

# THE MEDIATING ROLE OF ORIENTATION LEARNING IN THE RELATIONSHIP BETWEEN THE DIMENSIONS OF HUMAN CAPITAL AND THE ADOPTION OF INNOVATION AND INNOVATIVE CAPABILITIES

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## Abstract

The current research aims to study the mediating role of the learning orientation in the relationship between the dimensions of human capital and organizational innovation (adopting innovation and innovative capabilities) in the Iraqi industrial sector represented by the General Company for Electrical and Electronic Industries in Baghdad, based on the analytical study of a sample of workers in the upper, middle and operational departments. In the company, the sample consisted of 262 employees, structural equation modeling was adopted, and the statistical analysis program Stata 16 was used, and the most prominent results were the presence of an impact on the dimensions of human capital in adopting innovation in the researched company, but there is no effect on the level of innovative capabilities, and we recommended the necessity of Work to achieve integration between the dimensions of human capital and make more efforts about learning and encourage learning on advanced technologies, software, machines and modern machines in order to keep pace with developments and continue in the labour market to invest in creativity and production of new products and services or make adjustments to operations in the company.

## INTRODUCTION:

The current era is witnessing continuous changes that may become a challenge for organizations to continue, succeed and develop their performance. The intensity of competition, technological and knowledge diversity, and the multiplicity of resources and their quality made it necessary for organizations to create practical and adaptable human resources. In line with these changes and developments, modern management concepts have been based on (human capital - orientation towards learning - innovation). Moreover, because they are essential assets and permanent wealth, the current research's idea crystallized to address these contemporary administrative concepts for their significant role in the success and excellence of performance through investing in technology and creating an appropriate environment for innovation. The research idea did not come from a vacuum, but rather it is a start from the administrative philosophy, which considers the human resource to be the essential factor in

determining the success of organizations. Therefore, organizations today focused on this critical aspect, as it is the way to support their success. The research has determined the levels of human capital dimensions in the Electrical and Electronic Industries Company in Baghdad and the extent to which it adopts organizational innovation, believing in the importance of these companies in performing their essential role in the Iraqi economy. The company relies mainly on technological capabilities and human energies. The General Company for Electrical and Electronic Industries is one of the most important industrial companies in the Iraqi industrial sector. This company provides and produces various types of goods and services such as (electrical generators, transformers, central, contour and window air conditioners, air cooler motors and pumps, firefighting equipment, box transformers, household water pumps, and other necessary goods and services for the public and private sectors. The public sector represents (80%) of its clients, represented by companies and government ministries, as for (20%) of local consumers, and it contributes to employing approximately (1500) workers and employees, which confirms the importance of the company in the industrial and economic sector. Foreign goods and the suspension of a number of production lines due to technological obsolescence, lack of qualification, lack of primary resources, lack of innovation, and improvements led to a decline in the company's competitive strength (Abbass, 2016: 2). This is one of the most important reasons for adopting the current research topic and applying it in the researched company being one of the companies in need of applying such research as it bases its performance and activities on human capital, innovation, and learning, which enhances its position and competitive advantage in light of the Intense competition.

## **1. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

As a result of the ongoing changes and transformations on organizations of all kinds, and the transition from traditional to contemporary (digital and virtual), dependence on knowledge and information technology, the intense competition of organizations in this field, and focus on intangible resources, all of these reasons posed threats to business organizations in how to survive and continue in the field of competition, by achieving continuous innovation and renewal. Accordingly, the intellectual dilemma was manifested in the fact that many researchers expect that innovation is the result of that creative elite in the organization, which is marked by human capital in it, and this is what the study found (Schoonover, 2003). The study focuses on human capital as the strategic basis for business organizations. Concerns focus on doing business differently and innovatively from competitors in the sector. Thus, it requires changing the behavior of the human resources working in the organization and developing their expertise and skills. Hence, studying the dimensions of human capital and the orientation towards learning as a mediator in adopting innovation and creative capabilities at the level of Iraqi companies in the electrical and electronic industries is a relatively recent concept. It has not been translated and clarified practically. Innovation is an essential administrative approach that enables the organization to face various and accelerating challenges. It focuses on creativity and innovation by increasing the capabilities of human resources to innovate. Creating an environment that inspires and encourages innovation determines the best-supporting policies.(Seleim et al, 2004) identified a weakness and shortcoming, focusing on

human and intellectual capital in the Arab world. His study is considered one of the first studies in the Arab world.

Moreover, (Sharabati et al, 2010) stressed that business organizations have not fully and appropriately understood the concept of human and intellectual capital. At the level of Iraqi companies, researchers in this field see several administrative, human, technical, or technological problems. To address this problem and appropriately invest human capital, departments must provide an appropriate measuring tool to improve and develop innovation in Iraqi companies. After reviewing the research literature and previous studies that dealt with the researched variables in this field, the researchers were able to identify several research gaps. Most of the studies focused on linking intellectual capital with managerial, technical, or organizational innovation, but no studies examined the issue of the dimensions of human capital and the adoption of innovation and creative capabilities directly. The study (Mariz-Pérez et al., 2012) examined the importance of human capital as a driver of innovation.

Furthermore, the study (Al-Zubaidi and Al-Mashhadani, 2016) worked to determine the role of human capital and the outstanding performance of workers in achieving organizational excellence. The study (Al-Khumili, 2015) examined the effect of activating human capital on developing innovative capabilities, which concluded a positive relationship between activating human capital and innovative capabilities of the insurance company in El Tarf state. The study (Al-Anazi and Al-Mulla, 2016) examined the role of human capital in the strength of business organizations. The study (Jassim and Assi, 2018) dealt with harmonizing information technology and human capital development to achieve organizational innovation. It dealt with organizational innovation in terms of innovative capabilities only, while human capital development has dealt with it depending on the dimensions (training, team and teamwork, and management).

By reviewing previous studies and cognitive efforts, it was found that what distinguishes the current study is that it deals with the direct impact of the dimensions of human capital as an independent variable in innovation in its dimensions (adopting innovation and innovative capabilities). Here the first research gap appears, and therefore the lack of clarity of the relationship between the variables prompted us to introduce other variables (mediator) to link the relationship between the two variables based on (Baron & Kenny, 1986). Therefore, we use in the current study (the orientation towards learning as a mediating variable in the relationship between the current variables). The orientation towards learning is one of the important strategic directions that help the organization gain, enhance, and develop knowledge, which positively affects working individuals' behavior and creates value for the organization that gives it a different competitive advantage. Many studies have shown that the orientation towards learning will significantly raise companies' performance. The importance of the orientation towards learning as an intermediary variable between the dimensions of human capital and the adoption of innovation and innovative capabilities. The study (Hassan.Masood et al., 2013) indicated the orientation towards learning as a mediating variable for the relationship between marketing orientation and performance in Pakistani companies. The study (Ajeilat, 2013) indicated a statistically significant effect of the characteristics of the smart

organization on technical innovation, with the presence of an orientation towards learning as a mediating change between them. Furthermore, a study (Kalmuk, 2015) examined the relationship of organizational learning as a mediator in the relationship between innovation and performance in Turkish companies. She emphasized the positive role of learning in enhancing innovation and performance in the research sample company. The study (Hassan, 2018) dealt with the orientation towards learning as a mediator in the relationship between intellectual capital and organizational innovation in Sudanese companies, emphasizing the orientation's positive role in learning by strengthening the relationship between intellectual capital and managerial innovation. Hence, the literature and research have found evidence that the orientation towards learning directly impacts the organization's performance. In the same direction, a study (Lestari et al., 2018) indicated a positive impact of the learning orientation on the organizational performance of small and medium-sized companies. Moreover, many research and studies have found that innovating and adopting it positively affects organizational performance (Sözbilir, 2018: 1-12). Also, the study (Sawaeen & Ali, 2020) indicated a positive effect of the learning orientation on the ability to innovate. Despite this, some studies have found that the effect of learning orientation on organizational performance is not important (Gomes & Wojhan, 2017). As the study (Long, 2013) found no effect of the orientation towards learning on the performance of companies, and thus there is still ambiguity in the relationship. This amounts to generating an intellectual debate and giving us an incentive to search for bridging this gap. Furthermore, that is through the orientation towards learning as a mediating variable in the relationship between human capital and organizational innovation. Moreover, the absence of any study that tested the orientation towards learning with the variables of the current study. This is at the intellectual or theoretical framework level, but from the practical side, the problem seems to be greater, especially with the reality of the General Company for Electrical and Electronic Industries in Baghdad. Furthermore, if these propositions and ideas represent a problem in the developed countries for which the issue is not considered urgent, what about the developing countries? Iraq is one of them. Hence the general research gap. Therefore, conducting an applied study to understand the relationship between the dimensions of human capital and the adoption of innovation and innovative capabilities through the orientation towards learning in the Iraqi environment is a demand worthy of attention. As a result of the survey findings, the company is not interested in research by investing in the dimensions of human capital and employing learning strategies to achieve the adoption of innovation and the strengthening of innovative capabilities. Moreover, the provision of new products and services is a challenge for the company to continue and survive, especially in the highly competitive Iraqi environment, to open the Iraqi markets to global and regional markets. The inability to face these challenges and problems could lead to the collapse and loss of the company. Accordingly, the research problem can be formulated with the following main question (Was the Iraqi director able to maximize the impact of the dimensions of human capital in adopting creativity and creative abilities through the orientation towards learning as a mediator)?

Through the above literature presentation and the presentation of the research problem, the following hypotheses were built and in line with the research objectives:

H1: There is a positive impact of the human capital dimension on innovation adoption.

H2: There is a positive impact of the human capital dimension on innovative capabilities.

H3: The orientation towards learning mediates the relationship between the dimensions of human capital and the adoption of innovation.

H4: The orientation towards learning mediates the relationship between the dimensions of human capital and innovative capabilities.

## **2. RESEARCH METHODOLOGY:**

The researcher relied on the descriptive-analytical method to achieve the study's objectives. This approach is exhausting scientific approaches to describe a specific phenomenon or problem, based on collecting data and information about the specific phenomenon and then classifying and analyzing it. The data is analyzed by setting, interpreting, and analyzing a set of hypotheses based on some statistical methods to reach the results and recommendations related to the problem or phenomenon under study. The study sample consisted of (262) employees of the company in question at all administrative levels. The primary measurement tool was the questionnaire and the five-point Likert scale. A set of statistical methods have been adopted, including structural equation modeling (SEM) using the STATA16 statistical analysis program.

## **3. THE STRUCTURAL MODEL OF THE STUDY:**

This model aims to study the impact of the five sub-dimensions of human capital as external variables (skills - experience - knowledge - capabilities - value) on the adoption of innovation, and innovative capabilities as internal variables, either directly or indirectly through the orientation variable Towards learning as a mediator in the relationship between them. Thus, this model attempts to test the hypotheses mentioned above. The analysis includes the following elements:

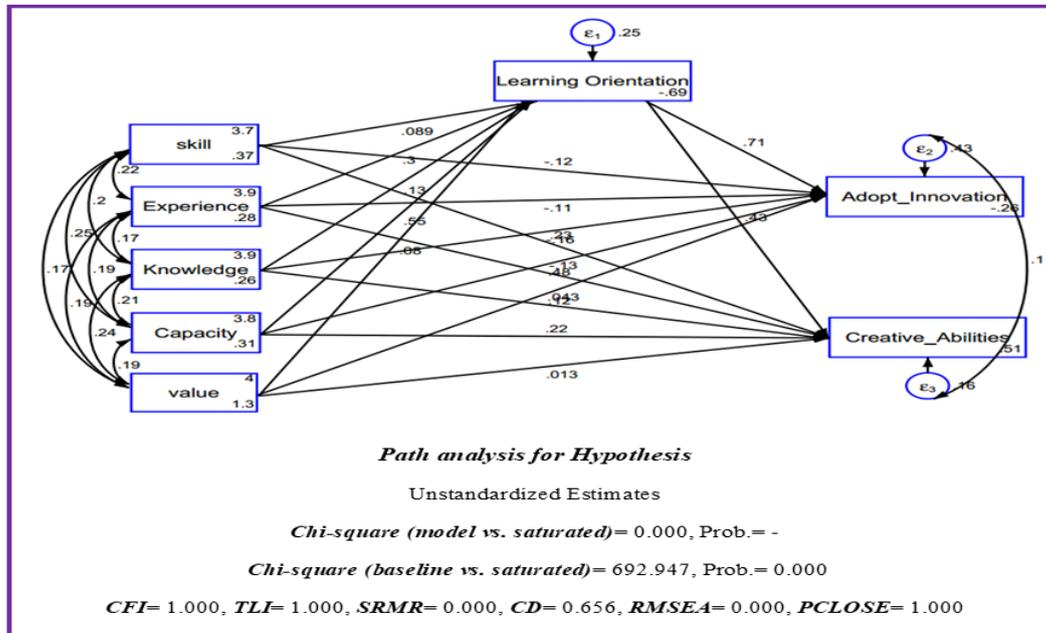
## **4. MODEL ESTIMATION:**

The final model becomes after being modified to have an excellent fit, as shown in Figure (1). It is clear from the excellent fit statistics shown at the bottom of the figure that the model falls within the range of good or excellent fit for most of the indicators. Indicators of good fit can be interpreted as follows:

The root means root square error (RMSEA) indicator, which is one of the most critical indicators of a good fit, has reached a value of (0.000), which thus reflects that the model is perfect. The lower and upper limits of the confidence limits at the 90% level also confirm this (the lower and upper limits are 0.000) as for the statistic (Pclose), which represents the probability that the value of RESEA is less than 0.05. That is, it represents the probability that the observations of the sample are close to the observations of the community. It was not

statistically significant, and therefore we can accept at the 5% level (or any other level) that the model is entirely appropriate.

Figure No (1) Research Form



This is confirmed by the value of the relative fit index (CFI) and the Tucker-lewis index or the so-called unnatural fit index (TLI), equal to the right one, reflecting that the model is ideally suited. Also, the mean square root of the standard residuals (SRMR) index was equal to 0.000, indicating that the model is well-suited. This is also confirmed by the coefficient of determination (CD) index, close to the correct one. (Where the CD indicator like the R2 indicator for the model as a whole is better, the closer it gets to the right one). On the other hand, there was a statistical value (chi2) for the original model versus the saturated model. The baseline versus the saturated model has a statistical significance at the 1% level, which indicates that the model is poor (and this is the only indicator that indicates that the model is poor). Therefore, the model can generally be accepted as accurate and appropriate to the collected data to research the study hypotheses. Accordingly, after being assured of the quality of the structural model used and its suitability to the data collected, we can continue the analysis to obtain the coefficients of the tracks as shown in the following

**Table (1): Results of the study model based on SEM**

| Paths                                     | Expected sign | Unstandardized Coefficients | Standardized Coefficients | Std. Err. | P> z     |
|---|---------------|-----------------------------|---------------------------|-----------|----------|
| <b>Learning Orientation Equation:</b>     |               |                             |                           |           |          |
| Skill → Learning Orientation              | +             | 0.08853                     | 0.07219                   | 0.0802    | 0.270    |
| Experience → Learning Orientation         | +             | 0.29879                     | 0.21037                   | 0.0865    | 0.001*** |
| Knowledge → Learning Orientation          | +             | 0.12955                     | 0.08882                   | 0.0951    | 0.173    |
| Capacity → Learning Orientation           | +             | 0.55029                     | 0.40795                   | 0.0962    | 0.000*** |
| Value → Learning Orientation              | +             | 0.07989                     | 0.12102                   | 0.0299    | 0.008*** |
| Constant                                  | n/a           | -0.68982                    | -                         | 0.2559    | 0.007*** |
| <b>Adopt Innovation Equation:</b>         |               |                             |                           |           |          |
| Learning Orientation → Adopt Innovarion   | +             | 0.70792                     | 0.56773                   | 0.0815    | 0.000*** |
| Skill → Adopt Innovarion                  | +             | -0.11822                    | -0.07731                  | 0.1061    | 0.265    |
| Experience → Adopt Innovarion             | +             | -0.11359                    | -0.06414                  | 0.1166    | 0.330    |
| Knowledge → Adopt Innovarion              | +             | -0.16006                    | -0.08801                  | 0.1259    | 0.204    |
| Capacity → Adopt Innovarion               | +             | 0.48117                     | 0.28607                   | 0.1346    | 0.000*** |
| Value → Adopt Innovarion                  | +             | 0.12338                     | 0.14988                   | 0.0400    | 0.002**  |
| Constant                                  | n/a           | -0.25579                    | -                         | 0.3422    | 0.455    |
| <b>Creative Abilities Equation:</b>       |               |                             |                           |           |          |
| Learning Orientation → Creative Abilities | +             | 0.43061                     | 0.50805                   | 0.0491    | 0.000*** |
| Skill → Creative Abilities                | +             | 0.23369                     | 0.22484                   | 0.0639    | 0.000*** |
| Experience → Creative Abilities           | +             | -0.13160                    | -0.10932                  | 0.0702    | 0.061*   |
| Knowledge → Creative Abilities            | +             | 0.04306                     | 0.03484                   | 0.0758    | 0.570    |
| Capacity → Creative Abilities             | +             | 0.21795                     | 0.19064                   | 0.0810    | 0.007*** |
| Value → Creative Abilities                | +             | 0.01277                     | 0.02282                   | 0.0241    | 0.596    |
| Constant                                  | n/a           | 0.50508                     | -                         | 0.2059    | 0.014**  |

**Note:** - \*\*\*, \*\*, \* indicate significance at 1%, 5% and 10% respectively

The previous table summarizes the results of the path analysis of the study model, from which the following becomes clear:

**First: Regarding the results of the learning orientation equation:**

- The results show a positive, statistically significant effect of each employee's experiences, abilities, and the value on the learning orientation variable in the General Company for Electrical and Electronic Industries. Also, the non-standard regression/effect coefficients for these dimensions range between (0.079 - 0.550). Therefore, these results indicate that an increase in one of these dimensions by one degree will lead to an increase in the level of orientation towards learning in this company by an amount ranging between (0.079 - 0.550) degrees on average, i.e., a rate of between 7.9% - approximately 55% of the percentage of increase in one of the dimensions Human capital.
- On the other hand, the results show no effect of workers' skills and knowledge on the orientation towards learning in the General Company for Electrical and Electronic Industries. Thus, we conclude that this company's actual determinants of learning orientation are experiences, capabilities, and value only.
- Using the standard path coefficients, which work to unify the units of measurement, their coefficients reflect the relative importance of the variables and the size of the effect. We find that the most critical dimensions of human capital for the orientation towards learning in the General Company for Electrical and Electronic Industries were the capabilities of the workers with an impact factor (0.408), followed by the experiences of workers with a factor of (0.210), and finally the value with an impact factor (0.121).

### **Second: Regarding the results of the innovation adoption equation:**

- The results show a positive, statistically significant effect of employees' abilities and value on innovation adoption. The non-standard regression coefficient indicates that increasing the capabilities of workers and the value by one degree will lead to an increase in the level of adoption of creativity in the General Company for Electrical and Electronic Industries by (0.481), (0.123) degrees on average, respectively, and this was in agreement with the results of (Al-Rousan and Al-Amoush, 2017), (Hussein et al, 2021).

- We also find a significant positive and statistically significant effect at the 1% level of orientation towards learning on innovation adoption in the application company. The non-standard regression coefficient indicates that increasing one degree in the orientation towards learning will increase innovation adoption in the General Company for Electrical and Electronic Industries by (0.708) degrees on average.

In contrast, employees' skills, experience, and knowledge did not affect innovation adoption. This intersects with the study results (Al-Anazi and Al-Mulla, 2017), which indicated the presence of a positive effect of human capital in strengthening the organizational strength of private banks. As the skill dimension came first, followed by knowledge and finally abilities. She indicated that the value of the knowledge, skills, and abilities dimension increased for the workers in the research sample. Human capital has a clear impact on organizational strength. This difference in results may be because the General Company for Electrical Industries was not successful in employing the expertise, skills, and knowledge of workers in adopting the innovation process, and this may be due to the lack of an inspiring and encouraging environment for innovation, as well as its use of inappropriate administrative methods to activate and motivate workers to achieve creativity, and given the presence of The effect of only two dimensions out of five dimensions is rejected. The first hypothesis (H1) indicated (there is an effect of the dimensions of human capital in adopting innovation in the company understudy).

- Using the standard path coefficients, whose coefficients reflect the relative importance of the variables, we find that the most critical dimensions for adopting innovation in the General Company for Electrical and Electronic Industries were the orientation towards learning with an impact factor (0.568), followed by the capabilities of workers with a factor (0.286), and finally the value with an impact factor (0.149).

### **Third: Regarding the Results of the Innovation capabilities Equation:**

- The results show a positive, statistically significant effect on the innovative abilities of employees skills and abilities. The non-standard regression coefficient indicates that increasing the skills of workers and the abilities of workers by one degree will lead to an increase in the level of innovative capabilities in the General Company for Electrical and Electronic Industries by (0.234), (0.218) degrees on average, respectively, and this was in agreement with the results of the study (Al-Khumili, 2015) (Al-Rousan, 2017), (Mariz-Pérez et al., 2012) ,(McGuirk et

al., 2015). All these researches confirmed the existence of a positive impact of human capital and employees' skills and abilities in enhancing innovative capabilities.

- We also find a significant positive and statistically significant effect at the 1% level of orientation towards learning on the creative abilities of the application company. The non-standard regression coefficient indicates that increasing one degree in the orientation towards learning will increase the level of creative abilities in the General Company for Electrical and Electronic Industries by (0.431) degrees on average.
- On the other hand, the impact of the employees' experiences was negative on the innovative abilities at 10%. At the same time, the employees' knowledge and value did not affect their creative abilities. This indicates that the second hypothesis (H2), which indicated (there is a positive effect of the dimensions of human capital on innovative capabilities, has not been fulfilled). This intersects with the result of the study (Khamili, 2015), which indicated the existence of a positive and strong correlation between the activation of human capital and the innovative capabilities of the insurance company in Algeria, which emphasized the need to give human capital a prestigious position for institutions by drawing up their strategies and activating their role and achieving Objectives.
- Using the standard path coefficients, whose coefficients reflect the relative importance of the variables, we find that the most critical dimensions for the creative abilities of the General Company for Electrical and Electronic Industries were the orientation towards learning with an impact factor (0.508), followed by the skills of workers with a factor (0.225), and finally the capabilities of workers with an impact factor (0.191) .

## 5. DISINTEGRATION OF IMPACT PATHS:

The following table (2) shows the disintegration (or dissolution) of the trajectories of the structural model. Thus, this table enables us to know whether the variable of orientation towards learning is an intermediate variable or not.

**Table No: (2) Path analysis of the second model to show the total impact and the direct and indirect impact of the model**

| Paths                               | Direct effects     | Indirect effects  | Total effects      |
|-------------------------------------|--------------------|-------------------|--------------------|
| <b>Adopt Innovation Equation:</b>   |                    |                   |                    |
| Skill → Adopt Innovarion            | -0.11822 (-1.11)   | 0.06267 ( 1.09)   | -0.05554 (-0.46)   |
| Experience → Adopt Innovarion       | -0.11359 (-0.97)   | 0.21152 (3.21)*** | 0.09793 ( 0.76)    |
| Knowledge → Adopt Innovarion        | -0.16006 (-1.27)   | 0.09171 (1.35)    | -0.06836 (-0.48)   |
| Capacity → Adopt Innovarion         | 0.48117 ( 3.57)*** | 0.38956 (4.78)*** | 0.87073 ( 6.05)*** |
| Value → Adopt Innovarion            | 0.12338 ( 3.08)*** | 0.05656 (2.55)**  | 0.17995 ( 4.02)*** |
| <b>Creative Abilities Equation:</b> |                    |                   |                    |
| Skill → Creative Abilities          | 0.23369 ( 3.66)*** | 0.03812 ( 1.09)   | 0.27182 ( 3.75)*** |
| Experience → Creative Abilities     | -0.13160 (-1.87)*  | 0.12866 (3.22)*** | -0.00294 (-0.04)   |
| Knowledge → Creative Abilities      | 0.04306 ( 0.57)    | 0.05578 (1.35)    | 0.09885 ( 1.15)    |
| Capacity → Creative Abilities       | 0.21795 ( 2.69)*** | 0.23696 (4.79)*** | 0.45491 ( 5.24)*** |
| Value → Creative Abilities          | 0.01277 ( 0.53)    | 0.03441 (2.55)**  | 0.04717 ( 1.74)*   |

Several interesting results emerge from the table, as follows:

- **Regarding the employee skills variable:** it is clear that there is no direct or indirect impact of employees' skills on adopting innovation. On the other hand, we find a direct effect only of employees' skills on the innovative abilities, with no indirect effect. Hence, it becomes clear that the variable orientation towards learning does not mediate the relationship between workers' skills, whether by adopting innovation or innovative capabilities.
- **Concerning the variables of employee experiences:** there is an indirect positive impact of the employees' experiences on adopting innovation. Moreover, innovative abilities through an orientation towards learning are roughly equivalent to the same direct negative impact of workers' experiences on these two variables. Thus, this leads to the disappearance of any total impact of the employees' experiences on adopting innovation and innovative capabilities. Then it becomes clear that the learning orientation variable is a partial mediator in the relationship of employees' experiences with adopting innovation and innovative capabilities.
- **Concerning the variable knowledge of workers:** it is clear that there is no effect on adopting innovation and innovative capabilities, whether direct or indirect. Hence, it is clear that the learning orientation variable does not play a mediating role in the knowledge-based relationship of employees, whether by adopting innovation or innovative capabilities.
- **Concerning the variables of workers' capabilities:** it is clear that the capabilities of the workers have a direct positive impact on both the adoption of innovation and innovative capabilities. It is also clear that it has a positive indirect effect on both variables at the 1% level through the variable orientation towards learning. Hence, it becomes clear that the learning orientation variable is a complete mediator in the relationship of employees' abilities to adopt innovation and innovative capabilities.

Finally, we find that the value directly impacts innovation adoption concerning the value variable. It is also clear that it has a positive indirect effect on adopting creativity and innovative abilities at the 5% level through the variable of orientation towards learning. And then, it becomes clear that the learning orientation variable plays the role of full mediation in the value relationship with innovation adoption. The role of partial mediation in value with innovative capabilities fulfills the hypotheses (H3) and (H4). This indicated (the orientation towards learning mediates the relationship between The dimensions of human capital and the adoption of innovation and innovative capabilities) and this came in agreement with the results of the study (Ajeilat, 2013), Which concluded that there is a statistically significant effect of the characteristics of the smart organization on technical innovation, with the orientation towards learning as a mediator. It is also expanded with the study results (Hassan, 2018), which examined the mediating role of the orientation towards learning in the relationship between intellectual capital and managerial creativity. Moreover, the study results (Sawaeen & Ali, 2020) indicated a positive impact of the orientation towards learning on innovative abilities.

Thus, according to the three-step Baron and Kenny's test, these results indicate that the variable orientation towards learning may play a mediating role in "complete mediation" in the relationship of workers' abilities with both innovation adoption and innovative abilities, as well

as in the relationship of value to the adoption of innovation. At the same time, it may play a mediating role in "partial mediation" in the relationship of workers' experiences with both innovation adoption and innovative capabilities and the relationship of value and innovative capabilities.

## 6. THE MEDIATION TEST:

In order to formally evaluate the mediating variables, the Sobel, Aroian, Goodman tests will be evaluated here, as shown in the following table(3)

**Table No :( 3) The mediation test for the second study model**

| Paths  | Sobel test   | Aroian test  | Goodman test | Type of Mediation |
|--|--------------|--------------|--------------|-------------------|
| <b>Adopt Innovation Equation:</b>                      |              |              |              |                   |
| Skill → Learning Orientation → Adopt Innovation        | [ 1.0946]    | [ 1.0875]    | [ 1.1018]    | Not Mediation     |
| Experience → Learning Orientation → Adopt Innovation   | [ 3.2109]*** | [ 3.1927]*** | [ 3.2294]*** | Partly Mediation  |
| Knowledge → Learning Orientation → Adopt Innovation    | [ 1.3455]    | [ 1.3368]    | [ 1.3545]    | Not Mediation     |
| Capacity → Learning Orientation → Adopt Innovation     | [ 4.7776]*** | [ 4.7556]*** | [ 4.7998]*** | Fully Mediation   |
| Value → Learning Orientation → Adopt Innovation        | [ 2.5516]**  | [ 2.5363]**  | [ 2.5672]**  | Fully Mediation   |
| <b>Creative Abilities Equation:</b>                    |              |              |              |                   |
| Skill → Learning Orientation → Creative Abilities      | [ 1.0947]    | [ 1.0878]    | [ 1.1018]    | Not Mediation     |
| Experience → Learning Orientation → Creative Abilities | [ 3.2155]*** | [ 3.1976]*** | [ 3.2337]*** | Partly Mediation  |
| Knowledge → Learning Orientation → Creative Abilities  | [ 1.3458]    | [ 1.3374]    | [ 1.3544]    | Not Mediation     |
| Capacity → Learning Orientation → Creative Abilities   | [ 4.7929]*** | [ 4.7712]*** | [ 4.8148]*** | Fully Mediation   |
| Value → Learning Orientation → Creative Abilities      | [ 2.5539]**  | [ 2.5389]**  | [ 2.5693]**  | Partly Mediation  |

Here, it is clear from the table (3) that its results confirm what was concluded using Baron and Kenny's test.

## 7. GENERAL STATISTICS OF THE STRUCTURAL MODEL:

Finally, by moving to the following table (4), it presents the general statistics of the model.

**Table No: (4) the general statistics of the model**

| Depvars              | R-squared    | Wald tests for equations |    |         | Eigenvalue stability condition |         |
|----------------------|--------------|--------------------------|----|---------|--------------------------------|---------|
|                      |              | chi2                     | df | Prob.   | Eigenvalue                     | Modulus |
| <b>Observed:</b>     |              |                          |    |         |                                |         |
| Learning Orientation | %56          | 333.49                   | 5  | 0.000** | 0                              | 0       |
| Adopt Innovarion     | %50.7        | 269.92                   | 6  | 0.000** | 0                              | 0       |
| Creative Abilities   | %61.4        | 416.52                   | 6  | 0.000** | 0                              | 0       |
| <b>Overall</b>       | <b>%65.5</b> |                          |    |         | <b>Stability Index = 0</b>     |         |

It is clear from the previous table that the use of human capital dimensions explains 56% of the changes that occur in the orientation towards learning (as an apparent variable) in the General Company for Electrical and Electronic Industries. At the same time, the rest of the ratio is due to random error, which may be due to many other administrative factors that were not controlled here in the structural model. We also find that the orientation towards learning and the dimensions of human capital explain 50.7% of the changes in the innovation adoption level in the General Company for Electrical and Electronic Industries. We also find that the

orientation towards learning and the dimensions of human capital explain 61.4% of the changes in the level of innovative capabilities. Based on the coefficient of determination of the previous three equations, it becomes clear that the coefficient of determination of the structural model as a whole is 65.5%. A relatively high specification rate indicates the accuracy of the study model's characterization and thus also reflects a good level of fit.

There is statistical significance for the study model at the 1% level. It is also clear that the value of the (chi<sup>2</sup>) test was statistically significant at the 1% level for the three equations contained in the study model. This indicates the rejection of the null hypothesis that the coefficients of the paths other than the constant are zero, and therefore the acceptance of the alternative hypothesis that all the parameters of the paths of the model are not equal to zero. Finally, the stability test in the table indicates that the model fulfils the condition of stability as a whole, where the value of the stability index is zero.

## CONCLUSIONS

1- It turned out that the company's management was not successful in employing the skills of its employees appropriately at the level of adopting innovation, in addition to its inability to employ the expertise of its employees represented by the technical and administrative expertise they possess in line with the work requirements. Furthermore, the working individuals lack the balance between accuracy and speed in completing the work because their experiences are traditional, and they do not keep pace with the changes and developments that occur in their field of work to maximize their expertise in order to adopt innovation and enhance the innovative capabilities of the company. On the other hand, the company's management did not invest the knowledge of its employees, which is represented in the knowledge of contemporary developments that are related to their work and the technical knowledge and procedures associated with their work in order to enhance the innovative capabilities represented in the ability to make decisions, solve problems, the capacity of communication and the spirit of risk-taking.

2- The company's management was able to invest in the capabilities of its employees represented in the ability to perceive problems and collect information in the form of general rules or conclusions to bring about change and innovation as well as employing the value of human capital in it through contributions to developing and raising the efficiency of the organization, improving its resources and sustaining quality performance in order to respond to challenges and innovate in providing new products or innovating processes. However, it was unsuccessful in employing it to build innovative capabilities represented in seeking to adopt work teams or committees to address problems and their reluctance to make work decisions for fear of taking responsibility and inciting a spirit of risk. On the other hand, it was not able to harmonize the skills of employees and the orientation towards learning in adopting innovation and its innovative capabilities. Learning orientation is one of the critical strategies in developing the skills of the two scholars, which is reflected in their innovative abilities.

3- The company invested the orientation towards learning to address the failures in the workers' experiences to bring about changes and creativity. On the other hand, it did not harmonize

knowledge and the tendency to transform learning in adopting innovation and innovative capabilities in the researched company.

4- The company's management was not successful in investing the positive role oriented towards learning in enhancing the impact of the value of human capital in achieving innovation and developing the spirit of risk and the ability to communicate and change.

### **Recommendation**

Work to achieve integration between the dimensions of human capital and make more efforts about learning and encourage learning on advanced technologies, software, machines, and modern machines in order to keep pace with developments and continue in the labor market to invest in innovation and production of new products and services or make modifications to operations in the company. Moreover, the need to develop special programs to manage human capital and attract and attract workers who can cover the skill and experience gaps to ensure the achievement of innovation, development, and improvement. Furthermore, the company has fresh blood to eliminate the previous and traditional recruitment policy and work to appoint creative individuals who hold the appropriate scientific and technical qualifications in line with the actual need and the reality of the situation and support.

Furthermore, work to motivate working individuals to allocate time to benefit from the experiences of others and previous work to maximize their capabilities, encourage innovation, and present innovative ideas without regard to the degree of risk in it. Furthermore, follow up on periodicals, review scientific publications and recent books in their field of specialization, and activate incentives and rewards systems for creative individuals. Investing in the positive role of learning and enhancing it in the company through a commitment to learning and making it one of the basics of work to ensure the survival of the company and the unification of the common vision. Enhancing individuals' sense of belonging and considering themselves partners in charting the company's directions and providing the necessary financial allocations to support learning. Spreading a culture of openness and encouraging working individuals to speak up when there is an error or an error is likely to occur, working on the interpretation of customer information, encouraging cooperation among them to present innovative ideas, supporting the process of adopting innovation through the use of local alternatives and raw materials in the production process, supporting and encouraging the introduction of ideas and working on providing The necessary financial support, modernization of production lines and increased coordination between the research and development department and the technical departments in order to translate ideas into reality and thus achieve innovations in the company.

### **Research and Future Studies:**

There are several gaps through the previous studies, including what has been studied in this research. The rest can be summarized as being valuable research, which is as follows: Examination of the relationship between the same variables in the service sector. Second: the introduction of other variables as mediators between the relationships, such as knowledge

sharing. Finally: Examining the relationship between human capital and achieving sustainable competitive advantage.

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