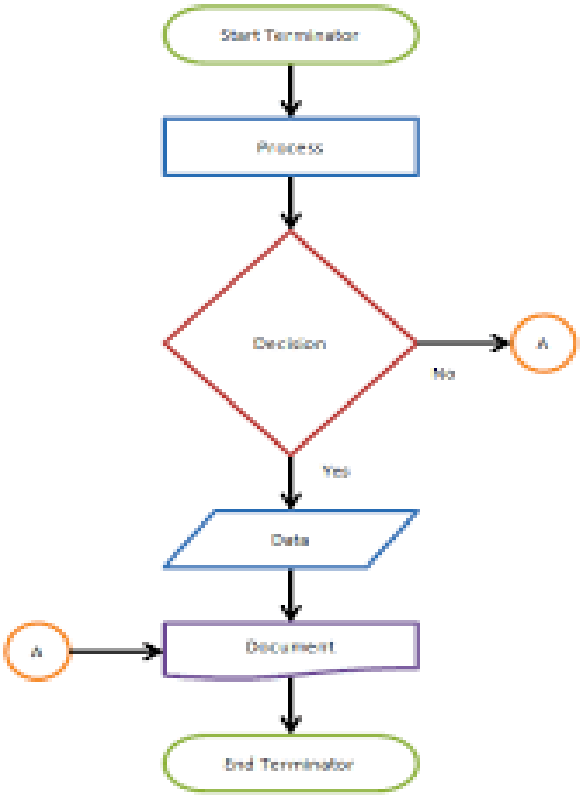


Fig.9 Flow chart

2. Describing Graphs and Data

Verbs	Nouns	Adjectives	Adverbs
- Decrease - Depict - Divide - Go down - Grow - Go up - Increase - Point out - Plot/draw - position - Rise - Shrink - Solve - Undergo a change or a transformation	- Abscissa/x-coordinate/x-axis - Algorithm - Amount/frequency of occurrence - Angle - Arc length - Area - Arrangement - Arrows - Categories - Colors, textures and hatchings - Coordinates - Curve - Data - Depression/spread - Disk - Fields (in various fields) - Frequencies - Interval, band, bins - Joins	- Adjacent - Alternate (variable) - Depicted - Distorted - Divided into - Dotted/dashed/hatched/jagged/shaded/thick/thin/ - full/solid...line - Full disk - Hierarchical arrangement - Largest observation (sample maximum) - Lower quartile (Q1), median (Q2), upper quartile (Q3) - Overlapping - Pointing out - Quantitative/qualitative (variable) - Rectangular - Smallest observation (sample minimum) - Solid (bar) - Sketched (graphic) - Tabulated - Vertical axis - Relative (magnitude)	- Gradually - Steadily - Suddenly - Horizontally/ vertically oriented

	- lengths - Line - Ordinate/ y-coordinate/x-axis - Parabola - Plot - Position - Process - Range - Section/ slice of a pie chart; sectors - Sets (data sets) - Sketch - Slope (of a curve) - Spacings - Statistics - The whole pie - Tick marks - Trend - Values - Variables (quantitative variable) - View (top/end/side /external/		

	front/ back /ventral/ anterior/poste rior/ lateral ...view)		

Table 1. Describing Graphs and Data

Note:

- An ax (US), an axe (GB): plural axis.
- Curve: ascendant, descendant, straight. To draw or plot a curve. The slope of a curve.
- To plot / draw a curve, a line, to plot x vs y.
- A plot: is a graphical technique of representing a data set.

3. Explaining a Graph

Here are some sentence beginnings to refer to a graph in a dissertation

- A graphical method of displaying multivariate data ...
- A visual display to illustrate various data ...
- A convenient way of graphically depicting groups of numerical data through
- ... displaying information / representing information ...
- ... to visualize a trend in data over intervals of time
- ... a symbolic representation emphasizing the range of values used
- Various graphic representations of the same variables should be interpreted similarly.
- This graphical display conveys the information of its alternate variables.
- A basic type of chart / a common type of chart / a traditional bar chart is an efficient way of symbolizing ... Charts are used to analyze, design, document or manage a process or program.

4. Different Elements of a Graph

- ... determining the position on the vertical axis / vertically oriented ...

- ... representing individual measurements with line segments
- ... connecting a series of points / data points together
- ... showing the steps as boxes of various kinds
- ... showing the range (the highest and lowest values) over one unit of time
- ... listed by period, from shortest to longest. •
- They are numbered in order of their distance from ...
- They are numbered in the order by which they ...
- The relative position and angle of the axes / central angle and area / Cartesian coordinates
- It may also indicate which observations, if any, might be considered.
- The schematic / simplified diagram is not to scale / is to scale.
- X is a fixed point / a moving point on the curve.

5. Describing Forms and Colors

- The sketch map has been distorted in order to convey the relevant information
- The boundary / outline is emphasized with various hues of colors in the graph.
- The outer / inner surface / area is represented by colors / textures / hatchings.
- A line is often drawn / plotted • The red dotted line represents ...
- Bar shading / open bars / gray bars / solid bars represent ...
- They are shaded light grey when ... and darker grey when ...

6. Referring to a Graphs in a Text

- The curve to the left / right of the diagram shows that ...
- The solid bar at the bottom / top illustrates ...
- In the foreground / background, the tick marks signify ...
- In / At the top right-hand corner / bottom left-hand corner, the plotted lines demonstrate ...
- In the center of the scatter plot, the three dispersed points reveal ...
- Mirrored histograms denote ... as a function of size.
- The median size for each group is denoted on the axis with a block arrow.
- Note the scale on the y-axis.
- They are highlighted in bold.

7. Analyzing and Describing the Graphs' Data

- This diagram is composed by / of
- It contains the sketch of / a pictorial representation of ...
- This includes a simplified scheme showing the interactions / relationship between ... and
- it can be described namely as mirror symmetry.
- the process is called / termed / named
- It is defined as a meridian line
- These alternative sequences can be used to explain the differences between ... and
- the conception of ... is ...
- The cross / transverse / longitudinal section above can be considered as ... ... appear to be ...
- These clearly indicate serial correlations of selected variables.
- This term refers to the factors affecting ...
- It should be distinguished from ... / This is not to be confused with ...
- ... is the science of ...
- It deals with
- It is a term applying to ...
- The name given is ...
- It is known as ...
- It constitutes a three-dimensional model that is more easily interpreted than the older versions.
- By ... is meant
- By definition, it is made up of different patterns that consist of ...
- It is used to / for / when / in the case of
- It works as a two-step process
- ie / like / such as / for example / for instance / eg.
- Its meaning can be made clear / explicit by the following examples
- A good example is ...
- The table presenting the frequency distribution of ... clearly indicates ...
- The key properties can be interpreted in terms of ...

Part VI: Exercises and Key Answers

Exercises

Exercise 1

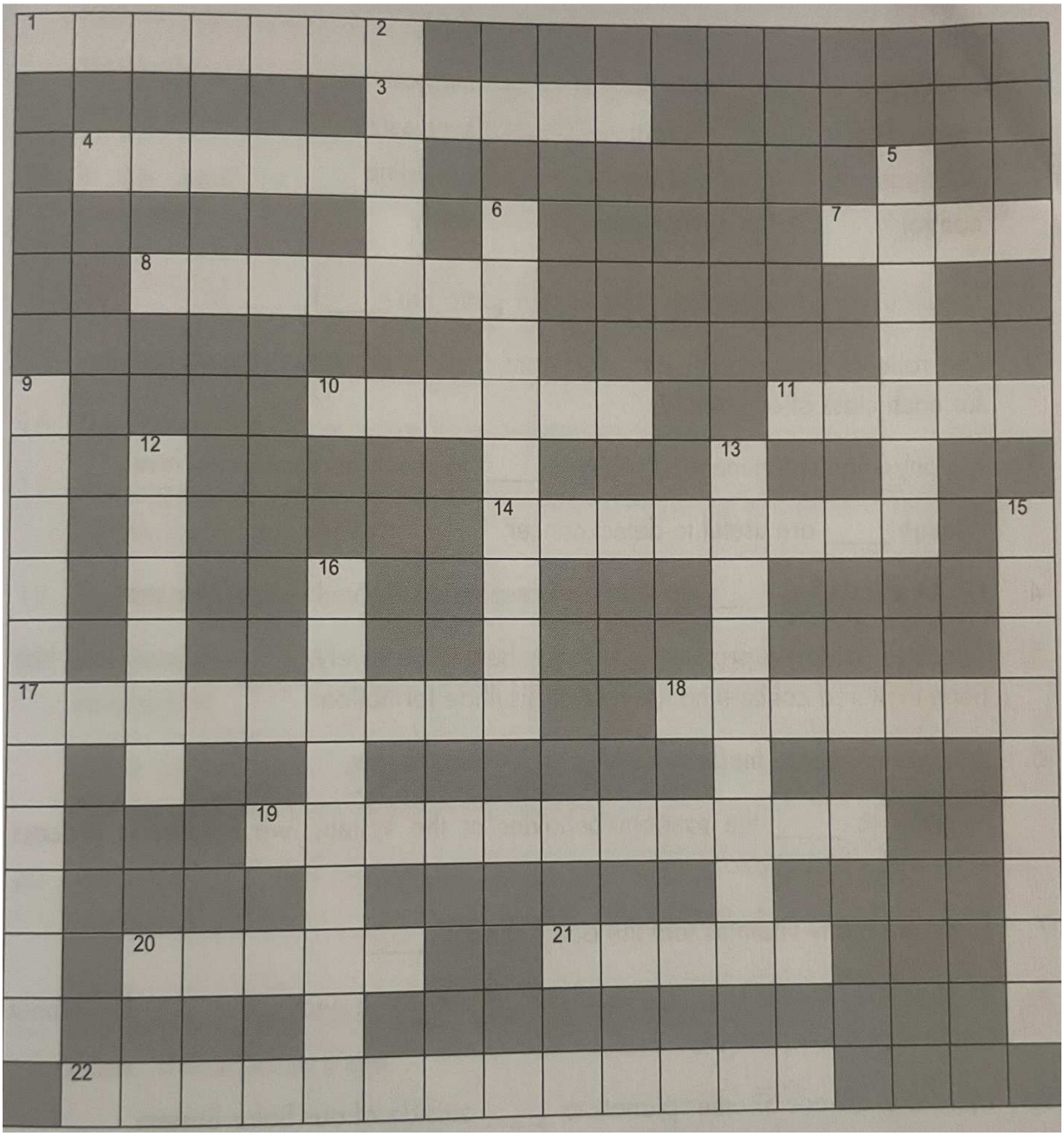
1. Across:

1.(verb or noun) to survey; mostly done with the help of a device
3. Nurses. dressings to open wounds.
4. to get results
7. a function in an experiment or process; an actor's portrayal of someone in a play
8. to give a speech to; "The biologist _ed the conference goers"
10. (noun or verb written document describing the findings of an individual or team
11. an ordered reference standard; the ratio between the size of something and its representation
14. (verb or noun) to rise; to inflate; to grow; to develop
17. an arrangement of the different parts of a complex construction or entity
18. a series of steps to be carried out or goals to be accomplished (American spelling)
19. a reciprocal relation between two or more things; statistics representing how closely two variables co-vary;
20. present reasons; give evidence of; to have a row; to quarrel
21. have to do with or be relevant to; "— to your notes!"
22. the strength of a solution; increase in density; opposite of dilution

2.Down:

2.(verb or noun) a variety of different things or activities; the limits within which something can be effective
5. consider or describe as similar, equal, or analogous
6. make a logical or causal connection
9. to prove; to show; to give a logical argument; to make obvious
12. the Big Bang or relativity, for example
13. decide upon or fix definitely
15. the geological features of the earth; the fabrication of something in a particular shape; not to be confused with "training" or "education"

16. bring before the public for the first time; bring something new to an environment; “New software was ----- d”.



Exercise 2

Choose the adequate word from the following list to fill in the gaps. All words have been used (Put the verbs in the correct tense and the nouns in plurals if necessary).

Analysis – authors – characteristic – check – composition – conclude – control – decrease

Describe – effect – estimate – explore – interpret – investigate – method – produce – show – suggest – synthesize – underline – verify.

1. Results using light detection were similar (data not.....)
2. The ratio of the predominant, dominant, and postaominant responses is .....for each class of compounds.
3. His physician recommended a blood .....to check his cholesterol level.
   Routine .....are useful to detect cancer.
4. Dr. Mirella White, ...to whom correspondence should be addressed
5. Although oxidative protein folding has been extensively .....in vitro, little has been explored concerning the role of disulfide formation.
6. A two-dimensional model is used to .....the process.
   In order to ..... the random behavior of the system, we employ a process endowed with stationary measures.
7. There are many vitamins that the body cannot .....
8. It could be possible to use analysis of AR as a way of .....for wheat contamination in products.
9. There are millions of other planets to .....outside of our Solar System.
10. The ..... of nanotube concentration and aspect ratio viscosity of the suspending liquid are elucidated.
    Crustacea and algae were identified as the most sensitive species, susceptible to adverse ..... from biocide exposures in the parts-per-trillion range.
    Toxicity threshold values were noted for more sensitive organisms, suggesting potential adverse ecological ..... in aquatic environments
11. “How would you ..... these results?”

12. On the basis of these results, it could be .....that a person eating 100-200 g of refined wheat-based food would eat 2-4 mg of AR / day.

    The industrial lab gave us an ..... of what the prototype would cost.

13. Tests ..... that Mrs. Goodfellow had torn a shoulder muscle.
14. Current advancements in HPLC column technology make it possible to .....sample runtime, while maintaining resolution.

    This problem was solved using a 150 × 3.0 mm column with the same stationary phase, which allowed a ..... in flow rate to 1.0 mL / min.
15. In this paper, a ..... that rewrites equivalences in the lambda calculus is presented.

    The example of the acoustic Doppler equipment (ADCP) proves that an increasing demand for current and discharge data can be met at fairly low cost compared with conventional .....
16. The chemical ..... of water is hydrogen and oxygen.
17. The organic programs were cheaper than the commercial program and ..... slightly lower lawn quality.
18. The results confirmed and ..... the importance of the method used.
19. *In vitro* studies have ..... that AR may have some biological effects related to membranes.

    However, the stress is about 40% higher than in simple shear flow, which ..... that the original model needs to be modified.
20 / 21. We ..... that the commercial program produced the highest lawn quality and weed and insect ....., and was the most expensive.

Exercise 3

The frequently used following expressions have been separated; find the ending (from A to I) of each beginning (from 1 to 9).

Beginnings:

1. The phenomenon was studied ...
2. in the range ..

3. may be associated ...
4. It is likely to be a critical ...
5. a higher-order strategic ...
6. tools used to create a three-dimensional ...
7. both were rated.....
8. at room...
9. the emphasis ...

Endings:

A. method will be presented
B. model
C. of 1000 to 1050°C
D. significantly higher
E. temperature
F. theoretically and experimentally
G. value to judge the determinant
H. was placed on changes
I. with high temperatures

Exercise 4

The following sentences could be used in different domains of research. Fill in the gaps using your domain's vocabulary.

Example:

Based on the cumulative evidence of afore-mentioned data and the findings derived from our study, we suggest a tentative ..... model of .....

Based on the cumulative evidence of afore-mentioned data and the findings derived from our study, we suggest a tentative oxidative stress- mediated model of autistic pathology.

1. There has been considerable interest in recent years in the area of .....

2. The results we have presented in this paper demonstrate how they ..... and .....

3. Further studies would be required to demonstrate whether the ..... derived from this study could be used to ..... Further work is required to explore ..... and their impact on .....

4. This article focuses on two main topics. We will discuss strategies to reprogram ....., and we will review recent advances in ..... that ..... while allowing ..... in response to particular.....

5. We will restrict our review to ..... . and refer the reader to a number of recent reviews on .. .. and ..... in other ..... such as .....

6. Future work could include ..... to systematically examine ....., as this is when ..... crops up. However, if the goal is to produce an efficient ..... then .....are irrelevant. For these applications, ... is ideal.

7. During one experiment in which the ..... was believed to be ..... than usual, some very unusual differences were observed.

8. In conclusion, this study examined a ....., related to..... Our data indicate .....in ... ..., along with a correlation between ....., a trend towards ..... and a reduction in .....

9. Our results provide an indication of the potential errors that may occur when .....using ..... where .....

10. We are also currently extending our approach to.....for ..... which becomes a significant factor in ..... (fig. 3 and 4).

11. Our analysis clearly discriminates ..... (fig. 3) that can be used for ..... though such work must also account for the presence of ..... that may .....

12. In this paper we suggested a ..... that minimizes the cost of ..... while ensuring that …….....

13. In the next section the key ..... are presented and the resulting ..... described.

14. It was found that the ..... of a ..... can be used to .....the efficiency of .....

15. The past decade has seen a resurgence of interest in the role of .....
The ..... are particularly important because a range of studies have shown that .....

Exercise 5

We remind you the characteristics of an abstract as mentioned earlier.

- the tenses used (present simple tense/ past simple tense)
- the use of the passive voice.
- nouns qualification
- syntactic constraints (subject + verb + Object)
- adverbs

Take a paper of your choice and underline all the characteristics cited earlier.

Exercise 6

Write an abstract for a topic of your choice and check that the abstract complies with these characteristics.

Exercise 7

The same idea may be formulated in many different ways. The context is the only way to choose the most appropriate wording

Here are some examples of different formulations.

• The origin of the first humans is still unknown, but we know there were some in East Africa 6 million years ago.
• We do not yet know where the first humans originated; however, it has been discovered that they were already in East Africa at least six million years ago.
• Although we know that there were homonids in Africa 6 million years ago, we will probably never know where they actually came from.
• Hominid bones were found throughout East Africa and determined to be at least 6Myr old; but it may never be possible to determine our true origins
• It will most probably be impossible to know where the first humans originated from, though ape-size craniums dating back to at least 6Myr were located of several parts of Eastern Africa
• Finding out where humanity started out is impossible, but thanks to the discovery of hominid skulls, we do know that they were in the eastern part of Africa 6Myr ago.
• It will not be possible to discover the origin of human species but some 6M year-old fossils testify to their existence in East Africa.
•It will never be possible to know precisely where or when the first homonid species originated but we do know that hominids were found throughout East Africa by 6Myr.

Using this example as a guide, write as many versions as possibles of each of the following sentences.

1. The shell of an egg contributes to successful embryogenesis in many ways.
2. Rabies is a widespread disease which is acute and fatal once clinical signs are present.
3. More than half the surface of Mars is covered by deposits reflecting volcanic activity throughout its history.
4. Wastes containing persistent organic pollutants is a growing environmental problem.
5. Water supplies are unevenly distributed worldwide and access depends on many factors.

Exercise 8

In the “Results” section, there are figures with captions that are always commented on in the text. Example :

Text:

As depicted in Figure 2, numerous in vivo and in vitro infection models have been used to study P. aeruginosa virulence.

Caption:

Schematic representation of experimental models and P. aeruginosa virulence.

For each comment, give the adequate caption that can come with the figure in reference.

1. Nuclear power is the largest contributor of non-greenhouse-gas-emitting electric power generation, comprising nearly three-quarters of the non-emitting sources as shown in Figure 2. Energy efficiency and carbon storage are all expected to play increasing roles in providing clean, reliable energy
2. Pyramidal tract symptoms, often reflex in nature, were noted in 9 (22.5%) patients. Fig. 1 shows the distribution of the patients among Ranawat classes for pain and neutral involvement.
3. Figure 3 presents a model of the evolutionary history of dinoflagellates based on the phylogeny of the nuclear lineages and the loss of plastid characteristics.
4. Of the 40 patients, 9 (22.5%) had anterior AAS, including 6 in whom the displacement occurred only upon flexion of the neck. Table 2 lists the mean AADI values on radiographs in the neutral, flexed, and extended positions.
5. Electron-hole pairs generated in the gate oxide of a metal-oxide semiconductor (MOS) device such as a transistor are quickly separated by the electric field within the space charge region (Fig. 1). The electrons quickly drift away while the lower-mobility holes drift slowly in the opposite direction.
6. In Ichthyostega, Acanthostega, and other tetrapods, the ventral (lower) surface of the humerus bears the pectoral process, a raised area marking the insertion of pectoral muscle. (Fig. 4) This feature occupies the conventional tetrapod position near the leading edge of the humerus in all Acanthostega and the most mature Ichthyostega, but in smaller Ichthyostega, the process lies close to the center of the bone
7. Technology such as cell phones can introduce distractions, as illustrated by a driver paying attention to a phone call and not the child pedestrian. (Fig. 2) The neglect of hazards and gaze concentration increases risk (shown in the graph as a solid black line)

above an acceptable threshold (shown in red). Drivers usually underestimate risks (shown as the blue line).

8. The relative thickness of oceanic plates estimated above is consistent with the thermally controlled origin for the oceanic LAB (Fig. 4A), but the observation in short-period waves (~3 s) indicates that the LAB is a sharp boundary (the transition thickness of less than ~10 to 15 km) and thus has chemical or fabric origin.
9. We demonstrated that inorganic impurities suchas Zn, Ti, and Al can be inserted into biomaterials by the multiple pulsed vapor-phase infiltration (MPI) process (Fig. 1), performed with equipment conventionally used for atomic layer deposition (ALD).
10. We studied 40 patients with rheumatoid arthritis, 31 females and 9 males, with a mean age of 55.2 $ 11.9 years (range, 32-86). Table 1 shows the main characteristics of this population.

Exercise 9

In the literature of your field of research, choose a caption illustrating a figure in the « results » section of an article or a thesis' dissertation. From the caption and the figure, write the corresponding comment. Compare it to the original text written by the author of the chosen corpus.

Exercise 10

The « results » section is also composed of sentences concerning analysis. In this case, the author uses modals to express actions (verb, modal, adverb) relating thus the data that he gets from the experiment.

Compete the sentences (from 1 to 18) using the following items. One item could be used many times. There are different possibilities of answers for the same sentence.

appears	might	seems
can be	most likely	strongly suggests
could	most probably	suggest
could also	possibly	suggesting

could also be	probably	tentatively conclude
could be	probably due to	would probably
may	probably indicates	
may be	seem to	

1. For a control coating of Ru(phen) with polyacrylonitrile, the luminescence of Ru(phen) decreased with the oxygen partial pressure over 80 °C, ... the lack of a dense-coating formability of polyacrylonitrile in the presence of Ru(phen).
2. Time-resolved luminescence measurements ..... solve the oxygen sensitivity- decrease because decay times of the luminescence of the two dye molecules are different.
3. In addition, it was recently shown that the polymerization of methacrylates such as methyl methacrylate ..... controlled.
4. This ..... provide an interesting tool to combine both techniques and to obtain complex macromolecular architectures such as original block copolymers.
5. It is noteworthy that the latter chains ..... formed during the process but they ..... stem from the initial sample.
6. However, it does depend on sensor data, and .....need to make sudden handoffs when a licensed user appears.
7. Thus, the noticeable peaks in monthly correlation ..... correspond to periods when the trees typically begin to undergo a growth flush.
8. High temperatures in the summer ..... check photosynthesis because of increased respiration. Internal water deficits ..... occur because of accelerated transpiration, which causes reduced gas exchange.
9. ..... , cool October temperatures ..... reflect an early winter and dormant season, and if the trees ceased their annual growth prematurely, additional photosynthate ..... stored for immediate growth at the start of the next growing season.
10. Based on the element composition, Dunde dust ..... comes from the Taklimakan, western Qaidam Basin, Kumtag, and southwestern Gobi.

11. Although there was some precipitation in spring, the total number of precipitation days from December to May was less than half its climatic value, resulting in negative anomalies of soil moisture which have ..... amplified temperature anomalies through land-atmosphere interactions.
12. Since there have only been four tropical invasions, all of which were single dispersals of terminal species and not diversified clades of taxa (Fig. 1), this ..... that an evolutionarily conserved preference for a temperate ancestral niche has limited dispersal into the tropics.
13. This ..... that there is no geographically influenced bias in the timing of currently observable speciation events, ... that species turnover rates are similar at varying latitudes.
14. Thus, we ..... the presence of the Rapoport effect, which, despite ostensibly allowing higher species density at lower latitudes, ... to have no direct relationship to the distribution of species richness.
15. All this information as well as results of the present study indicate that the Rapoport effect ..... a general characteristic pattern of the altitudinal distribution of mayflies.
16. This idea, synthesized in Fig. 4, ... that the gene level represents a key control level for riparian systems.
17. These data indicated that pCosJP10 encoded for ..... the most stable that the enzyme identified within the selected clones. But the data also ..... that the cellulases were ..... slightly more stable than all the other enzymes.
18. $CelA_{20}$ ..... belongs to family 9 of the glycosyl hydrolases (Fig. 2).

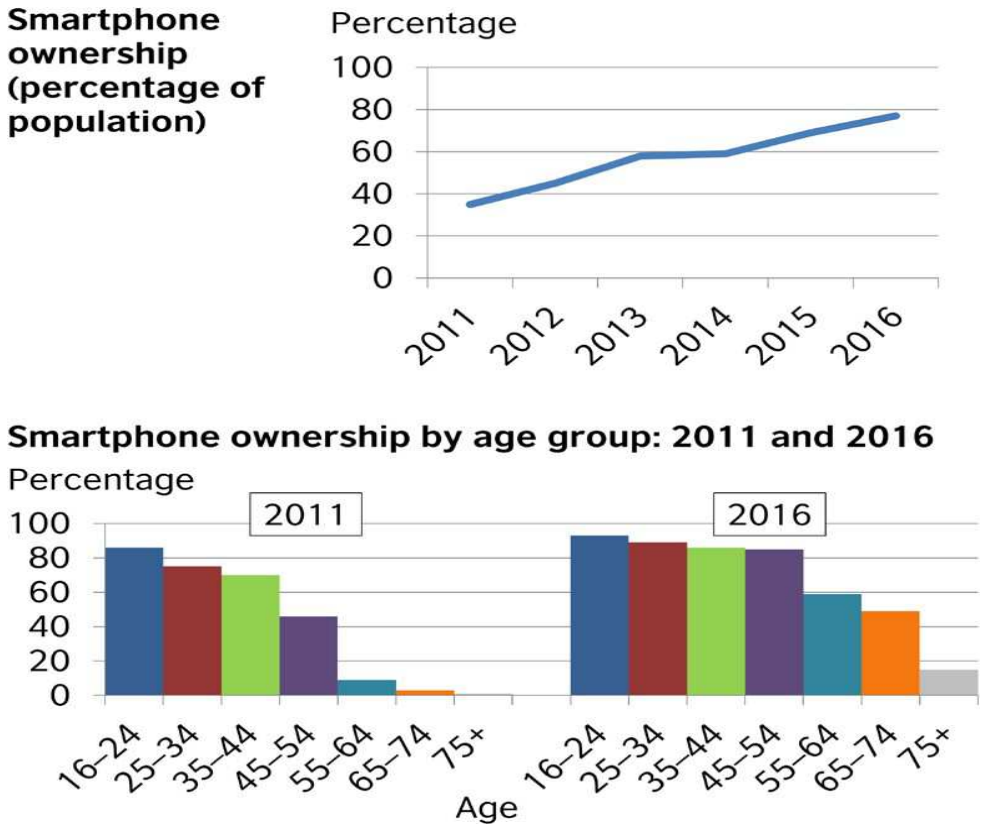
Exercise 11

Put these words in the correct group.

Suddenly	steadily	to fall
to go up	to grow	to rise
to go down	to shrink	gradually

verbs that mean *to decrease*	verbs that mean *to increase*	adverbs that describe change

Exercise 12



The first chart illustrates the percentage of the population who owned a smartphone from2011 to 2016, and the second breaks the percentages down by age for 2011 and 2016.

Overall, smartphone ownership increased during the six-year period. In general, the youngerpeople were, the more likely they were to own a smartphone. However, the most significant increases in smartphone ownership between 2011 and 2016 came from people aged 45 to 54, from 46% to 84%; from those in the 55 to 64 category, from 9% to 59%; and from those aged 65 to 74, from 5% to 50%.

The percentage of people who owned a smartphone rose steadily, starting at around 35% in2011 and reaching about 77% by 2016. People aged 16 to 24 represented the greatest percentage of smartphone ownership in both 2011 and 2016. 75% of people aged 25 to 34 and 72% of those aged 35 to 44 owned a smartphone in 2011, rising to 88% and 86% respectively by 2016.

Although almost nobody in the 75+ age category owned a smartphone in 2011, 15% of thisgroup owned smartphones in 2016.

Tips

1. Start by saying what the charts show. Change the words in the question to write the first sentence of your answer, e.g. *These charts show = These charts illustrate*.
2. The second paragraph should provide an overview of the key features of the information.
3. The other paragraphs should describe the patterns or trends in more detail. However, onlyselect the most important ones to write about, and don't write about your own ideas.
4. Use linking words and a range of vocabulary to describe what you see in the charts. (Youcan write % or per cent, but be consistent.)
5. Be careful to use the correct tenses to describe the time periods shown.

A. Are the sentences true or false?

	Answer	
1. The first sentence should explain what the charts show.	True	False
2. The detailed information should go after the description of the maintrends or findings.	True	False
3. It is a good idea to repeat words to show you know how to use them.	True	False
4. If you write over the word limit in an exam you may lose marks.	True	False
5. It's a good idea to bring in your own general knowledge of the world toexplain the trends shown in the charts.	True	False
6. You should try to use a range of language to describe the chartsaccurately.	True	False

B. Match the sentences or phrases with the same meaning.

Sales grew in 2002.	Sales rose steadily.	Sales increased the most in2002.
The charts illustrate the changes in …	Overall, …	2002 had the highest sales.

1. The graphs show the trends in … .....
2. In general, … .....
3. The biggest increase in sales was in 2002. .....
4. There was a steady rise in sales. .....
5. Sales saw growth in 2002. .....
6. The highest sales come from 2002. .....

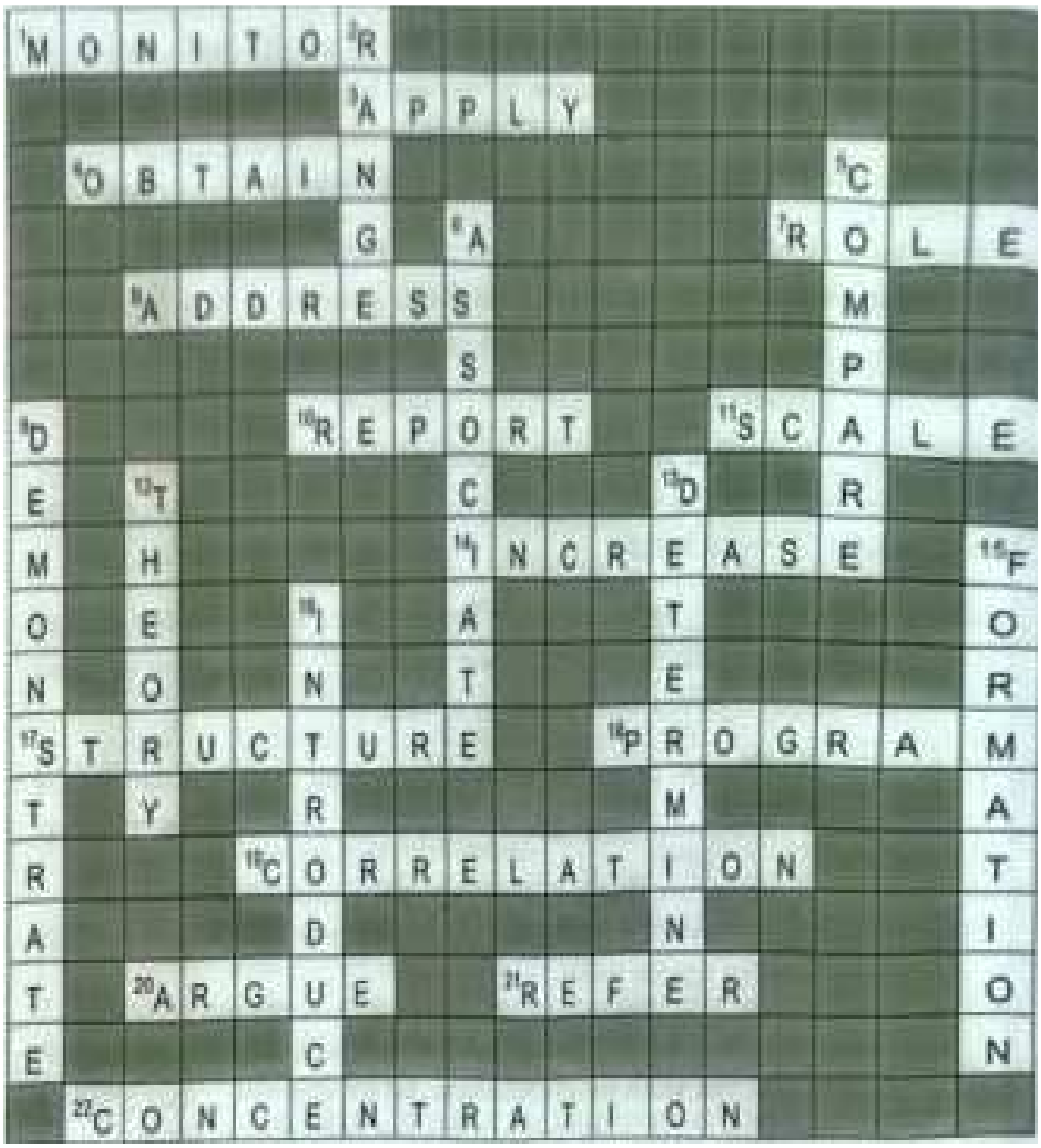
C. Write the word to fill the gap.

1. The charts illustrate the percentage of the population who owned their homes ..... 1995 to 2015.
2. Overall, home ownership increased .....the first eight years of the period.
3. The younger people were,.....less likely they were to own their homes.
4. The most significant increase.....home ownership came from people aged 75 and over.
5. From 2005, home ownership fell most for people aged 18 29.
6. The percentage of people owning their homes started around 64% in 1995.
7. The total percentage of people who owned their homes rose .....69% in 2004.

8. Home ownership fell again ..... 69% to 64% by 2015.

Key answers

Exercise 1



Exercise 2

1. Results using light detection were similar (data not shown).

2. The ratio of the predominant, dominant, and postdominant responses is characteristic for each class of compounds.

3. His physician recommended a blood analysis to check his cholesterol level. Routine analyses are useful to detect cancer.

4. Dr. Mirella White, author to whom correspondence should be addressed

5. Although oxidative protein folding has been extensively investigated in vitro, little has been explored concerning the role of disulfide formation.

6. A two-dimensional model is used to describe the process.

In order to describe the random behavior of the system, we employ a process endowed with stationary measures.

7. There are many vitamins that the body cannot synthesize.

8. It could be possible to use analysis of AR as a way of checking for wheat contamination in products.

9. There are millions of other planets to explore outside of our Solar System.

10. The effects of nanotube concentration and aspect ratio viscosity of the suspending liquid are elucidated. Crustacea and algae were identified as the most sensitive species, susceptible to adverse effects from biocide exposures in the parts-per-trillion range. Toxicity threshold values were noted for more sensitive organisms, suggesting potential adverse ecological effects in aquatic environments.

11. "How would you interpret these results?".

12. On the basis of these results, it could be estimated that a person eating 100-200 g of refined wheat-based food would eat 2-4 mg of AR / day. The industrial lab gave us an estimate of what the prototype would cost.

13. Tests verified that Mrs. Goodfellow had torn a shoulder muscle.

14. Current advancements in HPLC column technology make it possible to decrease sample runtime, while maintaining resolution. This problem was solved using a 150 x 3.0 mm column with the same stationary phase, which allowed a decrease in flow rate to 1.0 mL / min.

15. In this paper, a method that rewrites equivalences in the lambda calculus is presented. The example of the acoustic Doppler equipment (ADCP) proves that an increasing demand for current and discharge data can be met at fairly low cost compared with conventional methods.
16. The chemical composition of water is hydrogen and oxygen.
17. The organic programs were cheaper than the commercial program and produced slightly lower lawn quality.
18. The results confirmed and underlined the importance of the method used.
19. In vitro studies have suggested that AR may have some biological effects related to membranes. However, the stress is about 40% higher than in simple shear flow, which suggests that the original model needs to be modified.
20 / 21. We conclude that the commercial program produced the highest lawn quality and weed and insect control, and was the most expensive.

Exercise 3

The phenomenon was studied ... theoretically and experimentally
in the range... of 1000 to 1050°C
may be associated ... with high temperatures
It is likely to be a critical ... value to judge the determinant
a higher-order strategic ... method will be presented
tools used to create a three-dimensional ... model
both were rated ... significantly higher
at room ... temperature
the emphasis ... was placed on changes

Exercises 4, 5, 6, 7, 8, 9

Answers are individual and depend on the learners' propositions.

Exercise 10

1. For a control coating of Ru(phen) with polyacrylonitrile, the luminescence of Ru(phen) decreased with the oxygen partial pressure over 80 °C, probably due to the lack of a dense-coating formability of polyacrylonitrile in the presence of Ru(phen).
2. Time-resolved luminescence measurements could solve the oxygen sensitivity-decrease because decay times of the luminescence of the two dye molecules are different.
3. In addition, it was recently shown that the polymerization of methacrylates such as methyl methacrylate could also be controlled.
4. This would probably provide an interesting tool to combine both techniques and to obtain complex macromolecular architectures such as original block copolymers.
5. It is noteworthy that the latter chains may be formed during the process but they could also stem from the initial sample.
6. However, it does depend on sensor data, and may need to make sudden handoffs when a licensed user appears.
7. Thus, the noticeable peaks in monthly correlation may correspond to periods when the trees typically begin to undergo a growth flush.
8. High temperatures in the summer seem to check photosynthesis because of increased respiration. Internal water deficits may occur because of acceleraded transpiration, which causes reduced gas exchange.
9. Possibly, cool October temperatures could reflect an early winter and dormant season, and if the trees ceased their annual growth prematurely, additional photosynthate could be stored for immediate growth at the start of the next growing season.
10. Based on the element composition, Dunde dust most likely comes from the Taklimakan, western Qaidam Basin, Kumtag, and southwestern Gobi.
11. Although there was some precipitation in spring, the total number of precipitation days from December to May was less than half its climatic value, resulting in negative anomalies of soil moisture which have possibly amplified temperature anomalies through land-atmosphere interactions.
12. Since there have only been four tropical invasions, all of which were single dispersals of terminal species and not diversified clades of taxa (Fig. 1), this strongly suggests that an

evolutionarily conserved preference for a temperate ancestral niche has limited dispersal into the tropics.

13. This probably indicates that there is no geographically influenced bias in the timing of currently observable speciation events, suggesting that species turnover rates are similar at varying latitudes.

14. Thus, we tentatively conclude the presence of the Rapoport effect, which, despite ostensibly allowing higher species density at lower latitudes, seems to have no direct relationship to the distribution of species richness.

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18. CelAzo most probably belongs to family 9 of the glycosyl hydrolases (Fig. 2).

Exercise 11

verbs that mean ***to decrease***	**verbs that mean** ***to increase***	**adverbs that describe change**
to go downto	to go upto	steadily
fall	rise to	gradually
to shrink	grow	suddenly

Exercise 12

A. Are the sentences true or false?

1. True
2. True
3. False
4. True
5. False
6. True

B. Match the sentences or phrases with the same meaning.

1. The charts illustrate the changes in …
2. Overall, …
3. Sales increased the most in 2002.
4. Sales rose steadily.
5. Sales grew in 2002.
6. 2002 had the highest sales.

C. Write the word to fill the gap.

1. from
2. during | in | over
3. the
4. in | of
5. to
6. at
7. to | by
8. from

References

Attour, A. Chaupain-Guillot, S. (2020). Digital Innovations in Public Administrations: Technological or Policy Innovation Diffusion? *Journal of Innovation Economics and Management. Boeck Supérieur*. 195-2019.

Belkhamza, Z., & Syed Aziz, W. (2009). Cultural Interpretation of E-commerce Acceptance of Developing Countries: Empirical Evidence from Malaysia and Algeria. *IGI Global*. 193-209. https://www.researchgate.net/publication/277599604_Cultural_Interpretation_of_E-Commerce_Acceptance_in_Developing_Countries_Empirical_Evidence_from_Malaysia_and_Algeria

Boulon, J., & Marchand, H. (2012). *Write away. Rédiger en anglais scientifique et technique*. Ellipse Edition Marketing S. A.

Chaabna, S. & Wang, H. (2015). Analysis of the State of E-commerce in Algeria. *International Journal of Marketing Studies, Vol. 7, No. 2*. 44-58.

Davis, D. (2001). *Ph. D. Thesis Research: Where do I Start?* Columbia University. http://www.columbia.edu/~drd28/Thesis%20Research.pdf

Guidelines for APA Referencing and Essay Writing. (2020). Southern Institute of Technology.

Haddoum, S., Bennour, H. & Zaîd, T. A. (2018). Algerian Energy Policy: Perspectives, Barriers, and Missed Opportunities. *Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim*. 1-4.

Hartley, J. (2008). *Academic Writing and Publishing: A Practical Handbook.* Abingdon: Routledge.

Hulshof, D., et al., (2015) Market fundamentals, competition and natural-gas prices. Energy Policy (2016), 1-12. http://dx.doi.org/10.1016/j.enpol.2015.12.016

Loock, M. (2020). Unlocking the value of digitalization for the European energy transition: A typology of innovative business models. *Energy Research and Social Science.*2-9.

Murray, R. E. G. (2013). *Writing for academic journals.* Maidenhead: Open University Press.

Nikilov, P. (2022). *Writing Tips for Economics Research Papers* -2021-2022 edition, Harvard University.

Wooldridge, J. M. (2023). *Introduction à l'économie Une approche moderne*. De Boeck Supérieur s.a.

Online Sources:

Describing Charts. https://learnenglish.britishcouncil.org/skills/writing/b1-writing/describing-charts

A Guide to Writing in Economics. https://econ.duke.edu/sites/econ.duke.edu/files/documents/Dudenhefer%2C%20Paul%20-%20Guide%20to%20Writing%20in%20Economics_0.pdf

Basic Concepts of Research in Economics. https://www.csus.edu/indiv/y/yangy/145ch1.htm