Develop an Employability Score for Effective Employee Recruitment in the Pharmaceutical Sector of Bangladesh

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Abstract: Employers' perceptions of employability skills and their skill preferences have been taken from 35 pharmaceutical firms. Personnel working in the human resource department and those who were involved in the policy-making position were interviewed followed by administering a semi-structured questionnaire. From the employers' perceptions of employability, an employability matrix was prepared, and the dimensions and determinants of the employability matrix were quantified through a five-point Likert-type scale. To develop an 'employability score' this study proposes a mechanism for computing employability to reduce employers' battle to screen out the suitable candidate/s for recruitment. From the employability matrix, it has been revealed that the contribution of academic-related skills is the highest (85.45%) to employability among others.

Keywords: Education, Productivity, Employability, Employability score and Work performance prediction summary

Introduction

The pharmaceutical industry in Bangladesh has been overgrowing since the early 80s, The pharmaceutical industry in Bangladesh has been overgrowing since the early 80s, especially after the drug policy 1982 came into being. Since then, the industry has been experiencing robust growth over the last few years. A local industry supporting drug policy and useful regulatory framework and TRIPS relaxations are the critical reasons for industry success (idlc.com, 2011).Bangladesh inherited a very poor pharmaceutical base, mostly dependent on imported drug and dominance of multinational pharmaceutical companies, Bangladesh can now stand on its firm root; 98 % of its need for medication is met by local production at an affordable cost and becomes an exporter of quality medicine to the global market (bapi-bd.com, 2019), even though the sector's journey was very challenging.Presently there are 300 Allopathic pharmaceutical firms operating in Bangladesh (dgda.gov.bd, 2016-2017).

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This sector is based on knowledge and sophisticated technology; therefore, it has required high quality human capital (education, experience, and training), physical capital, technology, and raw materials and energy. Every input contributes to producing output, and input like labour, both physical and human capital, is the prerequisite to engaging other inputs in the production process. It is human without whom innovation, technological diffusion, adaption are not possible. The pharmaceutical sector is a knowledge-driven sector where innovation, technological advancement are frequent. However, the workforce with better education will perform well in this sector because they promptly adapt the technology and knowledge to keep pace with ongoing changes.Education enables a human being to exploit their power.If education does not embed skills in future workforces and skills do not match with employers need then presence of adequate educated workforce will not guarantee quality product and firms' profit.

The demand for skilled professionals is growing in the pharmaceutical sector. Different trade bodies, CEOs, and entrepreneurs have expressed their concern on the skill gap in the industrial sector. They very often point out the shortage of skilled workforces. They have expressed about their sufferings and limitations faced due to lack of technical expertise, lack of communication and managerial skills, lack of critical and problem-solving skills among employees.

Every year a large number of educated workforces enter in the job market. However, the unavailability of education-related jobs/quality jobs, educated youths are very often forced to remain unemployed, accept a job, which is less paid and respectable. The inequitable number of jobs with preferred educational backgrounds, on the one hand, and on the other hand, the supply of an educated workforce with acquired skills that do not match with the market demand creates labour market distortion. In addition to that, the shortage of skills among educated youths have compelled employers to recruit foreign workers for they have to pay hefty amount in foreign currencies. Effective employee recruitment is pre-requisite for organizations seeking to enhance productivity and achieve their goals. In this perspective a computing mechanism to calculate employability score of the incumbent candidates is worthy. The aim of this paper is to diagnosis employability from the employers' lens and develop an 'Work performance prediction summary' for the pharmaceutical sector in Bangladesh.

The layout of the paper is as follow: a review of literature is presented in section II. Section III discusses the methodology, variables and data sources. Discussion of

findings and comparisons with other relevant findings is given in section IV. Conclusion and with relevant policy suggestions are presented in section V followed by references.

Review of Literature

This study reviews the theoretical and empirical literature to provide an overview of the broad aspects related to the research topic on earlier studies focusing on the contribution of human capital on employability. Education has recently been re-theorized under Human Capital Theory as primarily an economic device (Fitzsimons, 2017). The quality dimension of labour supply encompassing human capital elements like education and training. The human capital theory states that a person's education is an investment in his/her human capital (akin to investment by a firm in physical capital), which makes the individual more productive and accrue him/her a future stream of benefits, higher productivity and thus higher wages (Mulongo, 2012).

The Link between Education and Employability

Education is pivotal to knowledge-driven society. Research findings have shown that good quality education be it primary or secondary or tertiary, affects employability in different ways. Every year a substantial amount of public money is spent on education. Therefore, the performance of educational institutions, especially the developed countries, tried to measure by what and how education institutions embed employability among graduates and make the students prepare for the world of work. Many universities like Stockholm University has incorporated employability as one of the goals to beobtained by the student during university education (Stockholm University, 2007a, 2007b). In the UK, higher education authorities introduced 'a set' of indicators to measure universities' performance in terms of their graduate's employability first in 1999 and then in 2006. Education and the nature of jobs both are changing continuously due to knowledge explosion and technological innovation. In this changing environment, the graduates acquire employability skills to satisfy the employer's requirements of skills. Unfortunately, employers often do not value graduates' acquired skills, which creates a mismatch between acquired employability skills and employers' preferred want of skills, and this trend is increasing. Employers want to entrust this responsibility to the educational institutions, mainly the higher education institutions that offer education to the youths. In the developed world, universities are closely aligned with the industries. Universities are trying to embed employability skills among their

graduates through innovative ways. They are enabling their students to manage a job up to their standard, preparing them to learn for lifelong learning, and extending support for professional development. However, they often revisit their curricula to revise or customize curriculum and place graduates in industries as interns to have real-life experiences. In addition to that, they introduce new subjects, collaborate with employers, arrange seminars where they invite higher management from different industries to discuss changing scenarios to bridge the gaps between theory and practice.

Different Approaches to Employability

Since the midst of 1990, employability has been used in policy documents in researches and management literature. A wide range of approaches to employability has developed, which is difficult for researchers to comprehend and follow a single approach of employability (Bernston, 2008). Some of the contemporary literature regarding employability is discussed here to conceptualize the term 'employability.'

Employability generally is defined as the chance of an individual to secure a job in the labour market. 'Employability is about making closer links between education and the world of work.' 'Employability is the propensity of graduates to exhibit attributes that employers anticipate will be necessary for the future effective functioning of their organization' (Harvey 1999, Page-4). 'Employability perceptions refer to individuals' beliefs about their possibilities of finding new, equal, or better employment' (Bernston, 2008, page-15). Employability is not primarily a self-evaluation; it is dependent on the individual as well as situational factors, and it has implications for health and well-being (Bernston, 2008).

'Employability is about having the capability to gain initial employment, maintains employment, and obtains new employment if required' (Hillage& Pollard, 1998, page-2). Employability research assesses employability differently, looking at the realization of this chance (i.e., job transitions), personal strengths that increase this chance (i.e., movement) and appraisals of this chance (i.e., perceived employability).

From the above definitions, it is clear that researchers/academicians/practitioners have perceived employability differently. Harvey (2001) a famous labour economist has proposed five approaches to employability, these are: i) Type of Job; ii) Timing of getting a job;iii) Attributes on recruitment; iv) Continuous learning or lifelong

learningand v) Employability skills. As the conceptualization of employability differs, the dimensions and determinants of measuring the employability approach also differ.

Employability Skills Matrix and Employability Score

There are different types and facets of employability skills. Employability skills vary depending on factors related to personal characteristics of the employees, situational factors of the labour market. In addition to that, organizational and job-related factors also influence employability skills. 'Employability Skills are not job-specific, but are skills which cut horizontally across all industries and vertically across all jobs from entry-level to the chief executive officer' (Sherer & Eadie, 1987. P-16).

With the support of the International Labour Organization, Brewer, in 2013, has prepared a matrix of employability. She has examined 63 documents of the employability skills of different countries and organizations. After synthesizing them, she has made three broad categories of employability skills. These are basic skills, higher-order skills, and affective skills. Basic skills incorporate skills related to education, such as numeracy (basic Arithmetic), and communication, both oral and written. Higher-order skills incorporate problem-solving, creative and innovative, decision-making, and learning skills. Affective skills include personal traits of employees such as honesty, punctuality, responsibility, interpersonal skill (team building), and ethical values.

Peters et al. (2017) have provided an employability skills matrix that includes four categories of employability skills such as knowledge, skills, attitudes and social capital. OECD (1999) has proposed an employability skills matrix with three broad categories of employability skills such as acting autonomously, using tools interactively and functioning in a socially heterogeneous group.

Conference Board of Canada (2000) has prepared the employability skills matrix, which consists of three broad skills, including academic skills, personal management skills, and teamwork skills. The employability matrix of 'The Secretary's Commission on Achieving Necessary Skills' (SCANs, 2001) of the USA has incorporated broad seven categories such as productive attitude and personal qualities, people skills, punctuality and attendance, critical thinking and problem-solving skill, time and resource allocation, business basics and information analysis, and technology and communication. The employability skill matrix is a tool kit for the employers' or the

organizations to calculate employability score.This score helps to recruit people with the right skills for the right position to get the best outcome from the employees. For the job seekers, a guideline helps to hunt job, advance in the job, and retain in the job. The employers, human resource managers, researchers, and others to identify the knowledge, skills, attributes, and behaviors required for a specific job can use this matrix.

Methodology

By utilizing a comprehensive framework and relevant criteria, this study aims to provide a standardized method for evaluating employability and selecting candidates who are likely to contribute to organizational productivity. The primary objective of this study is to create an employability score that will assist pharmaceutical companies in assessing the suitability of candidates for specific job roles. The score will provide a standardized and objective measurement of an individual's employability based on a range of criteria, including academic qualifications, relevant skills and experience, communication abilities,problem-solving skills, and teamwork capabilities and others.

Estimation of Employers' Perceptions of Employability Skills in Pharmaceutical Sector

Research methods related to employability are done through the survey (Rahmat et al., 2016, Smith et al., 2000 and Harvey, 1997), document analysis, and case study (Harvey, 2002). Present study estimates the role of education in employability from a demand-side perspective, especially from the employers' lenses at the time of recruitment. A rigorous review of past research works; key informant interviews have done to estimate the role of education in employability. In addition to that, employers' perception of employability is explored by interview (like Lowden et al., 2011) and quantify the perceptions in terms of dimensions and determinants of employability by using Likert type scale. Finally, a mechanism to calculate 'employability score' has been proposed so employers can assess employees (aspirant employees) objectively based on weightage they have given on each determinant of employability.

To analyze employers' perception of employability this study has provided the following definitions: -

1) 'Employability is the skills, knowledge, and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if he/she so wishes or has been laid off and enter more easily into the labour market at different periods of the life cycle' Brewer, 2013.

2) 'Employability is the propensity of graduate to exhibit attributes that employer anticipate

will be necessary for the future effective functioning of their organization' (Harvey 1999. Page-4).

3) 'Employability is the ability of the graduate to get a satisfying job' (Harvey, 2001, Page-100).

Categorization of Employability Skills and Employability Skill Matrix with Dimensions and Determinants

On the basis of rigorous review of literature and interview of key informants,the categorization of employability dimensions and determinants were done then formed a matrix of employability skills for the pharmaceutical sector. These are basic skills, higher-order skills, and affective skills. Basic skills incorporate skills related to education, numeracy (basic Arithmetic), and communication, both oral and written. Higher-order skills incorporate problem-solving, creative and innovative, decision-making, and learning skills. Affective skills include personal traits of employees such as honesty, punctuality, responsibility, interpersonal skill (team building), and ethical values.

The initial 'employability skills matrix' contains seven (7) dimensions and thirty (30) determinants of employability, the respondents then finalize six (6) dimensions and twenty-three (23) determinants.

Employability Score

'Much of the literature in this area focuses on defining the skills and developing matrices. There is a reluctance or inability to move beyond' (Brewer, 2013, page 11), this study attempts to quantify the employer's perceptions of employability in terms of dimensions and determinants of employability and tries to find out the way to utilize these at firm- level. This study partially uses the idea from the Secondary Education Sector Investment Program (SESIP) from their performance evaluation system of secondary schools. (SESIP) introduced the Performance-Based Management (PBM)

in 2005.In 2010 to ensure the effective and efficient performance of secondary schools in compliance with the Education Policy of the Ministry of Education in Bangladesh, this project introduced Institutional Self-Assessment Summary (ISAS) an evaluating toolto assess and monitor the performances of secondary schools by quantifying performances of each secondary school based on seven (7) indicators and forty-five (45) sub-indicators. This study quantified the dimensions and determinants of employability matrix by applying a Likert type scale. Then by calculating the percentage of each determinant of employability skills, the ranking of importance of dimensions is made.

To compute the 'employability score,' the present study has followed the weighting scale of ISAS to weight a range of each employability skill and formulas to compute the ISAS score from SESIP (SESIP, 2015). Table-1 shows the weighting scale to weight dimensions of employability. This weighing system is similar to the Cumulative Grade Point Average (CGPA) evaluation process of student's academic scores, where the weight of every 10% mark is equivalent to 0.25. In PBM weight of every 10% mark is equal to 0.2. This study considers that the weight of every 10 marks of each dimension of employability skill is equal to 0.2.

Table-1: Weighting scale to Weight determinants of PBM

Range	Weighting Factor
20% - < 50%	1.0
50% - <60%	1.2
60% - <70%	1.4
70% - <80%	1.6
80% - < 90%	1.8
90% - <100%	2.0

In the five-point Likert Scale, the lowest option is '1', which means 20% and below 50% is 'fail'/insignificant marks in any broad examination; therefore, the benchmark weighting factor is 1 for the whole range of marks 20% to below 50%. An aspirant employee with below 50% marks in total in any dimension of employability skill is considered to be failing, so he/ she is considered as not eligible. For every 10%

increment of score/numbers on employability skills above 50% is equivalent to 0.2, the highest weighting factor is two (2). Then by multiplying base scores (data collected from Likert type scale in percentage form) with a weighting factor of relevant determinants, observed weighted score (OWS) is computed. Dividing OWS by maximum weighted score (when a candidate obtained the highest score-5), the employability score is computed out of a hundred. Table- 3 proclaims the quality of the candidate.

Formula to calculate Observed Weighted Score for 'Employability Score'

Observed Weighted Score = Base score (individual participant's score in each indicator of employability) ×Weighted factor (given in table 4.4)

$$\textbf{Employability Score (\%)} = \frac{\textit{Observed Weighted score}}{\textit{Maximum weighted score}} \times 100$$

Result & Discussion

Employers' View on Importance of Each Determinant/item of Employability in Employability Skill Matrix

From the primary list of dimensions and determinants of employability, the key informants have picked 23 employability determinants that spread in Five dimensions for the pharmaceutical sector. The respondents (employers) are requested to weigh each determinant of employability skill out of five marks where five is for the highest weight, and one is for the lowest weight.Table-2 exhibits the importance of five dimensions and 23 determinants of employability skills. The screening test score is a blend of all skills that has the highest percentage. Apart from this, communication skill and smartness have received the highest importance (92.55) followed by innovativeness & creativity, and analytical & problem solving (both having 89.76%) and least preferred employability skill is attitude and aptitude (33.95%). These findings conform to Prades (2014) & Chisty et al. (2007). The leadership skills valued by the employers as the second least important skill is also supported by the findings of Prades (2014). Christy et al. (2007) have found in Bangladesh that communication skills, presentation skills, the reputation of the academic institution, and analytical & problem-solving skills are essential determinants for employment. This result is not in good agreement with the

findings of Azim & Ahmed (2016) in Bangladesh. In their findings, references have the highest priority in recruitment, followed by screening tests (they calculated separately as interview and written) and then academic qualification. The reason may be in the choice of employers, and the types of manufacturing sectors where mostly RMG related enterprises are taken as a sample, and few of them are power generating and break manufacturing enterprises. Despite power generating enterprises, RMG and brick manufacturing enterprises followed a less regulated recruitment process, which is why references have the highest priority. The low score in attitude and aptitude is surprising, but 'employers have opined that they have no reliable test mechanism in hand to judge this skill during recruitment within the stipulated time as a large number of candidates compete for one post.

The responses regarding gender-based criteria of recruitment are slightly gender biased favored male over female (65.11%), but the number of female employees working in the pharmaceutical sector is very small (3.93%) even smaller than the national level (14.9%). Female employees work particularly in head offices, and few of them are employed in plants. Only one firm mentioned that they have female employees though few in the number employed in the field. They opined that the nature of the job in the pharmaceutical sector is such that it is not very welcoming to the females. Because the plants are located mostly on the outskirts of Dhaka, very few have residential facilities for the female. In addition to that, there are shifting duties, which limit females to work in the plant. The majority of the field employees consist of MIO/MPO/ MR/SR (Medical Information Officer /Medical Promotion Officer/ Medical representative/ Sales representative). They are responsible for sharing knowledge about the efficacy of drug/s to the doctors, generating prescriptions from the doctors; collect orders from the pharmacies/ hospitals/ clinics. They have to visit hospitals /clinics to convince the doctors to generate prescriptions and taking data about the demand for medicines. Usually, they went pharmacies/ hospitals/ clinics from 8 to 9 a.m. and spent the time until mid-day. Again, they go to visit the doctor's chambers in the evening and stay until midnight.

Table-2: Percentage of Importance of Dimensions and Determinants of Employability Skills & Their Weighting Factor

Serial No.	Determinants and sub determinants	% of Importance (survey result)	Weighting Factor	Maximum Possible Weighted Score
1.	**Basic Skills**	**85.94**		**65**
1.1	Higher academic degree/year of schooling	83.11	1.8	9
1.2	Higher academic result(Div/GPA/CGPA)	83.25	1.8	9
1.3	Reputation (name & fame) of the education institutions	85.58	1.8	9
1.4	Preference towards Science than other streams of education	82.79	1.8	9
1.5	Communication skill (spoken & written) in English	92.55	2	10
1.6	Computer literacy	88.37	1.8	9
2.	**Higher Order skill**	**84.29**		**35**
2.1	Innovativeness & creativity	89.76	1.8	9
2.2	Analytical and problem solving skill	89.76	1.8	9
2.3	Decision making skill	70.23	1.6	8
2.4	Desire to learning	87.44	1.8	9
3	**Affective skills and traits**	**70.22**		**33**
3.1	Smartness (Manners and etiquette)	92.55	2	10
3.2	Team building/ negotiation skill	56.27	1.2	6
3.3	Ethical values (job responsibility/ time management/ punctuality)	53.95	1.2	6
3.4	Presentation skill	66.97	1.2	6
3.5	Leadership quality	47.44	1	5
3.6	Attitude & Aptitude	33.95	1	5
4.	**Personal Trait which is beyond own control**	**65.45**		**29**
4.1	Family background (In terms of income, position)	60.93	1.4	7
4.2	Gender	65.11	1.4	7
4.3	Disability	72.05	1.6	8
4.4	Ethnicity	63.72	1.4	7
5	**Job related skill**	**83.25**		**18**
5.1	Job related training	82.79	1.8	9
5.2	Experience	83.72	1.8	9
6	**Higher screening test score (written & Viva voce)**	**87.44**	**1.8**	**9**

Relative Importance of Education to Employability

Table-3 shows that education plays a key role (85.45%) in employment beyond this percentage because the primary sorting of aspirant candidates is done based on the academic result and on the reputation of the academic institutions (employers considered the institution/s of aspirant employees from where they obtained undergraduate and postgraduate degree). Before taking candidates in the selection process, firms have the CVs where academic performance has been submitted with proof. Therefore, it is easier for the firms to sort excess candidates out because of having limitations regarding time, money, and space where written examination is to be taken.

Table- 3: Distribution of Importance in Percentage of Survey Result on Broad Dimensions of Employability Skills and Their Rank

Broad Dimensions of Employability Skills	% of importance given by the respondents	Rank
Screening test score (written & Viva voce)	87.44	1
Basic Skills	85.94	2
Of which academic skills	85.45	
Higher Order skill	84.29	3
Job related skill	83.25	4
Affective skills and traits	70.22	5
Personal Trait which is beyond own control	65.45	6

Employability Score

The following two formulas help to calculate the employability score.

Formula to calculate Observed Weighted Score

Observed Weighted Score = Base score (individual participant's score in each indicator of employability) ×Weighted factor (given in table 1)

$$\textbf{Employability Score (\%)} = \frac{Observed\ Weighted\ score}{Maximum\ weighted\ score} \times 100$$

Example

Suppose an aspirant employee gets 3 (base score) out of 5 on the second determinant (1.2) of employability. The weighting factor for this determinant is 1.8, and hence his/her observed weighted score is 5.4 (Base score 3 ×Weighted factor 1.8). If his/her base score is 5 out of 5, then the observed weighted score will be 9 (column 5 of table-6.39). The employability score is the ratio of observed weighted score to maximum weighted score multiplied by 100. In the present case, it is

$$\frac{Observed\ Weighted\ score}{Maximum\ weightd\ score} \times 100$$

$$= \frac{\mathbf{5.4}}{\mathbf{9}} \times 100$$

$$= 60\ \%$$

The aspirant employee with a 60% employability score will be considered as c category (use table-6).

With the 'Employability Score' on each dimension of employability skills, the human resource manager will prepare a **'work performance prediction summary'** containing employability scores of all dimensions of employability skills. It will help the human resource managers to predict work performances/productivity of aspirant employees and take the decision about whom to recruit.

Decision About Whom to Recruit

Table-4 shows how the human resource manager will decide whom to recruit. An aspirant employee/ candidate with an employability score below 50% on any dimension of employability is considered not eligible for the post. Candidate having 80 to 100% considered as a highly deserving employee from whom enterprise will accrue the highest productivity. If more candidates have employability scores between 80 to 100 (maximum range) than the number of vacant posts, then recruitment can be made on a provisional basis. After the provisional period is over, final recruitment can be made based on 'on the job performance appraisal.'

Table-4: Work Performance Prediction Grade Based on Employability Scores of Aspirant Employees

Range (% of Employability score)	Grade
80 -100	A (highly deserved candidate)
70 - < 80	B (Good)
60 - < 70	C (Average)
50 - <60	D (Need training & mentoring)
< 50	Fail

Conclusion & Policy Suggestions

Absence of the diagnosis of employability skills in an economy where a huge number of educated youths is roaming around unemployed and presence of foreign employees in many sectors is undesirable. Bangladesh has spent $4 billion as reverse remittance (bdnews, 24.com 15th July 2015) for recruiting foreign employees, a majority of which have come from neighboring countries like India, Pakistan, and Sri Lanka. Youth unemployment is a big challenge for the country. The present study has applied a qualitative method to explore the meaning of employability and the employability skills needed by the employers and proposed a mechanism to calculate the employability score that help and predicts the productivity of future aspirant employee/s.The Employability Score will significantly streamline the recruitment process by providing a standardized assessment tool that objectively evaluates candidates' suitability for the pharmaceutical industry. By utilizing the Employability Score, organizations can reduce recruitment costs and save valuable time by focusing on candidates who meet the predetermined benchmark criteria.The employability score has the potential to become a standard tool leading to greater consistency and efficacy in talent acquisition by industry-wide adoption. For industry wide application, collaboration with industry experts, HR professionals and recruiters to establish a benchmark criterion for the

different roles within industries will enable employers to compare employability scores and make informed discissions during recruiting process.

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