

## skills mismatch and inadequacy education-job -analytical study of previous studies-

عدم تطابق المهارات واختلال العلاقة تعليم-عمل - دراسة تحليلية حول الدراسات السابقة-

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### Abstract:

The emergence of the theory of human capital in the late sixties of the last century in the United States of America contributed to the expansion of higher education, but the results of this were the emergence of a defect in the labor market represented in the imbalance of the relationship with work education, which took different forms, and the continuation of the phenomenon for a long time contributed to the spread of unemployment. Through our research paper, we will address the topic of the imbalance of the education-work relationship within a theoretical context, in an attempt to identify what it is as one of the new topics that fall within the economics of labor, which is concerned with determining the productivity of individuals, and we have relied on the descriptive analytical approach of previous studies that have already dealt with the subject from different perspectives.

**Key words:** higher education, mismatch education job, unemployment

### ملخص:

ساهم بروز نظرية رأس المال البشري أواخر ستينيات القرن الماضي في الولايات المتحدة الأمريكية في التوسع في التعليم العالي إلا أن نتائج ذلك كانت نشأة خلل في سوق العمل تمثل في اختلال العلاقة تعليم وعمل والتي اتخذت أشكالاً مختلفة كما ساهم استمرار الظاهرة لفترة طويلة في انتشار البطالة. سنتطرق من خلال ورقتنا البحثية لموضوع اختلال العلاقة تعليم-عمل ضمن سياق نظري وهذا لمحاولة تحديد ماهيته باعتباره أحد الموضوعات الجديدة والتي تندرج ضمن اقتصاديات العمل والتي تعنى بتحديد إنتاجية الأفراد وقد اعتمدنا في ذلك على المنهج الوصفي التحليلي للدراسات السابقة التي تطرقت للموضوع من وجهات نظر مختلفة الكلمات المفتاحية: التعليم العالي، عدم التطابق تعليم عمل، البطالة.

## 1. INTRODUCTION

The expansion of higher education since the eighties of the last century contributed to the increasing number of university graduates in the United States of America which caused an imbalance in the labor market, the result of which was the emergence of the phenomenon of incompatibility of the relationship of labor education in the form of excessive education ,the phenomenon of skills mismatch has spread in turn to the rest of the world, which has adopted a strategy of intensive investment in human capital, but it has witnessed different forms according to the specificity of the country's economies.

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*But what does mean by skills mismatches exactly , what are their conséquences and how we can measure them ?*

To answer the previous problem, we will rely on the following hypotheses

**-The first hypothesis** is that unemployment is one of the types of skills mismatches.

**-The second hypothesis** is they are different measures of skills mismatches.

The aim of the study of the phenomena of skills mismatches contributes to determining the compatibility of workers' qualifications with their work positions, which helps in explaining the levels of productivity of workers because of their compatibility with their jobs and job satisfaction.

#### **\*Approved Methodology**

To answer the previous problem, we will rely on the descriptive and analytical approach of the previous study.

#### **\*Littérature review**

Many developed countries have seen a significant increase in the number of university graduates due to the massive investment in human capital, which represents one of the results of the theory of human capital attributed to (Gray Becker 1960) and with the aim of obtaining high returns from education and improving future gains, individuals choose to pursue university studies based on the logic of the same theory and on what was also stated by Jacob Mincer (1970). One of the most prominent results of this increased investment in human capital is the increase in the number of unemployed graduates due to the lack of coordination between the production of educational systems and production systems, and this situation has led to the emergence of a phenomenon called lack of educational consent, which takes several forms, including the presence of many learners in the face of fewer jobs; The continuation of this phenomenon for a longer time would result in the emergence of a phenomenon of long-term unemployment.

Many researchers have studied the phenomenon of educational incompatibility from different perspectives

(Jean Jacques Paul, 1989), (Ferroukhi, 2005), (Patrizia Ordine and Guiseppe Rose, 2006), (Emanuela Ghignoni and Alina Verashchagina, 2011), (Glenda Quintini, 2011), (Olga kupets, 2015), (sholeh A, Maani and Jian Z.Yeo, 2015), (Lassassi, 2016), (Seamus McGuinness, Konstantinos Pouliakas, Paul Redmond, 2017), with the aim of helping policymakers harmonize education and employment policy in line with economic policy.

## **2. Literature study**

Higher education is the last stage of formal education, and we will present in the following what it is and the results of its expansion.

### **a- The concept of higher education and the results of its expansion**

The (UNESCO) has defined <sup>1</sup> higher education as "diversified post-secondary education, where students choose the field in which they wish to pursue their studies in the hope of working in that field. University education prepares people to face the labor market and allocates and trains them to be able to carry out their tasks." According to this definition, it can be seen that the practice of higher education is an important step for a smooth transition to the labor market;

According to the International Standard Classification of Education (ISCED 2011), the classification of the level of higher education comes at levels 5, 6, 7, 8, and this type of teaching provides

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<sup>1</sup> UNESCO, CITE 2011, Canada, 2013, ISBN 978-92-9189-131-3, p :18

educational activities in specialized educational fields where each phase is characterized by a high level of complexity.

However, it has known a significant expansion in the demand for it by individuals starting from the end of the eighties, and the increase in the demand for higher education is the main factor that led to the change in the features of higher education during the second half of the twentieth century through the change in the status of its graduates and the exposure of most of them to the phenomenon of unemployment, **and** the reason behind this is due to the prevailing belief that recognizes. The university degree allows its holder to improve his social and economic status, but the economic crises that have befallen the economies of countries and their structure, in addition to the technological booms that have appeared, have affected many jobs, which led to clear imbalances in the labor market because of the increase in the number of university graduates in exchange for the decrease in the number of jobs.

In addition to the growing phenomenon of unemployment of higher education graduates, which was the result of the increase in the number of higher education institutions, other phenomena emerged, such as the deterioration of the quality of higher education, the emergence of privatization in the field of higher education, the migration of competencies, and other phenomena, which today pose challenges that require attention.

In general, we can say that, it is true that the academic certificates obtained by young people are of great importance in the transition from school to work, as they serve as a means that confirm their competence in a particular field and level of study, but the skills and knowledge already acquired represent the most important elements in the long run, but if the skills acquired in the field of education are related to a very specific profession, Technological advances may make it obsolete<sup>2</sup>. In this case, the labor market will witness a new situation of « incompatibility of education with work », where the obsolescence of skills is one of the types of educational incompatibility that exists.

#### **b- Reasons for the incompatibility of the relationship between university education and the labor market**

The course of work of the university has evolved since its inception until today, after it served as the place where most of the various scientific discussions related to science, civilization, society, etc. take place, it later became an organized scientific institution dedicated to teaching and scientific research where most individuals seek to obtain a university degree in order to fill a job; and Among the factors that have caused the incompatibility of university education outputs with the requirements of the labor market are: technological changes, increased demand for higher education, economic crises, and the structural structure of economic sectors.

#### **-Accelerated technological change and educational incompatibility**

The idea that "machines can replace humans" has caused concern since the emergence of the Industrial Revolution and the textile machinery industry in the early nineteenth century and others, innovation and technological progress have caused disruption and mismatch between education provided to individuals and work, and humanity faces today Uncertainty, especially with the acceleration of innovation and the impact of technology on people's lives, calls for intervention by governments by investing heavily in human capital (health and education).<sup>3</sup>

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<sup>2</sup> Tazeen Fluent, *Linking Education Policy to Labor Market Outcomes*, the world bank;2008, Includes bibliographical references and index. ISBN-13: 978-0-8213-7509-9 (From. Paper) ; p:14

<sup>3</sup> World Bank Group • The changing nature of work • World Development Report 2019 • AM vii • Available on: [World Development Report 2019: The Changing Nature of Work: \(albankaldawli.org\)](http://albankaldawli.org)

### **-Expansion of higher education**

The demand for higher education after World War II expanded significantly, from being limited to the nobility and the elite of society, it became based on the principle of equality; the United States of America is among the first countries to achieve high enrollment rates in higher education, as the government granted access to higher education even to veterans. Free of charge, in 1944 the GI Bill was launched, thanks to which the number of students increased, and the idea of women's free participation in economic life contributed to the increase in the number of women attending universities.

The phenomenon of educational inflation moved from the United States of America to most other countries after the sixties; the continuous growth in the number of applications for higher education had serious consequences on public budgets, prompting the private sector to also intervene in the education market in most countries, where it in turn developed rapidly.<sup>4</sup>

Ensuring the principle of equal opportunities and equality of access to higher education is undoubtedly important for individuals and society, but this must not be achieved<sup>5</sup> at the expense of the reduction of the value of the university degree or the deterioration of the quality of education provided; Elite Production is now an official institution for the production of unemployed graduates.

### **- Economic crises and mismatch between higher education and employment**

Economic crises have negative effects on the employment process, because as soon as an economic crisis appears in a country, the performance of the productive machine will deteriorate due to the dismissal of workers, as a result of their suspension from work and their referral to unemployment, and one of the results of this situation is the deterioration of their skills and human capital due to the long period of the economic crisis and the length of their stay in unemployment.

### **- Economic structure and educational incompatibility**

The problem of the incompatibility of higher education outputs with employment requirements is widespread in many countries, but it is more concentrated in economies that have undergone an economic transition period as a result of their adoption of structural transformation programs, as well as in countries characterized by the dominance of a weak private sector<sup>6</sup> (often guaranteed by small and medium enterprises) and dominated by the service sector<sup>7</sup>.

The belief that labor markets can operate without temporary disruptions is certainly unrealistic, but the persistence of imbalances, resulting in particular by the inalignment of the outputs of the higher education system, which takes a long time to address the "education-work" gap of the relationship would cause a difficult situation characterized by real economic and social losses.

The problem of educational incompatibility must therefore receive the attention of economic policymakers, employers' associations and even trade unions to seek to address it; due to technological change, this phenomenon will grow over time.<sup>8</sup>

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<sup>4</sup> Lukas SULKOWSKI, *THE MASSIFICATION OF HIGHER EDUCATION. FROM THE ELITIST MODEL TO THE EGALITARIAN MODEL ; INTERNATIONAL SCIENTIFIC RECORDS OF THE PGV NETWORK Management & Governance COMPANIES - TERRITORIES – COMPANIES*, , Number 15, January-June 2016, ISSN: 2104-2438, p : 29

<sup>5</sup> *Ibid*, p : 31

<sup>6</sup> Olga Kupets, " Skill mismatch and overeducation in transition economies ", National University of Kyiv–Tumulus Academy, Ukraine, World Bank, USA, and IZA, Germany, December 2015

<sup>7</sup> Kamalbek Karymshakov and Burulcha Suleymanova; *Education-job mismatch and employment outcomes of youth in Kyrgyzstan*, Annual 'Life in Kyrgyzstan', Conference Bishkek, Kyrgyz Republic 12-13 October 2017

<sup>8</sup> CEDEFOP, *The skill matching challenge Analysing skill mismatch and policy implications*, report of CEDFOP (The European Centre for the Development of Vocational Trainin) Publications Office of the European Union, Luxembourg, 2010, P :9 ; Available on

### **c- Literature and definitions of the phenomenon of incompatibility of the relationship – work-education and skills mismatches**

Modern labor markets are characterized by many disadvantages in terms of: rigid wages, lack of complete information about the skills of job candidates to be hired ... etc., and these shortcomings have caused the emergence of various imbalances in the labor market, and the mismatch between the knowledge and skills of graduates and the requirements of the labor market is one of the forms of these imbalances along with the emergence of other types <sup>9</sup>

But what exactly does the term educational incompatibility that we are studying mean and what is meant by excess and lack of education?

#### **c.1 Definition of qualification and skills mismatches**

Among the definitions developed to define what a term is, we will cite the OECD's definition of incompatibility.

Skill-mismatch is a situation characterized by the emergence of a gap that requires measurement between a person's abilities and those required by their job. Since qualifications (level of education) is an approximate incomplete estimate of an individual's skills, qualification mismatch probably does not mean the case of skills mismatches in many cases. For example, a university graduate working in a job that requires a secondary education level may lack some of the skills required for employment, which may cause this graduate to be overqualified but not overqualified for his job due to the lack of skills necessary for the job. According to this definition, it can be <sup>10</sup> said that the incompatibility of Qualifications and skills is the mismatch between the knowledge, abilities and skills of individuals and job requirements and represents the presence of a large supply of university graduates in a labor market with a small number of jobs or vice versa.

For its part, the International Labour Office addressed the study of the phenomenon of relationship incompatibility Work education also “The concept of 'skills incompatibility' itself is very broad and can include a variety of types, and according to the ILO, the term 'skills incompatibility “ can be used to describe vertical imbalance. (It is generally measured in terms of overeducation, lack of education, overskilled and lack of skills), skills gaps, skills deficiencies, horizontal imbalance (by field or specialization of study) and obsolescence of skills.”

The ILO also stated that unemployment can be considered a form of educational incompatibility as a labor market imbalance<sup>11</sup> .”

The concepts of incompatibility of the above skills vary greatly in terms of their identification, measurement, and impact, with some related to mismatches experienced by employees, while others relate to employers and difficulties that arise at the enterprise level because of imbalances in labor productivity.<sup>12</sup>

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[https://www.cedefop.europa.eu/files/3056\\_en.pdf](https://www.cedefop.europa.eu/files/3056_en.pdf)

<sup>9</sup> Quintini, G, “Over-Qualified or Under-Skilled: A Review of Existing Literature”, OECD Social, Employment and Migration Working Papers, No. 121, OECD Publishing. 2011 , p :8, available on <http://dx.doi.org/10.1787/5kg58j9d7b6d-en>,

<sup>10</sup> Ibid

<sup>11</sup> Skills mismatch in Europe : statistics brief , JOY Cataloguing in Publication Data, International Labour Office, Department of Statistics. - Geneva: ILO, 2014, p :5 ; Available on [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms\\_315623.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_315623.pdf)

<sup>12</sup> Seamus McGuinness, Konstantinos Pouliakas, Paul Redmond, How Useful is the Concept of Skills Mismatch?

, ISBN: 978-92-2-130877-5 (web pdf), Joy, 2017, p :1

Available on

[o22924499.out\(ilo.org\)](https://o22924499.out(ilo.org))



Based on the above definitions, we can formulate the following procedural definition of the term incompatibility of the education-action relationship, as it represents

*An imbalance in the labor market indicates the existence of a supply of graduates that differs from the demand of institutions, whether in terms of quantity or quality, this situation can arise due to several factors such as the increase in demand for higher education, which affects the type of education "quality of education", and other factors related to demographic, economic, technical changes. And even political.*

The incompatibility of the education-work relationship causes low wages for newly employed people and can also make it difficult for women and youth to integrate into the labor market, leading to either exacerbating unemployment or job dissatisfaction, with the result of both cases being low productivity of learners.

## **c.2 Educational incompatibilities (skills mismatches forms) and their consequences**

The disruption of the relationship between education and work can take many forms and has many consequences for both individuals and the economy.

### **c.1 forms of skills mismatches**

According to the ILO, the incompatibility of the relationship between education and employment or what is also termed educational incompatibility can occur in different situations:

**c.1.1 Vertical imbalance:** This type of imbalance arises in the relationship between education and work, and falls within this category either overeducation, or lack of education (undereducation); or excessive skills (overskills) and lack of skills (underskills)

#### **\* Overskills and underskills**

Overskilling describes a situation in which a worker believes he has more skills than his current job requires; while an adverse situation describes a situation in which a worker feels that their current skills do not meet the requirements of the job. Excess or under skill can be measured through a direct assessment process by HR professionals through separate questions related to skill types, and this is rarely recorded in the data groups T, unlike the incompatibility of the level of education where one question can be used to identify both overlearning and under education.<sup>13</sup>

Both subjective bias in assessment are among the drawbacks of this type of assessment (using questions) to measure the extent to which skills are increased or decreased, as well as respondents' focus on work-related skills while answering questions.<sup>14</sup>

**\* Overeducation or lack of education (undereducation)** The first situation is characterized by being a situation in which the individual finds himself occupying a job that requires a lower level of education than the person has reached, while the second situation is a situation in which the level of education reached by the individual is lower compared to what the job requires; Workers are overeducated (or vice versa) if they have years of education higher or (lower) than the occupational average;<sup>15</sup>

This curriculum has been heavily criticized for dropping out of education and the assumption that excess or minor education is distributed identically across professions.

Currently, there are three approaches to measuring the existence of excess or undereducation, we find the subjective method, the standard method, and the job analysis method, and through studies it was found that the two most commonly used measurement methods are the subjective and

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<sup>14</sup> Seamus McGuinness, Konstantinos Pouliakas, Paul Redmond, *How Useful is the Concept of Skills Mismatch*, on. Cite, p :6

<sup>15</sup> *Ibid*, p :4

standard methods , although each method is designed to measure the same The kind of imbalance between education and employment, but the results obtained are often conflicting.<sup>16</sup>

### **c.1.2 Horizontal imbalance**

Horizontal imbalance represents a form of educational incompatibility where it describes the situation in which workers (usually university graduates) occupy a profession or job that does not correspond to their academic specialization, and this is measured and determined using a personal question "by asking the respondent to classify the degree to which his current job is related to the field of study"; in addition, horizontal imbalance can be measured. Independently by comparing the field of study and profession codes according to the International Classification of Occupations.<sup>17</sup>

### **c.1.3 Obsolescence of skills**

This type of imbalance represents that workers' skills are outdated, because of aging that underestimates the value of some manual skills, or because of technological or economic changes that make some skills useless, or because of a lack of use of skills.

Skill aging is often measured through worker self-questioning, and research published in this area has shown that skill aging is more common in high-tech industries.<sup>18</sup>

### **c.1.4 Skills gaps**

Skills gaps arise when workers do not have the skills to perform their current jobs, and to measure them, employers need to collect information about deficiencies in terms of skills in employees.<sup>19</sup>

### **c.1.5 Skills Shortages**

Skills shortages represent another type of mismatch between learning outcomes and employment requirements that usually describes the existence of vacant (or difficult to fill) positions and this situation has arisen due to a lack of qualified candidates for these positions.

Skills shortages are measured at the enterprise level and usually include a series of questions that begin with a search for the existence of vacancies that are difficult to fill, followed by a series of questions that determine employers' opinions on the reasons behind recruitment difficulties; factors implicitly causing skills shortages include: Factors related to productivity at the enterprise level , such as product development, labor costs, and other factors such as the ageing of the workforce "especially in developed countries", and digitization as a result of rapid technological change offset by a slow response by workers;

One of the challenges of estimating skills shortages is that some of the recruitment difficulties that employers attribute to skills shortages may be due to the inability to be properly paid or to provide favorable working conditions to attract relevant skills.

Of all the types of dysfunction, the variety associated with dysfunction caused by overeducation has received the most studies, and this concept was first introduced in 1976 by Richard Freeman through his book "The Overeducated American" where this author presented the experience of the United States of America in intensive investment in human capital through the expansion of higher education , and Since then, the literature on overeducation has grown exponentially and studies show that about 30 to 40 percent of the working population falls into this category and suffers from

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<sup>16</sup> Ibid, p :3

<sup>17</sup> Seamus McGuinness, Konstantinos Pouliakas, Paul Redmond, *How Useful is the Concept of Skills Mismatch*, on. Cite, p :7

<sup>18</sup> *ibid*, p :8

<sup>19</sup> *Ibid*, p :9

an impact on wages, as receiving excessive education has negatively affected their wages. The level of education corresponding to the requirements of the work is done.<sup>20</sup>

### c.2 Consequences of the imbalance of the education-work relationship

The topic of skills mismatch has received increased attention in advanced economies following the global economic crisis of 2008-2009, which caused an increase in unemployment rates in the developed world. Many analysts have argued that the mismatch of skills with job requirements is a phenomenon reinforced by the economic crisis and today constitutes an obstacle to economic growth, so labor market actors, governments, institutions and workers, must ensure that the professional requirements and knowledge provided are harmonized. The success of this process is an important factor in determining labor market outcomes, economic growth, productivity, and competitiveness.<sup>21</sup>

To illustrate the effects of educational incompatibility in more detail, we will assume that if a given economy has a huge number of workers who are more educated than what their jobs require, for example, it means that enterprises do not fully benefit from the productive capacity of their workers, whereas if they are uneducated, it means that enterprises by employing less productive workers do not operate within the limits of their production.

Deficiencies can appear in the interaction between the labor market and the education and training system in both cases, and the resulting skills mismatch will impose costs on individuals (unemployment, low wages at the beginning of the career path and job dissatisfaction), institutions (difficulty finding qualified employees required along with low labor productivity) and society. (The deterioration of human capital and the decline in the importance of education, in addition to the consequences of the unemployment crisis from poverty and the spread of ignorance. etc.), where labor markets around the world constantly show different types of educational incompatibility.

Unlike unemployment, which is usually measured by international standards, the incompatibility of the education-work relationship lacks a standardized measurement framework.<sup>22</sup>

Finally, some disruption in the labor market is certainly inevitable, and sometimes even positive in a market economy where theoretical and empirical evidence suggests that over-education in developed countries is a temporary phenomenon that mainly affects young people entering the labor market for the first time. It has a negative aspect of inefficiency in the allocation of resources (financial and human resources), which would negatively affect labor productivity, just as this phenomenon has advantages, it is also characterized by disadvantages<sup>23</sup>

Given that educational misalignments represent mismanagement of different resources, policymakers should focus on improving the quality and efficient allocation of human capital, not just on increasing it. Improving the overall quality of the workforce contributes to attracting and using advanced technologies as well as stimulating local labor markets, and it is also necessary to

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<sup>20</sup> *The skill matching challenge Analyzing skill mismatch and policy implications, report of CEDFOP (The European Centre for the Development of Vocational Training) Publications Office of the European Union, Luxembourg, 2010, p :14; Available on*  
*: [https://www.cedefop.europa.eu/files/3056\\_en.pdf](https://www.cedefop.europa.eu/files/3056_en.pdf)*

<sup>21</sup> *Skills mismatch in Europe : statistics brief , JOY Cataloguing in Publication Data, International Labour Office, Department of Statistics. - Geneva: ILO, 2014, p :5 ; Available on, p :6*

<sup>22</sup> *ibid, p :5 ;*

<sup>23</sup> *Olga Kupets, Skill mismatch and overeducation in transition economies, IZA World of Labor 2016: 224, two: 10.15185/izawol.224 , December 2015, , p : 2*



train older workers in the latest skills through adult training, so that they can stay in productive jobs for longer.<sup>24</sup>

**d- Methods of measuring educational incompatibility with work**

Some labor market indicators such as the low professional integration rate, the high unemployment rate of university graduates, and even the rankings of national and international organizations on the quality of education and work such as (Doing Business rankings on how easy it is to do business, OECD ranking on the state of education, and reports. The International Labor Office, and even the World Bank... Reliable information about the existence of a defect in the relationship between the outputs of the educational system and the labor market, which must be taken seriously by first identifying it and then measuring it, as measuring the incompatibility between education and work allows us to know whether the quality of education provided to graduates is good or not, as well as knowing The various reasons for the difficulty of professional integration in the labor market, according to the opinion of graduates looking for work.

On the other hand, statistics on the types and levels of skills mismatch to the needs of the labor market provide information on the extent to which qualified human resources are used in the economy, and this information is necessary for the planning and formulation of macroeconomic policies; statistics on various educational incompatibilities help in a better understanding of the emerging relationship. Between educational attainment, and field of study, on the one hand, and the resulting economic and social consequences that affect the lives of individuals, including income, professional mobility, job satisfaction and productivity, on the other hand.<sup>25</sup>

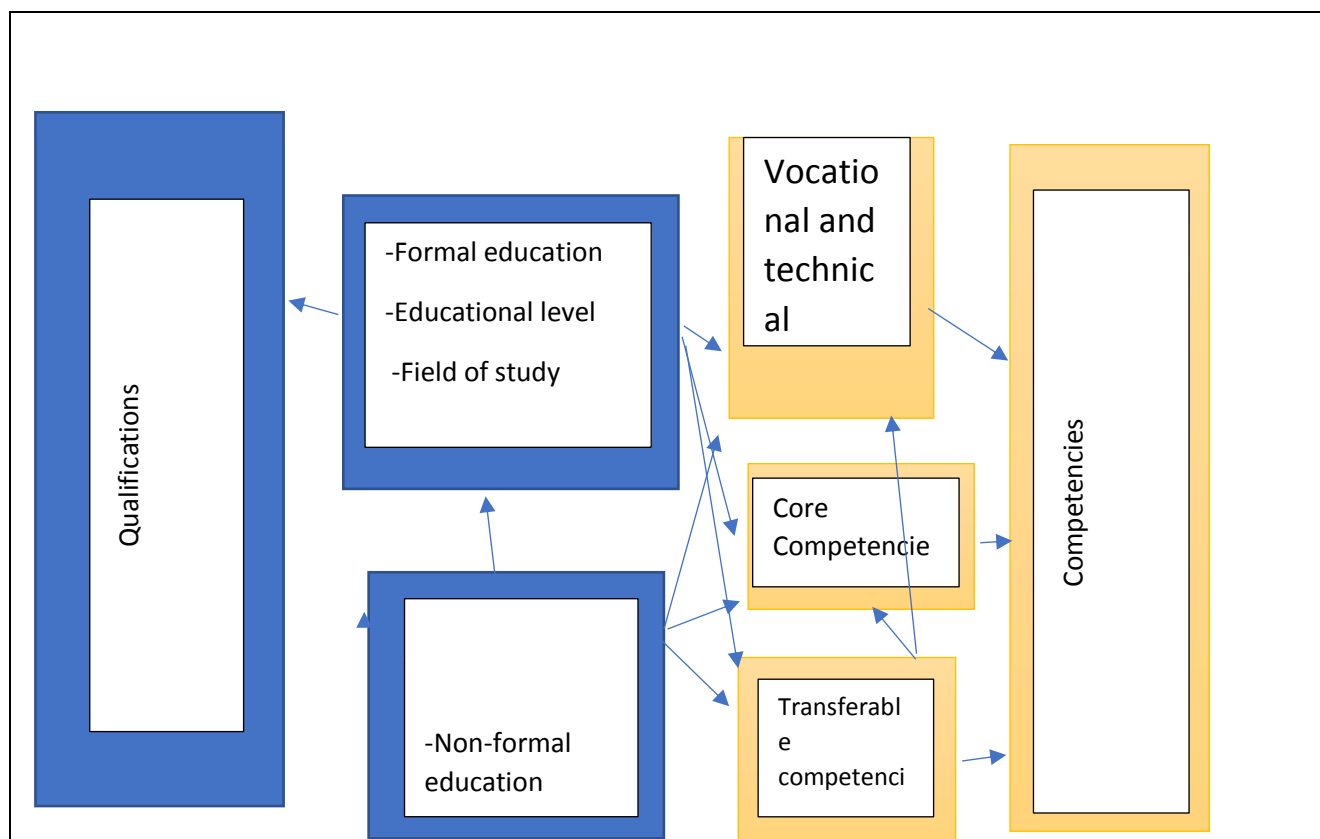
In the following, we will present the various measurement methods that will be used to measure the various educational incompatibilities arising in the labor market and adopted in most studies conducted on this topic. But before we saw that it was necessary to distinguish between two key terms derived from the term incompatibility of the education-work relationship, namely qualification incompatibility and skills incompatibility.

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<sup>24</sup> *Ibid, p :1*

<sup>25</sup> *Valentina Stoevska, Measurement of qualification and skill mismatches of persons in employment, Room document 20th ICLS, Geneva, October 2018, p :8*

**Figure 1 Qualifications and Skills Analysis Framework**



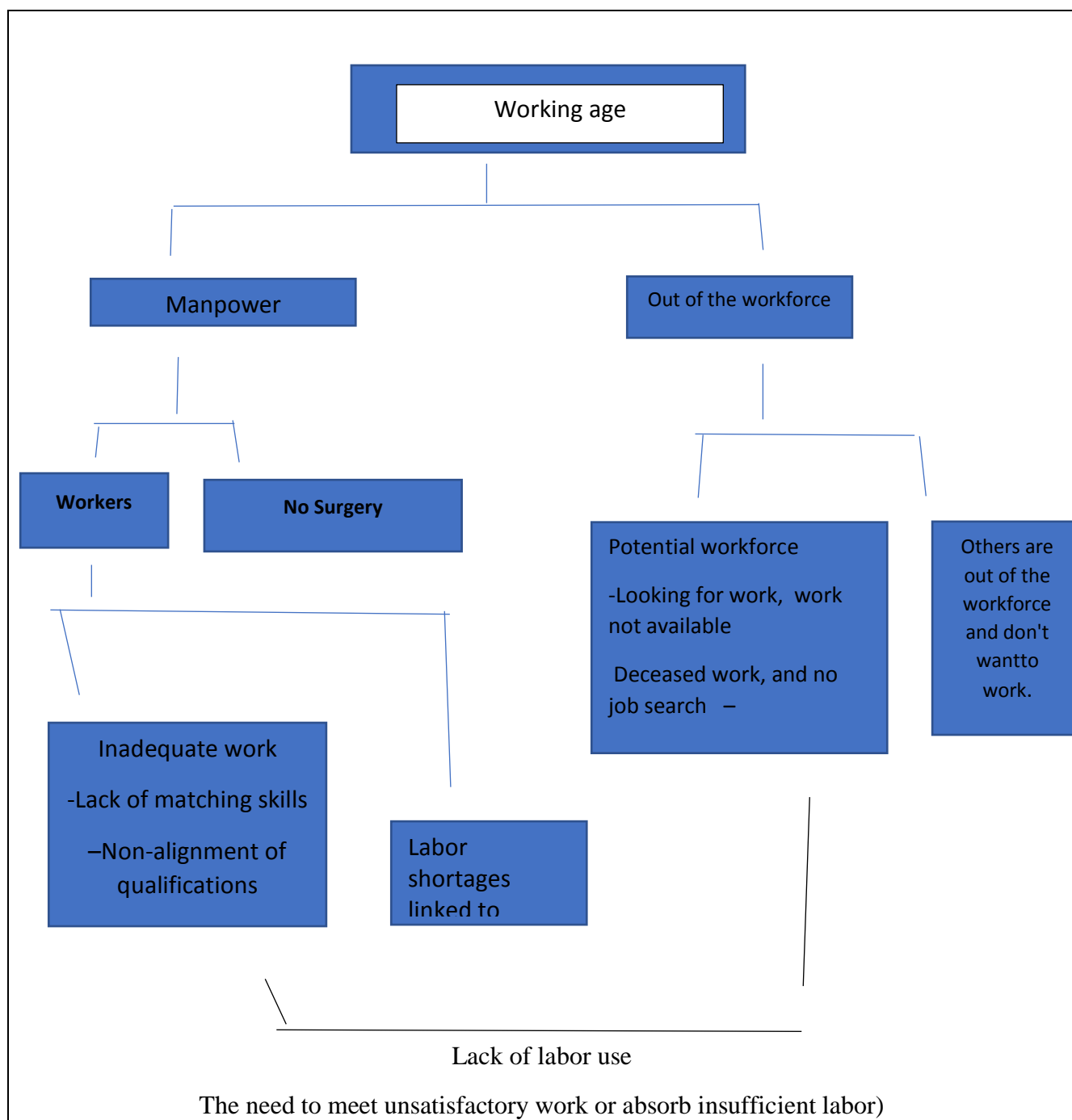
Source: Prepared based on Valentina Stoevska, *Measurement of qualification and skill mismatches of persons in employment*, Room document 20th ICLS, Geneva, October 2018; p. 9

The terms "qualifications" and "skills" are often used in rotation, which can lead to a misinterpretation of the meaning of each accurately, although qualifications are almost the same as skills, it has been found that the knowledge gained, and the skills acquired after completing educational programs are an approximate indicator of the skills. They can also develop through workers acquiring new skills outside the formal education system through on-the-job training to gain experience or by continuing the self-learning process through various educational courses or through volunteer activities, etc.

Moreover, qualifications (certificates obtained) do not always refer to the actual abilities of an individual as two people with the same educational qualification can have very different abilities. Hence the need to identify and measure qualifications and skills separately. The XIX International Conference of Labor Statisticians identified the different situations experienced by a person of working age in the labor market and the locations of different mismatches<sup>26</sup>;

<sup>26</sup> *ibid*, p 9

Figure 2: Underemployment by 19th International Conference on Labor Statistics



Source: Valentina Stoevska, on. cite, p :4

Emerging educational mismatches represent a waste of resources and underutilization of existing labor in the economy, where underuse of labor can be measured relative to working hours according to an indicator determined by the following formula:<sup>27</sup>

Hour-related underemployment rate = (number of people affected by underemployment / total number of jobs) \* 100

The aim of this indicator is to show the number of people who have a job but are dissatisfied with the working hours; one criticism of this indicator is that it does not represent all categories of people who experience educational mismatches, but only determines the category that works part-time.

According to Figure 2, we can see that an individual of working age can form a workforce if he has a job or if he is unemployed and looking for work, and on the other hand he can be considered outside the active population if he is not looking for work and if he is considered a potential labor force.

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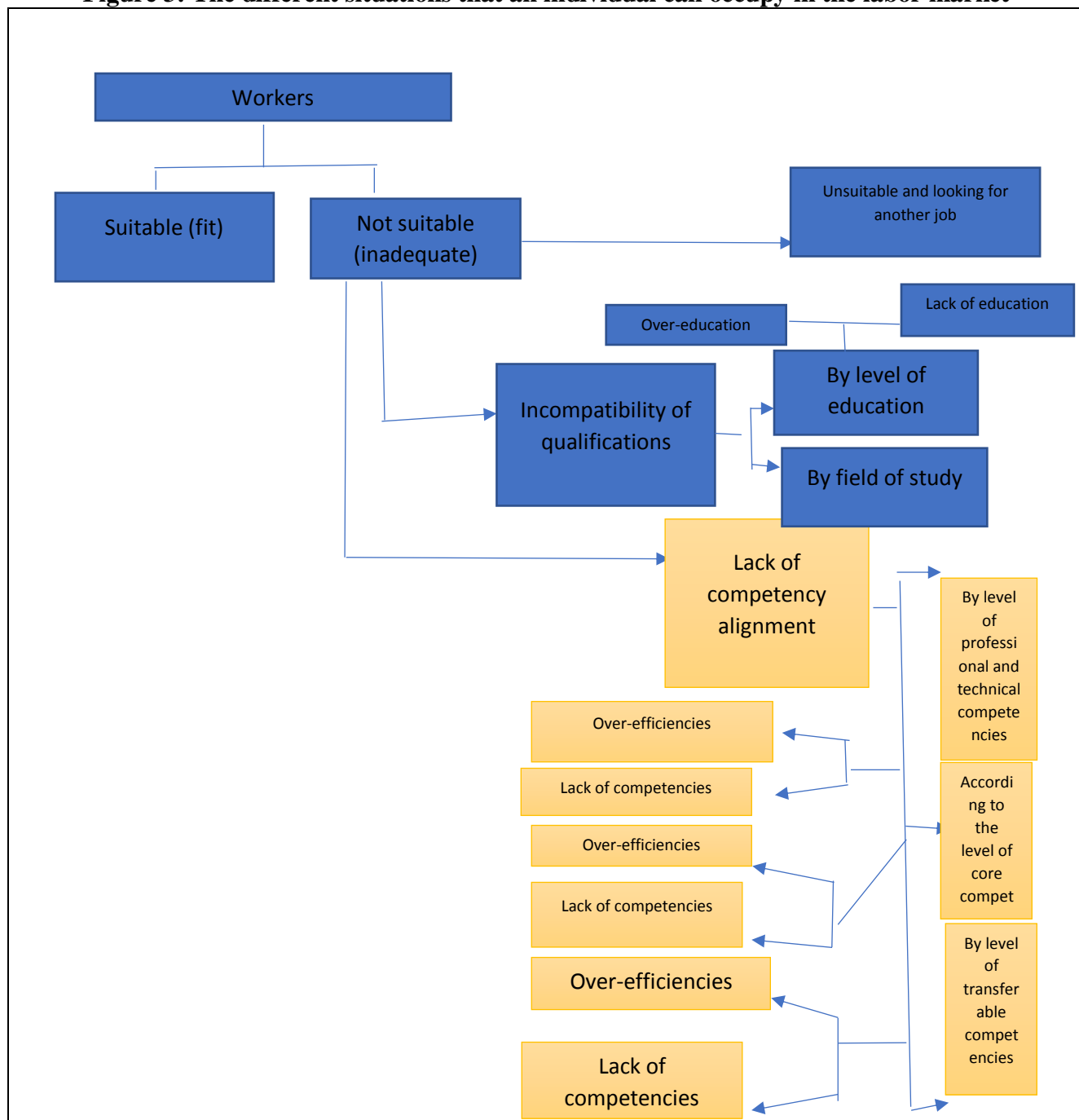
<sup>27</sup> African Union, *MINIMUM LIST OF LABOUR MARKET AND VOCATIONAL TRAINING INDICATORS*, April 2012, p: 24;

Available on <https://au.int/sites/default/files/documents/32846-doc->

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**Figure 3: The different situations that an individual can occupy in the labor market**



source : Valentina Stoevska, on. Cite, p :13

The position of employees in the labor market varies according to their satisfaction and productivity and even according to the compatibility of their level of education and fields of study with the work they occupy; The situation in which the relationship between education and work is disturbed is characterized by various incompatibilities:

- Lack of matching qualifications and/or skills and job dissatisfaction forcing the employee to look for another job,



- Incompatibility of qualifications (increase in education or lack of education);
- Skills mismatch (excess skill / lack of skill)

The mismatch of qualifications and skills is measured according to the requirements of the job in which the person works, and even if an individual occupies more than one job, it can also be considered compatible or incompatible with his job.<sup>28</sup>

#### **d.1 Measures of incompatibility of qualifications**

Within this type there are two types of incompatibility:

Either lack of compatibility due to the level of study, or lack of compatibility of the qualification due to the field of study.

##### **d.1.1 Measurement of mismatch of qualifications resulting from academic level**

Most academic analyses have focused on the study of qualification alignment because the data needed to estimate disconformities, such as data related to occupation, educational attainment and/or field of study, is widely available and can be exploited from the Household and Employment Institutions Survey.<sup>29</sup>

According to the literature, there are three ways to measure qualification mismatch: the normative method, the statistical method and the self-assessment method, and the common point of these three methods is that they use information on the suitability of different levels of study for each profession or occupational group.<sup>30</sup>

##### **\*In the modular approach**

The mismatch is estimated using a classification prepared by a professional analyst of labor, according to the latter, the minimum level of education for each occupation or group of occupations is determined in a dictionary of occupational classes formulated for each country. A working person is considered overeducated (overqualified) or undereducated (not qualified) if the level of education obtained is higher or lower than the requirements of his profession (CITP level). in 1, 2 or 3 digits). One of the advantages of the modular approach is that it relies on the specialist analyst's knowledge of the job needs; while one of the most significant drawbacks is the difficulty of updating the classifications on which it is based, in addition, these classifications are not always available at the national level; and even if they exist, they change rapidly due to technological developments.

##### **\* Statistical Method**

It is based on the distribution of educational levels of workers in each profession or occupational group to determine the educational level required for a job. Nonconformity is estimated according to this approach by:

- Comparing the actual educational level of an individual worker with the typical educational level of all workers in his profession or occupational group, this typical level of education for a profession or occupational group is used as an indicator of the level of education necessary for that occupation.

Or by:

- Compare the actual years of study of the employee with the average, mode or median of the years of study for all employees in their profession or occupational group. In this approach, we use the average, mode, or median number of years of schooling for all people working in a profession or group of occupations to approximate the number of years of study needed for that occupation or group of occupations. A working person is considered overly qualified or ineligible if the number of years of schooling Completed is greater or less than the average number of years of study (+/- confidence interval) for all people working in the same profession or group of occupations. The

<sup>28</sup> Valentina Stoevska, *Measurement of qualification and skill mismatches of persons in employment*, on cite, p: 15

<sup>29</sup> *ibid*

<sup>30</sup> *ibid*

main advantage of the statistical approach is that it is easy to use because it exploits only the basic variables covered by household surveys, while the main disadvantage of this approach is that it is based on the idea of homogeneous levels of education for all employees and does not recognize the idea of seniority among older workers.

**\* In the self-assessment approach** <sup>31</sup>

The mismatch is derived from:

A **direct** approach based on workers' responses to a question about the appropriateness of their level of education and the level of education required by their work; according to this approach, a person at work is considered overly educated and/or under-educated if he declares that he has a higher / lower level of education than is required for his current job ;

Or by:

**The indirect approach**, which depends on the employees' answers to a question about the required level of study The religion they consider appropriate to obtain a job, and then compare it with their real educational levels. A person with a job is considered overeducated or undereducated if his level of education is higher / lower than the typical value of the self-declared educational level specified for obtaining the job or carrying out the work Declared by all employees of the profession or in the same professional group.

The main advantage of the self-assessment approach is that it considers the idea of heterogeneity because respondents are the ones who know their jobs and the tasks they need best. On the other hand, this approach is biased towards opinion and subjectivity in issuing opinions.

**d.1.2 Measurement of mismatch by field of study**

The state of incompatibility of the field of study for the job represents the situation in which a qualified person occupies a job that is not related to the field of study he studied, and this phenomenon is also measured through the three approaches, which are the normative approach, the statistical approach and the self-assessment approach, but the main feature of this type is that it depends on information about the field of study that was obtained by the employee or the unemployed. Measuring qualification mismatches according to the field of study can only be limited to employed persons with a high school or higher education degree (either vocational training or university education) while those with a lower degree the evaluation process depends only on whether they are suitable for the job or not through What they possess of their skills.

**d.2 Measures of incompatibility of competencies:**

The third type of incompatibility is the lack of alignment of skills and this type is evaluated differently from the lack of alignment of qualifications because the skills are not supported, and it is difficult to determine individual skills and this type of incompatibility can be measured in three ways:

**\*Employer Evaluation:**

This type of measurement is based on employers' perceptions regarding the skills required for the job and the skills that workers possess, and this type of question can be included in surveys related to organizations that collect employment data; conducting surveys for this type of question is expensive and difficult to assess the performance of all workers and it is better to measure skills mismatch in small studies (specific studies involving a limited number of companies for a specific industry).

**\* Employee evaluation:** This type of measurement depends on employees' perceptions regarding the acquired skills and skills required for the job, and this type of question can easily be included in

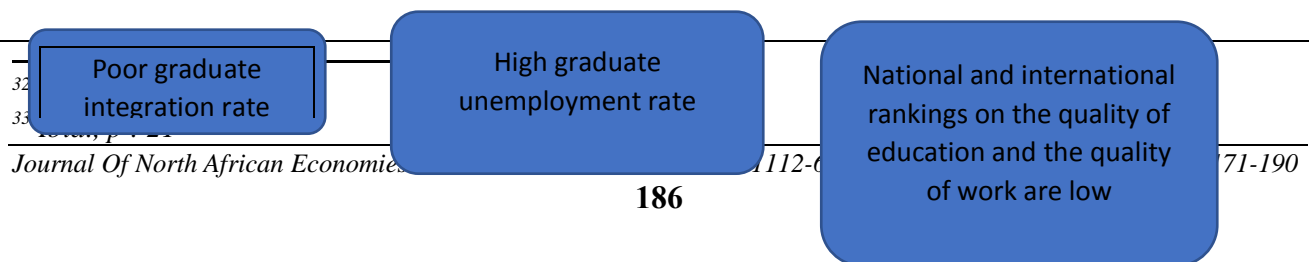
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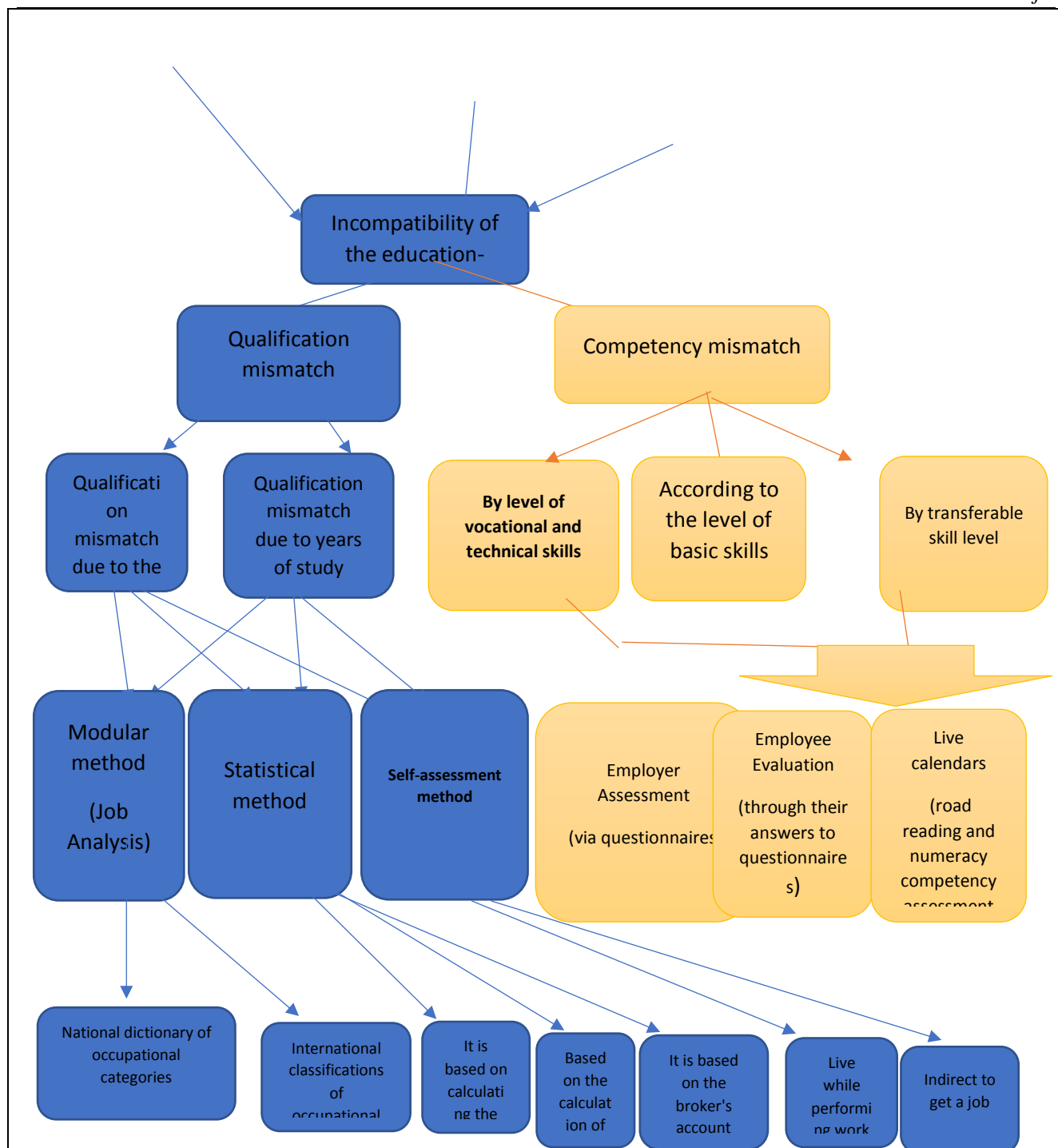
<sup>31</sup> Valentina Stoevska, *Measurement of qualification and skill mismatches of persons in employment*, op cité, p :17

labor force surveys and even in household surveys that address many topics related to the labor market;<sup>32</sup>

\* **Direct measures of competencies with conformity rating:** Direct measures are based on the actual assessment of skills through tests (writing, reading and numeracy tests), and the skill level of the worker is compared with the average skill level of all workers in a profession or sector. This type of measurement is expensive and difficult to apply because it requires detailed data on job analysis, analysis of occupations, and even skills tests. These approaches have been widely criticized for their subjective attributes, but they remain the most widely used and some have suggested that it is better to combine measurement approaches that rely on perceptions of employees and employers at the same time to achieve a great deal of reliability. The extent of skills mismatches can be easily estimated using generally available labour statistics; we compare the distribution of employment by occupation (as an approximation of the skills used) with the distribution of employment by level of education (as an approximation of acquired skills).<sup>33</sup>

Figure (4) Illustration on measures of incompatibility of the relationship Education-Action





Source: Our synthesis

It is clear from the figure that the imbalance of the education-work relationship is detected through a high unemployment rate, a low occupational integration rate, or through low national and international classifications on the quality of education.

### **3. CONCLUSION**

Through this study, we have found that education has a significant impact on the level and type of work occupied by the person, and this idea has been confirmed by most economic theories, starting with the classical theory and the theory of human capital.

On the other hand, we found that the imbalance of the relationship with labor education is a temporary phenomenon that occurs due to economic recessions, heterogeneity of information in the labor market, job dissatisfaction, and the emergence of technological breakthroughs in certain industries.

This temporary imbalance quickly fades over time in periods of economic recovery or due to on-the-job training, career mobility, promotions, or a lifelong learning strategy.

The study reached as a response to the first hypothesis, which considers unemployment one of the forms of labor market imbalance, but the inherent difference between it and the rest of the forms of educational incompatibility is that it has a unified measurement framework while other forms have several forms of measurement.

It has become possible to detect the imbalance of the relationship with labor education, whether through the low occupational integration rate, the high unemployment rate or through national and international rankings on the quality of education and the quality of work.

The aim of measuring the size of the imbalance gap between education and work is to be able to correct the imbalances by initiating educational reforms or adopting economic reform in general, and this is measured through the standard approach, the statistical method, or the self-assessment method. Most empirical studies have agreed that the self-evaluation approach is considered the most appropriate as it depends on the opinions of workers and employers, as they are considered through experience the most knowledgeable of the requirements of their jobs.

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