

The Effects of Sense of Meaningfulness and Teaching Role Attributes on Work Outcomes – Using the Insight of Job Characteristics Model

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Sponsor: Tun Abdul Razak University Malaysia

Abstract

The present study sought to examine the effects of teaching role attributes and sense of meaningfulness to work outcomes. In previous studies that examined the relationship between job attributes and work outcomes, the mediating variable was underrepresented and excluded from the model. Teaching role attributes was measured by combining four major teaching roles (pedagogical, managerial, technical and subject-designing) into an index. The work outcomes examined were internal motivation, job satisfaction and perceived work effectiveness. Sense of meaningfulness was hypothesized as the mediating variable in the relationship between teaching role attributes and the work outcomes. Two hundred and ninety two lecturers teaching in Malaysia tertiary educations were involved in this study. Questionnaires were used to solicit their

responses which were distributed using various means; online, personal visits and regular mails. The measurement items were mainly adapted from Job Diagnostic Survey. The results from the findings indicated that sense of meaningfulness mediated the relationships between teaching role attributes and the work outcomes. It showed that to maximize teachers' work outcomes, they must experience the sense of meaningfulness in their jobs.

Keywords: Sense of Meaningfulness, Role Attributes, Work Outcomes, Teachers, Job Diagnostic survey

1. Introduction

The study employed theoretical framework developed by Hackman and Oldham (1980) that proposed positive relationships between job characteristics and the work outcomes. The five job characteristics are skill variety, task significance, task identity, autonomy and feedback from the job. This theory has been greatly discussed and tested and the majority studies lend consistent results that support the theory (Buys, Olckers and Schaap, 2007; Wegge, Van Dick, Fisher, Wecking and Moltzen, 2006; Lee-Ross, 2005; Boonzaier, Ficker and Rust, 2001; Barnabe and Burns, 1994). The theory also proposes certain variables mediate the relationships among the variables in the framework. According to Hackman and Oldham (1980), three critical psychological states (CPS) mediate the respective job characteristics' effects on work outcomes.

Renn and Vandenberg (1995) were critical about the significance of the mediating role of CPS on job characteristics and work outcomes. Their concern about the mediating role of CPS rose due to the fact that not many studies that employed the Job Characteristics Model (JCM) included testing the CPS mediation hypotheses (e.g. Fox and Feldman, 1988; Kiggundu, 1980, Tiegs, Tetrick and Fried, 1992). Two studies were conducted to test the extent of mediating influence of CPS. The findings indicated that all the three CPS attributes were not necessary to be experienced to maximize work outcomes. There is evidence that other "states" are possible to mediate the relationship between job characteristics and work outcomes. This is consistent with the findings of Johns, Xie and Fang (1992) that indicated the three CPS indicators were seldom necessary to maximize work outcome predictions. However, as contended by Johns et al., there is not enough evidence to support the exclusion of the CPS from the model.

Behson, Eddy and Lorenzet (2000) conducted a review that was based on thirteen previous independent studies with the purpose to examine the importance of the three CPS in the JCM. The concern is similar to those expressed by Renn and Vandenberg (1995) on the omission of the CPS from JCM investigations used in various studies. The results from this meta-analysis suggested that failure to incorporate CPS into the JCM could lead to misdirected results. Important information may be lost if the CPS are not included. Nevertheless, as noted by Behson et al. (2000), using structural equations modeling, the two-stage model (direct relationship between job characteristics and work outcomes by excluding the CPS from the model) demonstrated a better fit to the available data than the three-stage model originally proposed by Hackman and Oldham (1980).

Fried and Ferris (1987) in a meta-analysis, conducted a review of nearly 200 relevant studies on the JCM. In general, the meta-analysis lent further support to the relationships between job characteristics and the three CPS, between the CPS and work outcomes as well as between job characteristics and work outcomes. There was also evidence that some corrections and modifications were needed. The mediating effects of CPS were also well supported but to varying degrees. In their review of the relationships between job characteristics and the CPS, it was found that only one state; i.e. knowledge of results, was related to its specific dimension (i.e. job feedback). The other two states (experienced meaningfulness and experienced responsibility) were found to be related not only to their respective specific dimensions but also related to other unspecified dimensions. Fried and Ferris suggested that the summary job index (i.e. Motivating Potential Score or MPS) serves as a better predictor of the dependent variables than is any of the individual job dimensions alone.

Johns et al. (1992) who tested the mediating effects based on a sample of 300 lower level managers, also found consistent findings with Fried and Ferris' (1987). They further suggested that the three CPS indicators were well tied to their corresponding job characteristics. However, one CPS indicator, i.e. experienced meaningfulness, appeared to be well connected to unspecified job characteristics (autonomy and feedback). The researchers also employed a set of alternative tests in order to examine the mediating effect of the CPS. The five job dimensions were summed into MPS and the three CPS into one index. These two variables were then tested

against the work outcomes. Results showed that the total CPS has a formal mediating role between the job characteristics and work outcomes. However, they were not always necessary to maximize work outcomes. Inconsistent findings of the mediating effect of CPS therefore need further examination. More studies need to be conducted in order to find more evidence either to support the inclusion of CPS in predicting work outcomes.

The present study also aimed to examine the different roles of teachers that have been widely discussed by the scholars. They have been writing on diverse tasks and roles of teachers mainly in planning, delivering, designing and assessing students' progress. Major teacher roles have been widely discussed but they are examined using qualitative research methods and these methods are lacking in the capacity to test the distinctiveness of each role (such as the works of Ryan, Carlton and Ali, 2004; Bennet and Lockyer, 2004; Jaffee, 2003; Barker, 2002; Goodyear, Salmon, Spector, Steeples and Tickner, 2001). There is still limited evidence found in the literature that empirically tests the distinct roles of teachers. The present study used validated measurement instruments to assess the complexity of each role and all the four teacher roles are measured in terms of their attributes using items adapted from the Job Diagnostic Survey developed by Hackman and Oldham (1980). This instrument was used to assess the role intricacies in terms of their skill variety, task significance, identity, autonomy and feedback. Given the complexity of the different roles, it is pertinent to test whether they are empirically distinct from each other as proposed by the previous scholars.

2. Objective of the Study

Given the inconsistent support to the inclusion of mediating effects of CPS, the present study took the challenge to test whether CPS is a significant mediator. Some researchers (such as Behson et al, 2000; Johns et al, 1992) fully supported that job characteristics are highly correlated with CPS but CPS does not necessarily maximize the work outcomes. In other studies (e.g. Fox and Feldman, 1988; Kiggundu, 1980, Tiegs, Tetrick and Fried, 1992), CPS were excluded altogether and this has raised concern among other scholars who argued that such exclusion might lead to misleading results. Therefore, the present study sought to examine the mediating influence of critical psychological states (CPS) on the teaching job characteristics and

the levels of internal motivation, job satisfaction, and perceived work performance of teachers in universities.

The present study chose to focus on teaching job characteristics because there have been ample studies done to investigate how teachers' job characteristics in tertiary education influence work outcomes (such as Steele and Fullagar, 2009; Zembylas and Papanastasiou, 2006; Tepstra and Honoree, 2004; Winter and Sarros, 2002; Oshagbemi, 1997; Iacqua and Schumacher, 1995). All these studies indicated positive relationships between job attributes and the work outcomes. Those who perceive themselves as having high autonomy and job significance report high levels of motivation and satisfaction. Given the original model proposed by Hackman and Oldham (1980) that posits mediating effect of CPS on the relationship between job characteristics and work outcomes, it is therefore imperative to investigate to what extent that CPS plays its mediating role when the model is tested on university teachers.

Another objective of the study was to measure all the different teachers' role attributes using quantitative method. Previous research indicates that these role attributes are distinct but they have never been tested empirically and therefore, it is pertinent to find out whether they are truly distinct from each other.

3. Literature Review

3.1 Job Characteristics Model

According to Hackman and Oldham (1980), there are five different job attributes that influence employee satisfaction and motivation; 1) *skill variety*; 2) *task identity*; 3) *task significance*; 4) *autonomy*; and 5) *feedback*. The authors proposed that the first three characteristics contribute to the *overall meaningfulness of the job*. *Experienced meaningfulness* of a job is when a person feels that his job performance has a significant impact on the safety or well being of others. For instance, an instructor is expected to be able to facilitate class discussions, design course materials and use computer technology to perform his job. This would require various skills and new responsibilities that may influence his work outcomes.

An employee who is given more *autonomy* or freedom in how he wants to conduct a job will get the feeling of *experienced responsibility*. For example, someone who is responsible to decide important matters pertaining what tools or methods to use for his class and he is personally responsible for any failure or success of the learning activity. Finally, *feedback* from the job gives an employee the information of how good or bad he is performing. Such information provides the person with the *knowledge of the results*. These attributes are likely to influence the worker's job satisfaction and internal motivation. The more positive feelings and experience an employee derives from a job, the more satisfied and motivated he will be. It is thus expected that the person would continue the good performance and eventually the internal rewards would serve as incentives for continuing to do well in the future.

3.2 Teachers' Roles

There have been numerous discussions and research done to study the roles of teachers (see Bennet & Lockyer, 2004; McMann, 1994; Goodyear et al., 2001; Bunker & Vardi, 2001; Harden & Crosby, 2000). Different scholars and researchers in the area used their own classification of the roles and responsibilities of teachers. Therefore, to capture the different roles and responsibilities and at the same time to attain some degree of parsimony, this study proposed to classify teaching roles and responsibilities into four groups: pedagogical, managerial, technical and subject-designing.

3.2.1 Pedagogical Role

The traditional role of a teacher is to be the "sage on the stage" and act as the authority figure who perceives himself as the source of knowledge. Instructions come from the teacher and students are expected to listen and receive information. It is further noted by Miller and King (2003) that the key to success in most courses, regardless of the type of technology or method used, is the teachers' pedagogical skill. Even if a teacher has the technical skill and competency, the lack in such a skill would result in frustration and disappointment (Knowlton & Weiss, 2000). This role is very significant because the teachers are expected to teach and impart knowledge to students. Their communication skill is crucial and they should be able to give instructions, provide support and directions (Merrit, 1985). Facilitation and consultation are among the main parts of this role that requires instructors to be able in assisting students,

stimulating their thinking, giving advice and more importantly guiding students in their learning process (Gregory, 2002). In a face-to-face setting where the physical context is there, the facilitation role may not be that challenging as compared to in an online setting. When the students are geographically dispersed, the teachers should be able to teach and facilitate online classes. The level of feedback they get may also differ. In a physical classroom, the teachers can gauge their teaching effectiveness from students' bodily expressions and verbal feedback. The immediate feedback is important for the teachers as a measure of their ability to perform this pedagogical role.

3.2.2 Managerial Role

According to Sadker and Sadker (1991), an effective teacher must be a good manager who will organize the academic content and students' records. Anderson (1993) further mentioned the importance of maintaining teaching portfolios. As a teacher, he is responsible to regulate and administer the learning environment by formulating rules, regulations, policies as well as timelines to ensure the smooth running of the course (Flake, Kuhs, Donnelly & Ebert, 1995). Monitoring and disciplining students are one of his duties but that should not be the only focus because as noted by Evertson and Harris (1992), educators nowadays have shifted from controlling students' behavior to creating and maintaining an environment that supports learning. The managerial role of teacher then requires skills to administer and organize learning resources and environment. Given the responsibility to monitor and discipline students' behavior and learning, instructors have to admit that their roles are very important and significant. In some universities, the role to manage and organize resources is not only confined to managing the students as the instructors may as well be required to coordinate students in different geographical locations. In some cases, the remote students are taught by their respective teachers (or tutors). This adds more responsibility for teachers in the main campus to coordinate the activities of the students as well as to administer the remote tutors. Thus, teachers have to have independence and freedom to perform their tasks. At this juncture, the level of feedback they get from the job is important so that they know how effective and efficient they are performing.

3.2.3 Technical Role

To have effective classroom instructions, most teachers use various teaching aids such as visuals, handouts, audiocassettes and power point slides (Bennet & Lockyer, 2004; Noe, 2005, Goodyear et al, 2001). Nowadays, there are more varieties available for use ranging from the least sophisticated like transparencies, television and audiocassettes to the more sophisticated ones like video conferencing and online tutorial. It is thus important for teachers to have the skills in using different teaching aids. However, it should be noted that teachers do not have to master the technology as being a competent technology user is different from knowing how to use it effectively (Salmon, 2000). Given the various teaching aids, teachers should be able to assess the suitability of the media with the lessons, practicality and students' readiness. Mismatch between these aspects would result in ineffective teaching. For example, Gordon (1970) noted that inability for teachers to use television as a medium to teach resulted in resistance among the students and teachers. This is further supported by Yusup's (1998) survey that indicated despite the availability of such resources in higher learning institutions, the level of usage was still relatively low. Goodyear et al (2001) contended that teachers should have the technical skills to assess the capability and weaknesses of certain media before deciding to choose which medium. Therefore, teachers should have the skill in assessing which aids to use and exercise their autonomy to choose which technology that is practical for teaching. Their role in this aspect is very significant due to the fact that students' readiness to learn highly depends on the teachers' ability to guide them (Miller & King, 2003).

3.2.4 Subject-Design Role

Another important role performed by teachers is designing or planning the course (Jaffee, 2003; Black & Holford, 2002; Bennet & Lockyer, 2004). Even though some aspects of the course planning is beyond their control (such as university timelines, course syllabus and faculty policies), they still have the opportunity to use their discretion in how to design the course for the semester. For instance, teachers are responsible to design the course activities throughout the semester. They should allocate the time for classroom instructions, discussions, consultations, excursions and other students' activities. The course content should be developed according to students' readiness and the type of suitable teaching aids should also be determined. Another factor that should not be taken for granted is the change in pedagogy from "teacher-centered" to

“student-centered” (Ahmed, 2003). The shift requires teachers to be knowledgeable in designing courses that promote interactive learning and critical thinking. This may influence the type of teaching approaches and teaching aids. Teachers’ role at this juncture is becoming very significant and their ability to exercise their independence in making choices is highly required. Another major issue is the emergence of more sophisticated technology in teaching (such as online method) that may also influence teachers experience in their role performance.

4. Hypotheses Formulations

In their JCM, Hackman and Oldham (1980) suggest that for the work outcomes to occur, employees should experience the CPS first. The person should experience knowledge of the results of the work, experience responsibility for the results and experience the work as meaningful. Findings from previous studies (for example Johns et al., 1992; Renn and Vandenberg, 1995; Barnabe and Burns, 1994) show strong support for this theory. Thus, for the present study, it is important to examine the mediating effect of the CPS. Since the present study used the summary index of teaching role attributes, the CPS was measured using an index that sums the values of the three states. This method has been used by Johns et al., (1992).

As described by Johns et al. (1992), the total CPS is used so that it is in line with the summary measure of job characteristics. In order to further justify the use of total CPS and summary measures of teaching role attributes as indicated in the meta-analysis by Fried and Ferris (1987), it is proposed in the JCM that the individual CPS has its own corresponding job characteristics, the literature showed that the CPS are also related to other unspecified job attributes. Thus, using the total CPS is empirically justified. Despite the strong mediating effect of the CPS, it was found that the CPS has a weak effect on self rated work performance (Johns et al., 1992). Thus, it is interesting to examine the mediating effect of CPS on the overall teaching role attributes and work outcomes of teachers in higher education. The following hypotheses are forwarded:

Hypothesis 1: CPS mediates the relationship between overall teaching role attributes and internal motivation.

Hypothesis 2: CPS mediates the relationship between overall teaching role attributes and job satisfaction.

Hypothesis 3: CPS mediates the relationship between overall teaching role attributes and perceived work effectiveness.

5. Research Methodology

5.1 Samples and Data Collection

All public and private institutions of higher learning in Malaysia were identified and samples were drawn from faculties/department of interest. In each faculty, teachers were chosen using simple random sampling. As this study was about teaching roles and responsibilities, only those academic staff or faculty members who have a teaching load of at least 50 percent of their total work load were included in the study.

Questionnaires were distributed through online, regular mail and personal visits. Online survey yielded the lowest response rate (only 80 online responses) and thus regular mail survey had to be employed. This method generated 137 responses. The subsequent method used was to personally distribute the questionnaire and this technique resulted in 75 responses. In total, 292 responses were collected and it took about 6 months to complete.

5.2 Measurement Instruments and Statistical Techniques

5.2.1 Independent Variables

The instrument used to measure teachers' teaching role attributes in the study was adopted from the Job Diagnostic Survey (JDS) developed by Hackman and Oldham (1980). There are 15 items (3 items to measure each of the 5 characteristic dimensions – skill variety, task significance, task identity, autonomy and feedback from the job) that are used to measure each teaching role attributes (pedagogical, managerial, technical and subject designing). All the items are expressed on 7-point scales, where 1 is low and 7 is high. Brief explanations on each of the four teaching role attributes were provided to ensure respondents understood the survey objectives and to make it clear to the potential respondents that they were required to evaluate the teaching role attributes individually across the 15 items.

There are two alternative techniques to measure job characteristics as proposed in JDS; first alternative is simply combining all the 15 items into their respective dimensions (skill variety, task significance, task identity, autonomy and feedback from job) and then all these five dimensions are subsequently combined into an index called Motivating Potential Score or MPS. The formula is illustrated below:

$$MPS = \frac{\text{Skill variety} + \text{Task identity} + \text{Task Significance}}{3} \times \text{Autonomy} \times \text{Feedback}$$

The second alternative that was commonly used by other scholars (Dunham)

The second alternative is to use factor analysis to separate the items into their respective dimensions. In many other studies that used JDS (such as Dunham, Aldag and Brief, 1977; Fried and Ferris, 1986; Idaszak and Drasgow, 1987; Kulik, Oldham and Langner, 1988; Cordery and Sevastos, 1993), factor analyses were used to summarize the structure of the sets of items. Based on the factor analysis output, the items can be combined into their respective constructs. In this study, the second alternative way was used considering the rigorous manner of determining the constructs. And this method was considered appropriate because the researchers could empirically determine whether all the four teacher role attributes (pedagogical, managerial, technical and subject-designing) were really distinct from each other.

Using factor analysis however, it should be expected that the items would not fall into their respective specified dimensions. This is due to unclear cut factor loadings. Similar findings were found in many other studies (such as Dunham et al, 1977; Fried and Ferris, 1986; Idaszak and Drasgow, 1987; Kulik et al, 1988; Cordery and Sevastos, 1993). In these studies, the factor analyses indicated items for one dimension were collapsing with items in other dimensions to form a common factor and thus were deemed to be empirically the same. Consequently, these studies propose that the dimensionality of job characteristics could be determined from a one to five-factor solution. In the present study, the factor analysis was expected to produce the main four dimensions that represent the attributes of pedagogical role, managerial role, technical role and subject design role. However, as mentioned earlier, the study only sought to measure the index of all the four teaching role attributes. Therefore, the teaching job index is obtained by using the following method:

Overall Teaching Job Attribute = Mean score (Pedagogical Role+ Managerial Role + Technical Role + Subject Design Role)/4

5.2.2 Mediating Variables

The original JCM has presented three psychological states (CPS) as the mediating variables between the job dimensions and the work outcomes. Theoretically, the three states correspond to their respective job dimensions. The first state, experienced meaningfulness is contributed by

skill variety, task identity and task significance. The second state; experienced responsibility is contributed by autonomy and the third state; knowledge of results is contributed by job feedback. Since the present study used the total collective attributes of teaching roles, all the three CPS were combined by adding up all the values as proposed by Johns et al (1992). The feasibility of using this technique was empirically tested.

5.2.3 Dependent Variable

The dependent variables of interest in this study are three work outcomes; internal motivation, job satisfaction and perceived work effectiveness. Internal motivation and job satisfaction are measured using items used in the JDS. Since perceived work effectiveness is not assessed by the JDS, the variable is measured using items adapted from Kyriakides, Campbell and Christofidou (2002). The authors have proposed a number of items to conceptualize teaching effectiveness. Some of the items used are “*I always set clear objectives for my courses*”, “*All my work is well planned*”, “*I am confident with my teaching skills*” and “*I manage classroom time effectively*”. More items can be viewed in Table 1.

The respondents were asked to indicate the extent to which the statements were applicable to them on a ranked scale ranging from 1 (strongly disagree) to 7 (strongly agree). The mean score of a set of items for each variable represented the extent to which the respondents related to the variables. Table 1 describes the operationalization of the dependent variables.

Statistical Package for the Social Sciences (SPSS) 15.0 for Windows was used to analyze the data. One-way ANOVA test and multiple linear regressions were used to examine the relationships between variables.

6. Results

6.1 Respondents' Demographic Analysis

A total of 292 university teachers participated in the study. The majority of the respondents were from public universities (48.6%), 28.1% were from private university colleges, 22.6% from private universities and the rest (0.7%) were from public university colleges. In terms of teaching experience, 29% of the instructors had more than 11 years, 36.3% have between 6 to 10

years and 34.6% have 1 to 5 years. Out of the 292 respondents, 176 of them (60.3%) possessed Master degree, 19.9% with doctorate, and 19.2% with bachelor degree. Majority of the respondents were from the age group of 30 to 39 years old (52.4%), 21.2% in age group of 40 to 49 years, 19.5% were between 20 to 29 years old and only 6.8% were those above 50 years of age.

6.2 Factor Analysis and Reliability Tests

Due to the large number of items, factor analyses were used to reduce the items to a smaller set of underlying factors that summarize the essential information contained in the variables. All the items were analyzed using principal components extraction with an orthogonal (varimax) rotation. Besides relying on visual observation of the scree plot in deciding on the number of factors to be extracted, latent roots criterion (eigenvalues greater than 1) was also used. At the initial stage, all items (items 1 to 101) were factor analyzed at once but the factor solutions did not provide a clear factor structure with clear cut factor loadings. In order to produce a more meaningful and interpretable results, items that measured teachers' teaching role attributes (items 1 to 60), and items that measured work outcomes (items 61 to 101) were factor analyzed separately.

The first factor analysis on items 1 to 60 that measured instructors' four teaching role attributes resulted in 11 factors, which explained 71.21% of the total variance. An examination of the correlation matrix indicated that a considerable number of correlations exceeded 0.3 and so the matrix was suitable for factoring. The Bartlett test of sphericity is significant and that the Kaiser-Meyer-Olkin measure of sampling adequacy is 0.917 which was far greater than 0.6. Inspection of the anti-image correlation matrix revealed that all the measures of sampling adequacy were well above the acceptable level of 0.5. In selecting items for each scale, two criteria were used. First, items on a single factor with factor loading of .3 or less were dropped (Hair et al, 1998), and second, to improve scale reliability, items with less than 0.3 item-to-total correlations were deleted from the scales (Nunnally, 1978).

The factor analysis output failed to yield the anticipated factors that reflected the five job characteristics as mentioned by Hackman and Oldham (1980) in their Job Characteristics Model.

The five elements were skill variety, task significance, task identity, autonomy and feedback from job. The output indicated unclear cut factor loadings and the factors did not appropriately loaded in the expected groups. Nevertheless, despite previous studies that succeeded in finding consistent results that yielded the five dimensions (such as Pokorney, Gilmore and Beehr, 1980; Lee and Klein, 1982; Johns et al., 1992), there were several evidences from previous research that failed to yield the expected results (such as Dunham et al, 1977; Fried and Ferris, 1986; Idaszak and Drasgow, 1987; Kulik et al, 1988; Cordery and Sevastos, 1993). In these studies, the factor analyses indicated items for one dimension were collapsing with items in other dimensions to form a common factor and thus were deemed to be empirically the same.

Based on the results from the factor analysis that indicated factors with collapsing items, the first technique prescribed by JDS (using MPS) could not be used. For the sake of the present study, regardless of the dimensionality, factors with items which indicated common roles were used for further analyses, instead of trying to segregate the five dimensions and combining them into one index using the MPS formula. Furthermore, the present study only sought to measure the overall index of all the five dimensions and thus, instead of using the MPS formula, the scores for each teaching role attributes was obtained by simply averaging the items within the respective factors.

Factor one was labeled *Subject Design Role Attributes* that consisted of ten items. This set of items correlated with each other since they represented a similar aspect that described the attributes of the subject designing role of teachers. The reliability of the scale, as measured by Cronbach's coefficient alpha, was 0.936. Factor two that contained eight items was labeled *Pedagogical Role Attributes*. All the items in the factor reflected the attributes of the pedagogical role of teachers. The reliability coefficient for the scale was 0.907.

Items in factor three represented the attributes in the teachers' technical role. Thus, it was named as *Technical Role Attributes*. The factor consisted of six items and the reliability coefficient was 0.885. Factor five was labeled *Managerial Role Attributes* as all the items depicted attributes in teachers' managerial role. This factor consisted of eight items and the reliability coefficient was 0.894.

All other factors (factors 4, 6, 7, 8, 9, 10 and 11) were dropped as they did not provide meaningful interpretation. Despite the high loadings, since all the items within the respective factors were not appropriately loaded in the expected group, all these factors had to be dropped for further analyses.

In the second factor analysis that factor analyzed items that measured teachers' work outcomes and the CPS items (i.e. items 61 to 101), eight factors were produced that explained 72.25% of the total variance. An examination of the correlation matrix indicated that a considerable number of correlations exceeded 0.3 and thus the matrix was suitable for factoring. The Bartlett sphericity is significant and that the Kaiser-Meyer-Olkin measure of sampling adequacy is 0.913 which is far greater than 0.6. Inspection of the anti-image correlation matrix revealed that all the measures of sampling adequacy were above the acceptable level of 0.5. In selecting items for each scale, similar criteria were used as in the first factor analysis.

The factor solution for factor one provided a clean factor structure with reasonably clear-cut factor loadings. The factor was labeled as *Perceived Work Effectiveness*; all the ten items were clearly loaded on that factor. The reliability coefficient was 0.93. The factor analysis output was expected to produce factors that reflected three CPS dimensions (experienced meaningfulness, experienced responsibility and knowledge of results). These dimensions portray CPS as depicted in the Job Characteristics Model by Hackman and Oldham (1980). Factors three, four and five contained items that reflect the CPS but they were not loaded in their respective groups. However, unlike items in factors three and five, that only reflected two dimensions, items in factor four contained items that mirrored all three dimensions in CPS. However, this outcome did not affect the objective of the study because its main intention is to examine the overall CPS as a mediating variable. Therefore, there was no need to find factors that gave clear cut dimensions for the CPS. It was observed that factor four was considered the best representations of the total CPS and the factor was labeled *Sense of Meaningfulness*. The reliability coefficient was 0.887.

Both factors six and seven gave clean factor structure with clear cut factor loadings. Factor six was labeled *Internal Motivation* and consisted of 6 items and factor seven was labeled *Job Satisfaction*; it contained five items. Their reliability coefficients were 0.912 and 0.784

respectively. All other factors (Factors 2, 3, 5 and 8) were dropped as they did not provide meaningful interpretation. Despite the high loadings, since all the items within the respective factors were not appropriately loaded in the expected groups, all these factors had to be dropped from further analyses.

6.3 Hypothesis Testing

Sense of meaningfulness (was formerly intended to be CPS) was expected to mediate the relationship between overall teaching role attributes and work outcomes. To test the mediating effect, stepwise regression analysis was employed. According to Baron and Kenny (1986), there are basically three conditions to be met in considering the mediating effect of a variable. First, the predictor and the dependent variable must be correlated; second, the predictor must be significantly correlated with the mediator variables; third, both predictor and mediator variables must be correlated with the dependent variable. If the effect size of the predictor variable is reduced to non-significant after the mediator variable is controlled, then it is considered a complete mediator. However, if the effect size of the predictor variable is reduced but is still different from zero after the inclusion of mediator variable, then it is considered to be partial mediator.

In Hypothesis 1, *overall teaching role attributes* being mediated by sense of meaningfulness was expected to have a significant relationship to internal motivation. To test the hypothesis, the evaluation on the MLR assumptions was conducted and it was found that there were no serious violations. MLR analysis was then carried out and the results are shown in Table 2. Model 2 in Table 2 showed that the two predictors (*overall teaching role attributes* and sense of meaningfulness) contributed 37.9 percent of the variance in internal motivation.

As displayed in Model 1, *overall teaching job attributes* were positively and significantly correlated to internal motivation ($\beta=0.565$, $t=11.660$, $p=0.000$), accounting for 31.9 percent of the variance in internal motivation. The inclusion of the mediator variable (i.e. sense of meaningfulness) revealed that it was a partial mediator between *overall teaching role attributes* and internal motivation. Before the inclusion of the mediator variable into the equation, *overall teaching role attributes* was significantly correlated to internal motivation ($\beta=0.565$, $t=11.660$,

$p=0.000$). But, as shown in Model 2, after the inclusion of the mediator variable, the previous significant relationship did not change to non-significant but the strength of the relationship was decreased ($\beta=0.489$, $t=10.076$, $p=0.000$). This evidence indicated that the sense of meaningfulness served as a partial mediator between overall teaching motivation and internal motivation. Based on these results, Hypothesis 1 was fully supported when the sense of meaningfulness was found to give significant mediating effect between *overall teaching role attributes* and internal motivation.

In Hypothesis 2, *overall teaching role attributes* being mediated by the sense of meaningfulness was expected to have a significant relationship to job satisfaction. To test the hypothesis, the evaluation on the MLR assumptions was conducted and it was found that there were no serious violations. MLR analysis was then carried out and the results are shown in Table 3. Model 2 showed that the two predictors (*overall teaching role attributes* and sense of meaningfulness) contributed 25 percent of the variance in job satisfaction.

As displayed in Model 1, *overall teaching role attributes* was positively and significantly correlated to job satisfaction ($\beta=0.429$, $t=8.093$, $p=0.000$), accounting 18.4 percent of the variance in job satisfaction. The inclusion of the mediator variable (i.e. sense of meaningfulness) indicated that it was a partial mediator between *overall teaching role attributes* and job satisfaction. Before the inclusion of the mediator variable into the equation, *overall teaching role attributes* was significantly correlated to job satisfaction ($\beta=0.429$, $t=8.093$, $p=0.000$). But, as shown in Model 2, after the inclusion of the mediator variable, the previous significant relationship did not change to non-significant but the strength of the relationship was decreased ($\beta=0.350$, $t=6.558$, $p=0.000$). This evidence indicated that the sense of meaningfulness served as a partial mediator between overall teaching role attributes and job satisfaction.

In Hypothesis 3, *overall teaching role attributes* being mediated by the sense of meaningfulness were expected to have significant relationship to perceived work effectiveness. To test the hypothesis, the evaluation on the MLR assumptions was conducted and it was found that there were no serious violations. MLR analysis was then carried out and the results are shown in

Table 4. Model 2 indicated that the two predictors (*overall teaching role attributes* and sense of meaningfulness) contributed 32.3 percent of the variance in perceived work effectiveness.

As displayed in Model 1, *overall teaching role attributes* were positively and significantly correlated to perceived work effectiveness ($\beta=0.557$, $t=11.429$, $p=0.000$), accounting for 31.1 percent of the variance in perceived work effectiveness. The inclusion of the mediator variable (i.e. the sense of meaningfulness) indicated that it was a partial mediator between *overall teaching role attributes* and perceived work effectiveness. Before the inclusion of the mediator variable into the equation, *overall teaching role attributes* was significantly correlated to perceived work effectiveness ($\beta=0.557$, $t=11.429$, $p=0.000$). But, as shown in Model 2, after the inclusion of the mediator variable, the previous significant relationship did not change to non-significant but the strength of the relationship was decreased ($\beta=0.523$, $t=10.322$, $p=0.000$). This evidence indicated that the sense of meaningfulness served as a partial mediator between overall teaching role attributes and perceived work effectiveness.

7. Discussions and Implications of the Study

The finding has shed some lights on several aspects. One, the results indicated that the overall teaching role attributes gave significant positive influence to all the three work outcomes and this is consistent with the ones in previous research (Wegge et al., 2006; Lee-Ross, 2005; Rosser, 2005; Iacqua and Schumacher, 1995; Delle Fave and Massimini., 2003; Dinham and Scott, 1996; Kim and Loadman, 1994; Ostroff, 1992; Hackman and Oldham, 1980). The teachers perceived that the higher the level of their role attributes (in terms of skill variety, autonomy, task importance, level of feedback and task identity) in their pedagogical, managerial, technical and subject design aspects, they experience higher degree of work outcomes.

Two, the findings indicated that internal motivation, job satisfaction and perceived work effectiveness could only be maximized if the instructors experienced a sense of meaningfulness in the teaching job. This is consistent with the previous findings (Renn and Vandenberg, 1995; John et.al, 1992; Behson et. al, 2000; Fried and Ferris, 1987). More importantly, the finding provides support to the JCM theory proposed by Hackman and Oldham (1976, 1980). In general,

it could be concluded that the work outcomes are well predicted by the attributes of teachers' overall teaching job but they could be maximized if teachers could experience the sense of meaningfulness of the teaching role. Therefore, exclusion of the mediator effect on the relationship between job attributes and the work outcomes is not justified as it would result in misleading conclusions.

Three, previous scholars suggest that teachers perform various roles and these roles are distinct from each other (Bennet & Lockyer, 2004; McMann, 1994; Goodyear et al., 2001; Bunker & Vardi, 2001; Harden & Crosby, 2000). However, the distinctiveness has never been tested empirically. The factor analysis on the items used to measure the four teacher role attributes (pedagogical, managerial, technical and subject-designing) indicated that each role attribute has its own distinctive factor. This can be used a proof that each role attribute is indeed unique and it is in line with what has been theoretically discussed in the literature.

The research contributes to teachers' teaching job literature by identifying and measuring the major roles of instructors, particularly their roles in teaching aspects which have been widely discussed and studied. Given the fact that all the writings in the literature on teachers' roles which have been based on qualitative research method, the present study steps forward by examining and measuring all these roles using instruments that allow the measurement of their attributes. Using the Job Diagnostic Survey instrument developed by Hackman and Oldham (1980) allows more sophisticated analysis in assessing the distinct attributes of each role.

The study results indicated that the influence of the teachers' teaching role attributes on their work outcomes was further enhanced by the sense of meaningfulness which served as the mediating variable. The mediating variable was commonly under-represented in studies that employed the Job Characteristics Model (JCM) proposed by Hackman and Oldham. As noted by Behson et al. (2000), most studies excluded testing the effect of the mediating variable and thus resulted in misleading findings as important information could have been lost. The results of the research that support the mediating effects of sense of meaningfulness provide additional evidence for the importance of including the variable in the model. It suggests that to further increase the influence of teachers' teaching role attributes on work outcomes, first and foremost they have to experience the sense of meaningfulness in their job. Neglecting this aspect might reduce the impact of efforts in increasing the degree of instructors' teaching job attributes.

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Annexure

Table 1: The Dependent Variables - Measuring the Work Outcomes of Instructors

Dependent Variables	Measurement
Internal Motivation	<ul style="list-style-type: none"> • My opinion of myself always goes up when I do this job well. • I feel a great sense of personal satisfaction when I do this job well. • I feel bad and unhappy when I discover that I have performed poorly on this job. • My own feelings generally are not affected much one way or the other by how well I do on this job. • Most people on this job feel a great sense of personal satisfaction when they do the job well. • Most people on this job feel bad or unhappy when they find that they have performed the work poorly.
Job Satisfaction	<ul style="list-style-type: none"> • Generally speaking, I am very satisfied with this job. • I am generally satisfied with the kind of work I do in this job. • I frequently think of quitting this job. • Most people on this job are very satisfied with the job. • People on this job often think of quitting.
Perceived Work Effectiveness	<ul style="list-style-type: none"> • I always set clear objectives for my courses. • I always evaluate myself for my own improvement. • I will make sure my classroom environment is managed and organized. • All my work are well planned. • I keep my subject updated with the current issues. • I am confident with my teaching skills. • I manage classroom time effectively. • I develop independent learning in my students. • I develop critical thinking in my students. • I help students to realize their potential. • I develop students across a range of dimensions. • Generally speaking, I am an effective instructor.

Sources: 1) Hackman, J. R. and Oldham, G. R. (1980). *Work Redesign*, Addison-Wesley Publishing Co. 275-301; 2) Kyriakides, L., Campbell, R.J. and Christofidou, E. (2002) "Generating Criteria for Measuring Teacher Effectiveness Through a Self-Evaluation Approach: A Complementary Way of Measuring Teacher Effectiveness". *School Effectiveness and School Improvement*, 13(3), 291-325

Table 2: Regression Results for Internal Motivation (N=292)

Model	Independent Variable	Beta	T	Sig.	Collinearity Statistics	
					Tolerance	VIF
1	(Constant)	4.834	50.073	.000		
	Overall teaching role attributes	.565*	11.660	.000	1.000	1.000
2	(Constant)	3.799	17.522	.000		
	Overall teaching role attributes	.489*	10.076	.000	.912	1.096
	Sense of Meaningfulness	.256*	5.274	.000	.912	1.096

Model 1: R Square: 0.319; Std. Error of the Estimate: 0.72580; F value:135.947; F change: 0.000; * significant at p=0.05

Model 2: R Square:0.379; Std. Error of the Estimate: 0.69440; F value: 88.167; F change: 0.000; * significant at p=0.05

Table 3: Regression Results for Job Satisfaction (N=292)

Model	Independent Variable	Beta	T	Sig.	Collinearity Statistics	
					Tolerance	VIF
1	(Constant)	4.197	34.565	.000		
	Overall teaching role attributes	.429	8.093	.000	1.000	1.000
2	(Constant)	2.955	10.788	.000		
	Overall teaching role attributes	.350	6.558	.000	.912	1.096
	Sense of Meaningfulness	.268	5.014	.000	.912	1.096

Model 1: R Square: 0.184; Std. Error of the Estimate: 0.91297; F value: 65.501; F change: 0.000;

*significant at p=0.05

Model 2: R Square:0.250; Std. Error of the Estimate: 0.87720; F value: 48.045; F change: 0.000;

*significant at p=0.05

Table 4: Regression Results for Perceived Work Effectiveness (N=292)

Model	Independent Variable	Beta	T	Sig.	Collinearity Statistics	
					Tolerance	VIF
1	(Constant)	4.951	59.889	.000		
	Overall teaching role attributes	.557	11.429	.000	1.000	1.000
2	(Constant)	4.556	23.643	.000		
	Overall teaching role attributes	.523	10.322	.000	.912	1.096
	Sense of Meaningfulness	.115	2.264	.024	.912	1.096

Model 1: R Square: 0.311; Std. Error of the Estimate:0.62161; F value: 130.627; F change: 0.000;

*significant at p=0.05

Model 2: R Square:0.323; Std. Error of the Estimate: 0.61723; F value: 68.806; F change: 0.024;

*significant at p=0.05