The Relationship between Human Capital and Jordanian Pharmaceutical Organizations' Business Performance

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Abstract

Purpose: The purpose of the study is to investigate the influence of HC on JPOs' BP.

Methodology: Practical data were collected from 132 out of 200 managers, by means of a questionnaire. Statistical techniques such as descriptive statistics, t-test, ANOVA test, correlation, multiple regressions, stepwise regression, sequential regression, PLS were employed. To confirm the suitability of collected data, a Kolmogorov-Smirnov test, Cronbach's Alpha and factor analysis were used.

Findings: The results indicated: 1) A positive significant relationship between HC and JPOs' BP, 2) Respondents believe that "learning & education" and "innovation & creation" variables positively and directly affect the JPOs' BP, while the "experience & expertise" variable does not. 3) HC can clearly explain productivity and profitability more than market valuation.

Limitations/Implications: The use of a single industry study design limits its generalisability to other industries. Testing other industries will help mitigate the issue of generalizing conclusions on other industries.

Practical Implications: The research results might help both academics and practitioners to understand the components of HC. Moreover, the data suggest that a similar set of HC indicators could be developed for other industries.

Expected Value: The research may be considered as initiative study that: 1) Highlights the effect of HC on JPOs' BP; 2) Uses PLS method in the management field.

Keywords: Human Capital (HC), Learning and Education (L&E), Experience and Expertise (E&E), Innovation and Creation (I&C), Jordanian Pharmaceutical Organizations (JPOs), Business Performance (BP).

Introduction & Literature Review

Intellectual capital is a critical force that drives economical growth (Huang and Liu, 2005), helps organizations to establish and maintain their competitive advantage (MacDougall and Hurst, 2005), and creates wealth (Garcya-Meca and Martinez, 2005). Since long time economists recognised that human capital is an important part of the wealth of nations (Cabrita and Bontis

2008). There is significant relationship between human capital efficiency and financial performance (Maditinos, et al. 2011). Human capital has a significant effect on economic performance (Rafiei et al., 2011).

Human capital affects financial performance as a function of structural capital and relational capital levels (Kamukama et al., 2010). Human capital is one of the most important parts of intellectual assets in an organization (Hajiha & Hasanloo, 2011). Human capital significantly influences the other three dimensions of structural capital which consists of relational capital, process capital and innovational capital (Namvar et al., 2011). Human capital has important effect on structural capital and relational capital and consequently influences organizational performance (Ahmadi et al., 2011). Human capital appeared as the most important component of intellectual capital in influencing organizational performance of pharmaceutical companies (Khalique et al., 2011). Human capital is more efficient than other two types of capital (structural and physical) in terms value creation efficiency (Ahangar, 2011). Human capital is the most valuable component of intellectual capital; companies with greater human capital efficiency tend to have better financial performance (Rahman, 2012). Certain types of human capital indicators showed a positive and statistically significant relationship with firm performance (Seleim et al., 2007). Human capital models show a significant positive dependency between ratios of the intellectual capital components and value added (Naidenova & Oskolkova, 2011).

Human capital is the most significant component of intellectual capital which can properly promote entrepreneurial activity (Macerinskiene & Aleknaviciute, 2011). The greatest objectives of human capital are to educate employees and maximize the intangible capabilities of knowledge, skills, and experience to create company value and increase performance (Hsiung & Wang, 2012). There is a positive relationship between human capital and knowledge creation (Ning et al., 2011). Human capital has an effect on organizational innovation (Al-Dujaili, 2012). There is a significant relationship between human capital management and organizational innovation (Ghorbani et al., 2012). There is direct relationship between human capital variables and productivity (Taleghani et al., 2011). There is a significant relationship between human capital and new product development performance (Ahmadi et al., 2012). Learning at an individual level enhances human capital, that group learning increases social capital, and that organizational learning enhances structural capital (Amiri et al., 2011).

Bontis (2000) defined human capital as the combined knowledge, skill, innovativeness, and ability of the organization's employees to meet the task at hand. Roos et al. (2001) stated that human capital comprises the competence, skills, and intellectual agility of the individual employees. Stewart (2003) described human capital as "the capabilities of individuals required to provide solutions to customers", and he considered the human capital as the core of intellectual capital. Gruian (2011) stated human capital refers to the knowledge, skills and abilities of employees, i.e. professionalism, efficiency and effectiveness in improving business productivity. Allameh et al. (2010) said human capital refers to the abilities, competences, and know-how of human resources. Ngah and and Ibrahim (2009) concluded that human capital can be divided into three dimensions: capability and potential, motivation and commitment and

innovation and learning. Ngah and Ibrahim (2011) human capital of one organization to another organization is totally different and that makes it difficult to imitate, difficult to copy, rare and non-replaceable. Handzic and Ozturk (2010) human capital is university's major strength. Zambon (2002) Human capital is not owned by the organization, it is only rented for the period the employees spend in the organization. Sharabati et al. (2010) it goes with individual when he leaves the organization.

Study Purpose

The current study aims at measuring the effect of human capital elements: "Learning and Education", "experience and expertise" and "innovation and creation" on JPOs' BP. More specifically, this study intends to answer the following question: Is there a direct impact of human capital elements on JPO's BP?

Study Hypotheses:

Main Hypothesis: Human capital elements (variables) do not have a direct impact on JPOs' BP. This main hypothesis can be divided into three hypotheses according to the human capital elements (variables) as follows:

Sub-Hypothesis 1: "Learning and Education" variable does not have a direct impact on JPOs' BP.

Sub-Hypothesis 2: "Experience and expertise" variable does not have a direct impact on JPOs' BP.

Sub-Hypothesis 3: "Innovation and creation" variable does not have a direct impact on JPOs' BP. Study Model
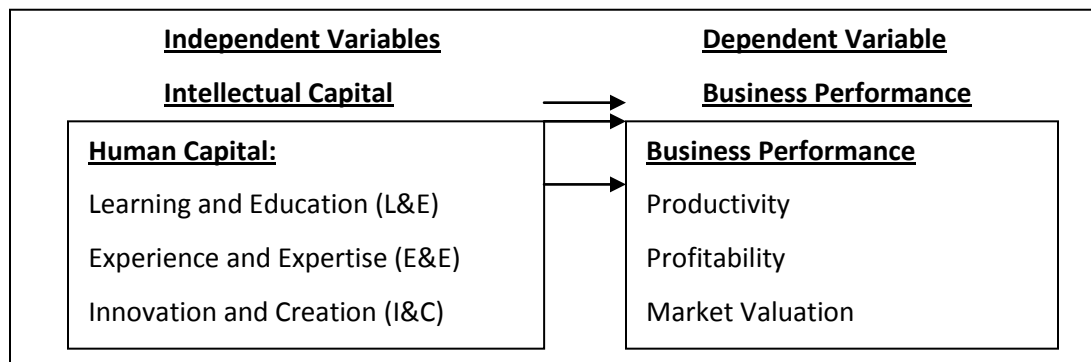
Based on the above-mentioned questions and hypotheses the model has been developed. Figures (1) shows the human capital (HC) model: "Learning and Education" (L&E), "Experience and Expertise" (E&E) and "Innovation and Creation" (I&C).

Figure (1): Study Basic Model
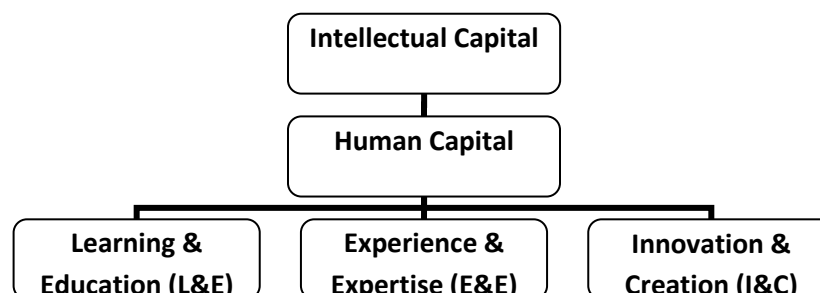
The current research studies the effect of human capital variables on JPOs' BP as shown in the study model figure (2).

Figure (2): Study Model

Independent Variables	Dependent Variable
Intellectual Capital	**Business Performance**
Human Capital:	**Business Performance**
Learning and Education (L&E)	Productivity
Experience and Expertise (E&E)	Profitability
Innovation and Creation (I&C)	Market Valuation

Methods and Procedures

Study Nature and Design: The current study is considered as a casualty study. It started with literature review, experts' interviews and a panel of judges to develop and finalize the model and the questionnaire. Then a pilot study to confirm normality, reliability and validity of the questionnaire was conducted. After that, a survey method was employed to collect the data from the fifteen organizations, which were registered in Jordanian Association of Pharmaceutical Manufacturers (JAPM). The survey unit of analysis was composed of all top and middle managers of these Organizations. The responses were received from only 132 out of 200 managers.

Questionnaire Variables: Independent variable: Human capital was divided into three elements: "Learning and Education"; "Experience and Expertise"; and "Innovation and Creation". Each was tested by 10 questions which designed to measure the employees' perception about actual implementation of each item. While, for dependent variable: ten indicators were used to measure JPOs' BP. All variables were measured by five-point Likert-type scale to tap into the individual's perceptions, ranging from value 1 (strongly disagree) to value 5 (strongly agree) used throughout the questionnaire.

Normal Distribution (Kolmogorov-Smirnov Z Test): Table (1) shows that all the independent and dependent variables are normally distributed because significance level was more than 5 percent (Bollen et al., 2005).

Table (1): Normality Test: One-Sample Kolmogorov-Smirnov (Z) Test

Variables	(K-S)Z	Sig.
L&E	0.528	0.944
E&E	0.818	0.515
I&C	0.485	0.973
HC	0.479	0.976
BP	0.393	0.998

Reliability Test: Table (2), shows that the results of Cronbach's alpha were more than 0.75. Bollen et al., (2005) stated: If Alpha Coefficients are above 0.75, they are accepted, and Bontis (2001) said: Alpha coefficients above 0.7 are accepted. The study result is matching with previous studies, such as; Miller et al., (1999), Moslhi et al., (2006) and Bin Ismail (2005).

Table (2): Cronbach's Alpha

Variables	Research
L&E	0.79
E&E	0.78
I&C	0.86
HC	0.92
BP	0.90

Validity: Two methods were used to confirm content validity: First, multiple sources of data were used to develop and refine the model and measures. Then, Pearson's Principal Component Factor Analysis was conducted with and without rotation (Varimax rotation with Kaiser Normalization). Tables (3, 4, 5, 6 & 7) show that all dependent and independent variable items were valid, since their factor loading values were more than 0.4. This result matches with previous studies, such; as Bontis (2001), Bollen et al. (2005) and Bin Ismail (2005).

Table (3): Factors Loading for HC Variables

HC Variables	Extraction	Factor 1
L&E	0.793	0.891
E&E	0.827	0.909
I&C	0.819	0.905

Table (4): Factors Loading for L&E Variable Items

L&E Variable Items	Without	Rotation
Employee's competence	0.514	0.634
Co-operation & team	0.623	0.500
Continuous training	0.647	0.775
Continuous learning	0.656	0.638
Education average	0.433	0.604
Knowledge & skills development	0.631	0.813
Market share	0.562	0.408
L&E affect productivity	0.665	0.867
L&E affect profitability	0.681	0.906
L&E affect market valuation	0.461	0.819

Table (5): Factor Loading for E&E Variable Items

E&E Variable Items	Without	Rotation
Employees are expert	0.761	0.825
Perform at best	0.629	0.699
Make it different	0.759	0.750
Turn over	0.518	0.667
Company efficiency	0.671	0.642
Staff professionalism	0.767	0.782
Lowest cost/transaction	0.888	0.923
E&E affect productivity	0.666	0.834
E&E affect profitability	0.636	0.858
E&E affect market valuation	0.720	0.820

Table (6): Factor Loading for I&C Variable Items

I&C Variable Items	Without	Rotation
Employees are creative	0.665	0.697
Voice their opinion	0.711	0.717
New ideas	0.717	0.784
New products launched	0.532	0.621
New ideas	0.789	0.824
Satisfaction with innovation.	0.809	0.795
Motivation & commitment	0.762	0.755
I&C affect productivity	0.696	0.905
I&C affect profitability	0.722	0.922
I&C affect market valuation	0.751	0.861

Table (7): Factor Loading for BP Indicators

BP Indicators	Without	Rotation
Industry leadership	0.679	0.810
Future outlook	0.649	0.783
Overall response to competition	0.696	0.729
Success rate in new launches	0.783	0.648
Overall business performance	0.822	0.598
Employee productivity	0.625	0.585
Process productivity	0.676	0.604
Sales growth	0.796	0.890
Profit growth	0.806	0.893
Company market valuation	0.741	0.822

Bivariate Pearson's Correlation Coefficient:

The table (8) shows that the human capital variables significantly and strongly related to JPOs' BP.

Table (8): Bivariate Pearson's Correlation Coefficient between HC Variables and BP

Variables	Research
L&E	0.564**
E&E	0.534**
I&C	0.641**
HC	0.647**
BP	

* Correlation is significant at the 0.05 level.
** Correlation is significant at the 0.01 level

Data Analysis and Results

Study Variables Analysis

Human Capital Variables: Table (9) shows that the average means of respondents' perception about the implementation of human capital variables were ranging from 3.27 to 3.58, with standard deviation that ranges from (0.525 to 0.642). The results also indicate that there is a significant implementation of the human capital variables, where (t=9.589 > 1.645).

Table (9): Mean, Standard Deviation and One-Sample T-Test Results for HC Variables

HC Variables	Mean	Std. deviation	T value	T tabulated
L&E	3.58	0.563	11.768	1.645
E&E	3.45	0.525	9.906	1.645
I&C	3.27	0.642	4.880	1.645
HC	3.43	0.520	9.589	1.645

Table (10, 11, 12) shows that the average means of respondents' perception about the implementation of "Learning and Education" variable were ranging from 2.69 to 4.24, with standard deviation that ranges from (0.821 to 1.089). While for "Experience and Expertise" variable were ranging from 2.76 to 4.23, with standard deviation that ranges from (0.727 to 1.085). Finally, for "Innovation and Creation" variable were ranging from 2.60 to 4.00, with standard deviation that ranges from (0.810 to 1.082). Such results show that there is a varied agreement on the implementation of "Learning and Education" variable items, "Experience and Expertise" variable items, and "Innovation and Creation" variable items. The result indicates that there is a significant implementation of the "Learning and Education" variable, where

(t=11.678 > 1.645), "Experience and Expertise" variable, where (t=9.906 > 1.645), and "Innovation and Creation" variable, where (t=4.880 > 1.645). The results also show that the respondents agree on that "Learning and Education", "Experience and Expertise", and "Innovation and Creation" strongly affect JPOs' productivity and profitability, while moderately affect Organizations' market valuation.

Table (10): Mean, Standard Deviation and One-Sample T-Test Results for L&E Variable Items

No.	L&E Items	Mean	Std. Deviation	T value	T tabulated
1	Employee's competence	3.33	0.862	4.443	1.645
2	Co-operation & team	4.24	0.821	17.392	1.645
3	Continuous training	2.69	1.078	-3.310	1.645
4	Continuous learning	3.44	0.959	5.263	1.645
5	Education average	3.45	1.014	5.066	1.645
6	Knowledge & skills development	2.86	0.987	-1.588	1.645
7	Market share	3.63	1.022	7.069	1.645
8	L&E affect productivity	4.24	0.857	16.654	1.645
9	L&E affect profitability	4.14	0.917	14.325	1.645
10	L&E affect market valuation	3.74	1.089	7.836	1.645
	Mean total	3.58	0.563	11.768	1.645

Table (11): Mean, Standard Deviation and One-Sample T-Test Results for E&E Variable Items

No.	E&E Items	Mean	Std. Deviation	T value	T tabulated
11	Employees are expert	3.41	0.800	5.873	1.645
12	Perform at best	3.27	0.770	3.955	1.645
13	Make it different	3.39	0.930	4.773	1.645
14	Turn over	2.76	1.085	-2.567	1.645
15	Company efficiency	3.53	1.007	6.049	1.645
16	Staff professionalism	3.12	0.829	1.680	1.645
17	Lowest cost/transaction	2.97	1.011	-0.344	1.645
18	E&E affect productivity	4.23	0.727	19.403	1.645
19	E&E affect profitability	4.12	0.811	15.893	1.645
20	E&E affect market valuation	3.74	1.038	8.215	1.645
	Mean total	3.45	0.525	9.906	1.645

Table (12): Mean, Standard Deviation and One-Sample T-Test Results for I&C Variable Items

No.	I&C Items	Mean	Std. Deviation	T value	T tabulated
21	Employees are creative	3.29	0.852	3.883	1.645
22	Voice their opinion	3.27	1.033	2.950	1.645
23	New ideas	3.05	0.864	0.605	1.645
24	New products launched	2.77	1.102	-2.369	1.645
25	New ideas	3.13	1.014	1.459	1.645
26	Satisfaction with innovation.	2.60	1.003	-4.600	1.645
27	Motivation & commitment	3.02	0.996	0.175	1.645
28	I&C affect productivity	4.00	0.810	14.180	1.645
29	I&C affect profitability	3.95	0.927	11.734	1.645
30	I&C affect market valuation	3.67	1.082	7.080	1.645
	Mean Total	3.27	0.642	4.880	1.645

Business Performance Indicators: Table (13) shows that the average means of the respondents' perception about the role of business performance indicators were ranging from 3.30 to 3.95,

with standard deviation that ranges from (0.785 to 0.946). The result indicates that there is a significant role of business performance indicators, where (t=8.173 > 1.645).

Table (13): Mean, Standard Deviation and One-Sample T-Test Results for BP Indicators

No.	Statement	Mean	Std. Deviation	T value	T tabulated
31	Industry leadership	3.48	0.886	6.186	1.645
32	Future outlook	3.95	0.927	11.734	1.645
33	Overall response to competition	3.39	0.889	5.092	1.645
34	Success rate in new launches	3.30	0.931	3.647	1.645
35	Overall business performance	3.54	0.833	7.422	1.645
36	Employee productivity	3.37	0.785	5.430	1.645
37	Process productivity	3.38	0.737	5.909	1.645
38	Sales growth	3.39	0.946	4.691	1.645
39	Profit growth	3.45	0.944	5.442	1.645
40	Company market valuation	3.33	0.904	4.141	1.645
	Mean Total Performance	3.46	0.641	8.173	1.645

Relationships between the Study Variables

Pearson correlation matrix table (14) shows that the relationships between the human capital variables: "Learning and Education" variable, "Experience and Expertise" variable and "Innovation and Creation" variable with JPOs' BP are strong, where r equals 0.564, 0.534 and 0.641 respectively. For the human capital variable r equals 0.647 indicates a very strong relationship between the human capital variable and JPOs' BP. The matrix also shows that the relationships among the human capital variables are strong, where r ranges from 0.701 to 0.745. The results indicate that the human capital variables are strongly related with each other.

Table (14): Pearson's Correlation (r) Among Independent Variables, and With Dependent Variable

	Variable	1	2	3	4
1	L&E				
2	E&E	.712*			
3	I&C	.701*	.745*		
4	HC	.889*	.900*	.915*	
5	BP	.564*	.534*	.641*	.647*

*Correlation is significant at 0.01 levels (2-tailed)

Hypotheses Testing

Multiple Regressions:

Main Hypothesis: Ho: Human capital variables do not affect the JPOs' BP.

Table (15) shows the results of the multiple regressions analysis that regress the three variables of human capital together explained 43.7 percent of the variance, where (R^2 =0.437, F=33.142, Sig. =0.000). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the human capital variables affect JPOs' BP.

Table (15): Results of Multiple Regression Analysis: Regressing HC Variables against BP

Variable	r	R^2	ANOVA F- Value	Sig.
HC Variables	0.661	0.437	33.142	0.000

Table (16) shows the significant effect of each variable within the human capital. It shows that the "Innovation and Creation" variable has the highest effect on JPOs' BP, where (Beta=0.465, sig.=0.000), followed by the "Learning and Education" variable, where (Beta=0.213, sig.=0.037), finally, the "Experience and Expertise" variable has the lowest effect, where (Beta=0.036, sig.=0.743).

Table (16): Un-standardized and Standardized Coefficients of Multiple Regression Model for HC Variables

HC Variables	Un-standardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-value	p
(Constant)	0.919	0.301		3.051	0.003
L&E	0.243	0.115	0.213	2.106	0.037*
E&E	0.044	0.132	0.036	0.329	0.743
I&C	0.464	0.107	0.465	4.350	0.000*

*CALCULATE IS LESS THAN 0.05

The relationship between the dependent and independent variables derived by this model can thus be expressed as:

Human capital = 0.919 + 0.464 (I&C) + 0.243 (L&E) + 0.044 (E&E)

Sub-hypothesis 1:

Ho: "Learning and Education" variable does not affect the JPOs' BP.

Table (16) shows that there is a positive direct effect of the "Learning and Education" variable on the JPOs' BP, where (Beta=0.213, sig.=0.037). Since (t=2.106, $p < 0.05$), the null hypothesis is rejected and the alternative hypothesis is accepted, which indicates that the "Learning and Education" variable affects the JPOs' BP at α =0.05.

Sub-hypothesis 2:

Ho: "Experience and Expertise" variable does not affect the JPOs' BP.

Table (16) shows that there is very weak positive direct effect of the "Experience and Expertise" variable on the JPOs' BP, where (Beta=0.036, sig.=0.743). Since (t=0.329, $P > 0.05$), the null hypothesis is accepted, which indicates that the "Experience and Expertise" variable does not affect the JPOs' BP at α =0.05.

Sub-hypothesis 3

Ho: "Innovation and Creation" variable does not affect the JPOs' BP.

Table (16) shows that there is a positive direct effect of the "Innovation and Creation" variable on the JPOs' BP, where (Beta=0.465, sig.=0.000). Since (t=4.350, $P < 0.05$), the null hypothesis is

rejected and the alternative hypothesis is accepted, which indicates that the "Innovation and Creation" variable affects the JPOs' BP at α =0.05.

Stepwise regression

From table (17), the first stepwise regressions model (ANOVA) shows the importance of the "Innovation and Creation" variable, where (R^2=0.411, F=90.552, Sig.=0.000). The second stepwise regression model shows the importance of the "Innovation and Creation" variable plus "Learning and Education" variable, where (R^2=0.437, F=50.005, Sig.=0.000). Therefore, it is concluded that the second model increases R^2 with 0.026, this means that the "Innovation and Creation" variable alone explains 41.1% of the variance in the JPOs' BP. While the second model explains 43.7% of the variance, this means that "Learning and Education" variable adds only 2.6% to the first model.

Table (17): Stepwise Regressions (ANOVA) for HC Variables

Model	r	R^2	F	Sig.	Human Capital Variables
1	0.641(a)	0.411	90.552	0.000	I&C
2	0.661(b)	0.437	50.005	0.000	I&C plus L&E

Table (18) shows the relation between the human capital variables and JPOs' BP: the first stepwise regression model shows that there is a positive direct relation between the "Innovation and Creation" variable and JPOs' BP, where beta equals 0.641. The second stepwise regression model shows that there is a positive direct relation between the "Innovation and Creation" variable plus "Learning and Education" variable with JPOs' BP, where beta equals 0.482 and 0.227, respectively. Such results indicate that the "Innovation and Creation" variable is the most important variable, followed by the "Learning and Education" variable, while the "Experience and Expertise" variable does not significantly impact the JPOs' BP.

Table (18): Stepwise Regressions Model for HC Variables

	Model 1		Model 2	
HC Variables	**Un-standardized Coefficients**	**beta**	**Un-standardized Coefficients**	**beta**
Constant	1.362		0.959	
L&E	-		0.258	0.227
E&E	-			
I&C	0.640	0.641	0.481	0.482

***sig. <0.05**

Data Results Discussion

Dependent and Independent Variables Results Discussions

Human Capital Variables: The results seem to suggest that the JP Organizations are aware of the role of human capital variables in JPOs' BP, and have strong interest towards a high level of all human capital variables. Respondents strongly believe that the human capital variables affect JPOs' BP. As compared with previous studies, the current study results are supported by Sofian et. al. (2004) study which rated the highest (3.94), Bin Ismail (2005) study rated (3.36), Salleh and Salamat (2007) study rated (3.71), Miller (1999) study rated (3.63), Moslehi et al. (2006) study rated (3.15), and Berglud et al. (2002) study rated (3.15).

The empirical results show that the respondents are aware of the role of the "Learning and Education", "experience and expertise" and "innovation and creation" in JPOs' BP, and believe that these variables strongly affect JP Organizations' productivity, and profitability, while moderately affect market valuation. Evidence seems to suggest that managers are in different agreement on the implementation of the "Learning and Education" variable items. Evidence also seems to suggest that the employees are not in agreement on the implementation of the "Experience and Expertise" variable items. Finally, evidence might suggest that employees have some agreement on the implementing of the "innovation and creation" activities. The above result is also supported by Bin Ismail (2005)

Business Performance Indicators: There were no significant differences among the means of all groups regarding to business performance indicators. Evidence seems to suggest an improvement in JPOs' BP. Therefore, the JP Organizations are directed and strongly leaning toward performance improvement, and the respondents are aware of the role of business performance indicators. As compared with previous studies, Miller (1999) study rated (3.02), Sofian et al. (2004) study rated (3.20), Bin Ismail (2005) study rated (3.01), and Moslehi et al. (2006) study rated (2.4).

Hypothesis Analysis Results Discussion:

The result of the multiple regressions analysis shows that the null hypothesis is rejected and the alternative hypothesis is accepted, which states that human capital variables affect JPOs' BP. It also shows that the null hypothesis of "Learning and Education" is rejected and the alternative hypothesis is accepted, which indicates that the "Learning and Education" variable positively and directly affects JPOs' BP at α =0.05. And it clarifies that the null hypothesis of "Innovation and Creation" is also rejected and the alternative hypothesis is accepted, which indicates that the "Innovation and Creation" variable positively and directly affects JPOs' BP at α =0.05. While, null hypothesis of "Experience and Expertise" is accepted which indicates that the "Experience and Expertise" variable does not positively and directly affect JPOs' BP at α =0.05. It also shows that the "Innovation and Creation" variable has the highest effect on JPOs' BP, followed by the "Learning and Education" variable. While the "Experience and Expertise" variable does not have significant effect on JPOs' BP.

The above results are supported by the stepwise regression and are in line with Garcya-Meca and Martynez (2005), Firer and Stainbank (2003), Kujansivu and Lonnqvist (2005), Huang and Liu (2005) Bollen et al. (2005)

Relationships between Human Capital Variables and JPOs' BP

Pearson correlation matrix shows strong relationships among human capital variables. It also shows strong relationships between human capital variables and the JPOs' BP. This result is supported by Bollen et al. (2005) and Bin Ismail (2005), Salleh & Salamat (2007) and Moslehi et al. (2006), Miller et al. (1999), Berglud et al. (2002) and Sofian et al. (2004) as indicated in table (32).

Study Conclusions

Respondents believe that the human capital variables strongly and directly affect JPOs' BP. The results indicate that the "Innovation and Creation" variable is the most important variable, followed by the "Learning and Education" variable, while the "Experience and Expertise" variable does not significantly impact the JPOs' BP. It seems that the respondents were aware of the role of human capital in JPOs' BP, and strongly believe that all human capital variables strongly affect JPOs' productivity and profitability, while moderately affect market valuation.

Respondents' perception concerning the implementation of the human capital variables ("Learning and Education", the "experience and expertise" and the "innovation and creation") were varied. However, the overall result seems to suggest that there is a significant implementation of the human capital. Therefore, it seems that the JP Organizations are having strong interest towards high level of all human capital variables. Empirical results also indicated that the level of human capital existing in JPOs is at an average level compared with other Pharmaceutical Organizations elsewhere. However, it seems that the JPOs do not invest in

developing systems and programs related to human capital. Developing human capital has a strong relationship with leadership style and the overall human capital management of JPOs.

Business Performance Indicators: It seems that the respondents moderately agree when expressing their opinion regarding JPOs' BP improvement. This indicates that the JP Organizations are forward-looking organizations.

Study Contributions

This study may be considered as initiative that presents the effect of human capital on JPOs' BP in Jordan. Moreover, this research might be an important one, in terms of the analysis of the situation of human capital in Jordanian organizations, as well as in determining some of the relevant human capital indicators used by those organizations.

Study Limitations and Recommendations

Recommendations for Academics and Future Research: This study is specifically assigned to performance measurement within the human capital context at the organizational level that should be studied in the light of the following limitations:

This study was directed towards the managers of JPOs. To test the robustness of the findings, further research including employees and supervisors might be recommended.

This study was directed towards Pharmaceutical industry. (One type of industry). Further empirical work is needed to test the degree to which the study findings can be generalized to other organizations or industries.

This study was conducted on Jordanian organizations. Generalizing results of Jordanian setting to other countries is questionable. Further empirical researches involving data collection over diverse countries are needed.

Finally, there is a need to analyze data of other organizations over a longer period in order to clearly test the assumptions of the human capital method.

Recommendations for Jordanian Pharmaceutical Manufacturing Organizations: In the light of research results, the following recommendations can be suggested:

The current management system at JP Organizations ought to be seriously re-evaluated. They must be managed by policies, systems and programs not by individuals.

Consistently, conducting human capital screening to re-evaluate the organization's human capital accumulation by using indices and metrics. Consequently creating human capital programs to identify gaps in training needs.

The elements of human capital need to be integrated with the present recruitment, promotion, reward and recognition and performance management criteria.

Employees' profiles: Making human capital index to evaluate each employee through employees' test profile.

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