Students' Perceptions and Faculty Measured

Competencies in Higher Education

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Abstract

This study aims to investigate whether there is significant relationship between students' perceived faculty competencies and faculty evaluated competencies. The study identified four main dimensions for measuring faculty competencies namely: teaching, research, additional services and advising. This study adopted a mixed method design. The study used purposive sampling to select school of Mechanical Science and Engineering in Huazhong University of Science and Technology, China. The researchers used a random sampling technique in coming up 25 faculties and 187 undergraduate students. We conducted a Multiple linear regression analysis to examine whether independent variables are statistically significant to explain dependent variables. The results showed that all the four dimensions of faculty competency jointly predict students' perception with an R square value of 0.792. The study therefore, developed a model: $SP = \beta_0 + \beta_1 T + \beta_2 R + \beta_3 S + \beta_4 A + \mu$ implying that students' perceptions are influenced by faculties' measured competencies. The research recommends the use of this model in universities as a guiding principle for faculty performance appraisal.

Keywords: Teaching, Research, Service, Advising and competency

1. Introduction

1.1 Background of the Study

Globally, there has been a growing number of students' enrollment in higher education as indicated by Common wealth of learning which estimates that 150 million students will be enrolled in the post-secondary education by 2020 (Altbach & Peterson, 1999). More specifically, since the establishment of the first Higher Education Law in August, 1998, the Chinese Higher Education experienced reforms and development that led to tremendous growth. This changed the face of Chinese education from elite to mass with participation rate rising from 9% in 1998 to 40% in 2015 (YearBook, 2015). The number of international students also grew rapidly to 157,845 by the year 2012 and as of 2015 China was rated as the most popular country for international students, and ranked third overall among all countries.

It is important that higher learning institutions deliver high quality education in this competitive world. However, the rapid growth in demand for higher education chances has brought about a declining quality education. This has forced many governments and institutions of higher learning to establish mechanisms for ensuring quality education. For example, in an effort towards creating a comparable and quality education, the European countries called for qualified and competent academic staffs across its members (Macura-Milovanović, Pantić, & Closs, 2012). Teacher competencies are important for enhancement of quality education at all level. Teaching staff qualities are influenced by staff engagement in teaching, researching and community outreach all which promote their academic development.

China has also been keen on quality assurance and improvement of higher education with emphasis on faculty productivity. The central government in the year 2007 issues a program for cultivating a high calibre of creative talents in institutions of higher education. Such programs entailed a long term inherent incentives mechanism aimed at improving; teaching, research and development, knowledge generation, dissemination and international competency. This initiative led to the creation of a set of supportive system through the adoption of management tools and techniques. In the pursuit of these aspects, all public universities in China have designed faculty appraisal

systems that are geared towards attainment of quality education.

Corresponding to the movement on quality higher education, research on various themes related to faculty performance evaluation has been proliferated. Most of the early studies sought to investigate relationship between contract theory and employee performance in corporate organizations. Other studies have attempted to link the main reasons and benefits of performance appraisals and evaluations in schools. However, none of the studies considers a framework that links the elements of faculty competencies and students perceptions. This study has identified the critical quality dimensions of faculties' competencies and established how they relate to students perceptions. This study will provide education directors and department chairpersons with useful managerial insights to improve faculty performance leading to students' academic success.

1.2 Statement of the problem

The growing demand for creating world class universities had led China to introduce Education Revitalization Action Plan that focuses on the establishment of teaching quality evaluation system. However, its global competitiveness still fall short of many other industrialized countries as indicated in World University ranking bodies such as the QS World University Ranking 2016. Despite the fact that faculties in public universities in China understand the significance of research, teaching, services and advising; cases have risen where faculty competencies often fall short of the goals that have been set. This is because there is no clear tie between faculty competencies and performance standards. Whether faculty competencies bring about better performance and student satisfaction is still an open question.

1.3 Objectives of the Study

The objectives of this study are to;

➢ Identify the critical quality dimensions of faculties' performance and develop a model for faculty competencies.

➢ Empirically establish relationship between students' perceptions and faculty competencies.

➢ Provide recommendations for future improvement on faculty performance.

1.4 Research Questions

➢ What are the critical quality dimensions of faculties' performance?

➢ Is there any relationship between students' perceptions and faculty competencies?

➢ Can this study provide any useful recommendations for future improvement on faculty performance?

2. Review of Literature

2.1 Need Faculty Productivity

The increasing demand for quality, to date has pushed various educational institutions to make a step towards bringing better management practices to higher education. An education system can therefore be observed as a productive system (KenyaNationalBureauofStatistics, 2010). This argument has been a creation and refinement of state evaluation systems devised to monitor and assess institutional effectiveness and productivity (Cowen, 1996). The findings of Kgaile & Morrison (2006) conducted in the free state of South Africa, reveals that teachers are the key drivers of internal school conditions for effectiveness, development and change (Kgaile & Morrison, 2006). In 1991, Oshodi used spearman rank correlation coefficient to determine the most influential factor on students' academic performance (Oshodi, 1991). The study found out that the quality of teachers was the most determinant of students' academic performance. Faculty practices are necessary to remain competent in one's clinical area of practice. It also provides the opportunity to bridge the gap between education and service to improve on learning for students, while simultaneously maintaining faculty expertise.

Massification of higher education has driven countries like China to experience a trade-off between quality and quantity with many scholars showing their dissatisfaction of quality. This pushed the Ministry of Education to step in, and strengthen higher education quality. "The Education Revitalization Action Plan of 2003–2007", proposed that all institutions of higher learning to implement a teaching quality evaluation system every after five years (Paine & Fang, 2006). In the year 2004 the Ministry of Education of China introduced higher education teaching evaluation centres to standardize teaching thereby making it more scientific, systematic and professional. This led to the development of quality guarantee system, professional evaluation, international evaluation and undergraduate teaching evaluation to serve as monitoring and evaluation tool at institutional level in colleges and universities. Higher education institutions in China have therefore placed emphasis on faculties' skills and competencies.

2.2 Students Perceptions

Researchers have tried to define what perceived service quality is. It has generally, been agreed that perceived service quality is related to customer (student) service evaluation according to their performance expectation level (Hasan, Ilias, Rahman, & Razak, 2009). A question may be raised as: Who should judge or criticize education system? Students are the recipients of educational services and should therefore measure quality of the output (Sakthivel, Rajendran, & Raju, 2005). Asking students to give feedback concerning learning experiences they encounter in schools has been in practice for many years. Students rating of teaching in higher education can be traced way back in the mid-1920s. When evaluating education system we must ensure students get what they need in terms of teaching quality and educational support. Evaluating faculties should be based on multiple pieces of evidence of effectiveness, at least some of which should be directly linked to students learning.   The goal of teaching is to facilitate learning, and if not then it becomes ineffective. Therefore, evaluating teaching must be linked to students learning.

The urge to clarify some qualities that make teaching effective has been revitalized with renewed mandate of enhancing teaching and learning appearing predominant in the strategic plan of many universities and colleges. Students' evaluation of teaching effectiveness has emerged as a means of enhancing university teaching (Marsh & Roche, 1993). Research has suggested that educators should effectively and efficiently utilize routinely collected data from students to identify gaps in teaching performance for future improvements (Griffin & Cook, 2009). Students always give genuine feedback hoping that there will be improvement in the future. Students satisfaction rating are an important part of the assessment of teaching, and some studies have indicated that they are related to students learning in complex ways (Moore, Moore, & McDonald, 2008). Students' evaluation scores are influenced by accumulated effects of a wide variety of variables that are both controllable and uncontrollable by instructors (Campbell, Gerdes, & Steiner, 2005). To improve the teaching effectiveness and consequently overall students' satisfaction, there is need to redefine students' evaluation with much focus on variables under instructors control (Campbell et al., 2005).

Faculties and students should partner in the process evaluation in order to overcome erroneous perceptions and to minimise the burden put on educators with many variables that accumulatively may affect the evaluation data. Then, the question would be, which variables are more influential in evaluating faculties? Many evaluation systems do not match the full range of functions and professors are often caught between completing obligation (Hobson & Talbot, 2001). The two principal areas of faculty evaluation are basically scholarship and teaching. Students evaluating teaching, perceptions of academic quality and satisfaction were found to be dimensions of quality learning environment (Richardson, 2005). However, many faculties are spending time on community services and supporting students in an advisory capacity. All these tasks are important aspects of overall faculty productivity but there is often no systematic evaluation of these activities. The present study specifically addresses this question by examining the relationship between four measured aspects faculty competencies (independent variables) on the students' perceptions (dependent variables).

2.3 Conceptualization of Independent Variables

Four dimensions of quality performance variables are conceptualized from various perspectives emphasized upon by different authors to plays a key role in promoting faculty competence thereby students' satisfaction.

2.3.1 Teaching

Students perceive good teaching as one that places more importance on learning outcomes such as; knowledge, skills, depth of lecture, teachers' feedback of their work, class notes and reading materials (Jalali, Islam, & Ariffin, 2011). Studies conducted by Dolence & Norris (1995) found out that without new approaches to instructions that connect to the learning needs of students, many will continue to perform poorly and are likely to drop out of studies (Dolence & Norris, 1995). Faculties are the teaching or the academic staffs in universities who take the frontline in devising learning experiences which arouses students' interests and inspire them to work diligently so as to become creative problem solvers. The interaction between faculties and students helps to inculcate positive attitudes towards their studies. Studies have revealed that course effectiveness improves when faculties and students partner in course evaluation (Giles, Martin, Bryce, & Hendry*, 2004). The role of faculties in improving quality higher education is that of promoting a good learning environment for students' productive learning. Dembele (2005) cited in (Altinyelken, 2010) argues that, unless teachers provide effective instructions and create classroom environment conducive for learning students will not achieve good results . In describing a holistic model of assuring quality in higher education, Srikanthan & Dalrymple (2007) posit that, learning is based on dynamic engagement between students and teachers especially about the nature, scope, and style of their learning (Srikanthan & Dalrymple, 2007).

According to Kettunen & Kantola (2007) the sense of responsibility and high level of engagement between students and teachers makes quality assurance effective (Kettunen & Kantola, 2007).

2.3.2 Research

Students perceived clear benefits from faculty research, including greater faculty enthusiasm and increased credibility of faculty and their institution (Jenkins, Blackman, Lindsay, & Paton-Saltzberg, 1998). Collegial communities have promoted teaching; however, research reveals only a weak relationship between participation in such communities and improved students outcome. Many studies suggest that participating in a professional community is an integral part of professional learning that imparts positively on students (Timperley, Wilson, Barrar, & Fung, 2008). Studies have shown that faculties can improve quality of higher education through collaborative action research with employer of labour. The Chinese government has emphasized on publication with the key words, "publish or perish" to empower faculty's present their case for research impacts to its best advantage. By the end of 1990s Ministry of Education of China initiated, "211 Project" and "985 Project" aimed at developing high level research and "world level universities" (Brandenburg & Zhu, 2007). When faculties engage in research they get opportunity to process new information which deepens their professional competencies creating better learning environment for students satisfaction.

2.3.3 Service

Many institutions have no reliable way of assessing college services, nor do they possess a clear measure of faculty contribution in providing leadership. The school is an institution of culture, shaped by conscious, deliberate and targeted influence of culture (Bruner, 2009). The school is therefore part of the society, and the existence of faculties can help to streamline and fasten services offered to students. To improve quality of higher education, then researchers and practitioners must continuously work together. In accordance with performance of duty faculties are expected to take part in administrative tasks, programs and university committee assignments. This devolves administration duties which increase faculty involvement in institutional governance. As faculties are more involved in campus governance, processes get more streamlined promoting a healthy relationship in the university. The quality of services offered by universities positively influences students satisfaction (Duque & Weeks, 2010). If college services are evaluated, then faculties will be clear about how these activities are viewed as part of their professional responsibility and would be better informed.

2.3.4 Advising

Academic advising is a key component in institutions of higher education that has a direct impact to student development. There are many reasons that cause students to be discouraged about educational experiences and so are strategies to combat these problems. When students are discouraged in their educational experience they exhibit some social problems which may lead to drop out or poor academic performance. Academic advising has been defined as, intentional interactions between students and higher education representatives (including both faculties and staff members) that supports students' growth and success (Kuhn, 2008). The organization structure of academic advising can take the form of centralized, decentralized or shared (Habley, 2004). In Centralized model professional advisors offer advice in a central unit where as in the decentralized model institution assigns faculty as advisor for students within the academic units. The shared model is most commonly used where students get the opportunity to work with both faculty and professional advisors. Students' surveys regarding their satisfaction with advising services remain predominant form of assessment over time (Powers, Carlstrom, & Hughey, 2014). Commitment of educators, more so faculties is very important in intervening students' problems before they explode. Furthermore, collaboration between faculties and students can help combat students problems (Parsell, Spalding, & Bligh, 1998) and (Owen, Johns, & Etkin, 2011). It has been indicated that, when research and intervention efforts are applied to students to have self-control in school environment, a positive outcome resulted to improved behaviour and performance (Larkin & Thyer, 1999).

2.4 Research Gap

Numerous research studies have been conducted on the relationship between teacher (faculty) effectiveness and students achievement. From a preliminary search of the literature, it appears that little empirical research has been conducted on significant predictors of teacher competency which is a key in teacher effectiveness. However, it is important to note that the desire to make faculties more productive appears more predominantly in the strategic plans of any institution of higher learning. This study therefore, seeks to fill the gap by developing a model for quality dimensions to measure faculty competence, a cue taken from performance management system flow (Armstrong & Taylor, 2014). This study has focused on four criterions for measuring faculty productivity and of benefit to students

namely; research, teaching, advising and services, (QS methodology 2016).

2.5 Research Hypothesis

From the literature review, relationship exists between teaching, research, service and advising on students' perception of faculty competencies. This study is expecting that the four dimensions of faculty competency will affect students' perceptions. This assumption leads to the following alternative hypothesis:

H1: Teaching has a significant effect on students' perceptions of faculty competencies.

H2: Research has a significant effect on students' perceptions of faculty competencies.

H3: Services has a significant effect on students' perceptions of faculty competencies.

H4: Advising has a significant effect on students' perceptions of faculty competencies.

H5: The Four 4 dimension variables jointly predict students' perceptions of faculty competencies.

2.6 Theoretical Framework

In the quest for quality, remarkable number of management tools and techniques have been applied in higher education including, total quality management, benchmarking, re-engineering, change management, and performance contracting. Economists have built a substantial body of research, both empirical and theoretical, on performance evaluation and employee responses (Rynes, Gerhart, & Parks, 2005) and (Prendergast, 1999). They believe subjective evaluation in firms shifts the discretion over the employee pay to the superior. There is need therefore, to involve a third party who in this study is "student". This study is hinged on the performance management system by Armstrong & Taylor (2014); they propose a set of interrelated activities and processes (see figure 1). These are treated as integrated and key components of an organization's approach to managing performance through people and developing skills and capabilities of its human capital (Armstrong & Taylor, 2014). Evaluation of faculties' competency has become a dominant theme recently with emphasis on faculties' productivity as measured by ability to promote students achievement.
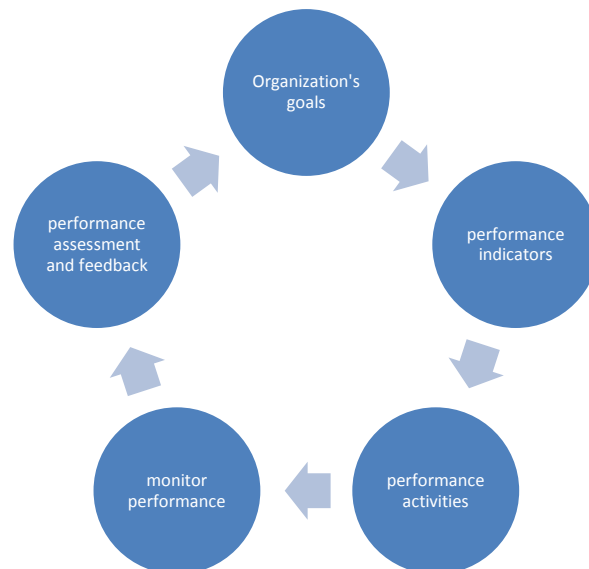

Figure 1. Armstrong and Taylor approach to managing performance in an organization

2.7 Developing a Quality Dimension Model of Faculty Competencies

It must be noted that the purpose of services, be it in private or public sector is user satisfaction. Customers (students) perceived satisfaction must be made the ultimate goal in measuring performance, (Sureshchandar, Rajendran, & Anantharaman, 2002) and (Bigne, Moliner, & S ánchez, 2003). On the bases of this idea, and the four (4) quality variables identified in this study, the present authors developed a model, "4–Quality Indicator Model of Faculty Competencies." This model establishes a link between the four quality variables and students perceptions of faculty competencies. This model postulates that, if faculty competency is higher as measured by the four variables, the greater will be the level of students' satisfaction and thus positive perceptions.
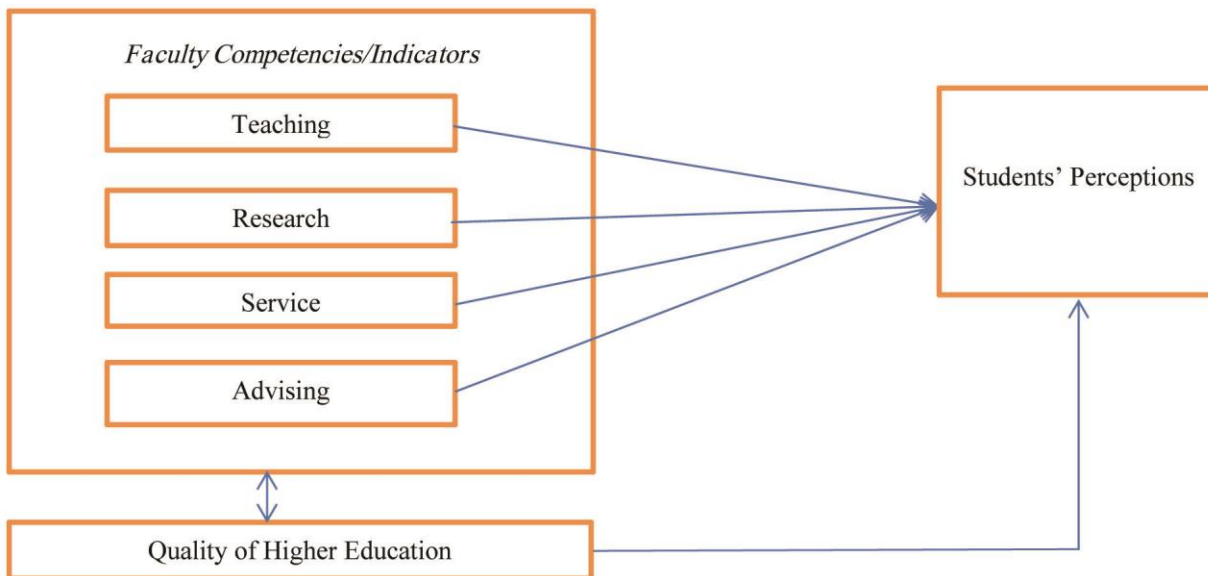
Figure 2. Conceptual Framework of "4–Quality Indicator Model of Faculty Competencies"

3. Research Methodology

3.1 Research Design

This study used mixed method that employed an explanatory design since qualitative data was used to build upon and explain the initial quantitative results (Creswell, Plano Clark, Gutmann, & Hanson, 2003). The researcher used dimensions of faculties' competencies (independent variables) and students' perceptions (dependent variable).

3.2 Instrumentation

The instruments used for this study were interview schedule for faculties and questionnaires (using a 5 point Likert scales ranging from strongly disagree to strongly agree) for students entitled: "students' perceptions of faculty competency", (SP&FC). Based on literature review and the model for faculty competency, four quality dimensions were identified. From present author's personal experience and critical thinking supported by literature review, sixty–two (62) operating items under the four dimensions were developed. The items to faculties were twenty–one (21) on background characteristics, teaching, researching, services, advising. The background characteristics considered in the study were; gender, age, experience and position. The items considered under teaching in the study were; number of credit hours taught, post graduate students recruited, professional development workshops attended, number of guest lecturers invited, teaching methods and techniques employed in classroom. The items considered under research were; participation in academic echelons, number of article published in journals, number of public academic reports published, number of graduate students supervised, and amount of research grands acquired. The items considered under services were basically on administrative works and community activities while under advising information was gathered on students guiding and consulting. The items to students were forty–three (43) on demographic information, and their perceptions about faculties' competencies in classroom teaching, research projects supervision, service delivery and students advisory.

3.3 Validity and Reliability

Validity of an instrument can be assessed using; content, construct and criterion related validity (Landeta, 2006). A measure has content validity, if there is a general consensus among researchers that the instrument has items that cover all the aspects of the variables being measured (Sakthivel et al., 2005). Since a pilot study was conducted involving faculties and students as well as discussion from various faculty members and experts in the field, to help refine and finalize, these items are said to have content validity. We used principal component analysis method, the first factor explained 46% while the least only explained 7% of the total variance (see table 1). We further used KMO and Bartlett's tests which showed that Kaiser-Meyer-Olkin measure of sampling adequacy was 0.72 and on the other side Bartlett's test for sphericity gave approximate Chi-square value of 17.9 with a degree of freedom = 6 and at 0.009 significance level. The sample was therefore large enough and the fit was good to conduct the study. We analysed the data in terms of internal consistency and correlation (DeVon et al., 2007). The Cronbach's α for all four indicators variables of faculty performance were found to be 0.721, which was above the minimum value of 0.7,

(Nunnally, 1978). We analysed the data previously obtained from the pilot study and compared it with the final data that was collected. The two set of data score were highly correlated (r = 0.8) and indication that random error due to temporal factors were minimal. The instrument was therefore found to be consistent and reliable to measure the variables of the study.

Table 1. Total Variance Explained

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.854	46.362	46.362	1.021	25.535	25.535
2	1.019	25.467	71.828	1.010	25.247	50.782
3	1.287	21.008	92.836	1.002	25.052	75.834
4	0.840	7.164	100.000	.967	24.166	100.000

Extraction Method: Principal Component Analysis.

3.4 Sample Size and Sampling Technique

The researchers carried out the study in Huazhong University of Science and Technology in Wuhan, China. We used a purposive sampling to select School of Mechanical Science and Engineering (MSE), a modest and most exemplary school established in 1953.The study population involved full time faculties with undergraduate classes and regular undergraduate students, but excluding first year students, (as they have limited experience in higher education system) in the school of mechanical science and engineering for academic year 2015/2016. We developed a sampling framework in accordance to (Wanjala & Malechwanzi, 2016). Sampling formula as cited by (Tugli et al., 2014) was used to determine the sample size as follows: $n = N/(1 + Ne^2)$. Where N is the population size and e is the marginal error, say at 95% level of confidence. The researchers used random sampling technique to select faculties and students for the study based on opportunity and voluntary participation. We sampled and interviewed a total of twenty–five (25) faculties comprising of 11 professors, 10 associate professors and 4 lecturers. Out of two hundred and fifty (250) questionnaires distributed to students one hundred and Eighty-seven (187) were found complete and valid for analysis, representing a response rate of 75%. Since the response rate was high, the data collected was found sufficient to carry out the study.

3.5 Data Analysis

The researchers used SPSS 20.0 and STATA 12.0 to perform statistical analyses. We carried out T-tests to test the hypothesis in the significance level of 0.05 for each indicator of faculty competency. If the p-value < 0.05, then the hypothesis is supported, (Sumaedi, Bakit, & Metasari, 2011). We used regression analysis to investigate the relationship between students' perceptions and faculties' competencies. Descriptive statistical measures such as; frequencies and percentages were employed to measure influence of demographic variables (such as sex, age, experience and position) which were used as control variables.

4. Results and Analysis

4.1 Respondents Demographic Information

This research's respondents are 25 faculties (4-16% female and 21-84% males) and 187 students (66-35% female and 121-65% males). The low female turnout was attributed to the fact, that engineering related fields are a male dominated. The research found out that 64% of faculties were above the age of 40 years and 64% had an experience of more than 10 years (see table 2). This was explained from the fact that HUST is among leading universities in China employing competent and very experienced faculties which was very essential for this study. However, it is interesting to note that faculties with less than 10 years of work experience were perceived by 58% of students to be more competent in classroom teaching as compared to 42% of faculties with more than 10 years of experience. This therefore, explains we cannot ignore the freshly recruited faculties for professional growth. The research also established that there were more professors and associate professors (at 44% and 40% respectively) and fewer lecturers (only 16%). This was attributed by the push for quality higher education in China which means universities many preferred employing higher achievers and cadre of faculties.

Table 2. Faculties Age and Experience Cross tabulation

		Experience				
		<=5 years	6-10 years	11-15 years	16-20 years	>=21 years
Age	31-40	4	4	1	0	0
	41-50	1	2	1	1	3
	51-60	0	0	0	0	8
Total		5	6	2	1	11

4.2 Descriptive Statistic

Students' perceived faculty competence mean rate and measured faculty competency for each dimension of performance were as follows: teaching – 3.36 (good), researching – 3.92 (very good), Services – 3.88 (very good) and advising – 3.72 (very good), giving an average of 3.72 (very good). On the other hand, students mean rate for faculties' competences was follows: teaching – 3.64 (very good), researching – 3.54 (very good), Services – 3.54 (very good) and advising – 3.53 (very good), giving an average of 3.56 (very good). This shows that the four indicator variables for measuring faculty competence have great impact on students' perceptions of faculty competencies.

4.3 Correlation

A simple correlation matrix was implemented showing inter-correlation among the indicator variables. The results show that all the indictors had a positive correlation and statistically significant at $P < 0.05$, except for the indicator of advising (see table 3).

Table 3. Correlation matrix

Indicator Variables		Students Perceptions
Teaching	Pearson Correlation	.741[**]
	Sig. (2-tailed)	.000
Research	Pearson Correlation	.754[**]
	Sig. (2-tailed)	.000
Service	Pearson Correlation	.435[*]
	Sig. (2-tailed)	.030
Advising	Pearson Correlation	.362
	Sig. (2-tailed)	.075

Note: Pearson correlation was used to estimate the relationship between dependent variable and independent variables. The dependent variable is the students' perceptions and independent variables are; teaching, research, service and advising. The individual coefficient is statistically significant at the *5% level or **1% significant level using a two-sided test.

4.4 Regression Analysis

This study used multiple regression analysis to examine whether independent variables are statistically significant to explain dependent variable. Students' perceptions were used as dependent variable while the four faculties' quality dimension variables were used as independent variables. A regression analysis was performed to determine the effect of teaching, researching, servicing and advising on students' perceptions. The results showed that P value is less than 5% for teaching, researching and services but more that 5% for advising. We can therefore, accept the null hypothesis that advising students has no significant effect on students' perceptions of faculty competencies and reject the null hypothesis on faculties teaching, researching and servicing have no significant effect on students perceptions of faculty competencies.

A model is said to be good if most of the independent variables influence dependent variable, (Stock, Watson, & Addison-Wesley, 2007). Since at least 50% (3 out of 4) of the independent variables influence the dependent variable the model is good. Furthermore, the probability of F-statistics is less than 5% which means we can accept the alternative hypothesis that the four faculty performance indicator variables jointly predict students' perceptions of faculty competencies which is in line with the theory. The high R-Square value of 0.7917 (79.17%), shows that

variations of all the four faculty performance indicators have a causal effect on students' perceptions. Since the R-Square value is above 0.7, the model is said to be good. However, 0.2083 (20.83%) is caused by other factors outside the model.

Table 4. Results from STATA 12.0 Analysis

Students' Perceptions	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Teaching	.3062485	.1072391	2.86	0.010	.0825518	.5299453
Researching	.2359846	.0857103	2.75	0.012	.0571959	.4147732
Servicing	.1445147	.0477282	3.03	0.007	.0449554	.2440741
Advising	.0629911	.0508699	1.24	0.230	-.0431217	.1691039
_cons	.8109014	.3316631	2.44	0.024	.1190643	1.502738

F (4, 20) =19.01, Prob > F = 0.0000, R-squared = 0.7917, Adj R-squared = 0.7501 and Root MSE = .32526

Using Cook-Weisberg test for heteroscedasticity, the probability value is 96.19% (above 5%) meaning we cannot reject the null hypothesis that all the four variables are homoscedastic rather we accept the null hypothesis. Testing residuals for normal distribution using Shapiro test, the probability is 98% (above 5%). This means that we cannot reject the null hypothesis that residuals are normally distributed rather we accept the null. Table 4 shows a regression analysis of students perceptions on teaching, researching, servicing and advising. From the results of regression analysis a model equation explaining students perceptions about faculty competencies was developed as follows: $SP=\beta_0 + \beta_1 T + \beta_2 R + \beta_3 S + \beta_4 A + \mu$ Where; SP=students' perceptions, T=teaching, R=research, S=servicing, A=advising, β0=constant coefficient, β1 to β4 represent coefficients of Teaching, Researching, Servicing and Advising respectively and μ=error term.

Table 5. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890[a]	.792	.750	.325

     a.   Predictors: (Constant), Advising, Teaching, Service, Research

5. Discussion

The study sought to establish the relationship between faculties' competencies and students' perceptions. The study found out that relationship exists between faculties measured competencies and students perceptions of faculties' competencies. This study is consistent with studies conducted by (Hemsley-Brown et al., 2010) on assessing teacher quality to students' satisfaction relationship as well as, (Ernawati & Sihes) on teacher's competence as the indicator of quality and condition of education. A summary of the findings from each dimension of measuring faculty competencies and students perceptions is explained in the following paragraphs:

5.1 Teaching and Students Perceptions

The present study established a high positive correlation between faculties' teaching competence and students' perceptions. The present study sought the following data from faculties; credit hours taught number of post graduate students recruited, professional development workshops attended, number of guest lecturers invited, teaching methods and technologies used. Braxton, Milem, & Sullivan (2000) were mainly interested in active learning activities including discussion and student questions. Their study revealed that students perceptions of faculty were mainly concerned with teaching and students development (Braxton, Milem, & Sullivan, 2000). No wonder, students in top level research intensive universities in China were particularly unsatisfied with their learning experience simply because faculties were more engaged in research at the expense of teaching (Zhang, Foskett, Wang, & Qu, 2011). We were surprised to learn that 58% of the students perceived that faculties with experience of less than 10 years were better in content delivery than those with experience of above 10 years. It was discovered that young faculties have more teaching tasks with less time for research due to little research funding than the older faculties. Because of this, students have more communication time with young faculties during the class, thereby students think young teacher were better. From the faculties' interview, data for three newly recruited faculties reported that their drive to academic performance was motivated by promotion to higher job grades while an aged faculty (above 60 years) reported that he was contended with what he has achieved because he had reached self-esteem level of satisfaction. Furthermore, it was established that majority of faculties with experience of less than 10 years had at least one of their graduate degrees obtained from oversea universities. This was brought by the new recruitment

policy that requires faculties to be more diverse and international. Such faculties had a diverse knowledge from exposure to various curriculums in a multiple diverse context thereby becoming more competent especially when handling students.

5.2 Research and Students Perceptions

The present study established that faculty research competence and students perception are highly positively correlated. These results are attributed to the pressure mounted to academic faculties to research and publish so that university can better rank in the international arena (Shan & Guo, 2014). In establishing the level of research, faculties were required to give an account of the number of academic echelons they participated in, number of journals published in CSI, number of academic conferences attended, number of academic public reports published, and amount of research funding obtained. This dimension had the highest rated score (3.92) and more correlated with students perception (Correlation = 0.754) among all the other dimensions evaluated. As can be seen in table 6, within the academic year 2012/2013 to 2014/2015, 56% of faculties interviewed had acquired research funding exceeding US dollars 15, 171(equivalent to Chinese Yuan 100, 000). Furthermore, the study established that 86% of these faculties who had acquired research funding in excess of US dollars 15, 171(equivalent to Chinese Yuan 100, 000) had published more than 5 articles in a CSI journal. This shows that faculty research was more emphasized at the expense of all the other dimension of faculty competence, as stated by an interviewee that, "transform teaching and research because currently more emphasis is on research with less teaching". The drive towards meaningful research has been re-energized in many institutions of higher learning with the term "publish or perish" coming into play. The Faculties are now highly motivated to conduct research not only through providing research grands and funds but also for promotion.

Table 6. Faculties score rate per item

Items checked	Number of Faculties per Score				
	Score = 1	Score = 2	Score = 3	Score = 4	Score = 5
Number of academic echelons	0	10	6	3	6
Number of course taught	3	8	10	1	3
Post graduate students recruited	2	4	6	6	7
Number of journals/articles published	5	2	1	1	16
Amount of research funding	2	4	5	1	13
Number of academic reports published	5	1	5	1	13
Number of academic conferences attended	1	4	5	2	13
Professional development workshops	7	12	2	2	2
Number of teaching methods	1	6	9	2	7
Guest lecturers invited	8	5	5	2	5

Note: The benchmark requirements used for assessing teaching and research in the performance cycle 2012/2013-2014/2015 were as follows: participate in academic echelon of more than 3 members[1], teach 2 courses/192 credit hours[2], recruit 2 post graduate students annually[3], publish 5 articles in CSI journal and 2 periodicals[4], acquire 100 000 RMB (equivalent to US dollars 15 171) of research funding[5], publish 2 academic reports[6], attend 3 domestic/international conferences[7], attend professional development workshops[8], actively take part in quality teaching, laboratory work, discipline and solve students problems[9]. These items were carefully analysed and used to construct interviews for faculties against students' perceptions.

5.3 Public Services and Students Perceptions

The present study established that faculty services are positively correlated with students perceptions, however the relationship is weak (Correlation = 0.435). The study was consistent with studies done by Oldfield & Baron (2000) on students perceptions of service quality (Oldfield & Baron, 2000). They established that service quality offered in institutions relate largely with the way academic staff treat students. This study revealed areas that faculty serve the school as follows: class managers, communist party work, undergraduate teaching management, graduate recruitment, undergraduate tutor and teacher union representative committee. Data from two faculties reported that additional roles consume time and require new knowledge of interdisciplinary administration which faculties lack. However, many students reported in questionnaires that faculty's involvement in administrative duties streamline

services and create harmony in the school.

5.4 Advisory Services and Students Perceptions

This study did not establish any relationship between faculty advisory services and students perceptions, which is inconsistent with studies done in Pakistan medical school on students stress and coping strategies by (Shaikh et al., 2004). Although these findings are unusual, they are not unique. Studies conducted by Hu & Kun (2004) show that, although the net effect of student faculty interaction were trivial, such interaction had substantial positive effect on student personal effort in other educationally purposeful activities which has no trivial effect on their gain and satisfaction (Hu & Kuh, 2001). This study found that the mean score rate for faculty evaluation was 3.72 (Very good) while students mean score rated for faculties was 3.53 (Good). This was due to diverse opinions about guiding and consulting and that there was no established unit to undertake this role. One student reported that faculties were too busy to handle students' issues while most foreign student had language challenges to communicate their problems to faculties who were more conversant with Chinese language. Another student reported lacked confidence to face faculties for advice was the most predominant issue while a group of students said that they have developed self-mechanisms of stress management. Out of 32 students who faced faculties for advice 23 reported a positive change which has made them realize their goals and dreams in pursuit for academic excellence while 9 reported no change. One faculty interviewed reported that he did not want to handle students' problems because he thinks that it should not be part of the school programme for faculties. It is important to point out that the school has put much pressure for faculties to do research and teaching. This has made faculties extremely busy to engage in meaningful co-curriculum activities such as advisory services with the term in question, "publish or perish". This study recommends the school to establish a guiding and consulting unit.

6. Conclusion

Students satisfaction is being satisfied with course quality, instructor interaction, peer collaboration and support services, (Zhao, 2003). The study clearly established a relationship between faculties measured competencies and students perceptions of faculties' competencies, as depicted in the present model. However, it is essential to point out that other than faculty competencies, the quality and quantity of equipment and facilities such as; workshops, laboratories, library, computer and information system play a critical role in the teaching and learning process (Sakthivel et al., 2005) which this study did not seek to establish. This study concludes by emphasizing on more focus given to students rather than teacher performance only. Further, faculties' evaluation should be flexible to individual level while touching on students' needs as was noted by a faculty member, "set more flexible evaluation index according to teacher level".

7. Recommendation

In the present context of global competitive educational environment, it is recommended that the quality dimension model of faculty competency designed in this study should serve as a guiding principle for universities especially in the engineering field when implementing faculty performance appraisal. If faculties' competencies are improved through application of this model, students will be highly satisfied with faculties and also the university. As discussed in the literature review that faculties should create an atmosphere conducive to learning in order to enhance the development of students learning experiences. With respect to each quality variable, institutions can score rate individual faculty member. Educationists can keep these scores as a reference point upon which improvement efforts can be targeted for promotion or demotion.

8. Research Limitation/ Future Research

➢ Other than the four factors of performance studied by researchers, in reality many other factors influence faculty competency which the study did not seek to find out.

➢ Generalization of the finding may only be appropriate where the dimensions of quality performance used are analogous.

➢ The data collected has been restricted to one geographical area in China – Wuhan.

➢ The study has been conducted in school of Mechanical Science and Engineering limited to a state funded university. Similar studies related to other types of institutions may be taken up in the future.

➢ The study can be extended further by making a cross-comparison between various countries.

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