

The consequences of education mismatch and skill mismatch on employees' work productivity: A Structural Equation Model

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Abstract: The study purports to surface the impact of education mismatch and skill mismatch to the employees' work productivity in the BPO industry. The study utilized structural equation model (SEM) to determine the causal relationships among education mismatch, skill mismatch, job satisfaction and productivity. Two hundred twenty-eight (228) call center agents from four (4) BPO companies in Makati and Quezon City participated in this exploratory study. The data were taken through a multi-aspect survey questionnaires. The model revealed that (1) education mismatch positively correlates with skill mismatch, (2) both mismatches negatively affect job satisfaction and (3) job satisfaction positively affects productivity. Findings of the study implies human resource interventions through trainings and programs that will help narrow down the gap between mismatches and the competencies required for the job.

Keywords: *education mismatch, skill mismatch, productivity, structural equation model*

Introduction

Job mismatch is apparently causing more unemployment and underemployment in the Philippines (Arangkada Philippines, 2010). Obtaining a degree to land at a decent job and earn a living is practically every person's goal. It is expected that a fresh graduate gets a job related to the completed degree. However, getting a

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degree is becoming unnecessary because graduates likewise have no assurance of landing on a job which corresponds to the education attained, and the skills acquired due to a highly-competitive labor market. Nowadays, the mindset of society is on having jobs prioritizing on opportunities which gives high paying salaries (Orillaza, 2014). The idea that some companies disregard educational background on some job requirements reveal that they would most likely focus on the skills possessed (Colina IV, 2014). This may apparently affect their level of satisfaction which may further lead to some unfavorable outcomes (Mavromaras, McGuinness, Richardson, Sloane & Wei, 2011).

According to Judge, Bono, Thoresen & Patton (2001, as cited in Mamiseishvili & Rosser, 2011), the relationship of job satisfaction and work productivity is a constant interest in organizational literature. Job satisfaction is considered as a key determinant of labor market behavior that includes work productivity (Ferrer -i-Carbonell, 2012; as cited in Di Paolo, 2012). Amador, Nicolas & Vila (2008b), even posited that negative consequences of job satisfaction exist on skill mismatched employees due to non-related skills to the job that they do, skills shortage and underutilization of their skills. On the other hand, positive outcomes occur for education mismatched employees. In the case of the latter, Fuentes-del-Burgo and Navarro-Astor (2013) argued that undereducation leads to a negative impact because of the necessity to invest on gaining more knowledge and skills for their work, while overeducation results to a neutral effect as considering the additional education to be ineffectual for utilizing in their professions. By and large, it is important to strike a balance between the knowledge and skills of the employees with the job qualifications requirement as well as the learning activities made available by the organization for employees to feel more satisfied (Weymer, Maciel & Castor, 2014). By undergoing training, employees increase and improve their job competencies for the purpose of productivity (International Labour Office, 2010).

Seemingly, the Business Process Outsourcing (BPO) industry is employing a highly diverse set of employees whose education and skills acquired often do not match their current jobs. Catching the attention of job seekers in the early 2000's, the BPO industry is open to various degrees of educated individuals. Only minimum employment qualifications are required of them such as a college degree holder, English language proficiency, computer literacy; thus, any degree holder can apply for the job regardless of their educational background. For this reason, many have been attracted to apply in BPO industry leading to a job mismatch (Ramos, Estrada & Felipe, 2007). Most of the applicants took courses which are unrelated to the job being applied to; therefore, the company tends to spend more on training and retraining newly hired employees to match their skills and the industry needs (Arangkada Philippines, 2010).

The Philippines is a much sought-after destination for call center services, since English is considered as a second language in the country. This provides an edge from other countries' BPO services since the Philippines is able to employ

competitive English language communicators (Lockwood, 2012) which made the country's BPO industry known to standout globally (Executive Boutique, 2014, February 12). Many Filipinos think that the BPO industry is their ticket to a successful career. According to Reyes (2011), Filipinos perceive a good career path if they decide to establish their financial stability early on in their lives.

As the industry continues to prosper, the employment rate proves to be apparently still insufficient to match the level of conversational and colloquial proficiency required for the job. This leads to low hiring rates and high attrition rates due to pirating of employees between call center companies (Alava, 2006; Arangkada Philippines, 2010). A robust pool of skillful and motivated workers, both in quality and quantity, are needed for further growth of the BPO industry (Arangkada Philippines, 2010). Almost 70% of the BPO employees are assigned to call center departments and the remaining 30% are allocated at support, IT and outsourcing departments.

Generally, mismatched employees tend to be less productive (Fleming & Kler, 2008; Mavromaras et al., 2011; Farooq, 2011); however, it is still possible to make them more productive. According to Miller and Monge (1986, as cited in Bhatti & Qureshi, 2007), inducing high quality motivation and enriching work capabilities brings job satisfaction that increase productivity. Although, there could be other intervening factors that can help employees work more productively such as reward structures (Cabral Vieira, 2005; Mamiseishvili et al., 2011), training and development (Fuentes-del-Burgo et al., 2013), and working conditions (Cabral Vieira, 2005; Brewer, Carnes & Garner, 2007; Farooq, 2011; Ali, Ali & Adan, 2013), these things may not also be enough if education and skill mismatch are prominent in the employees being hired for the job.

Therefore, the study purports to surface the impact of education mismatch and skill mismatch to work productivity of employees in the BPO industry, using causal relationships, its connections are tested using job satisfaction as a mediating variable. Ascertaining the dynamics of work requirements in a call center can expectedly provide valuable insights in the hiring and training mechanisms of this growing type of industry. Other industries, aside from BPO, may be able to obtain a deeper understanding on how mismatched employees can be handled properly.

Review of Literature

Theoretical Framework

The study is anchored on these theories, namely: Job-Matching, Human Capital and Assignment Theories. The Job-Matching theory of Jovanovic (1979) states that an educated worker is as well as a skilled worker and should occupy a position that matches his competencies. Either education or skills that is over or under the job requirements creates a job mismatch. Therefore, job mismatch

occurs when there is a lack or an excess of demand on certain skills or education. (Jovanovic, 1979; Sorenson & Kalleberg, 1981; as cited in Boudarbat & Chernoff, 2009). According to the Job-Matching Theory, a beneficial effect to both parties, the employer and the employees, happens when “matched workers” utilize their skills to receive better wages and when an employer employs “matched workers” to maximize firm’s productivity and increase employee loyalty (Jovanovic, 1979; Sorenson and Kalleberg, 1981; Van de Werfhorst, 2002; as cited in Boudarbat et al., 2009). According to Rosen and Jovanovic (1972 & 1979, as cited in Farooq, 2011), mismatch assumes that the labor market is not perfect. There exists a cost of finding the right applicant fit for the job, and it is rather difficult to find a perfect match. Hence, as the employer simply aims to find a potential employee, a mutual agreement is made on the competences the employee needs to perform his job well. If there is education-job match, a more productive employee is assured as he is able to utilize his skills to be autonomous on his work thus making him feel more valued. If the employer is willing to have the employee trained to ensure productivity at work, then this move may be able to support the lack of knowledge and skills for him to do his job well.

The Human Capital Theory of Becker (1964) likewise underpins this study stating that education hones the skills of employees to make them more productive, and the differences in employees’ compensation mirror their productivity (Di Pietro & Urwin, 2003; Kampelmann & Rycx, 2012). Irrespective of an employee having a job match or mismatch, a certain level of his human capital will produce the same level of productivity (Green & McIntosh, 2003; Farooq, Ahmed & Ali, 2008; Farooq, 2011). He then likely gets a better pay and a better job as stated by Allen & de Wert (2007, as cited in Boudarbat et al., 2009). As an employee attains a higher education, he is more capable in supplying the needed skills to perform complex functions of his job which makes the employee more productive (Green et al., 2003; Boudarbat et al., 2009; Kampelmann et al., 2012). As the employee grows within the company, he would likely choose to attain higher education which will eventually benefit the company.

Lastly, the Assignment Theory of Sattinger (1993), the optimal allocation of the job depends on matching the employee and the job. An employee who has a higher skill level performs a more challenging job, in the manner, an employee who is less competent performs an easy job. Allocating an employee to his suited job is inconsistently provided by the labor market since supply and demand cannot meet the equilibrium (Farooq, 2011). Conflict will arise in allocating a mismatched employee when the nature of the job does not fully utilize his own knowledge and skills that would lead to less productivity (Allen & de Vries, 2007; Farooq, 2011; Nieto, 2014). Corollary to this, higher education or more skills acquired tend to increase productivity by means of working on a job beyond his own competence (Farooq, 2011).

Literature review

Education Mismatch

Education mismatch refers to the difference between the employee's attained educational level and required education on the job (Kampelmann et al., 2012). Employees who are tied up in an education mismatch also face the difference of their own competency and the required competency (Allen et al., 2007). Thus, education mismatch can likewise reflect skill mismatch. Education mismatch is believed not to have an effect on the allocation of employees to their respective jobs since they may have more skills to offer than what can be applied to the job (Clark, Joubert & Maurel, 2013). Moreover, Green & Zhu (2010) concluded that though more graduates are finding themselves in jobs which are not related to their degree, they are still able to use their acquired skills in the performance of their job. Ryan and Sinning (2011), even reiterated that the jobs of highly educated employees require more skills than they actually have. This indicated that when an employee works in a job which does not fit his degree, he may not be able to utilize the skills he have acquired from school. Therefore, he needs to learn the additional skills related to the job (Fuentes-del-Burgo et al., 2013). Consequently, education mismatch implies skill mismatch as stated in the Assignment Theory (Allen et al., 2001; Nieto, 2014). Thus, it can be hypothesized that

H1: Education mismatch and skill mismatch are positively correlated.

In every mismatch, the job satisfaction level is invariably affected (Mavromaras, McGuinness, O'Leary, Sloane & Wei, 2010). According to Farooq (2011), both overeducated employees, whose educational attainment is higher than the job requirement, and undereducated employees, whose educational attainment is lower than the job requirement, tend to be less satisfied than those who have the required formal education (Amador, Nicolas & Vila, 2008a). Additionally, education mismatch may generate more negative effects such as insecurity, uncertainty, embarrassment, frustration, work overload and waste of time (Fuentes-del-Burgo et al., 2013) that can affect employee satisfaction. Thus, it can be hypothesized that

H2: Education mismatch negatively affects job satisfaction.

Skill Mismatch

Skill mismatch happens when there is a higher or lower level of skills required to carry out a job (Amador et al., 2008a). Analysis shows that skill mismatch is a better predictor of job satisfaction than education mismatch because employees' satisfaction are accounted more on the utilization of their skills (Allen et al., 2001; Amador et al., 2008b). Employees who are likely to be dissatisfied on their job are referred to as wrongly skilled employees whose skills are unrelated

to their job; underskilled employees whose skills are deficient that make them feel ineffective to do their job accurately; and overskilled employees whose skills are underutilized (Amador et al., 2008b). In a like manner, skill mismatch adversely affects job satisfaction due to underutilization of knowledge and skills to optimally perform the job (Allen et al., 2001; Mavromaras et al., 2011). Furthermore, skill mismatch and job satisfaction were found to be negatively related (Fleming et al., 2008). Lastly, Johnson & Johnson (2002; as cited in Cabral Vieira, 2005) described a negative relation of skill mismatch and job satisfaction for overqualification of competencies. Employees tend to feel dissatisfied toward job when the application of their skills do not achieve full utilization (Kalleberg, 2008). Thus, it can be hypothesized that

H3: Skill mismatch negatively affects job satisfaction.

Job Satisfaction

Job satisfaction is a multidimensional psychological response to one's job involvement determined by factors such as "lines of communication, salary package, promotional opportunities, personal policies, working conditions, and participative decision-making" (Adenike, 2011). One of the determinants of the level of satisfaction relies on the job assignment of the employee despite the level of education he attained (Boudarbat et al., 2009; Mamiseishvili et al., 2011; Di Paolo, 2012). Job satisfaction creates employee contentment regarding its determinants. An employee considers job satisfaction as a contributor to productivity which results to low turnover rate and absenteeism (Haorei, 2012). When he feels that he is satisfied with his job, he commits himself to his work which results to increase in productivity (Deepa, Palaniswamy & Kuppusamy, 2014). Thus, it can be hypothesized that

H4: Job satisfaction positively affects productivity.

Productivity

The term productivity is a primary determinant of an organization's level of efficiency, quality and effectiveness (Glomo-Narzoles, 2012). This is also measured in terms of job outcomes and the effort of an employee that he applied on his work (Mamiseivshvili & Rosser, 2011). According to Allen and van der Velden (2001), educational attainment does not affect employees' productivity because the latter is mainly based on the employee's skills in performing the work, and not on the job requirement of educational attainment. As the organizations face more challenges than ever before in the 21st century, it can be regarded as a key variable to successful organizations (Castro & Martins, 2010). Employees who can achieve their full potentials will serve as key resources of competitive advantage.

Method

Design

The paper utilized Structural Equation Modelling (SEM) to surface the causal relationships among education mismatch, skill mismatch, job satisfaction and productivity. “SEM is a statistical technique which utilizes various theoretical models to test how sets of variables define constructs and how these constructs are related to each other.” (Schumacker & Lomax, 2010). The hypothesized model integrated four (4) latent variables to surface four (4) hypotheses. Among the latent variables, two are exogenous, education mismatch and skill mismatch; one endogenous, productivity; and the last one is a mediating variable, job satisfaction.

Subjects and Study Site

Ten (10) well-known BPO companies from the central business districts of Makati and Quezon City were chosen for the study on the basis of having the highest BPO industry population. However, after a letter of request to conduct the study was sent to the administration only four (4) out of ten (40%) BPO companies allowed the researchers to conduct the survey.

Table 1
Demographic Profile of the Respondents (n=228)

Profile		Frequency	%	Profile	Frequency	%	
Gender	Male	104	45.6	Degree/Program	Accountancy	6	2.6
	Female	124	54.4	/Major	Architecture	2	0.9
Age	Below 20	1	0.4		Behavioral Science	2	0.9
	20-30	175	76.8		Broadcasting	12	5.3
	31-40	46	20.2		Business	28	12.3
	Above 40	6	2.6		Biology	2	0.9
Civil Status	Single	161	70.6		Community Development	1	0.4
	Married	65	28.5		Computer Studies	23	10.1
	Widowed	1	.4		Criminology	2	0.9
	Legally Separated	1	.4		Education	9	3.9
					Engineering	13	5.7
Educational Attainment	High School	4	1.8		English	16	7.0
	Vocational	3	1.3		Hotel Restaurant Management	24	10.5
	Undergraduate	52	22.8		Legal Management	2	0.9
	College Graduate	156	68.4		Library Technician	1	0.4
	MA/MS PhD Units	12	5.3		Medical Technology	1	0.4
	PhD Graduate	1	.4		Midwifery	1	0.4
Work Status	Part-Time	8	3.5		Music Technology	1	0.4
	Full-Time	220	96.5		Nursing	44	19.3
					Philosophy	2	0.9
					Political Science	8	3.5
Years of Service	Less than 1 year	64	28.1		Psychology	17	7.5
	1-4 years	133	58.3		Tariff and Customs	1	0.4
	5 years and more	31	13.6		Tourism	7	3.1
					Non-degree holder	4	1.8

Table 1 shows the demographic profile of the respondents of the study. Out of the 228 randomly selected call center agents, 76.8% (n=175) of them belong to the young professionals, 20 to 30 years of age. More than half are female (56.4%), single (70.6%) and college degree holders (68.4%). Almost all of them (220 or 96.5%) work as full-time employees, more than half are tenured for 1 to 4 years (58.3%). Many of them graduated in specialized courses namely: nursing (19.3%), business (12.3%), hotel and restaurant management (10.5%) and computer studies (10.1%).

Data/Outcomes Measures

A research-made instrument consisting of five (5) parts was expert validated by faculties from the Human Resource department of a reputable university. This sought to measure the productivity of a mismatched employee with job satisfaction as the intervening factor. Internal consistency of the items measuring the latent variables: job satisfaction and work productivity, as shown by its Cronbach alpha (α) values (0.899 and 0.852, respectively), both proved to be within the acceptable standards. The survey instrument consisted of the following:

Robotfoto - Demographic information such as age, gender, civil status, educational attainment, degree/program/major, work status, and years of service were collected through a robotfoto, a Dutch term which refers to the cartographic sketch of the respondents (Kelchermans & Ballet, 2002).

Education Mismatch - The instrument consists of researcher-made, three (3) dichotomous type of questions which measured whether an employee is matched or mismatched in his current job.

Skill Mismatch – Using two (2) dichotomous type of questions, items were included in the research tool to measure if the employee's acquired skills is matched or mismatched as compared to his type of work.

Job Satisfaction - Ten (10) items employing an 8-point Likert scale was used to measure the extent to which the respondents agree to the factors affecting job satisfaction. The scale ranged from 8 (Satisfied to a much extent) to 1 (Dissatisfied to a much extent) which measured job satisfaction determinants such as “Management Credibility” and “Management/ Leadership Style”.

Productivity - The employee's productivity was measured by means of an 8-point Likert scale ranging from 8 (Agree to much extent) to 1 (Disagree to much extent). To illustrate, the tool consists of seven (7) items such as “I am able to solve customer's problem with satisfaction” and “I always meet the quota required by company for outbound calls”.

Data Collection Procedure and Ethical Consideration

A letter of request to conduct the survey with the attached research tool for evaluation was given to the BPO companies. The letter sought to introduce the

researchers, explain the purpose of the study, indicating the company's support requested for the study through the administration and human resources department, and surfaced the confidentiality of protocols. Call center agents ($n=400$) were randomly chosen by the Human Resource personnel to participate in the survey. A day after the approval, the questionnaires were delivered and distributed to the companies and gave them a span of one (1) week to answer the questionnaires. Out of the 400 randomly distributed questionnaires to the respondents, two hundred sixty (260 or 65%) were retrieved and two hundred twenty-eight (228 or 57%) were considered usable. For ethical considerations, the subjects were assured that their participation and the information they provided will not be used against them. In addition, they were also given the right to decide whether to continue to participate or not in the study.

Data/Mode of Analysis

With the gathered data, descriptive statistics was used to surface the demographic data of the respondents. A structural equation model (SEM) using SPSS v.17 and AMOS v.19 was utilized to test and interpret the consequences of education mismatch and skill mismatch to the worker's productivity.

Results

Education Mismatch and Skill Mismatch Profile of the Respondents

Table 2

Frequency Distribution of Education and Skill Mismatch

Education Mismatch	n	%
Matched	46	20.0
Mismatched	182	79.8
Skill Mismatch		
Matched	39	17.1
Mismatched	189	82.9

Table 2 shows the education mismatch and skill mismatch profile of the employee respondents in the BPO industry. Out of the 228 respondents, majority of the respondents are educationally mismatched with their jobs (79.8%). The same scenario is depicted with skill mismatch. Most of them (82.9%) do not match the skills needed in their workplace.

The Emerging Model

As figure 1 shows, four hypotheses were verified in the study which are (1) education mismatch and skill mismatch are positively correlated, (2) education mismatch negatively affects job satisfaction, (3) skill mismatch negatively affects job satisfaction and (4) job satisfaction positively affects productivity.

Table 3.
Model Fit Statistics of the Emerging Structural Equation Model

Model Fit Indices	Value
Chi-square ratio to degrees of freedom	2.099
Goodness of fit index (GFI)	.888
Normed-fit index (NFI)	.957
Comparative fit index (CFI)	.977
Root mean square error of approximation (RMSEA)	0.70

The SEM analysis results indicated a good fit between the proposed model and data provided. As shown in Table 3, chi-square ratio to degrees of freedom (CMIN/df) proved that the model is acceptable having a value of 2.099 which is below the recommended value of 3. Additionally, all fit indices are all above 0.80, .888 (GFI), .957 (NFI) and .977 (CFI), indicating generalizability. Root mean square error of approximation (RMSEA) at .070, likewise supported the hypothesized model to be entirely correct.

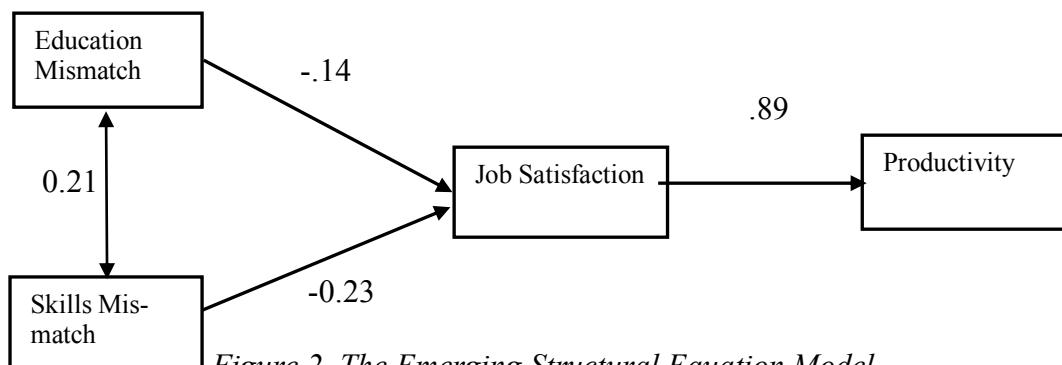


Figure 2. The Emerging Structural Equation Model

Figure 2 depicts the emerging structural equation model. As expected, relationship exists between education mismatch and skill mismatch ($\beta=.21$). This indicates that when education mismatch is present, skill mismatch will likely occur although to a little extent. Subsequently, both mismatches are affecting job satisfaction negatively which means that mismatches in education ($\beta=-.14$) and skills ($\beta=-.23$) tend to decrease job satisfaction. Conversely, this indicates that as the employee gets more matched with job, then the more he will be satisfied. Furthermore, the model indicates that the more the employee gets satisfied, the more he will be productive in his work ($\beta=.89$). This likewise implies, taken collectively, education and skill mismatches prove to decrease productivity to a large extent when the employees are not satisfied.

Table 4
Regression weights of Job Satisfaction indicators

Job Satisfaction Items	β-Coefficient of items to Job Satisfaction
Training and Development	0.905
Management Credibility	0.917
Management/Leadership Style	0.923
Relationship with Co-worker	0.891
Organizational Value/Belief	0.909
Organization's Structure	0.938
Working Condition	0.796
Personnel Policy and Procedure	0.864
Opportunity for Growth	0.910
Job Security	0.842

Table 5
Regression weights of Productivity indicators

Productivity Items	β-Coefficient of items to Productivity
I always meet the quota required by company (outbound calls).	0.850
I am able to sell products or services whenever there are inbound calls.	0.840
I am able to answer customer's questions regarding the products or services.	0.965
I am able to solve customer's problem with satisfaction.	0.967
I am very familiar with the products or service that the company offers.	0.955
I never leave the customer on hold long.	0.929
I deliver information to the customer accurately.	0.955

Table 4 shows the regression weights of call center agents' job satisfaction indicators. Notably, no items were discarded during the process of modeling. The β-coefficient of the items relative to job satisfaction ranging from .70 to .90 shows that there is a high significant impact of these indicators to job satisfaction. Results showed that call center agents perceive their satisfaction largely originates from the organization's structure ($\beta=.938$), management/leadership style ($\beta=.923$) and management credibility ($\beta=.917$). Apparently, they have least regard for the working condition ($\beta=.796$) of the company and their job security ($\beta=.842$), but on a scale of 0 to 1, with 1 indicating the greatest impact, these values can nevertheless reveal a strong impact. The calculated regression weights of productivity in the SEM are shown in Table 5. All of the standard estimation values are compared to the level of significance $\alpha= 0.05$ in determining the critical value. Their being able to solve customer's problem with satisfaction ($\beta=.967$) and being able to answer customer's queries regarding their products and services ($\beta=.965$) are perceived to be the greatest sources of their

work productivity whereas their ability to sell products or services whenever there are inbound calls ($\beta=.840$) is the least contributor to productivity.

Discussion

The Philippine labor market is highly-competitive due to the continuous increase in the number of applicants outweighing the available job vacancies, especially with high rates of unemployment and underemployment, thereby creating job mismatch (Orillaza, 2014; Santos, 2014). This phenomenon is occurring especially in the BPO industry due to the lenient job requirements and massive hiring. Job mismatch indicates that job seekers aim to fill in a job vacancy unrelated to their specialization for them to get out of unemployment and to earn high salaries. Employees retain a probationary status until training is completed, hereafter, management choose to regularize them if the imbalances between the knowledge and skills, and the job requirement have matched. Mismatched applicants are still being hired by the management since they seem to have potential to perform the job. The rapid growth of the industry helped the Philippine economy to progress, though it inevitably led to job mismatches. The purpose of this study is to surface the impact of these mismatches to the work productivity of call center agents in different BPO companies. The results surprisingly supported all the proposed hypotheses.

Allen and de Vries (2007) expressed that employees who have education mismatch will consequently produce skills which are not required for the job, and vice versa. Similarly, our findings support our first hypothesis stating that education mismatch and skill mismatch are positively correlated. Capable of doing their jobs, mismatched employees have yet to learn and acquire new skills to perform better (Green et al., 2010; Clark et al., 2013). Likewise, when employees' jobs do not match with their taken degrees, the general experience and basic skills acquired through education can be applied to the job (Ryan et al., 2011; Fuentes-del-Burgo et al., 2013). This is also supported by the Assignment Theory which denotes that the underutilization of knowledge and skills by the mismatched employees (Allen et al., 2001; Nieto, 2014) bring forth their eagerness for growth and development.

Meanwhile, the second and third hypotheses state that education mismatch and skill mismatch negatively affect job satisfaction. Job satisfaction is consistently and adversely affected by mismatches (Cabral Vieira, 2005; Kalleberg, 2008; Amador et al., 2008a; Mavromaras et al., 2010; Mavromaras et al., 2011). This indicates that education and skill mismatched employees tend to be less satisfied since the learnings gained from education are not relevant for the job and the developed skills are not utilized to optimally perform the job (Allen et al., 2001; Amador et al., 2008a; Farooq et al., 2008; Fleming et al., 2008; Kalleberg, 2008; Mavromaras et al., 2011; Kampelmann et al., 2012; Fuentes-del-Burgo et al., 2013). Since majority of our respondents are college graduates, their educational attainment and developed skills completely differ from their line of work. For an

instance, English proficiency is a vital skill to have for call center agents in the BPO industry. English skills can be learned not only through a formal degree, but also it can be gained through self-learning, digital media or other mediums. It is easy for the Filipinos to be fluent in the English language since the language is used as a medium of instruction even from their pre-school (Lockwood, 2012). Apparently, knowing and being fluent in English is an edge for the Filipinos in the competitive BPO market industry. Moreover, many of our respondents are found to be education and skill mismatched, especially the nursing graduates. They have the knowledge and skills which are far from a call center agent's job requirements; therefore, their specialization are not utilized in the workplace which may cause their job dissatisfaction. As the company continues to provide trainings to its employees to gain new knowledge and skills for their jobs (Arangkada Philippines, 2010), the employees will be more satisfied since their skills will gradually match with their job requirements. Summarily, lack of training opportunities and underutilization of skills are the factors which can cause job dissatisfaction (Farooq, et al., 2008; Fuentes-del-Burgo et al., 2013).

As shown in the study, productivity is greatly attained by the employee respondents when they are satisfied with their job (Haorei, 2012). The findings are congruent with Deepa, Palaniswamy and Kuppusamy's (2014) which states that when employees are satisfied with the job, they commit themselves to their work that results to increase in productivity. Thus, low turnover rate and absenteeism are noted (Haorei, 2012). However, mismatched employees who are not satisfied with their work results to less productivity, due to lack of knowledge and skills on how to perform their job (Magtibay-Ramos, Estrada & Felipe, 2007).

Most of the respondents in this study are full-time employees that causes satisfaction for being tenured. The need to support their living causes their desire to be tenured, or else they tend to find other BPO companies which can offer to meet their needs. This implies that job security is shown as one of the least satisfiers from the indicators but it still has a high impact on employees. Job security is considered as one determinant of job satisfaction (Cabral Vieira, 2005). Additionally, Farooq, Ahmed and Ali (2008) posited that full-time employees have higher job satisfaction compared to part-time employees. Aside from such factor, job satisfaction may also be attributed to determinants such as training and development, management credibility, management/leadership style, relationship with co-workers, organizational value/belief, organization's structure, working conditions, personnel policy and procedure, and opportunity for growth, among others, which are identified as conveyors of productivity.

Findings of the study provide significant implications to mismatched call center agents' productivity. Indicated job mismatches were supported by the Job-Matching and Human Capital theories. It expectedly create job dissatisfaction which can have negative effects on the employees' productivity. However, with a competitive labor market, hiring of mismatched employees cannot be avoided

which was emphasized in Job-Matching Theory. Mismatched employees may be able to perform their jobs but it does not guarantee high work output. Human Capital Theory, taking also into consider, exemplifies the implication of education to skills of employees. The level of education and skills can determine the ability of an employee to perform the job regarding its complexity. Negating the results, the Assignment Theory portrays a direct effect of education mismatch and skill mismatch to productivity whereas the variables in our study were mediated by job satisfaction.

Mismatch is evaluated in the workplace by subjective and objective measures (CEDEFOP, 2010). Subjective measure refers to the self-assessment questionnaires answered by the employees which depend on their perceptions of the knowledge and skills they possess. Objective measures is conducted by comparing their competencies with the job requirements. Addressing the mismatches, the human resource management (HRM) should be aware that compliance with the present mismatches is the best effective method to deal with the issue since they attend to people management. In the recruitment process, BPO companies conduct massive hiring, that accommodating mismatched applicants is acceptable as long as they are able to perform the job. As a matter of fact, the prospective employees are trained before being regularized. Trainings should be identical to the actual work operations in order to attain the job security after the final evaluation for regularization. With regards to the working condition, employees must be well introduced to the electronic systems and equipment so that they can easily comprehend from the lack of practical application.

In a like manner, the HRM can organize different training programs for effective communication, stress management, empathy, and leadership, to meet the employees' needs in order for them to acquire the knowledge and skills required for the job (Fuentes-del-Burgo et al., 2013). For example, the management should provide computer-based call simulations for the employees so that they can eventually perform better on work situations when they will be actually involved in the operations. If these trainings cannot be provided by the management of the company, then facilitators may be outsourced. To illustrate, education mismatch can be dealt with by providing business & professional training seminars and/or short courses that will keep match employees' competencies with the job requirements. Additionally, the HRM should also focus on resolving employees' skill mismatch in conformity with teaching effective business communication skills and instilling good customer service, among others.

The results manifested that the respondents are more satisfied on the organization's structure, leadership style and management credibility. These can be viewed as advantages by the management to further enhance. Transparency should be present within the organization's structure so the employees can communicate their concerns. An open door policy can break barriers between the

management and the employees. The immediate supervisors and team leaders may coach mismatched employees who are newly hired by directing and guiding them to be familiarized with the needed knowledge and skills to effectively and efficiently perform the job. As inclusive of immediate supervisors' and team leaders' leadership styles, proper training on developing their coaching skills should be given to them for helping the mismatched employees improve performance as well. Trust must be instilled to the employees through management credibility. This will build enthusiasm to the employees to learn more by knowing that they can get aspiration.

Productivity is highly achieved when an employee is able to solve customer's problems, can deliver information accurately, and is familiar with the products and services that the company offers. The HRM should recognize these indicators to maintain or increase their performance. While the least indicators of productivity: "able to sell products or services whenever there are inbound calls" and "always meet the quota required by company (outbound calls)", the HRM should monitor and evaluate the performance of each employee and design a program that will also enhance productivity.

Everything beforehand, educational institutions must prepare its students in entering the corporate setting. It should provide practical knowledge on how students can effectively and efficiently perform in the workplace. The students ought not to only rely on books but also strengthen their attributes and discover their hidden potentials which will be useful for their future career choices. This will help them turn their weaknesses into strengths and to conform in the corporate world hereafter. Continuous occurrence of mismatches should be subdued by exerting favorable change efforts to achieve the highest peak of productivity.

Conclusion

Tackling a delicate issue to unravel, this study intends to surface the impact of education mismatch and skill mismatch to the employees' work productivity in the BPO industry. Surprisingly, the results matched with all hypotheses. As expected from the assumptions, education mismatch is positively correlated with skill mismatch. Concurrently, both mismatches negatively affect job satisfaction which the latter has an effect on productivity.

Since there is nothing much the human resource management (HRM) can do about the education background of mismatched employees, focusing on improving their skills is more important for the organization. The HRM should create more projects and programs to enhance and develop their knowledge and skills related to their profession. Attaining the necessary skills for the job may be succeeded by providing call center training seminars about effective techniques in handling calls; sales training, and speech training. Also, providing train-the-trainer program for the team leaders, immediate supervisors and managers on coaching the mismatched employees as to reinforce the needed skills.

Addressing the mismatch to match employees' competencies with the job requirements will make them satisfied on their jobs. The mismatched employees can produce better work outputs when they are satisfied with their job which the HRM should pay attention to.

Future researchers may pursue a study identical to this that involves respondents coming from the same or other industries with the different types of job mismatch such as geographical, psychological, temporal, earnings and work-family mismatches, among others. Other interrelating variables: organizational climate, rewards management, and so on, may be applied similarly to this study for maximizing the productivity of mismatched employees. So far, the study only focused on education mismatch and skill mismatch where no other mismatches was taken into consideration. Moreover, having a larger sample size could contribute to definite generalizations of mismatched employees to their productivity.

References

- Adenike, A. (2011). Organizational Climate as a Predictor of Employee Job Satisfaction: Evidence from Covenant University. *Business Intelligence Journal*, 4(1): 151-165.
- Alava, A. (2006). Industry report: the problem of sustainable competitive advantage in Philippine call centers. *Philippine Management Review*, 13, 1-20.
- Ali, A., Ali, A. & Adan, A. (2013). Working conditions and employees' productivity in manufacturing companies in Sub-Saharan African context: case of Somalia. *Education Research International*, 2(2), 67-78.
- Allen, J. & de Vries, R. (2007). Determinants of skill mismatches: the role of learning environment, the match between education and job and working experience. *Lifelong learning: building bridges through transitional labour markets*, 45-63.
- Allen, J. & van der Velden, R. (2001). Educational mismatches versus skills mismatches: effects on wages, job satisfaction, and on-the-job search. *Oxford Economic Papers*, 3, 434-452.
- Amador, L., Nicolas, A. & Vila, L. (2008a) Education and competence mismatches: job satisfaction consequences for workers. *XVI Jornadas ASEPUMA – IV Encuentro Internacional Rect*, 16(1), 1-12.
- Amador, L., Nicolas, A. & Vila, L. (2008b). The consequences on job satisfaction of job-worker educational and skill mismatches in the Spanish labour market: a panel analysis. *FEDEA Working Papers*, 32.
- Arangkada Philippines - A Business Perspective (2010)
- Bhatti, K. & Qureshi, T. (2007). Impact of employee participation on job satisfaction, employee commitment and employee productivity. *International Review of Business Research Papers*, 3(2), 54-68.
- Boudarbat, B. & Chernoff, V. (2009). The determinants of education-job match among Canadian university graduates. *IZA Discussion Papers*, 4513, 1-32.

- Cabral Vieira, J. (2005). Skill mismatches and job satisfaction. *Economics Letters*, 89, 39-47.
- Castro, M. & Martins, N. (2010). The relationship between organisational climate and employee satisfaction in a South African information and technology organisation. *SA Journal of Industrial Psychology*, 36(1).
- CEDEFOP. (2010). The skill mismatching challenge.
- Clark, B., Joubert, C. & Maurel, A. (2013) Overeducation and skill mismatch: a dynamic analysis. http://www.unc.edu/~joubertc/ClarkJoubertMaurel_SOLE.pdf
- Colina IV, A. (2014). Jobs mismatch still a reality. Retrieved from <http://www.sunstar.com.ph/weekend-davao/2014/03/29/jobs-mismatch-still-reality-335594>
- Deepa, E., Palaniswamy, R. & Kuppusamy, S. (2014). Effect of performance appraisal system in organizational commitment, job satisfaction and productivity. *Contemporary Management Research*, 8(1), 72-82.
- Di Paolo, A. (2012). (Endogenous) Occupational choices and job satisfaction among recent PhD recipients: Evidence from Catalonia. *XREAP Working Papers*, 21, 1-43.
- Di Pietro, G. & Urwin, P. (2003). Education and Skills Mismatch in the Italian Graduate Labour Market. *Royal Economic Society Annual Conference*, 59.
- Dr. Brewer, P., Dr. Lana, C. & Dr. Gamer, S.J. (2007). The potential impact of the physical work environment on business teachers' productivity and job satisfaction. *Business Education Digest*, 16, 29-46.
- Executive Boutique. (2014). Maintaining Productivity in a Philippine Call Center. Retrieved from <http://ebcallcenter.com/blog/outsourcing-productivity>
- Farooq, S. (2011). Mismatch between education and occupation: a case study of Pakistani graduate. *The Pakistan Development Review*, 50(4), 531-553.
- Farooq, S., Ahmed, U & Ali, R. (2008). Education, underemployment, and job satisfaction. *Pakistan Journal of Commerce and Social Sciences*, 1, 83-91.
- Fleming, C. & Kler, P. (2008). I'm too clever for this job: a Bivariate Probit analysis on overeducation and job satisfaction in Australia. *Applied Economics*, 40(9), 1123-1138.
- Fuentes-del-Burgo, J. & Navarro-Astor, E. (2013). Do educational mismatches influence job satisfaction? The case of Spanish building engineering graduates working as site managers. *Association of Researchers in Construction Management*, 237-247.
- Glomo-Narzoles, D. (2012). Communication climate: its relation to institutional productivity. *Asian Journal of Social Science & Humanities*, 1(4): 196-205.
- Green, F. & McIntosh, S. (2007). Is there a genuine under-utilisation of skills amongst the over-qualified? *Applied Economics*, 39(4): 427-439.
- Green, F. & Zhu, Y. (2010). Overqualification, job dissatisfaction, and increasing dispersion in the returns to graduate education. *Oxford Economic Papers*, 62, 4, 740-763.

- Haorei, W. (2012). A study on job satisfaction and its consequences on work productivity in textile mills. *Journal of Business Management & Social Sciences Research*, 1(3), 50-56.
- International Labour Office-Geneva. (2010). A Skilled Workforce for Strong, Sustainable and Balanced Growth: A G20 Training Strategy
- Kalleberg, A. (2008). The mismatched worker: when people don't fit their jobs. *Academy of Management Perspectives*, 24-40.
- Kampelmann, S. & Rycx., F. (2012). The impact of educational mismatch on firm productivity: Evidence from linked panel data. *Economics of Education Review*, 31, 918-931.
- Lockwood, J. (2012). Are we getting the right people for the job? A study for English language recruitment assessment practices in the business processing outsourcing sector: India and the Philippines. *Journal of Business Communication*, 49(2), 107-127.
- Magtibay-Ramos, N., Estrada, G. & Felipe, J. (2007). An analysis of the Philippine business process outsourcing industry. *ERD working paper no. 93*.
- Mamiseishvili, K. & Rosser, V. J. (2011). Examining the relationship between faculty productivity and job satisfaction. *Journal of the Professoriate*, 5 (2), 100-132.
- Mavromaras, K., McGuinness, S., O'Leary, N., Sloane, P. & Wei, Z. (2010). Job mismatch and labour market outcomes: Panel evidence on Australian university graduates. *Economic Record*, 89(286), 382-395.
- Mavromaras, K., McGuinness, S., Richardson, S., Sloane, P. & Wei, Z. (2011). Over-skilling and job satisfaction in the Australian labour force. *National Centre for Vocational Education Research*, B21774, 1-55.
- Nieto, S. (2014). Overeducation, skills and wage penalty for Spain using PIAAC data. *Research Institute of Applied Economics Working Paper*, 11, 1-29.
- Orillaza, J. (2014, May 1). Labor mismatch, or what ails the PHL jobs market. Retrieved from <http://www.gmanetwork.com/news/story/359201/economy/companies/labor-mismatch-or-what-ails-the-phl-jobs-market>
- Reyes, R. (2011). BPO group to tackle skills, jobs mismatch in PH. Retrieved from <http://www.interaksyon.com/infotech/bpo-group-to-tackle-skills-jobs-mismatch-in-ph>
- Ryan, C. & Sinning, M. (2011). Skill (mis-)matches and over-education of younger workers. *National Centre for Vocational Education Research*, 1-36.
- Santos, M. (2014). PH has highest ASEAN unemployment rate - ILO report. Retrieved from <http://globalnation.inquirer.net/103286/ph-has-highest-asean-unemployment-rate-ilo-report/#ixzz3TECMK4eZ>
- Schumacker, R & Lomax, R. (2010). A beginner's guide to Structural Equation Modeling. 3rd Edition.
- Weymer, A., Maciel, C. & Castor, B. (2014). The influence of the over qualification and learning on individuals' job satisfaction. *Review of Business Management*, 16, 96-109.