# DETERMINANTS OF SERVICE QUALITY IN HIGHER EDUCATION

Legčević Jelena Faculty of Law Josip Juraj Strossmayer University in Osijek

### ABSTRACT

The purpose of the study is to report on an in-depth exploration of service quality in a higher education and to evaluate the relative efficacy of two measuring instruments of service quality (namely Higher Education PERF-ormance (HEd-PERF) and SERVPERF within a higher education setting. After a pilot test, data were collected from 1494 students at University J.J.Strossmayer and were subjected to factor analysis. Results indicate that student's perceptions of service quality are changing over the period of study, class attendance and faculty achievement. Students on the last years of study, good attendance record and better grades are satisfied with service quality of higher education. A principal component analysis was carried out on the total sample, and yielded with another factor structure than the authors suggested. Further research is required to consider the experience of lecturers in relation to delivering service quality has been highlighted as a vital aspect in achieving a high-quality service. Research is needed to be extended at graduate students with working experiences who are much more objective in theirs evaluations of the importance of service quality in higher education.

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*Key words:* service quality, tools for measuring service quality in higher education, education, measurement, university, statistical analysis

#### **1. INTRODUCTION**

The role of service quality in higher education has received increasing attention during the last two decades. Higher education institutions should ensure that all services encounters are managed to enhance consumer perceived quality. While there is a consensus on the importance of service quality issues in higher education, the identification and implementation of the right measurement instrument is a challenge that practitioners who aim to gain a better understanding of the quality issues with an impact on students' experiences face. In fact, the use of the most appropriate measurement tool would help managers to assess service quality provided by their institutions, thus having the ability to use the results to better design service delivery. A review of the literature reveals that the most popular scales used to measure service quality are SERVQUAL – Service Quality (Parasuraman *et al.*, 1988) and SERVPERF – Service Performance (Cronin & Taylor, 1992). However, additional dimensions that emanate from the higher education could be included, as in the case of HEdPERP – Higher Education Performance scale (Firdaus, 2006a).

#### 2. SERVICE QUALITY MEASUREMENT IN HIGHER EDUCATION

A survey of the services marketing literature reveals two main approaches to measure service quality: SERVQUAL (Parasuraman et al., 1988) and SERVPERF (Cronin & Taylor, 1992). One of the most popular methods, called SERVQUAL, has its theoretical foundations in the gaps model and defines service quality in terms of the difference between customer expectations and performance perceptions on a number of 22 items. Customer expectations are "beliefs about service delivery that serve as standards or reference points against which performance is judged", whereas customer perceptions are "subjective assessments of actual services experiments" through interaction with the providers (Zeithaml et al., 2006). The SERVQUAL instrument, "despite criticisms by a variety of authors, still seems to be the most practical model for the measurement of service quality available in the literature" and thus expectations should be considered when assessing service quality in higher education (Cuthbert, 1996b; Legčević, 2008; Legčević et al 2006). Regarding the stability of expectations and perceptions of service quality over time, in the scope of HE, it was empirically concluded that student's perceptions of service experienced proved less stable over time than expectations (Hill, 1995). Due to the perceived shortcomings in the SERVQUAL approach both at the conceptual and operational levels (see Butle, 1996, for a review) a performance-based approach to measure service quality called SERVPERF was introduced. SERVPERF is a variant of the SERVQUAL scale, being based on the perception component alone. Other study also concluded that SERVPERF explained more of the variance in an overall measure of service quality than SERVQUAL (Cronin & Taylor, 1994). Likewise, Boulding et al. (1993) reject the value of an expectation-based SERVQUAL, and concur that service quality is only influenced by perceptions. Quester et al. (1995) perform similar analysis to Cronin and Taylor in the Australian advertising industry, and their empirical tests show that SERVPERF perform best, while SERVQUAL perform worst, alhough the differences are small.

More recently, a new industry-scale, called HEdPERF (Higher Education Performance) it was developed comprising a set of 41 items (Firdaus, 2006a). This instrument aims at considering not only the academic components, but also aspects of the total service environment as experienced by the student. The author identified five dimensions of the service quality concept: *(i)* Non-academic aspects: items that are essential to enable students to fulfil their study obligations, and relate to duties carried out by non-academic staff; *(ii)* Academic aspects: responsibilities of academics, *(iii)* Reputation: importance of higher learning institutions in projecting a professional image; *(iv)* Access: includes issues as approachability, ease of contact, availability and convenience; *(v)* Programme issues: importance of offering a wide ranging and reputable academic programmes/specializations with flexible structure and health services. The SERVPERF and HedPERF scales were compared in terms of reliability and validity and concluded for the superiority of the new purposed measurement instrument (Firdaus, 2006a).

# **3. RESEARCH METHODOLOGY**

### 3.1 Research objectives

The primary goal of this research is to assess the perception of the service quality in higher education at the University of Osijek on the sample of students with the existing instruments SERVPERF (Cronin and Taylor, 1992)) and HEdPERF (Firdaus, 2006a).

According to the primary goal, the main problem of this research is to:

- 1. Verify the factor structure and reliability of the instruments SERVPERF (Cronin and Taylor, 1992) and HEdPERF (Firdaus, 2006a) on the sample of the students at the University.
- 2. Verify the statistical difference concerning the year of study, class attendance and final grade on the dimensions of both instruments SERVPERF (Cronin and Taylor, 1992) and HEdPERF (2006a).

Since the goal of this research is not only to examine the perception of the quality of higher education, but also to find the best ways of measuring quality, it is useful to check the perception of the students who have better grades instead of the students with lower grades, or to check the students perception who rarely fail their classes instead of those who often fail classes.

#### Hypotheses:

- H1: It is assumed that SERVPERF and HEdPERF instruments applied to the student sample reflect the structure that is suggested by the authors.
- H2: It is assumed that perception differences of quality exist among the students according to their grades.
- H3: It is assumed that students who often attend classes (50%-75%) assess the quality with higher grades.

#### 3.2 Research design

Data were collected by means of a structured questionnaire comprising of three sections. First section contained eight questions pertaining to student respondent profile. While second and third sections required students to evaluate the service components of their tertiary institutions, in which only perceptions data were collected and analyzed. Specifically, second section consisted of 22 perceptions items extracted from the original SERVPRF scale (Cronin and Taylor, 1992), and modified to fit into higher education context.

Third section on the other hand is composed of 41 items extracted from the original HEdPERF (Firdaus, 2006a), a scale uniquely developed to embrace different aspects of tertiary institutions service offering. As the items were generated and validated within higher education context, no modification was required. All the items in second and third sections were presented as statements on the questionnaire, with the same rating scale used throughout, and measured on a 5-point, Likert-type scale that varied from 1=strongly disagree to 5= strongly agree.

Data were collected from students of eight higher learning institutions in Osijek (Croatia) from the period between October and December 2009. Data has been collected using the 'personal-contact' approach as suggested by Sureshchandar et al. (2002) whereby 'contact persons' (registrar or assistant registrar) have been approached personally, and the survey explained in detail. A total of 1 750 question-

naires were distributed to eight tertiary institutions, of these 1450 were returned and four discarded due to the incomplete responses, thus leading to the response rate of 85,37 per cent. The number of usable sample size of 1494 for the population 12 000 students in Osijek tertiary institutions was in line with the generalized scientific guideline for sample size decisions as proposed by Kjercie and Morgan (1970.)

#### 4. RESULTS AND DISCUSSION

The first step in the analyses was to check the factor structure and the reliability of the SERVPERF (Cronin and Taylor, 1992) and HEdPERF (Firadus, 2006a) questionnaires. The factor analysis resulted in a somewhat different factor structure than is suggested by the authors. In other words, 4 interpretable factors were extracted with characteristic roots (*Eigen-values*) above 1 in contrast to the original 5 values. As it is apparent in Table I, the first factor includes particles 18 to 21 which correspond with the original dimension of empathy. Beside the mentioned particles, the first factor also includes particle 14 ("The behavior of the teaching staff gives the students a feeling of confidence"). It is possible that the types of behavior and characteristics of the faculty staff which are described by particles 18 to 21 are also giving the students a feeling of confidence. Therefore, particle 14 had saturation in factor 1. The second factor includes particles 1, 2, 4, and 22 and matches to the fullest extent the original dimension of tangibility which refers to the physical characteristics such as the education equipment and the appearance of the faculty. Particle 3 ("The teaching staff is dressed adequately.") did not have saturation in this factor which is understandable because it reflects the physical appearance of the staff and not the faculty. Particle 22 had a significant saturation in the second factor which can be explained with the fact that the working hours of the faculty are also a question of physical availability of the equipment and other resources and is therefore connected to this factor. The third factor includes particles 5 to 11, from which 5 to 9 correspond with the original dimension of reliability while particles 10 and 11 were originally intended to measure the dimension of identifying. However, because of their content (10- "The faculty insures the students accurate and timely information..." and 11 – "The teaching staff gives the students required services on time.") It is not surprising that they had the meaning of reliability to the students and are therefore in the third factor.

The fourth factor includes particles which correspond with the original factor of "Competence and confidence"(15, 16, 17), except particle 14 which had saturation in the first factor. Except the mentioned particles, this factor also includes particle 3 which can be explained with the fact that the physical appearance of the teaching staff contributes to the impression of professionalism and competence that they leave on the students. Particles 12 and 13 have also shown the factor saturation in this factor although they were originally intended to measure the dimension of identifying. Nonetheless, the questions "The teaching staff of the faculty is ready to help the students." or "The teaching staff of the faculty always finds time to answer the questions of the students." can also reflect the opinion of the students about the competence of the staff and in this way instill trust into their competence.

Although it has become apparent that the factor structure of the SERVPERF questionnaire is somewhat different than it is suggested by the authors, it preserves the statistically significant and interpretable factors which show that the questionnaire was applied on our samples. This is also confirmed by the analysis of reliability which has shown that the majority of particles had a correlation with the overall result above .50 and the Cronbach Alpha reliability indicators were also satisfactory (Table I).

In order to check the factor structure of the HEdPERF questionnaire a factor analysis of the main components with the Oblimin rotation was conducted. The Oblimin rotation was used for the same reasons as with the factor analysis of the SERVPERF questionnaire (Table II).

The factor analysis resulted in the extraction of 7 factors which characteristic roots were above 1. However, such factor structure was not interpretable since many particles had saturation in more than one factor and 3 factors included one or two particles. It was then decided, on the basis of a Cattel scree test, to conduct a factor analysis of the main components with the Oblimin rotation with a restriction on 3 factors which resulted in an interpretable factor solution.

The first factor includes most particles that were originally intended to measure the "non-academic aspects" dimension (particles 9-18). Except these, the first factor includes particles 31, 32, 34 and 36-41 which were originally intended to measure the dimension of empathy. Therefore, the first factor describes the characteristics of the faculty in the sense of teaching equipment, the adequacy of the conditions for teaching, quality of the program, the ability to contact the teaching staff and receive return information, health care services, freedom etc. The second factor includes particles 21 to 30 which correspond to the original dimension of reliability and describe the functioning and the behavior of the administrative services and staff.

The third factor describes the behavior, skills, competence, respect and discretion of the teaching staff and corresponds with the original dimension of "academic aspect". The third factor also includes particles 19, 33, 35 which originally belong to the factors of facility and reliability. However, the following questions can also represent the opinion of the students about knowledge, experience and respect of the academic staff: "The academic staff is highly educated and has the required knowledge...", "The staff of the faculty treats all students the same and with respect"and "The faculty staff handles data concerning you with discretion....".

The same as it was in the case of the SERVPERF questionnaire, the factor structure is different from the one that is suggested by the authors. It seems that the students differentiate between the functioning of the faculty as an institution, the academic and non-academic staff when describing the quality. This lies at the basis of the three factors structure of the HEdPERF questionnaire.

One way analyses of the variance were calculated in order to answer to the second problem of the research i.e. to check if the results differ statistically significant in the individual dimensions of the SERVPERF and HEdPERF when concerning the year of study, class attendance and achieved results in the course (Table III).

The F ratios only indicate a statistically significant difference in the results between groups of students but do not say between which groups we have a statistically significant difference. In order to extract this information it is necessary to conduct post hoc analyses.

For the variable year of study, Tuckey's HSD has shown that the results in individual factors, when concerning the year of study, are different in the following way:

*Empathy* (*SERVPERF-1*) – is significantly higher with students of the first year than with students of the third and fourth year, but the results of the students of the third year are significantly lower than those of fifth year students.

**Tangibility** (SERVPERF-2) – first year students have lower test results than third year students but higher than fourth year students. It also became apparent that the third year had higher results than the second and fourth which suggests that the third year students have the highest perception of quality (an aspect which

is measured by the factor "perceptibility) and that the fourth year students have the lowest.

**Reliability** (SERVPERF-3) – students of the first year have significantly higher estimates than second, third, fourth and fifth year students. The second year has higher estimates than the fourth.

*Competence and confidence* (SERVPERF-4) – students of the first year have higher estimates than third and fourth year students. Second year students have higher estimates than fourth year students.

*Non-academic aspect* (HEdPERF-1) – it was shown that the first year students have a significantly higher estimate of faculty work quality than the second and fourth year students. The results have also shown that the second and third year estimates are significantly higher than fourth year. In other words, the fourth year shows the lowest estimates of this dimension.

**Academic aspect** (HEdPERF-3) – there is a statistically significant difference between the first, third and fourth year with the first having the highest estimates. The difference is also significant between the second, third and fourth year with the second having the highest estimates. To be more precise, the first and second year have a significantly higher estimate of teaching staff work quality than the third and fourth year.

The results in the individual dimensions of the SERVPERF and HEdPERF questionnaires indicate that the lower (mostly the first year) years consistently express higher estimates of higher education quality in all aspects. A possible explanation of the results lies in the fact that the research was conducted in the winter semester and it was impossible for students of the first year, who have just started to attend classes, to create a complete picture of the work of the faculty, the administrative services and academic staff. Since they are between 18 and 19 years of age, it is possible that in such a short period of time they use services which are available to them more frequently and come into contact with the staff more, whereas students of higher years have more obligations and find college more demanding and because of that estimate the quality not as high. Another possible reason for the consistently lower quality estimates by fourth year students is that this is the first generation of students which enrolled in the master's degree program. It is possible that amid of all the changes that have taken place when the Bologna process was introduced, students as well as the academic and non-academic staff had difficulties

in performing certain tasks and it is therefore possible that certain aspects of higher education quality are graded lower.

It is useful to point out that the variance analyses of the HEdPERF questionnaire have shown significant differences in the 1. and 3. factor bur not in the 2. which describes reliability. Students of different years estimate the faculty and staff work quality differently but have similar estimates when it comes to the reliability of the faculty and its employees (Table IV).

Statistically significant differences were determined in all factors between students who attend classes in different percentages. For the class attendance variable Tuckey's HSD test has shown that the results in individual factors, when concerning class attendance, are different in the following way:

*Empathy* (SERVPERF-1) – students who attend more than 75% of the classes have the highest results. Significantly higher than all other groups (up to 25%, 25-50% and 50-75%).

*Tangibility* (SERVPERF-2) – students who attend 50-75% of the classes have significantly higher estimates than those who attend less than 25% of the classes.

*Reliability* (SERVPERF-3) – students who attend less than 25% of the classes have significantly lower estimates than the students who attend 50-75% and those who attend more than 75% of the classes.

*Competence and confidence* (SERVPERF-4) – the students who attend more than 75% of the classes have the highest results, significantly higher than the other groups (up to 25%, 25-50% and 50-75%).

*Non-academic aspect* (HEdPERF-1) – those who attend less than 25% of the classes have significantly lower estimates of faculty work quality than all the other groups (25-50%, 50-75% and over 75%).

**Reliability** (HEdPERF-2) – students who attend less than 25% of classes have significantly lower estimates than all the other groups (25-50%, 50-75% and over 75%). In addition, students who attend 25-50% of the classes have significantly lower estimates in contrast to the students who attend more than 75% of the classes. This difference was not apparent when comparing students with 50-75% and over 75% attendance. It is possible that the students who have low attendance also estimate the reliability of the faculty and its employees as low. Those who attend

50-75% and more than that do not differ simply because there is no difference in the way they view the faculty at which they study.

*Academic aspect* (HEdPERF-3) – students who attend more than 75% of the classes estimate the quality of the teaching staff significantly higher than the other groups (up to 25%, 25-50% and 50-75%).

When taken all in account, we see that the students with high class attendance consistently give higher estimates of the quality of higher education in all its aspects, higher than the students with lower class attendance.

It is also apparent that group 1 (up to 25%) has lower estimates than the other groups and that group 4 (more than 75%) has higher estimates than the other groups but there are no significant differences between the groups 3 (50-75%) and 4 (more than 75%). These results are not surprising because students who attend classes more often are able to give a more realistic estimate of the quality of educational services (Table V).

For the grade variable, Tuckey's HSD test has shown that the results in individual factors concerning grades differ in the following way:

*Empathy* (SERVPERF-1) – Students who dominantly achieve grade E give significantly lower estimates than those who achieve A or B grades.

*Reliability* (SERVPERF-2) – students who dominantly achieve grades A and B give significantly higher estimates than those with the grades D or E.

*Competence and confidence* (SERVPERF-4) – those who mostly get the grade E give significantly lower estimates than those with the grades A or B.

*Non-academic aspect* (HEdPERF-1) – students who achieve grades E or D and those with the grade C give significantly lower estimates than those with the grade A.

*Reliability* (HEdPERF-2) – those who mostly achieve grade E give lower estimates of the reliability of the faculty and its employees in contrast to those who achieve the grades A and B.

*Academic staff* (HEdPERF-3) – students who mostly get grade E give lower estimates of the work of the teaching staff than those who get other grades. Those who mostly achieve the grade C give lower estimates than those with the grades A or B. A or B do not differ significantly.

The better grades the students get, the better is their estimate of the quality of higher education, better than those with lower grades.

The differences in quality estimates, when taking the grades of students into account, need to be interpreted with caution. It can't be claimed with certainty how subjective these estimates are, in the sense that students who get higher grades are generally more satisfied with the faculty and college education and thus give higher quality estimates than the students with lower grades. In addition to that, it is possible that other factors, such as working habits and the student's sense of responsibility for their own education etc., are at work in the relationship between the perception of quality and grades. If a student has developed working habits and is of the opinion that a large amount of the responsibility for his education lies on him, it is justified to assume that the he will give better grades for the quality of the work of the faculty. On the other hand, it is possible that students who do not have developed working habits and achieve lower grades also do not have a sense of their own responsibility and may think that the faculty and its staff are responsible for their own misdoings and therefore give lower estimates of the quality of education.

#### 5. CONCLUSION

The main problems of this research were twofold. First to verify the factor structure and reliability of the instruments SERVPERF and HEdPERF on the sample of the students at the University of Osijek in Croatia. Second to verify the statistically difference concerning to the year of the study, class attendance and final grade on the dimensions of the both instruments. First hypothesis was rejected because the factor structures in both questionnaires are different than author suggested. Although it has become apparent that the factor structure of the both questionnaires (SERVPERF and HEdPERF) is somewhat different than it is suggested by the authors, it preserves the statistically significant and interpretable factors which show that the questionnaires was applied on our samples. This is also confirmed by the analysis of reliability (SERVPERF and HEdPERF) which has shown that the majority of particles had a correlation with the overall result above .50 and the Cronbach Alpha reliability indicators were also satisfactory. One way analyses of the variance were calculated in order to answer to the second problem of the research i.e. to check if the results differ statistically significant in the individual dimensions of the SERVPERF and HEdPERF when concerning the year of study, class attendance

and achieved results in the course. The results in the individual dimensions of the SERVPERF and HEdPERF questionnaires indicate that the lower (mostly the first year) years consistently express higher estimates of higher education quality in all aspects. Students of different years estimate the faculty and staff work quality differently but have similar estimates when it comes to the reliability of the faculty and its employees.

Another part of the results concerning class attendence are not surprising; students who attend classes more often are able to give a more realistic estimate of the quality of educational services. The final part in students estimations is the better grades the students get, the better is their estimate of the quality of higher education, better than those with lower grades. The differences in quality estimates, when taking the grades of students into account, need to be interpreted with caution. Given that the current study is limited to one service industry, this assertation would need to be validated by future research. Future studies should apply the measuring instruments in other countries and with different types of tertiary educations in order to test whether the results obtained are general and consistent across different samples.

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4			
PARTICLE	FACTOR SATURATION						
20	,824						
19	,773						
21	,671						
18	,525						
14	,446			,339			
1		,841					
4		,788					
2		,733					
22		,303					
			-,752				
			-,728				
			-,692				
8			-,662				
			-,598				
			-,551				
			-,488				
			-,728				
			-,692				
10			-,662				
10			-,598				
			-,551				
			-,488				
11			-,692				
5			-,662				
7			-,598				
9			-,551				
6	,488		-,488				
3				,604			
17				,510			
16	,442			,460			
13	,328			,419			
12	,328			,396			
15	,387			,684			
Cronbach Alpha	,80	,70	,84	,83			

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	FACTOR 1	FACTOR 2	FACTOR 3				
PARTICLE	FACTOR SATURATION						
c11	,620						
c17	,571						
c16	,568						
c15	,547						
c18	,546						
с39	,541						
с38	,524						
c10	,521						
с34	,519						
c12	,496						
c41	,492						
с9	,483						
с37	,472						
c40	,467						
c13	,467						
c36	,428						
c31	,400	-,327					
с32	,375						
с14	,316						
c29		-,886					
c28		-,870					
c22		-,827					
c24		-,799					
c26		-,777					
c21		-,776					
c25		-,730					
c30		-,720					
c27		-,717					
c23		-,602					
c2			-,785				
с5			-,774				
c4			-,761				
c1			-,701				

Table II-Results of factor analysis on the HEdPERF questionnaire

сЗ			-,679
сб			-,622
с7			-,600
с8			-,599
c19			-,540
c20			-,429
с33		-,315	-,413
c35	,331		-,333
Cronbach Alpha	,88	,93	,88

**Table III** — Results of one-way analysis of variance for factors `empathy` (SERVPERF-1), `tangibility` (SERVPERF-2), `reliability` (SEVPERF-3), `competence and assurance` (SERVPERF — 3), `non-academic aspect` (HEdPERF-1), `reliability` (HEdPERF-2), `academic aspects` (HEdPERF-3) concernining the year of study

	YEAR OF STUDY						
FACTOR	1	2	3	4	5	F	р
SERPERF-1	15,0000	14,6365	13,8824	14,0882	16,0000	4,941	,001
SERPERF-2	13,1285	12,5020	14,8227	12,1914	13,1667	28,815	,000
SERPERF-3	24,9070	23,0158	22,5505	21,7260	21,8214	17,574	,000
SERPERF-4	22,2794	21,9448	21,1606	20,7294	21,2500	8,073	,000
HEdPERF-1	65,4053	62,0477	63,2222	58,3204	60,7692	17,307	,000
HEdPERF-2	29,5863	29,9559	29,1620	30,4600	30,0000	,922	,450
HEdPERF-3	43,6502	42,6747	40,9393	40,4630	43,3704	10,477	,000

**Table IV** - Results of one-way analysis of variance for factors 'empathy' (SERVPERF-1), 'tangibility' (SERVPERF-2), 'reliability' (SEVPERF-3), 'competence and assurance' (SERVPERF – 3), 'nonacademic aspect' (HEdPERF-1), 'reliability' (HEdPERF-2), 'academic aspects' (HEdPERF-3) concerning class attendance

	CLASS ATTENDANCE					
FACTOR	do 25%	25-50%	50-75%	preko 75%	F	р
	MEAN					
SERPERF-1	12,8113	13,5906	14,1894	14,9221	13,900	,000
SERPERF-2	12,2411	12,9211	13,2301	12,8152	2,926	,033
SERPERF-3	20,3761	21,8986	22,7983	23,4204	14,500	,000
SERPERF-4	19,0094	20,7568	21,2746	22,0737	21,417	,000
HEdPERF-1	57,9479	62,0205	61,6869	62,0153	3,821	,010
HEdPERF-2	26,4074	28,4898	29,4971	30,8254	10,683	,000
HEdPERF-3	37,7850	39,9932	41,1014	43,1523	25,116	,000

Table V - Results of one-way analysis of variance for factors `empathy` (SERVPERF-1), `tangibility` (SERVPERF-2), `reliability` (SEVPERF-3), `competence and assurance` (SERVPERF – 3), `non-academic aspect` (HEdPERF-1), `reliability` (HEdPERF-2), `academic aspects` (HEdPERF-3) concerning the grade

	GRADE					
FACTOR	D	С	В	А	F	р
		ME				
SERPERF-1	13,7300	14,3679	14,7778	14,8125	4,103	,007
SERPERF-2	13,0383	12,8273	12,8949	12,7550	,345	,792
SERPERF-3	21,9099	22,3758	23,3426	23,9605	9,515	,000
SERPERF-4	20,7533	21,3082	21,9597	21,9918	5,213	,001
HEdPERF-1	60,5160	61,0391	61,8608	63,3000	2,922	,033
HEdPERF-2	28,4292	30,3665	30,5765	29,7368	3,235	,022
HEdPERF-3	39,9043	41,5660	42,9919	42,9834	9,794	,000

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