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The Extent of Skills Mismatch Among Childhood Education Graduates of Princess Alia University College

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Abstract

This study is aimed at investigating the extent of skill mismatch between the skills the childhood education graduates at Al- Balqa Applied University - Princess Alia University College acquired during their studies and those demanded in the labor market. The descriptive survey design was adopted and the purposive sampling technique was employed to select 110 participants to respond to a questionnaire items utilized by the researcher based on their knowledge. Three research questions were answered and two hypotheses were tested at the significant level of 0.05. Statistical analysis of the responses using the t-test and ANOVA (analysis of variance) showed that there was a negative relationship between skills demand and supply ($r = -0.006$; $p < 0.05$), which is generally low. Additionally, the extent of skills mismatch was 48.37 with major weaknesses found in communication, interpersonal, decision-making, critical thinking, and analytical skill. The analytical skill was the most required skill by the labor market, while self directing learning was the least. The mean for each of the skills demand was significantly different from its supply. The university graduates were not adequately prepared for work with respect to the skills demanded in the labor market. The implications of these findings were discussed and it was suggested that universities should have a clear vision of the labor market demand for skilled graduates. The research's limitations and implications included financial constraints, which automatically re-defined the researchers' need to expand the scope of coverage, limiting the investigation to childhood graduates of 2013-2014, at Al-Balqa Applied University – Princess Alia University College. Therefore, the generalization of the study is limited to the sample of students involved.

Keywords: Skills mismatch, employability, graduates, labor market, higher education institutions.

1. Introduction

Education is a powerful driver of development and one of the strongest instruments for reducing poverty and improving health, gender equality, peace, and stability World Bank, 2014. It is the basic foundation of preparing the students to actively activate their knowledge, experiences and skills on the theoretical as well as practical level, which is essential to building a healthy, well constructed society.

Education is said to be relevant, if it can be used by the society to realize its dreams (Longe, 1999), that is students should attain certain skills in order to practice their job in an effective and efficient manner. Attaining higher levels of education enables graduates to supplement a strong, sustainable and balanced growth of the workforce given that they are more skilled and productive. Education characteristics (Attainment level) are among the main determinants of the education-job match. Those characteristics examine four concepts: 1) Field of study; 2) Level of study; 3) Grades; and 4) Recent work/school experience. Good grades during school also affect the education-job match (Chiswic, 2009). Research evidences show that the better grades obtained during education increases the match (Hassan and Moreen, 2013).

Countries with lower skill levels are at risk, given that the world economy relies heavily on skills, which are an essential asset to boost competitiveness, (OECD, 2013) . In addition to job-specific skills, individuals need to be flexible in their working patterns and attain generic skills. Such skills are not specific to one particular career path but can be found across all employment sectors.

Generic skills constitute key competencies that are transferrable While, there is no one definitive list of generic skills, each list includes the following elements: (1) basic/fundamental skills; (2) people-related skills; (3) conceptual/thinking skills; (4) personal skills and attributes; (5) skills related to the business world; and (6) skills related to the community. (ERIC, 2003).

Also another group regarded that analytical /critical thinking, written and oral communication, computing technology, decision making and interpersonal skills, numeracy, and self directed skills are the primary skills to be learned in the education process. (Di Gropello, Kruse & Tandon, 2011, ILO, 2014, Paddi 2014)

Additionally, the university of Melbourne recently conducted a leading project on Assessment and Teaching of 21st Century Skills. The assessment included working with more than 250 researchers across 60 institutions worldwide and led to the categorization of the 21st Century skills into four broad categories: *Ways of thinking*, *Ways of working, Tools for working, Skills for living in the world.* Each of these categories of skills is considered to enable individuals to function in the modern world of work and contribute to modern age social and intellectual capital. (ILO ,2014)

2. Educational Mismatch

The primary purpose of higher education is to prepare students for joining the workforce. Graduates need to be given opportunities to develop generic attributes besides disciplinary knowledge; graduate attributes are required to foster employability in tertiary students (Bridgstock.2009)

However, due to the declining returns to education and the increasing gap between the required and provided skills an educational mismatch occurs. Educational mismatch is defined as the lack of coherence between required and offered educational level for a certain job. (Allen and Velden 2001.).

Educational mismatch are most often looked by their skills. 6 Skills mismatch is generally understood as various types of gaps or imbalances referring to skills, knowledge or competencies that may be of a quantitative or qualitative nature (Oluyomi S, Pitan.,& S. O Adedeji, 2012).

3. Skill mismatch and Employability

The 2008 global financial crisis shed the light on skills mismatch in advanced economies. Many analysts argued that the economic crisis has reinforced skills mismatch, and that identified labor market actors, including governments, companies and workers, need to ensure that occupational requirements are matched through adequate education and training.

Although education is often used as a proxy for skills, skills mismatch can be in the form of over –skilling, where an individual is qualified to handle complex tasks or under skilling where individuals lack the basic skills required for their job. Over-skilling, leads to skills loss and a waste of resources, time and effort that were used to acquire these skills. Under-skilling is also likely to affect productivity negatively and slow the rate at which more efficient approaches can be adopted.

However, contrary to education data, cross-country datasets on skills are rare, and usually limited to numeracy and literacy. In the absence of skills data, discussions of skills mismatch are often informed by surveys of employers'. (ILO, 2014)

Although investment in education and training in the Arab Region were increased significantly, young people still face difficulties in transitioning from education to the workforce, while enterprises often have trouble finding enough people with the skills they need to be able to expand or adopt new technologies. Hence, preparing the workforce for the labor market of the future remains a challenge.

Irrespective of the country's economical status, to enable higher education graduates to enter the workforce with the cognitive, behavioral, and social skills to solve complex problems, as well as promote new ideas and engage in diverse environments, additional financial resources are needed and more efficient utilization of the existing ones to meet the surging revenue needs of universities and other institutions of higher education in the MENA region is also needed.(World Bank ,2008)

In Jordan, despite the impressive improvement in the education system, persistent problems in this sector continue to exist. With the rising growing youth population, the Jordanian government has to ensure that the

quality of education and level of skills imparted can help the new generation compete effectively in the national and international arena. Currently, there are a number of problems: a mismatch of skills taught and skills required by the employers, which leads to high unemployment, the fewer jobs that were created for Jordanians are of low skills; teaching methodologies are outdated; lack of teachers' training and limited use of technology. (USAID, 2015) A recent school utilization study indicated that the number of Ministry of Education students is expected to increase by 124,634 between 2008 and 2013. (World Bank, 2009, 2011). Additionally, the conflicts in the surrounding countries led to an inflow of refugees to Jordan, this in turn increased the number of students enrolling in schools. Hence, the government spending on higher education needs to increase to cater to the rising demand for higher education resulting from the increasing number of schools enrollment. However, public spending for higher education has declined over the years; it is 14.7 percent of total education expenditures or 0.65 percent of GDP, which is low compared to other middle-income countries and to the Organization of Economic Cooperation and Development (OECD) average of 1.6 percent of GDP. Even transfers to universities have declined from JD 60.4 million in 2004 to JD 52.6 million in 2007 and JD 45 million in 2008. (World Bank, 2009)

The budget of the Ministry of Higher Education and Scientific Research in Jordan increased by 27 percent for 2013 .As in many Arab countries, Jordan's investment in education has still left it with a high unemployment rate. In 2012, unemployment in the kingdom was 12.5 percent due to, according to the General Department of Statistics. Due to a lack of communication between disciplines and universities," where spending priorities should be for capacity building and restructuring curricula. (Al Fanar Media, 2013).

A three MENA higher education projects were launched during the first 3 years of this century under similar circumstances; a rapidly expanding higher education population 25 outstripping government capacity to maintain funding levels; consequent reductions in educational quality; and a mismatch between the output of the universities and technical colleges and the needs of the countries and their labor forces. These circumstances called for increased attention to higher education relevance, quality, and efficiency, (World Bank, 2011)

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Long-term unemployment is on the rise as skills mismatch increases. Labor market mismatch has increased since the peak of the crisis in many countries. (ILO, 2014)

12 Skills mismatch evolved when there is no correlation and cooperation between the skills needed in the labor market to contribute to the development of the country's economy and those that are being produced by the Higher Education Institutions HEI's. Recent shifts in education and labor market policy have resulted in universities being placed under increasing pressure to produce employable graduates (Bridgstock, 2009)

The challenge of *skills mismatch*, is an issue of worldwide concern these days, has its origins in a number of factors. One of them is the inability or slowness of education and training institutions and systems to adapt to these new realities and requirements in the labor market

5. Methodology and Results

This study was conducted in Princess Alia university college and carried out to investigate the gaps in skills acquired by university graduates in childhood education major, which must be bridged in order to meet the requirements in the labor market.

The descriptive survey design was adopted for the study ,and a purposive sampling technique was employed to collect the data from 110 childhood education bachelor degree senior_students in Princess Alia University College for the first and second semester of 2013- 2014. The instrument utilized in the study was a set of questionnaire titled generic skills mismatch assessment.

The validity of the questionnaire was insured through the opinion of 3 experts in the relevant field. The reliability estimate through Cronbach Alpha was 80, which confirms that the instrument was reliable. Data

collected was subjected to statistical analysis using frequency counts, percentage, means, and standard deviations, ANOVA analysis and *t*-tests.

6. Results:

Research Question 1: What are the skills demanded in the labor market from university graduates?

Table 1: Skills demanded of University graduates in the labor market.

S/N	Skills	Very Critical	Critical	Less Critical	Not Critical	Mean	SD
		4	3	2	1		
1.	Analytical	67(60.9)	43(39.1)	--	--	3.61	.490
2.	Critical Thinking	18(16.4	35(31.8)	57(51.8)	--	2.65	.749
3.	Communication	75(68.2)	21(19.1)	14(12.7)	--	3.55	.711
4.	Decision Making	60(54.5)	42(38.2)	8(7.3)	--	3.47	.631
5.	Information Technology	63(57.3)	31(28.2)	16(14.5)	--	3.43	.735
6.	Interpersonal	51(46.4)	41(37.3)	18(16.4)	--	3.30	.736
7.	Problem solving	41(37.3)	48(43.6)	19(17.3)	2(1.8)	3.16	.773
8.	Self-directed learning	33(30.0)	51(46.4)	26(23.6)	--	3.06	.733
9.	Technical	43(39.1)	42(38.2)	25(22.7)	--	3.16	.773
10.	Numeracy	38.(34.5)	43(39.1)	29(26.4)	--	3.08	.780
	Demand (total)					3.25	.348
	Weighted Average = 3.25						

Notes. X ≥ 2.50 is critical, N = 110

All the listed group of skills were considered to be critical by the graduates. Analytical skills was found to be highly critical with a (mean = 3.61, SD = .490); Critical thinking skills had a (mean =2.65 , SD = .749); Communication (mean = 3.55 , SD =.711); decision making (mean = 3.47 , SD = .631); IT skills (mean = 3.43 ,SD = .735); interpersonal (mean = 3.30 ,SD =.736); problem solving (mean = 3.16 ,SD = .773); self directed learning skills (mean = 3.06 , SD = .733); technical skills (mean = 3.16,SD = .773) and numeracy skills (mean =3.08 , SD =.780). The weighted average for all the skills is 3.25 which indicated that they were in critical demand in labor market Maybe you can more explanation here. This is way too basic.

Research Question 2: What is the level of skills that Princess Alia University College graduates display in the work place (schools)?

Table 2 showed that the display of skills by graduates was generally low, where they had low scores on most listed scale.

Regarding analytical skills the respondents displayed a (mean = 1.87, SD =.910), while the critical thinking skills (mean =1.80, DS = .956). Similarly, communication had a (mean = 1.49, SD = .810) and decision making was slightly higher with a (mean = 1.76, SD = 1.004). Other skills included IT skills (mean = 2.85,SD = 1.110), interpersonal (mean = 1.58, SD = .923), problem solving (mean = 2.17, SD = 1.172), self directed learning skills (mean = 2.07, SD = 1.081), technical skills (mean = 2.01, SD = 1.062) and numeracy skills (mean = 3.05, SD = .336)

The weighted average for all the skills is 2.07, which indicates a generally low level of performance of graduates.

Table 2: Level of skills that Princess Alia University College graduates display in the work place (schools)?

S/N	Skills	Poor	Good	Average	Very Good	Mean	SD
		4	3	2	1		
1.	Analytical	43(39.1)	48(43.6)	9(8.2).910	10(9.1)	1.87	.910
2.	Critical Thinking	55(50.0)	30(27.3)	17(15.5)	8(7.3)	1.80	.956
3.	Communication	73(66.4)	25(22.7)	7(6.4)	5(4.5)	1.49	.810
4.	Decision Making	61(55.5)	24(21.8)	15(13.6)	10(9.1)	1.76	1.004
5.	Information Technology	17(15.5)	26(23.6)	24(21.8)	43(39.1)	2.85	1.110
6.	Interpersonal	72 (65.5)	19(17.3)	12(10.9)	7(6.4)	1.58	.923
7.	Problem solving	47(42.7)	17(15.5)	26(23.6)	20(18.2)	2.17	1.1
8.	Self-directed learning	43(39.1)	33(30.0)	17(15.5)	17(15.5)	2.07	1.081
9.	Technical	48(43.6)	26(23.6)	23(20.9)	13(11.8	2.01	1.062
10.	Numeracy	4(3.6)	25(22.9)	43(39.1)	38(34.5	3.05	.850
	Supply (total)					2.07	.336
	Weighted Average = 2.07						

Research Question 3: To what extent is the mismatch between the skills acquired by college graduates and the demands of labor market?

Table 3: The Extent of Mismatch Between the Skills Acquired by University Graduates and the Demands of the labor market

S/N	Skills	Mean Skill Demand (SD)	Mean Skill Supply (SS)	Supply relative to Demand (ASS)+ SS/4*SD	Extent of Mismatch (SD – ASS)	Extent of Mismatch = (SD – ASS) / SDX100%	Rank
1.	Analytical	3.61	1.87	1.69	1.92	53.2	5
2.	Critical Thinking	2.65	1.80	1.19	1.46	55.1	4
3.	Communication	3.55	1.49	1.32	2.23	62.8	1
4.	Decision Making	3.47	1.76	1.58	1.94	55.9	3
5.	Information Technology	3.40	2.85	2.44	0.99	28.7	9
6.	Interpersonal	3.30	1.58	1.30	2.00	60.1	2
7.	Problem solving	3.16	2.17	1.71	1.45	45.9	8
8.	Self-directed learning	3.06	2.07	1.58	1.48	48.1	7
9.	Technical	3.16	2.01	1.59	1.57	49.9	6
10.	Numeracy	3.08	3.05	2.35	0.73	23.7	10
	Demand (total)					3.25	.348
	Extent of Mismatch = 48,37						

Table 3 showed the extent of mismatch of skills was generally high. Regarding communication skills the respondents considered it as the least supplied skill which was about 62.8, followed by Interpersonal (60.1), Decision making (55.9), Critical Thinking (55.1),analytical (53.2), Technical(49.9),Self-directed (148.),Problem solving (45.9), IT(28.7), Numeracy (23.7)

The extent of mismatch of skills was 48.37, which is considered to be high. This also indicates that almost half of the needed level of skills is not acquired by the graduates.

Hypothesis 1:

There is no significant relationship between the supply of skills by graduates and skills demand of the labor market.

Table 4: Regression Model Summary

Model	R=.77(a)	R^2=.006	R^2_{adj}= -.003	Std. Error of the = 0.336	
Analysis of Variance					
	Sum of squares	Df	Mean square	F	Sig.
Regression	0.074	1	0.074	0.625	421(a)
Residual	12.215	109	0.113		
Total	12.289	110			

The regression results in table 4 show that there is a significant relationship between the supply of skills by the graduates and skills demand of the labor market , R^2_{adj} =-.003 ,F =0.652 ,P< 0.05 .

The independent variable (skill demand) can explain for .06 of the total variance observed in the supply of skills R^2 = .006 R^2_{adj} = -.003.

Table 5: Relation between skills demand and supply

Regression Model Summary					
Model	Unstandardized Coefficients		Standard Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	2.308	.302		7.637	.000
Skills demand	-.075	.093	-0.77	-0.807	.421

Dependent Variable: Supply of skills (total)

As shown in table 5 Beta= -. O77, $t_{(109)}$ = -0.807 , P< 0.05

The regression results in table 4 showed that there was a significant relationship between the supply of skills by the graduates and skills demand of the labor market, R^2_{adj} = -- .003

This indicated that the relationship between skills demand and supply is a negative one, the relationship implies that as the skills demand increased in the labor market, the quality of skills supplied by Higher education institutions for the graduates decreased significantly.

Hypothesis 2:

There is no significant difference between the demand and supply of skills in the study

There was a significant difference between the paired comparison of demand and supply of all the skills.

The significant highest mean difference was between demand and supply of communication skills, (t = 20.753 , P< 0.05) ,followed by analytical skills(t = 18.018 , P <0.05), interpersonal (t = 16.539 , P< 0.05), decision making skills ,(t = 15.145 , P< 0.05), technical skills ,(t = 9.413 , P< 0.05, , self directed learning skills ,(t = 7.851 , P< 0.05), problem solving skills ,(t = 7.202 , P <0.05) ,critical thinking ,(t = 7.135 , P <0.05), IT skills ,(t = 4.565 , P<0.05),numeracy skills ,(t = .347 , P< 0.05).

Based on the above results hypothesis 2 was rejected. It is also showed in the results that the skills supply vary significantly from what is required by the labor market compared to what the respondents indicated in the study.

Table 6: *T-test* differences b*etween* demand and supply of each skill

S/N	Skills	Skills demanded		Skills Supplied		Mean difference	Std. error	t-value
		Mean	SD	Mean	SD			
1.	Analytical	3.61	.490	1.87	.910	1.74	0.096	18.018
2.	Critical Thinking	2.65	.749	1.80	.956	0.85	0.119	7.135
3.	Communication	3.55	.711	1.49	.810	2.06	0.099	20.753
4.	Decision Making	3.47	.810	1.76	.631	1.71	0.113	15.145
5.	Information Technology	3.43	1.004	2.85	.736	0.58	0.127	4.565
6.	Interpersonal	3.30	.923	1.58	.773	1.72	0.105	16.359
7.	Problem solving	3.16	1.172	2.17	.733	0.99	0.138	7.202
8.	Self-directed learning	3.061	.172	2.07	.733	0.99	0.126	7.851
9.	Technical	3.16	1.081	2.01	.733	1.15	0.123	9.413
10.	Numeracy	3.08	1.062	3.05	.780	0.04	0.105	0.347

*Notes :*Significant at 0.05; N = 110; df = 109.*

7. Discussion

The answers to research question 1 indicated that all the skills under review which were analytical, critical thinking, communication, decision-making, IT, interpersonal, problem-solving and self-directed learning skills are demanded. The mean values for the skills, except for critical thinking, were high, which indicates that those skills are direly needed. Analytical and communication skills appeared to be the most sought. While reasons for the preference may vary from one individual or organization to another, it is mainly needed because if workers are analytical, that is, skilled in using methods that help in examining intellectual or substantial things carefully, and separating them into their initial elements or basic principles it will lead to better and more profitable performance. The high weighted average of 3.25 obtained from Table 1 implies that the labor market is asking for a high score to some extent, where 3.25 out of 4 (or 80.25%) translates to a " very Good" score. This is, of course, achievable with a little more focus efforts on matching the skills demanded in the labor market with the higher education institutions, and in this case reviewing the programs through a quality assurance systems will serve the purpose. This high weighted average of 3.25 also showed that the quality of skills demanded in the labor market is high. This is not only applicable to Jordan, but globally. Moreover, several theoretical and empirical studies (Yassin &Hasan, 2008; Frogner, 2002, Smith &Kruger, 2008, Di Gropello, with Kruse &Tandon,2011) have identified an increased demand for generic skills, such as communication, problem-solving, analytical, social and good interpersonal skills, and the ability to use IT equipment. The difference, however, is in the ranking of the demand for these different skills in different countries. For example, Andrea Kay reported that, the most sought after skill was communication. (Forbes, 2010,)

The results obtained for RQ2, had a weighted average of 2.07. This revealed that the general performance of the graduates in terms of skill supply is not high enough, in fact, it is poor, even the low-rated skill by the students, communication, was poorly supplied by the graduates. Although not high enough, the skill that graduates believed was relatively highly supplied was IT, which was still below average. This in turn is surprising in light of the current awareness in IT on campuses and its use by students on social media along with their academic homework and assignments. On the other hand, numeracy skills, which were displayed to a fair extent, were likely acquired from experiences of students on their research projects and seminars. Additionally, most of the development projects towards the developing countries are focusing and concentrating on both numeracy and IT, which partially explains their prevalence.

The presence of ICTs in the workplace and elsewhere, and related changes in the delivery of many services (e.g. online banking, e-government, electronic shopping), may well have made mastery of literacy and numeracy skills even more important for full participation in modern life. In addition, a certain level of proficiency in literacy and numeracy appears to be a pre-condition for success in undertaking more complex problem-solving

tasks – for which demand is growing as a consequence of ongoing structural changes. (OECD, 2013).

A serious deficiency in university graduates as found in this study was the poor display of interpersonal skills. Interpersonal skills are the skills used by a person to properly interact with others. In any business domain, the term generally refers to an employee's ability to get along with others while getting the job done including everything from communication and listening skills to attitude and deportment.

Answers for RQ3 were obtained from those already provided for RQ1 and RQ2. From this result, it is confirmed empirically that there is a skills mismatch. Graduate skills demand was found to be higher than supply. This finding agrees with many speculations and reports on the subject by Davos-Klosters,(World Economic Forum, 2014), .But more importantly, the extent of this mismatch is critical and alarming. Out of the 10 skills investigated, the magnitudes of mismatch for 8 were around 48%, while that for numeracy skill was below 25%, followed by IT skills which was below 30% indicating that those were the only two adequately supplied. The overall extent of mismatch of 48.37 show that far below half the quality of skills demanded were actually supplied. The areas of major weaknesses in the supply of skills by the graduates were communication skills, interpersonal relationships, decision-making, critical thinking skills, analytical, technical, self-directed learning, problem solving, IT, and numeracy.

The results obtained from hypothesis 1 that there is generally a negative relationship between skills demand and supply further confirmed the huge extent of mismatch detected from RQ3. The negative value of "r" suggests that at the more the quality of skills demanded increases; the more the skill supply reduces. This could also be stressed out by the result of hypothesis 2, which showed that a difference existed between the demand and supply of each of the skills considered.

This is completely at variance with what ought to be. Changes in the structure of labor market skills should have major implications for the changing nature of the skills acquired in schools, in particular the content of programs and its applications through practice (Oluyomi S, Pitan.,and S. O Adedeji, 2012,). That is, it should be the responsibility of the education system through higher education institutions to ensure that graduates acquire skills which will respond to increased demands and challenges in the labor market. The serious deficiency in the relationship between the labor market and the university would result in increasing the unemployability rate of graduates along with other emerging circumstances. These findings are corroborated by several findings; for example, OECD Skills Out Look 2015 reported that countries should tackle demand- side barriers to the employment of the low skilled youth by strengthen the education system and prepare all young people for the world of work.

8. Conclusion:

All education and training systems around the world face both a quantity and a quality challenge, in different ways depending on country specifics .The quality challenge is closely linked to the fact that there are major disconnects between the world of education and the world of work.

Also, there is evidence that unemployment problem also has structural causes rooted in mismatches between job expectations and skills needed in the growing economy. Thus, the education system is in need of reforms to produce skills needed for the global knowledge economy. Skills mismatch has been linked to incomplete and asymmetric information, transaction costs and unresponsive education and training systems. Therefore, this challenge should be prioritized by policymakers with the aim of opening dialogue to strengthen linkages between education and training systems and the world of work. Such dialogue should be informed by solid labor market information, but particularly in the area of skills mismatch data are patchy (Cedefop, 2010).

Beside the responsibility of the public policy, the private sector should also invest in skills and talent and engage in education and training in innovative ways to meet the requirements of the workforce that is needed.

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