Students’ Evaluation of Teacher Attributes: Implications for Quality in Higher Education

Shaukat Ali Raza* and Muhammad Irfan**

Abstract

The abstract nature of quality in higher education establishes the worth of students’ perception to evaluate this quality. This study explores the perception of 960 university students from Lahore, Pakistan, regarding the attributes of their teachers in terms of student development, teacher professionalism, teaching style, student motivation, and teacher personality. Descriptive and inferential statistics have been employed to rate and compare responses obtained through an adapted 5-point Likert type scale. Students have rated teacher personality as the highest and student development as the lowest factor in order of their preference. The overall level of attributes of university teachers in respect of all the five sub-scales is found to be at a high level. The study recommends faculty development initiatives particularly for the teachers from computer sciences, IT and commerce disciplines to help them develop their listed attributes to enhance quality in higher education leading to the realization of stipulated higher education objectives.

Keywords: Students’ perception, Teacher attributes, Quality in higher education

* Assistant Professor, IER, University of the Punjab, Lahore, Pakistan. Email: shaukat.ier@pu.edu.pk
** M. Phil. Scholar, IER, University of the Punjab, Lahore, Pakistan.
Introduction
Owing to the growing competition in higher education, universities are experiencing a paradigm shift in the status of their students (Raza, Majid, & Zia, 2010) as fee paying customers who select universities, programs of study and their majors in the same way as they select commodities from the shopping malls (Raza & Khawaja, 2013). Therefore, universities are supposed to hire teachers with most desirable attributes (Raza, 2014) in order to attract and retain students (Douglas, McClelland, & Davies, 2008; Helgesen & Nesset, 2007) to be economically efficient (Joseph, Yakhou, & Stone, 2005) in their completion for survival.

Attributes encompass a broad range of knowledge, skills, and attitudes to complete a task or solve a problem to become effective on the job (Raza, 2014; Guntuku & Meesala, 2013; Mulder, Gulikers, Biemans, & Wesselink, 2009). These attributes available in categories like student development, teacher professionalism, teaching style, student motivation, and teacher personality (Raza, 2014) are the key determinants of quality in higher education (Raza & Naqvi, 2011) which is the demand of all stakeholders (Raza, 2012). The quality in higher education, is a service quality, and could be judged only through the perception of its users, the students in this case (Raza & Naqvi, 2011).

This study was, therefore, designed to evaluate the attributes of university teachers in terms of student development, teacher professionalism, teaching style, student motivation, and teacher personality as perceived by students and discuss implications thereof for quality in higher education.

Review of literature
Attribute is a quality that belongs to a specific person or thing. It is usually a good inherent quality or characteristic that someone or something has, for example, patience is a good attribute for a teacher (Merriam-Webster, Incorporated, 2015). These are sets of qualities that cover a broad range of potentials or capabilities for cognitive (knowledge), psychomotor (skills), and affective (attitudes) domains required for task completion and problem solving needed for realizing organizational, job or professional goals (Raza, 2014; Guntuku & Meesala, 2013; Mulder, Gulikers, Biemans, & Wesselink, 2009). Literature on higher education provides different categories of teacher attributes.

Categories of teacher attributes
Raza (2012) has provided a comprehensive account of attributes of university teachers necessary to equip them for inculcating employability skills in their students so that they may penetrate in the job market. Guntuku and Meesala (2013:17) also have provided over 116 attributes of university teachers after a mega analysis. The list could be made very

But the current study confines itself to the categories of attributes listed by Raza (2014) namely student development, teacher professionalism, teaching style, student motivation, and teacher personality as factors deep rooted in the previous literature.

**Student development:** There is a collection of teacher attributes related to student development describing teachers as friendly (Swanson, 2005), congenial (Chen, 2005; Faranda & Clarke, 2004), interested in students’ progress (Anderson, 2000), accessible for consultation (Voss et al., 2007; Brown, 2004), enthusiastic (Faranda & Clarke, 2004; Palmer, 2000; Kelley et al., 1991), providing interesting and meaningful activities (Park & Lee, 2006), conducting examinations which allow students to express their knowledge freely (Faranda & Clarke, 2004), encouraging students to work hard during class (Barnes & Lock, 2010), helping students learn study techniques (Chen, 2005; Lasagabaster & Sierra, 2005), keeping records of student performance (McElwee & Redman, 1993), asking questions to individual students and whole class, waiting for volunteers to answer and giving students plenty of time to respond to questions (Barnes & Lock, 2010), and providing prompt assignment feedback (Faranda & Clarke, 2004; Desai et al., 2001).

**Teacher professionalism:** In this category, there are attributes regarding teacher professionalism including flexibility (Voss, 2007; Brown, 2004), reliability (Swanson, 2005; McElwee & Redman, 1993), sharing personal and professional life experiences (Chen, 2005; Faranda & Clarke, 2004), understanding students’ educational background (Barnes & Lock, 2010), understanding students’ levels (Barnes & Lock, 2010), diversified delivery methods (Chen, 2005; Faranda & Clarke, 2004; Gorham, 1987), preparing students for examinations (Barnes & Lock, 2010; Rammal, 2006), providing a comprehensive syllabus with content and methodology (Xiao, 2006; Kelley, 1991), communicating clear course objectives (Kember & Wong, 2000; Kelley et al., 1991), sticking to the syllabus (Rammal, 2006; Kember & Wong, 2000), laying out all the materials needed for assignments (Kember et al., 2004), providing original/supplemental material (Kember et al., 2004; Yorio, 1989), preparing each lesson well (Park & Lee, 2006), being enthusiastic about their subject knowledge (Lammers & Murphy, 2002), having expertise (Pozo-Munoz et al., 2000; Husbands, 1998; Patrick & Smart, 1998; Ramsden, 1991), being competent (Voss et al., 2007; Brown, 2004), being knowledgeable (Swanson et al., 2005; Hill et al., 2003), having sound content knowledge of their discipline (Xiao, 2006; Chen, 2005; Lasagabaster & Sierra, 2005; Faranda & Clarke, 2004; Kutnick & Jules, 1993), having sound language skills (Barnes & Lock, 2010; Park & Lee, 2006; Lasagabaster & Sierra, 2005), turning up to classes on time (McElwee & Redman, 1993), being well organized (Hill et al., 2003), and seriousness and dedication (Barnes & Lock, 2010).
Teaching style: For attributes of university teachers depicting their teaching style, students approve those teachers who are inspiring (Lammers & Murphy, 2002), handle difficult affairs (Hill et al., 2003), encourage group work and participation (Faranda & Clarke, 2004; Kelley et al., 1991; Reid, 1987), listen to students (Park & Lee, 2006; Rammal, 2006; Faranda & Clarke, 2004; Desai et al., 2001), are good observer (Park & Lee, 2006; Rammal, 2006; Faranda & Clarke, 2004; Desai et al., 2001), emphasize error correction (Rammal, 2006; Nunan, 1989; Yorio, 1989), give clear explanations (Griemel-Fuhrmann, 2003; Kember & Wong, 2000; Kutnick & Jules, 1993) and provide clear grading guidelines (Desai et al., 2001).

Student motivation: These are attributes of university teachers describing student motivation and students include teachers in this category who treat their students as individuals (Voss et al., 2007; Brown, 2004), are empathetic and helpful (Swanson, 2005), are caring (Faranda & Clarke, 2004; Desai et al., 2001; Anderson, 2000), are helpful (Hill, 2003; Lammers & Murphy, 2002), address students’ individual needs (Hill et al., 2003), are sympathetic (Hill, 2003), treat all students fairly (Faranda & Clarke, 2004; Desai et al., 2001), use appropriate real world examples in lessons (Faranda & Clarke, 2004; Griemel-Fuhrmann, 2003; Palmer, 2000; Kelley et al., 1991), are willing to answer questions (Voss, 2007; Brown, 2004), explain things in different ways (Voss et al., 2007; Brown, 2004), are responsive and expressive (Swanson et al., 2005) and are able to answer difficult questions (Faranda & Clarke, 2004).

Teacher personality: In this category of attributes, students approve those teachers who have a positive attitude towards students (Park & Lee, 2006; Rammal, 2006; Faranda & Clarke, 2004; Desai et al., 2001), develop interpersonal relationships (Xiao, 2006; Chen, 2005; Faranda & Clarke, 2004), have a sense of humor (Faranda & Clarke, 2004), have charisma (Barnes & Lock, 2010), have patience (Rammal, 2006; Desai et al., 2001; Kutnick & Jules, 1993; Payne, 1978), show respect to students (Gruber, Reppel, & Voss, 2010; Voss et al., 2007) and are highly confident (Hativa, Barak, & Simhi, 2001).

As described above, these categories of teacher attributes are complementary to each other and must not be viewed in isolation. Raza (2014) notes that, teachers must be in a position to develop their students through fostering employability skills in them so that they may penetrate in the job market. For this purpose, they must be strong in professionalism and an appropriate teacher personality has no substitute in this regard. Similarly, teachers are rated by students for their teaching style (Raza, 2012) which is the way teacher make learning easy or difficult for students. The author appreciate teachers who make difficult points easy and convince students to complete complex assignments only through motivating them by sharing field experiences that creates a life-like situation.
Teacher attributes and teaching quality

Previous researches concluded that teacher attributes pave the way to teaching quality having a positive impact on student academic achievement (Raza, 2014; Clotfelter, Ladd, & Vigdor, 2007). A general agreement emerging out of certain experimental studies is that a 0.01 standard deviation difference in the quality of teachers creates about a 0.10 standard deviation in student academic achievement (Aaronson, Barrow & Sander, 2007; Rivkin, Hanushek & Kain, 2005; Rockoff, 2004). Teachers with high teaching quality are found to have a better impact on students’ achievement as they grow in the number of teaching years of their experience (Clotfelter, Ladd, & Vigdor, 2007). The authors establish that the benefits of experience rise to a top in the range of 0.092 to 0.119 standard deviations after 21-27 years of experience as compared to a teacher with no experience.

The students’ perspective

As noted above, Oldfield and Baron (2000:86) recommend that universities should pay greater attention to what their students need or want instead of accumulating “data based upon what the organization perceives its students find important”. These are outdated methods that leave “decisions about what constitutes quality of service (e.g. such as deciding what is ‘most important’ to students) exclusively in the hands of administrators and/or academics” (Joseph, 2005:67). The authors, therefore, recommend that academic administrators should concentrate on understanding the perspective of their students, who are the major and particular target viewers.

Gruber, Reppel, and Voss (2010) have studied how students recognize the attributes of teachers and how they are satisfied with them. They describe that knowledge of students’ concern about satisfactory or dissatisfactory attributes can assist teachers increase the classroom experience for students, by having a better understanding of the students’ viewpoint or by just improving interpersonal skills (Davis & Swanson, 2001).

Satisfied students as co-creators or partners of value (Vargo & Lusch, 2006; 2004) in higher education, fascinate new students through a positive word of mouth communication (Helgesen & Nesset, 2007; Marzo-Navarro, Pedraja-Iglesias, & Rivera-Torres, 2005ab; Mavondo, Tsarenko & Gabott, 2004) and student satisfaction has also a progressive and positive influence on student motivation (Elliott & Shin, 2002).

Measuring the teacher attributes

Both the teacher attributes and the teaching quality in higher education are abstract in nature and could therefore be measured through the perceptions of user—the students in this case (Raza, Zia, Naqvi, & Ali, 2012; Karatepe, Yavas, & Babakus, 2005). Voss, Gruber and Reppel (2010) have reported that the qualities and behaviors of university teachers had a direct bearing on the perception of students for the quality of teaching.
Universities can collect such type of feedback from students in order to understand their needs. As stated by Leckey and Neill (2001), in delivering quality in higher education institutions, student feedback plays a major role. Williams and Cappuccini-Ansfield (2007), Richardson (2005), and Harvey (2003) have further explained that students’ feedback helps forthcoming students (and their parents) gain facts and figures about institutions, so that they can decide and choose course or program units they want to study and a common practice to accumulate this feedback from students is the usage of questionnaires (Leckey & Neill, 2001).

The above discussion, thus, provides a theoretical background for the current study to measure the attributes of university teachers in terms of student development, teacher professionalism, teaching style, student motivation, and teacher personality as perceived by students.

Research methodology

This paper is based upon M. Phil. thesis of the second author. This study describes the quantitative facts as stated by the participants obtained through a questionnaire survey conducted to measure the attributes of university teachers in terms of student development, teacher professionalism, teaching style, student motivation, and teacher personality as perceived by students of public and private universities of Lahore, recognized by Higher Education Commission (HEC) of Pakistan.

Sample of the Study

At the outset, a 30% stratified random sample of universities was taken i.e. 04 (out of 13) public and 06 (out of 20) private universities. Then a 30% sample of available faculties (i.e. 9 out of 31 and 14 out of 49) of the sample universities and available departments of the sample faculties (i.e. 15 out of 47 and 17 out of 56) of selected universities was taken (table 1).

<table>
<thead>
<tr>
<th>Categories</th>
<th>Universities</th>
<th>Faculties</th>
<th>Departments</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pub</td>
<td>Pvt</td>
<td>Total</td>
<td>Pub</td>
</tr>
<tr>
<td>Population</td>
<td>13</td>
<td>20</td>
<td>32</td>
<td>31</td>
</tr>
<tr>
<td>Sample</td>
<td>04</td>
<td>06</td>
<td>10</td>
<td>09</td>
</tr>
</tbody>
</table>

Pub=public; Pvt= private

At the end, 30 students were systematically taken from each sample department to arrive at a sample of 960 students which is above the 10:01 ratio of the sample size to number of scale items suggested by Karatepe, Yavas and Babakus (2005).
**Instrument**

For measuring the attributes of university teachers as perceived by students, an adapted Lickert type scale (Raza, 2014) with a reported 0.840 reliability, consisting of 34 items divided in five factors including student development (06 items), teacher professionalism (07 items), teaching style (06 items), student motivation (06 items), and teacher personality (09 items) as sub-scales, was used after a pilot run. The gender, sector of the university, and discipline served as the background variables of respondents.

**Collection and analysis of data**

Data were collected by the second author. The responses of students are quantified as strongly agree=5, agree=4, neutral =3, disagree=2 and strongly disagree=1. Frequencies, mean scores, standard deviations, \( t \)-values, alpha values, and correlations are calculated for all the five sub-scales (i.e. student development, teacher professionalism, teaching style, student motivation, and teacher personality) to measure their level and significance as sub-scales. Mean score 03 is taken as a cut-point and mean scores 03 and above are considered as reflecting the acceptable level, whereas mean scores below 03 are considered an unacceptable level of attributes of university teachers and an alpha value of 0.60 determines the significance of the subscales (Raza & Khawaja, 2013; Raza & Naqvi, 2011; Raza, Majid, & Zia, 2010). Independent samples \( t \)-test is employed against gender and sector of university and one-way ANOVA against discipline of the respondents to compare the level of perception of students regarding the attributes of university teachers.

**Results of the study**

The Cronbach’s alpha coefficient of the instrument is found to be 0.957. The contribution of female respondents in the sample (58.3%) is higher than that of male (41.7%) respondents. On the other hand, the contribution of private sector respondents in the sample (53.1%) is higher than that of public sector (46.9%) respondents. Similarly, the contribution of social sciences (32.2%) respondents in the sample is the highest and of those from languages (3.3%) is the lowest across the layers of discipline.

In the sub-scales of attributes of university teachers, students have rated teacher personality factor as the highest (4.14), followed by the teacher professionalism (4.05), teaching style (4.04), student motivation (3.98) and student development (3.96) in order of their preference (table 2).
Table 2

*University Teacher Attributes in Terms of Sub-Scales and Total Scale*

<table>
<thead>
<tr>
<th>Factors</th>
<th>Mean</th>
<th>S.D</th>
<th>Df</th>
<th>t-values</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher personality</td>
<td>4.14</td>
<td>0.71</td>
<td>959</td>
<td>181.08*</td>
<td>0.90</td>
</tr>
<tr>
<td>Teacher professionalism</td>
<td>4.05</td>
<td>0.75</td>
<td>959</td>
<td>167.22*</td>
<td>0.87</td>
</tr>
<tr>
<td>Teaching style</td>
<td>4.04</td>
<td>0.76</td>
<td>959</td>
<td>164.30*</td>
<td>0.87</td>
</tr>
<tr>
<td>Student motivation</td>
<td>3.98</td>
<td>0.76</td>
<td>959</td>
<td>162.29*</td>
<td>0.84</td>
</tr>
<tr>
<td>Student development</td>
<td>3.96</td>
<td>0.74</td>
<td>959</td>
<td>164.76*</td>
<td>0.86</td>
</tr>
<tr>
<td>Teacher attributes</td>
<td>4.04</td>
<td>0.65</td>
<td>959</td>
<td>192.71*</td>
<td>0.96</td>
</tr>
</tbody>
</table>

*p<0.05*

The overall rating of teacher attributes by students in terms of all the five sub-scales collectively, is found to be at 4.04 that reflects a high level of students’ agreement on teachers attributes. The alpha values of all the sub-scales are over 0.60.

Table 3

*Correlations within Sub-Scales and Those of Sub-Scales with Total Scale*

<table>
<thead>
<tr>
<th>Sub-scales</th>
<th>Teacher professionalism</th>
<th>Teaching style</th>
<th>Student motivation</th>
<th>Teacher personality</th>
<th>Teacher attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student development</td>
<td>0.75</td>
<td>0.72</td>
<td>0.63</td>
<td>0.58</td>
<td>0.83</td>
</tr>
<tr>
<td>Teacher professionalism</td>
<td>0.78</td>
<td>0.72</td>
<td>0.71</td>
<td>0.70</td>
<td>0.89</td>
</tr>
<tr>
<td>Teaching style</td>
<td>0.73</td>
<td>0.70</td>
<td>0.76</td>
<td>0.70</td>
<td>0.88</td>
</tr>
<tr>
<td>Student motivation</td>
<td>0.76</td>
<td>0.70</td>
<td>0.70</td>
<td>0.70</td>
<td>0.88</td>
</tr>
<tr>
<td>Teacher personality</td>
<td>0.76</td>
<td>0.70</td>
<td>0.76</td>
<td>0.70</td>
<td>0.88</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

The correlations within sub-scales are weaker against those of sub-scales with the total scale.

Male respondents have given a significant higher level of rating to student motivation factor of attributes of university teachers as compared with female respondents. Otherwise, there is no significant difference of opinion among male and female respondents regarding other sub-scales.

There is no significant difference of opinion among public and private sector respondents on the rating of student development, teacher professionalism, teaching style, student motivation, and teacher personality factors of teacher attributes.

Discipline comparison shows that students from social sciences, languages, management sciences and commerce disciplines are more focused on student development as compared with those from computer sciences & IT. Otherwise, there is no significant difference of opinion among respondents on student development.
Students from social sciences, languages, management sciences, commerce, and life sciences disciplines are more focused on teacher professionalism as compared to computer sciences and IT.

Students from social sciences and commerce against computer sciences and information technology; and languages and management sciences against commerce disciplines are more focused on teaching style. Other than these, there is no significant difference of opinion among respondents on teaching style.

Students from social sciences, languages, management sciences, commerce, and life sciences are more focused on students’ motivation as compared with those from computer sciences & IT.

Students from social sciences, languages, management sciences, and commerce disciplines are more focused on teachers’ personality as compared with those from computer sciences & IT.

As per criteria laid down in the methodology section, the mean scores for all the sub-scales and total scale are significantly above the cut point 03 and these are also found to be significant with alpha values greater than 0.60.

**Discussion**

All arguments regarding attributes of university teachers are going to be made on perceptions of students, the majority of whom were female (58.3%) in case of their gender; belonged to computer sciences & IT (27.9%) in case of their discipline; and represented private universities (53.1%) of Lahore in case of sector of universities.

This study was designed to answer two basic questions. The first research question was, “what is the level of students’ perception regarding the attributes of university teachers in terms of student development, teacher professionalism, teaching style, student motivation, and teacher personality?”

According to results, the highest rating of teacher personality factor (4.14) of attributes of university teachers means that university teachers possess sound personality attributes as perceived by their students. This tendency supports the work of Barnes and Lock (2010), Park and Lee (2006), Curran and Rosen (2006), Rammal (2006), Xiao (2006), Chen (2005), Faranda and Clarke (2004), Desai et al. (2001), Hativa, Barak and Simhi (2001), Clayson (1999), and Clayson and Haley (1990) where teacher personality plays an important role in teacher-student relationships that affect students’ learning.


The fifth rated factor, student development (3.96) on the part of university teachers also reflects a reasonable revel of a highly desirable quality that helps students penetrate in the job market realizing the basic goal of higher education, supporting studies (like Barnes & Lock, 2010; Gruber, Reppel & Voss, 2010; Voss et al., 2007; Douglas& Douglas, 2006; Swanson et al., 2005; Chen, 2005; Lasagabaster & Sierra, 2005; Brown, 2004; Faranda & Clarke, 2004; Hativa, Barak & Simhi, 2001; Desai et al., 2001; Anderson, 2000; Kelly & Stanley, 1999; McElwee & Redman, 1993; Kelley et al., 1991).

At the end, the overall level of attributes of teachers in respect of student development, teacher professionalism, teaching style, student motivation, and teacher personality is found to be at 4.04, a high level, reflecting the situation still behind the highest level to be achieved by university teachers (Barnes & Lock, 2010; Gruber, Reppel, & Voss, 2010).
As per criteria laid down in the methodology section, the mean scores for all the sub-scales and total scale are significantly above the cut point 0.03 and these are also found to be significant with alpha values greater than 0.60 and the weaker correlations within sub-scales against those of sub-scales with the total scale (Raza, 2014; Raza, Majid, & Zia, 2010), establish the worth of questionnaire used in the current study and the results obtained thereof.

The second research question of study was, “which category of attributes of university teachers is rated high by the students keeping in view their gender, sector of university and discipline?”

The higher rating of student motivation by male respondents reflects their sensitivity towards their jobs against females. It means they use to listen their teachers carefully, follow their track, and feel motivated (Kelly & Stanley, 1999).

Computer sciences & IT is a technical field and the students in this discipline might wish their teachers to have strong attributes in all the five areas for putting extra efforts to develop them in line with market demands (Raza, 2014; Raza & Naqvi, 2011). They also wish their teachers enhance their skills and further develop their personality to impress students to strive for better learning outcomes. Though personality of teachers is the highest rated factor of attributes of university teachers, but students from this discipline seems to be less satisfied over the personality attributes. It means that, this disciple is more demanding and the teachers need to develop them accordingly (Barnes & Lock, 2010; Park & Lee, 2006; Chen, 2005). Commerce is also a strong profession and students from this discipline too demand improved effective teaching style attributes that affect learning outcomes.

**Implications for quality**

The attributes of university teachers are a direct reflection of quality in higher education (Raza, 2014; Clotfelter, Ladd, & Vigdor, 2007). The overall level of attributes of university teachers, though found to be high, still reflects the need to improve upon the situation of these attributes in terms of student development, teacher professionalism, teaching style, student motivation, and teacher personality to bring them at a very high level. The current situation of these attributes may reflect a 75% quality standard as perceived by university students. Hence, to enhance it to 100%, universities need to develop their teachers in terms of stated attributes.
Conclusions

Majority of respondents were female; of computer sciences and IT discipline; and from private university sector.

Students have rated teacher personality as the highest factor of attributes of university teachers followed by teacher professionalism, teaching style, student motivation, and student development in order of their perceptual preference. The overall level of attributes of teachers in respect of student development, teacher professionalism, teaching style, student motivation, and teacher personality is found to be at a high level in the light of students’ perceptions.

All the sub-scales and total scale are found to be significant thereby strengthening the results of the study.

Male respondents have shown a significant higher level of agreement on student motivation factor of attributes of university teachers as compared with females.

Students from both, the public and private, university sectors have similar viewpoints over the attributes of their teachers.

Students from computer sciences, IT and commerce disciplines wish their teachers to be developed further in student development, teacher professionalism, teaching styles, student motivation and teacher personality as compared with those from other disciplines.

The current state of affairs of attributes of university teachers may reflect a 75% quality standard as perceived by university students.

Recommendations for Universities

The level of students rating of attributes of university teachers in terms of student development, teacher professionalism, teaching style, student motivation, and teacher personality is found to be high, not the highest and so is the reflection of quality in higher education. Universities need to develop their faculty up to the fullest level of students’ satisfaction to enhance the perceived quality in higher education up to 100%. For this purpose special initiatives may be taken to help faculty develop their listed attributes to realize the national higher education objectives.
Special emphasis should be given to the development of attributes of faculty of computer sciences & IT and commerce disciplines for the improvement of quality of teacher attributes in these disciplines.

Therefore, faculty development initiatives at university, departments, and individual teacher level are suggested to overcome all these problems.

References


