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Importance of university teacher behaviour in the faculty of health science

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RESEARCH

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ABSTRACT

Background

We describe the results from the questionnaire of Tuncel concerning the behaviour of university teachers, since university students believe they have influenced their academic achievement.

Aims

The objective of this study was to reveal which behaviours of university teachers were most appreciated by the students in the first year of the studies taught at the Faculty of Health Sciences of Universidad Rey Juan Carlos in Madrid (Degrees in Medicine, Nursing, Physiotherapy, Dentistry, Psychology and Occupational Therapy).

Methods

540 first-year students from the Health Sciences degree participated. An exploratory factor analysis of the items was performed and the internal consistency was studied using Cronbach's alpha.

Results

Students placed the most importance on the following areas: "Emotional aptitude of the university teacher", "University teacher-student interaction", "Achievement of teaching objectives", "Connection between the teaching of theory and practical components", "Organization and planning of teaching" and "Correct students and providing them with information on their progress and evolution". It should be noted that affective factors and the relationship and close interaction with students were the areas most demanded and valued by the students.

Conclusion

Making the teaching process more effective is an important goal of educational research. But few researchers take into account the point of view of the students and are primarily involved in determining the behaviour of university teachers. Therefore our aim in this study was to find out their opinions. We wanted to know which attitudes are the most valued by students of the Rey Juan Carlos University (Madrid, Spain) studying for degrees in the health sciences program. Once identified, we will be able to use this information to identify teaching strategies that could improve the minimum academic requirements of the university.

Key Words

University teacher behaviour, students, higher education, academic success, factor analysis

What this study adds:

1. What is known about this subject?

The performance of the university teacher is one of the

main factors that determine the success of student learning. They will learn more or less, according to such action.

2. What new information is offered in this study?

There is a permanent need to know what behaviours of university professors are considered by the health science students to have repercussions on their academic success.

3. What are the implications for research, policy, or practice?

The findings may help develop strategies that can assist teachers to better support the needs of the students and to help them to obtain better academic achievements.

Background

The European Credit Transfer and Accumulation System (ECTS), in the European Higher Education Area, require a change in university education. The European Association for Quality Assurance in Higher Education (ENQA) indicates that academic staff should use active modern methodologies from the perspective of a new social constructivist paradigm for student-centred teaching and learning.[1] The traditional role of the university teacher as an exponent and who impart knowledge becomes the role of the person who stimulates curiosity and motivation to participate in learning and guide in the educational process. The university teacher focuses not only on education, but also on what the student is expected to be capable of learning and doing, and how the student can demonstrate what has been learned at the end of the training program.[2] In this context, the new role of the student bestows greater participation and involvement in the learning process. The studies of Struyven, Dochy, Janssens and Gielen,[3] Wilson and Fowler[4] and Baeten, Kyndt, Struyven and Dochy[5] advocate implementing student-centred teaching methods. Therefore, it is essential to find out the opinion of students concerning the behaviour of university teachers: didactic innovations techniques and new teaching tools**.**

The academic performance of students is an indicator that allows us to delve into the educational reality of our universities, and constitutes a determining factor when it comes to addressing quality in Higher Education.[6-8]

However, there are various learning components included in this performance.[9] One of the components that, undoubtedly, significantly affects the academic achievement of students is the behaviour of the university teacher.[10] The idea that the university teacher is able to make a student achieve huge success or, on the contrary, fail academically, is disturbing. Therefore, a change in teaching strategies by university teachers within the European Higher Education Area (EHEA) is increasingly urgent nowadays. Thus, since the incorporation of the European Credit Transfer and Accumulation System (ECTS), emphasis has been on student-centred education, which associates the learning object with prior knowledge and integrates theory with practice.[11,12]

There are various studies advising that faculty should use active and modern student-centred methodologies.[1,13,14] .Although this has always been a contemporary issue, it is gaining importance at this point in time. Among other things, university teachers are responsible for introducing changes and aspects that control the atmosphere of the class, the quality of work and the orientation of student´s learning. A large portion of the success of educational policies and study programs rests in their hands. Darling-Hammond[15] stated that institutions have a slight influence on the performance of students, but a large part of that substantial difference depends on university teachers. Hence, the success or failure of the reform of study programs in the European Higher Education Area is in the hands of the university teachers.[13] University teachers are considered agents of socialization, whose behaviour has an effect on the motivation and performance of students and their relationship with or dependence upon the educational institution.[17]

In this context, the role of the university teachers as the exponent of content, who imparts knowledge and being the evaluator of that knowledge, evolving into a role in which the teacher stimulates curiosity and motivation to participate in learning and a guide in the educational process takes priority. The university teachers must not place attention solely on teaching, but also focus on what the student is expected to learn and do, and how the student is capable of demonstrating what has been learned at the end of the instruction program.[18] Such changes are influenced by new technologies and the constant technological advances in which we are immersed.[19-21]

Change should take place immediately, since the low academic performance of students, excessive time invested in studying for a qualification and abandonment of studies are common problems in many countries.[22] On the other hand, the current economic situation of many countries in the European Union has contributed to changes being made in universities, because public expenditure in education is not producing the desired outcomes.[23]

In this context of change, students have greater

participation and involvement in the learning process. The studies carried out by Struyven et al.[3] Wilson and Fowler[4] and Baeten et al.[5] advocate implementing student-based teaching methods. Thus, as Tunning[24] determines, it is necessary to implement active methodologies in classrooms.

Specifying and supervising the quality and quantity of the academic activities proposed or chosen in order to achieve the required learning and increase the chances of success involve both the university teachers and the university students.[25] On the other hand Tejedor and García-Valcárcel[26] point out that, when factors that may determine the low performance of university students are summed up, the following factors, inherent to the university teachers figure, stand out: 1. Pedagogic deficiencies (poor student motivation, lack of expository clarity, inadequate activities, bad use of didactic resources, inadequate assessment, etc.). 2. Lack of personalized treatment of students. 3. Lack of greater dedication to teaching tasks. Therefore, over the last twenty years, teaching efficacy has been measured using scores awarded by students, using scales, to the courses received or to their university teachers.[27,28]

Four decades ago, Bloom[29] affirmed that it is possible for up to 90 per cent of students to master the content of a subject, provided that the university teacher finds the means to make learning easy for each student, and that teaching style should respond to the individual needs of the students. To that effect, content should be clearly transmitted and be explained with examples as many times as necessary, using adequate time and strategies. For instance, it has been demonstrated that one of the most efficient ways to motivate students is by using praise as positive reinforcement[30] since there is no learning without motivation.[31-33] Also, allowing students to progress at their own place is beneficial to their final exam performance.[34]

There are certainly many investigations aimed at studying the factors affecting the academic performance of university students. They incorporate a great variety of possible determinants such as factors of personal nature (sex, age, socio-familial situation, intellectual aptitudes, etc.), academic factors (studies completed, prior performances, etc.) and pedagogic-type determinants (educational methodologies, assessment systems, etc.).[26,35,36] But there are few studies on the assessment of the factors determining academic results in the Spanish university environment.[37] Certain studies indicate that the students' opinion and point of view should be taken into account in order to achieve the greatest possible academic success.[38,39] By improving the university teacher's academic activities according to the students' needs, the probability of satisfactory academic performance by the students could be increased.

It is necessary to identify the variables that influence perception of university teacher behaviour, as considered by students as having an impact on their academic success. But to achieve all of this, it is necessary to use valid and reliable measuring instruments for the variables to be studied and for the population analysed. These must also take student opinion into account. All scales should be expressly validated with the intention of identifying the psychometric properties of a specific population and establishing the correlation between the items of which it is comprised.[40]

Starting with such an approach, the objective of this study was to reveal which behaviours of university teachers were most appreciated by the students in the first year of the studies taught at the Faculty of Health Sciences of Universidad Rey Juan Carlos in Madrid (Degrees in Medicine, Nursing, Physiotherapy and Occupational Therapy) using the tool developed by Tuncel.[41]

Method

Participants

A total of 540 first-year students from health-programs at one university were included.

The students surveyed were enrolled at Rey Juan Carlos University, established in 1996, which became the sixth public university in the region of the Community of Madrid (Spain). The establishment of this university was in response to a need for greater quality and for an expansion of university education in the region. This involved and provided an engine for the economic and social development of the southwest region of the community, which was an economically underdeveloped area.

Rey Juan Carlos University is conceived as a university with various "campus", each of them with one specialization. One campus is dedicated to Experimental Sciences and Technology, another specializes in Information and Telecommunication Sciences, a third campus is focused on Social and Legal Sciences, and, finally, the campus of Health Sciences, where the surveys took place. This latter campus includes the Nursing, Occupational Therapy, Physiotherapy, Psychology, Dentistry and Medicine programs. In order for the students to carry out their clinical practice, the campus is affiliated with four hospitals.

Instrument

The tool developed by Tuncel[41] has been used in order to determine which behaviours of university teachers are believed by students to be essential to their academic success. In that study, 100 students from the Universidad of Ankara (Turkey), in the 2004-2005 academic year, compiled lists of classroom behaviours by university teachers that they believed were crucial to their academic success. Based on the lists, investigators created their own list of 48 different types of behaviour by university teachers. This list of statements was given to students in the subsequent academic year (2005-2006) at the same university. This time, 220 students were asked to rate the behaviour that influenced their academic success, classifying them as "Important", "Moderately important" and "Not important at all". The mean age of the 55 women was 20 years, and the mean age of the 165 men was 23 years. The ages of all students were between 18 and 30. The overall mean age was 22.47.

Procedure

A translation was made of the questionnaire included in the article of Tuncel.[41] Then, the translation of the instrument was validated by a board of experts comprising four university teachers from two Spanish universities. In the procedure that followed, items which did not have an exact equivalence with the original were analysed by the investigating team and the translators until they found an adequate expression, accepted by consensus. Subsequently, bilingual individuals conducted an assessment of the degree of equivalence between the original and the Spanish version.

Finally, understanding of each item was assessed using a sample of 25 students.

Questionnaires containing a total of 48 items were finally administered collectively in each classroom in November 2015. It was specified, at all times, that the information obtained would be treated with absolute discretion, guaranteeing that participants would be kept anonymous. Students were not to indicate their names on any papers; otherwise, the survey would be dismissed. The instrument was completed in approximately 15 minutes in a single period of time. University students answered using a Likert-type scale. Each item was divided into three scores (1="Important", 2="Moderately important", 3="Not important at all").

A necessary sample size of 540 was estimated assuming the following 95 per cent confidence and a precision +/-4.2 percent units, 50 per cent of "Important" or "Moderately important" answers to dichotomous variables in the questionnaire.

The students were recruited using a class roster so as to access students studying all programs and classes.

Information was collected by a specially trained researcher. The researcher invited the students to participate in the classrooms after explaining the objectives of the study and guaranteeing the anonymity and confidentiality of the responses to the questionnaire.

It is important to take into account the fact that it is in this period in which the students have to deal with important adaptations such as the new behaviours of their university teachers.

Data analysis

First, an exploratory analysis of the items was performed using absolute and relative frequencies. Next, only items that achieved a high score from the students were taken into account, removing items that obtained a score less than 50 per cent, as these were considered to be of little informative value.

Subsequently, a factor analysis was performed of the components in order to identify the essential areas of behaviour according to the information obtained from students. Only items that made it through the first step were used. The Kaiser-Meyer-Olkin (KMO) test, an index to measure the appropriateness of the sample, and Bartlett's test of sphericity were used to determine whether data were adequate for factor analysis. The varimax rotation method was used to minimize the number of variables with high loading in one factor and to be able to interpret the factors more clearly. Cronbach's alpha was assessed to measure the degree of internal consistency or interrelationship between the items of the final questionnaire.

Results

The sample included 540 students, ages 18–52. A total of 26.1 per cent of them were men and 73.9 per cent were women.

Table 1 shows 21 of the 48 behaviours of university teachers that achieved 50 per cent of the "important" element, and, therefore, are rated highest by students. The items "Provide help willingly", "Listen attentively to student questions", "Treat students equally and fairly", and "Announce tests in

advance" were classified as "important" by more than 90 per cent of the students. The items "Give multiple choice test", "Review the lesson before starting class" and "Make time at the end of lessons for questions" were considered important by just over 50 per cent of the students.

The factor analysis of the main components resulted in a KMO score of 0.77. This indicates that the sample is adequate for analysis of the main components. Accordingly, the results obtained from the Bartlett's test of sphericity (p=0.000) indicated that the variables were correlated and, therefore, it was appropriate to perform factor analysis.

Next, Cronbach's coefficient alpha was calculated for the entire questionnaire. Its value was 0.76, which is a good value for internal consistency according to the recommendations of George and Mallery.[42]

In the present study, items were grouped by factor, which was not done in Tuncel's work.[41] Taking as a reference the works by Shulman,[43] Monereo,[44] Pérez Cabani,[45] Berk,[20] Knight,[46] Seldin[47] and Nancy van Note,[48] together with the 21 items that achieved more than 50 per cent of the "important" element, this gave six areas or factors (Table 2) with eigenvalues higher than 1 and a cumulative percentage of explained variance of 62.2 per cent. Factor 1: "Emotional aptitude of university teachers", which represented 12.68 per cent of the explained variance; followed by Factor 2: "university teacher-student interaction", which represented 11.54 per cent of the variance; and Factor 3: "Achievement of educational objectives", which demonstrated slightly more than 10 per cent of the variance. The other factors, Factor 4: "Theory-practice ratio", Factor 5: "Organization and planning" and Factor 6: "Feedback", did not demonstrate more than 10 per cent of the explained variance each, and these were also the factors that contained fewer items than the other factors.

Table 3 presents the corresponding factor score for each of the items grouped by factors. As can be observed, Factor 1 is the one with the greatest percentage of explained variance. The items "Listen attentively to student questions" and "Treat students equally and fairly" had the greatest saturation within the factor. In Factor 2, the item that is emphasized most is "Give constructive criticism", whereas the fact that the university teachers "Makes time at the end of lessons for questions" is less important. In Factor 3, students emphasized the item "Provide a break in classes two hours or more in length", although the four items that comprise this factor receive a very similar score. In Factor 4, the item "Relate teaching to career interests" stands out. In Factor 5, the greatest importance is given to the item "Set realistic deadlines for assignments". And, in Factor 6, the item "Give test examinations" predominates, with the item "Use the blackboard to teach" being of the lowest importance.

Discussion

The task of teaching alone does not ensure learning, since learning is something that takes place within the student and is conditioned by different individual variables of the students that cannot be changed by the university teacher.[21]

At university, the learning process must involve continued collaboration between university teacher and student in order for them to develop knowledge together. This fact means an educational change at the university and a commitment to shared learning that requires the active participation of both parties.

These are students who recently entered the university education system and are discovering innovative and novel didactic strategies in the classroom. These are aimed at learning and acquiring the knowledge required for each degree. In them, the student perceives how the globalization of learning is an immediate consequence of the transformations that are taking place, in which credits are not defined in terms of the hours of dedication of the university teachers, but in the activities and accomplishments of the students.

But it is also true that the didactic activity of the university teacher constitutes one of the primary factors in determining the success of the learning process undertaken by the student. The academic preparation of the university teachers does not necessarily make him or her a good university teacher. In the current context, universities require teachers who foster a true learning environment that consequently leads to greater satisfaction and motivation of both university teacher and students. It seems clear that the purpose and meaning of education goes hand in hand with successful learning. It has been postulated that the mission of a university teacher is to ensure that all students are able to achieve, with his or her help, optimal learning.[49]

In the current context of competitive higher education, special importance is placed on the figure of a motivated university teacher. In 2011, Glenn and Galan[50] demonstrated a positive correlation between the motivation of university teachers and their level of

commitment to the institution in which they work. This, in simple terms, means that students will learn more or less, depending on the way in which university teachers carry out their teaching work. In effect, the university teacher's commitment to the students helps them to learn.[51] Making the teaching process more effective is an important goal of educational research. But few researchers take into account the point of view of the students and are primarily involved in determining the behaviour of university teachers. Therefore our aim in this study was to find out their opinions. We wanted to know which attitudes are the most valued by students of the Rey Juan Carlos University (Madrid, Spain) studying for degrees in the health sciences program (Nursing, Occupational Therapy, Physiotherapy, Psychology, Dentistry and Medicine). For our study, we adapted the questionnaire proposed by Tuncel.[41] In a previous investigation conducted using the same methodology and characteristics, we analysed the aspects most valued by the students of Early Childhood Education Teaching and Primary Education Teaching degree programs of the Faculty of Education of the Albacete Campus of Castilla La Mancha University (Spain). But is well known that Health Science degrees make up a very particular area of study and have some special educational requirements; In general, these are students with a strong vocation and demand up-to-date knowledge and maximum dedication from the university teacher, who has high quality classes and the ability to convey his/her vocational character.

According to the results from surveys completed by Health Sciences students, the characteristic most valued by students is the emotional attitude of university teachers in class, which demonstrates their motivation and involvement in education.

With regard to the behaviours deemed of value by the students in the present study, these coincide with the study by Tuncel[41] and prioritize the following behaviours of university teachers: "Provide help willingly", "Listen attentively to student questions" and "Treat students equally and fairly".

In our study, students emphasized the fact that university teachers must "Relate teaching to career interests", thus demonstrating that in the case of a degree as practical as that of health sciences, knowing the contents of the curriculum is of primary interest. Galan, González and Román[8] show similar results in their study, in which they analysed the perception of university teachers regarding the aspects that motivate them in their work and the environment in which they perform their work (individual community).

Some authors have noted that in university education it is essential for university teachers to empathize with students.[53,54] This is demonstrated by the fact that students indicate that a university teacher who "Listens attentively to student questions" and "Treats students equally and fairly" is essential to their academic achievement. That means that the university teachers must have a bond with the students and show personal interest.[55]

In his work, Bailey[56] conducted a bibliographical review on the learning of languages in various studies of qualitative, quantitative, experimental and quasi-experimental natures. Emphasized is the importance of the treatment that the university teacher gives to his students in order to achieve ideal learning; the university teacher has to have good insight into his or her students, their problems, and their difficulties, and must be able to put himself or herself in the students' shoes, in short, reinforce empathy with them. Coinciding with Bailey,[56] in our investigation the affective factors of "Emotional aptitude of university teachers" and "University teacher-student interaction" were the areas most clearly valued by the students. It is also relevant for university teachers to have a good knowledge of course content, enthusiasm for the subject being taught and how to teach it, and take this into account in order to achieve the educational objectives.[39,57]

In the present study it was observed that students feel that the key to their academic progress is for the university teacher to be able to "Present information in a logical sequence" and "Provide a break in classes of two hours or more in length", in order to achieve the educational objectives established.

Darling-Hammond[15] stated that educational institutions can have some influence on the performance of students, and a substantial portion of that difference is attributable to university teachers. The results of this study are expected to help improve the academic performance of students. Shulman[58] and Abell[59] state that university teachers evolve with time and grow with experience. As a consequence, student learning in classrooms improves.

Different investigations reveal that one of the keys to the teaching process is the way the university teacher treats the students, such as feeling empathy, being concerned about how they learn, showing interest in the learning environment that surrounds the students, or being concerned about their emotional state. Therefore, the

effectiveness of education is determined by the action of the university teacher towards his or her students. These university teacher characteristics can have effects on the students, and the university teacher must act in accordance; he or she must be conscious of the needs of the students.

Therefore, evaluation of educational effectiveness must include aspects of diverse areas such as the behaviour domain, the affective domain and the cognitive aspect. A university teacher evolves with time and experience and student learning improves as the university teacher grows.

Our study helps teaching professionals to acquire the appropriate qualities more quickly, improving student learning. By knowing what students think and need, this method can help them make decisions quickly and reduce the time that this process would take if it were based on grades alone.

Therefore, the present study is expected to enable university teacher to achieve this professional growth sooner, to the benefit of the students they have in their classrooms.

The results of our study[52] fully coincide with the ones obtained from the students from the health sciences degree programs, despite the differences previously mentioned.

Equally, the results are also consistent with the key paragraphs of Tuncel.[41] The points on which we differ are due to the fact that we have studied very defined and specific areas of knowledge, in our case first-year students in various health science degree programs, whereas the Tuncel investigation was conducted using students from the University of Ankara (Turkey) without taking into account either the program or the degree that they were studying; therefore, although he worked with a very large population, it was also a very heterogeneous population.

Furthermore, this study will enable university teachers at the Health Sciences campus of the XXX University in Madrid (Spain) to perform a follow-up on various graduating classes of students and compare the results when the instrument is used again, in order to detect any shortcomings in any of the factors or items that impact the academic performance of students.

Conclusion

1. The learning process must involve continued collaboration between university teacher and students in order for them to develop knowledge together.
2. This article describes the results from the questionnaire described by Tuncel[41] concerning the behaviour of university teachers. This questionnaire helps us to find out helping which attitudes are the most valued by students
3. The characteristic most valued by students is the emotional attitude of university teachers in class, which demonstrates their motivation and involvement in education
4. The results of our study could help teaching professionals to acquire the appropriate qualities more quickly, improving student learning.

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ETHICS COMMITTEE APPROVAL

Ethics Committee in Research, Rey Juan Carlos University (Madrid, Spain).

Table 1: This table shows the effective behaviours of teachers that were most valued by students, that is, those behaviours that were considered to be "important" by at least 50 per cent of the students for their education at university

	Important		Moderately important		Not important at all	
	N	Percentage %	N	Percentage %	N	Percentage %
1. Provide help willingly	490	90.91	49	9.09	0	0
2. Listen attentively to student questions	514	95.19	25	4.63	1	0.19
3. Treat students equally and fairly	524	97.04	13	2.41	3	0.56
4. Set realistic deadlines for assignments	424	78.52	112	20.74	4	0.74
5. Present information in a logical sequence	479	88.87	60	11.13	0	0
6. Give objective exams	452	83.7	85	15.74	3	0.56
7. Announce tests in advance	505	93.69	33	6.12	1	0.19
8. Use transparencies to teach	273	50.74	224	41.64	41	7.62
9. Be professional in speech and actions	441	81.67	97	17.96	2	0.37
11. Make time at the end of lessons for questions	286	52.96	215	39.81	39	7.22
13. Give constructive criticism	318	58.89	193	35.74	29	5.37
14. Empathize with students	421	77.96	104	19.26	15	2.78
15. Require students to use adequate language in class, when they speak or write	335	62.27	171	31.78	32	5.95
16. Grade exams and give the marks to students as soon as possible	420	77.78	99	18.33	21	3.89
17. Offer words of encouragement	468	86.67	59	10.93	13	2.41
20. Relate teaching to career interests	485	89.81	43	7.96	12	2.22
23. Provide a break in a two-hour or longer class	324	60.45	136	25.37	76	14.18
24. Use real World examples in teaching	462	85.56	71	13.15	7	1.3
29. Review the lesson before teaching	277	51.3	213	39.44	50	9.26
33. Use the blackboard to teach	388	71.85	131	24.26	21	3.89
36. Do test examinations	292	54.07	194	35.93	54	10

Table 2: The table shows the eigenvalues and percentages of variance explained. Those eigenvalues greater than one were selected to determine the number of emerging factors, which were identified as:

	No. of items included in each factor	Eigenvalues	Per cent Variance %	Per cent Cumulative variance
Factor 1: Emotional aptitude of teachers	4	2.122	12.68	12.68
Factor 2: Teacher-student interaction	4	1.918	11.54	24.22
Factor 3: Achievement of instruction objectives	4	1.76	10.57	34.79
Factor 4: Theory-practice ratio	3	1.66	9.97	44.76
Factor 5: Organization and planning	3	1.513	9.02	53.76
Factor 6: Feedback	3	1.42	8.44	62.22
Total	21			

Table 3: This table shows factorial scores of each factor's items

Effective teacher behaviours	Score
Factor 1: Emotional aptitude of teachers	
1. Provide help willingly	0.465
2. Listen attentively to student questions	0.730
3. Treat students equally and fairly	0.710
17. Offer words of encouragement	0.500
Factor 2: Teacher-student interaction	
11. Make time at the end of lessons for questions	0.457
13. Give constructive criticism	0.672
14. Empathize with students	0.587
15. Require students to use adequate language in class, when they speak or write	0.645
Factor 3: Achievement of instruction objectives	
5. Present information in a logical sequence	0.595
6. Give objective exams	0.501
16. Grade exams and give the marks to students as soon as possible	0.510
23. Provide a break in a two-hour or longer class	0.636
Factor 4: Theory-practice ratio	
9. Be professional in speech and actions	0.479
20. Relate teaching to career interests	0.804
24. Use real world examples in teaching	0.562
Factor 5: Organization and planning	
4. Set realistic deadlines for assignments	0.694
7. Announce tests in advance	0.635
8. Use transparencies to teach	0.570
Factor 6: Feedback	
29. Review the lesson before teaching	0.659
33. Use the blackboard to teach	0.443
36. Do test examinations	0.753