THE DEVELOPMENT AND VALIDATION OF INSTRUMENT OF TEACHERS'WORKLOAD

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ABSTRACT
The purpose of this study is to test the instrument containing the main factors associated with the list of the teachers' tasks in order to measure and determine their workload. The respondents consisted of 185 teachers in the secondary schools in Selangor, Malacca and Sabah. The measuring tool used and produced was presented by Abdull, Rahim and Mohamad (2006) and the Ministry of Education (2007). The exploratory factor analysis carried out produced three major components of teachers' workload. These components include curriculum, students' affairs and co-curricular. The result shows that the coefficient of reliability for the workload questionnaire used is 0.933.

Keywords: teachers, workload, curriculum, students' affairs, co-curricular, exploratory factor analysis

1.0 INTRODUCTION
The main goal of the education system today is to ensure the success of students in terms of physical, emotional, spiritual, intellectual, and personality. However, many teachers today are confronted with high workload due to policy changes previously (Ballet & Kelchtermans, 2009). The demands that cause the workload come from either the policymakers, school administrators, parents, community or even from the students themselves.

Workload is the main pressure which is found to have a positive correlation with emotional exhaustion among many jobs including teachers (Lin et al., 2009; Greenglass, Burke, & Moore, 2003; Houkes, Janssen, de Jonge, & Nijhuis, 2001). For teachers, this kind of work pressure can lead to low morale, reduce the effectiveness, high absenteeism, and reduce the commitment to the profession (Klassen et al., 2012).

Daigle (2009) believes that the pressure of these work demands, particularly the workload will prevent personal growth and achievements of the employees. This pressure can induce the

occurrence of burnout and reduce the commitment to work as the workload increased and unregulated (Bakker et al., 2003; Schaufeli et al., 2009).

Therefore, this study aims to validate the constructs of perceptions that have been identified on teachers' workload. In particular, this study is to determine the structure of the factors of the teachers' perceptions on workload by using exploratory factor analysis.

2.0 TEACHERS' WORKLOAD

In the education field, Naylor and Schaefer (2001) reported that levels of teachers' workload have increased in recent years and they are found to be higher compared to other professions (Peters, 2012). The increase in workload has affected and put the pressure on job satisfaction of the teachers (Smith & Bourke, 1992; Timms, Graham, & Cottrell, 2007). Nkweke & Dollah (2011) observed that teachers' workload as the works of academic teachings and administration delegated to teachers to achieve the goals and objectives outlined by the schools. This statement supports the view of Domenico and Nussbaum (2008) who stated that the workload is determined by the relationship between the demands of the tasks, the perception towards the situation of the implementers of the tasks, actions, skills and knowledge of the individuals in performing the tasks. These task demands include physical actions, cognitive tasks and other factors.

According to Torres, Ulmer and Aschenbrener (2008), teachers are always faced with various tasks, roles and responsibilities that must be performed every day. A study conducted by Butt and Lance (2005) on the secondary school teachers found that the burden of non-academic tasks like filling the data, collecting fees and clerical works are the works that are most frequently performed. A study conducted by Abdull et al. (2006) also found that apart from teaching, teachers are also burdened with clerical duties and works related to the co-curricular such as the advisor or coach of the co-curricular. This shows that although the primary task of the teachers is to teach, but a lot of their time is allocated to non-academic tasks (Abdull et al., 2006).

Teachers are also often seen taking home their tasks to be completed and faced with high expectations by the schools (Butt & Lance, 2005). This means that the teachers' workload is seen as the number of tasks that require the more time allocated to finish off their works (Ekanem, 2012). The increase in workload is giving much significant impact to the jobs as teachers (Ballet & Kelchtermans, 2008). Although this increase does not affect the teachers' behavior during teaching, but it is feared that it would affect the quality of teachings and learnings, and the quality of educational services provided would decline (Shaari et al., 2006).

The differences in teachers' workload are important in order to understand the impact of the workload on the commitment, satisfaction and performance. However, teachers' perception towards fairness plays a critical role in assessing the concept of workload (Reyes & Imber, 1992). Teachers who assess their workload as unjust are seen less motivated at work, in which they are more often absent from school, less active in their work and unproductive in contributing to the effectiveness of the schools (Reyes & Imber, 1992).

Smith and Bourke (1992) argued that teachers' high workload would reduce satisfaction and thus increased pressure on them, which would affect the effectiveness of teachings. Apart from that, some teachers are found to adjust the workload by reducing their commitment to teachings and learnings through reducing their input into the task of teachings (Easthope & Easthope, 2000). In

fact, there are teachers who quit the teaching profession as the effect of pressure of workload that they cannot handle well (Smith & Bourke, 1992).

However, Shah, Jaffari, Aziz, Ejaz, Ul-Haq and Raza (2011) viewed that the workload of these tasks is opportunities for the employees to learn and succeed more quickly. As employees, they will be given exposure to the tasks that are able to give them more experience. In fact, the pressure of workload can become a positive influence to increase productivity (Shah et al., 2011). The increase in workload does not necessarily have negative effects; on the contrary, it is the lack of the ability to adapt to the increase in works that can hinder performance.

Butt and Lance (2005) stated that workload among teachers could be reduced by increasing the level of resources, the number of teachers and more work environment that contributes to the increase in job satisfaction. Even if the work assignments are delegated in a fair manner, teachers will be able to improve morale, commitment and satisfaction of their works (Reyes & Imber, 1992). This is because the findings of the study by Reyes and Imber (1992) found that employees who are committed to the organizations are more likely to do their best and exhibit high involvement in the organizations.

Therefore, the improvements and enhancements of administrative supports, as well as time allocated to the planning and preparation are among factors with the potential to reduce the workload (Butt & Lance, 2005). This is a challenge to the school administration to facilitate the realization of the goals of the school without increasing workload to a level that cannot be accepted by the teachers (Timperley & Robinson, 2000). The school administrators who reduce teachers' workload need to be proactive in order to avoid the uncontrolled use of teachers in achieving the organizational goals (Nkweke & Dollah, 2011).

3.0 METHODOLOGY

3.1 Design of the study
The study conducted was a quantitative study that used the survey method. The design of the study was used because it is widely applied in the field of educational studies, it can gather direct responses from the subjects of the study and it is used to make predictions of an issue that arises (Chua, 2006). The study was conducted by using cross-sectional survey method. This method helps to get much information at one time, save costs, low in expenses and easily handled (Creswell, 2012).

3.2 Samples of the study
185 teachers (60 males and 125 females) were selected to answer the questionnaire to establish the variables related to teachers' workload through exploratory factor analysis. The sample selection was based on purposive sampling. These samples were selected from three different states, namely Selangor, Malacca and Sabah.

3.3 Instrument of the study
In this study, a questionnaire was used as the instrument. According to Azizi, Shahrin, Jamaludin, Yusof and Abdul (2006), the questionnaire is properly and carefully developed in order to increase the number of the feedbacks, to facilitate the conclusions and the analysis of the gathered data. The

instrument of the study used was a questionnaire that has been modified from the instrument used in the study conducted by Abdull, Rahim and Mohamad (2006) and the Ministry of Education (2007).

4.0 FINDINGS OF THE STUDY AND DISCUSSION

4.1 Descriptive Analysis

Table 1 : Number and percentage of the teachers' genders

Gender	Number	Percentage (%)
Male	60	32.4
Female	125	67.6

Table 1 shows the number and percentage of the gender of the teachers involved in this study. From 185 teachers involved, a total of 60 teachers (32.4 percent)are male teachers where as the remaining of 125 teachers, which is 67.6 percent, are female teachers.

Table 2 : Number and percentage of the teachers' races

Race	Number	Percentage (%)
Malay	147	79.5
Chinese	17	9.2
Indian	3	1.6
Others	18	9.7

Table 2 shows the number and percentage of the races of the teachers. From 185 teachers involved, 147 teachers (79.5 percent) are Malays and 17 teachers, (9.2 percent) are Chinese. The remaining 3 teachers (1.6 percent) are Indian, and 18 teachers (9.7 percent) are from the ethnics not mentioned above.

Table 3 : Number and percentage of the teachers' academic qualifications

Academic Qualification	Number	Percentage (%)
Bachelor's Degree	168	90.8
Master's Degree	16	8.7
Doctor of Philosophy	1	0.5

Table 3 shows the number and percentage of the teachers' academic qualifications. From 185 teachers, a total of 90.8 percent or 168 teachers have a bachelor's degree. Meanwhile, a total of 8.7 percent or 16 teachers have a master's degree and 0.5 percent or 1 teacher has a doctor of philosophy.

Table 4 : Number and percentage of the teachers' professional qualifications

Professional Qualification	Number	Percentage (%)
Diploma in Education	37	20
Postgraduate Teaching Course	34	18.4
Bachelor Degree in Education	114	61.6

Meanwhile, table 4 shows the number and percentage of the teachers' professional qualifications. From 185 teachers, 20 percent or 37 teachers have the diploma in education. A total of 18.4 percent or 37 teachers have the postgraduate teaching course and the remaining 61.6 percent or 114 teachers have the bachelor degree in education.

4.2 Exploration Factor Analysis

Table 5 : Results of Kaiser-Meyer-Olkin and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin (Measure of Sampling Adequacy)		.918
Bartlett's Test of Sphericity	Approx. Chi-Square	4598.298
	df	465
	Sig.	.000

From table 5, the result of Kaiser-Meyer-Olkin test shows that there is multicollinearity between items, where the value of 0.918 exceeds the value of 0.50. The value of Kaiser-Meyer-Olkin confirms that the data does not have serious multicollinearity problems. Therefore, these items are suitable to conduct the factor analysis. Meanwhile, the result of Bartlett's Test shows a significant test result where $p<.05$. It proves that the correlation between items is adequate to conduct factor analysis. Therefore, the results of both tests have confirmed that the factor analysis can be conducted.

For the second step, the extraction factor needs to be done. This process involves the determination of a small number of factors that can be used to represent the relationship between a set of variables (Pallant, 2010). In this process, three techniques have been used to help making the decision on maintaining several factors. The techniques are Kaiser's criterion, scree test and parallel analysis. The findings of Kaiser's criterion are shown in Table 6 below:

Table 6: Results of factor analysis

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	13.505	43.563	43.563
2	3.388	10.928	54.492
3	2.267	7.313	61.805
4	1.449	4.675	66.480

From table 6, four components have eigenvalues greater than one. These four components contributed a total of 66.480 percent change in the overall variance. Therefore, only four of these components can be considered as having eigenvalues greater than one.

Meanwhile, scree test technique was performed by plotting the eigenvalue of each component and checked the plot to find the point where the curved shape turns into a horizontal position. The findings of the scree plot are shown in the following Graph 1:
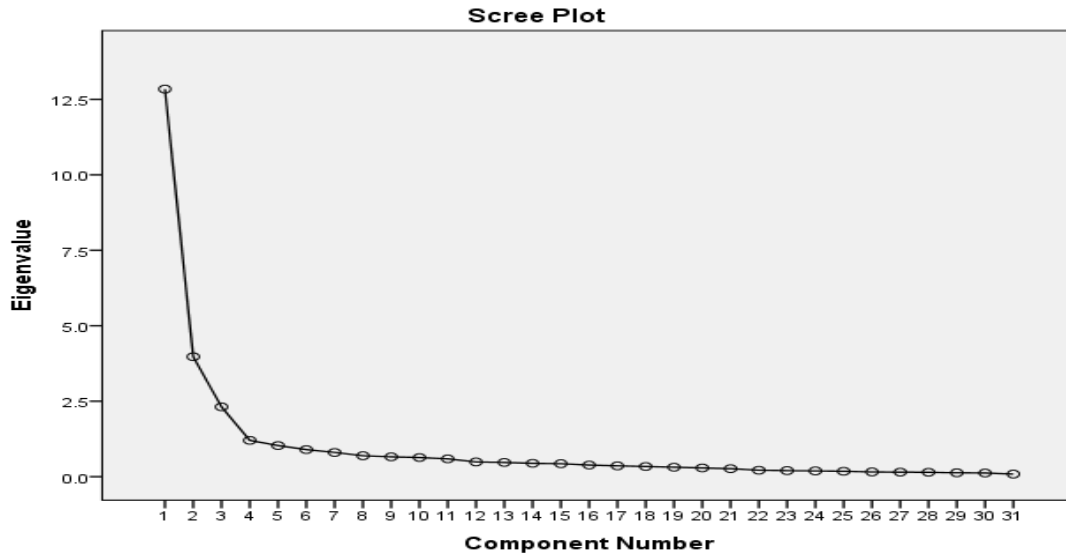
Graph 1: Scree Plot factor analysis

From graph 1, it can be seen that the graph of scree plot clearly shows three major components that contribute significantly to the changes in the overall variance of the variables studied.

Meanwhile, the parallel analysis technique was carried out to identify the correct number of components, and it has been proven as the most appropriate approach in retaining the components (Pallant, 2010). The findings of the parallel analysis are compared with the eigenvalues of principal component analysis and they are shown in the following Table 7:

Table 7: Comparison of Actual Eigenvalues of Principal Component Analysis and Criterion Values of Parallel Analysis

Number of Component	Actual eigenvalue PCA	Criterion value Parallel analysis	Result
1	13.505	1.854	Accepted
2	3.388	1.738	Accepted
3	2.267	1.641	Accepted
4	1.449	1.560	Rejected

From table 7, the actual eigenvalue of principal component analysis of component 1 (13.505%) is higher than the criterion value of parallel analysis (1.854%). Hence, component 1 is accepted as the variable of workload. For component 2, the actual eigenvalue of principal component analysis (3.388%) is higher than the criterion value of parallel analysis (1.738%). Therefore, component 2 is accepted as the factor variable of workload. The actual eigenvalue of principal component analysis (2.267%) for component 3 is higher than the criterion value of parallel analysis (1.641%). Thus, component 3 is accepted as the factor variable of workload. However, the eigenvalue of principal component analysis (1.449%) for component 4 is lower than the criterion value of parallel analysis (1.560%). Therefore, component 4 is rejected as the factor variable of workload. Thus, only three components are acceptable as the appropriate factor variables of workload.

Therefore, the factor analysis was carried out once again where the researchers have established three components to be extracted. Based on the results of the factor analysis conducted, a total of 61.805 percent of the variance can be explained by these three components. The total variance explained by these three components is shown in Table 8 below:

Table 8 : Total Variance Explained by 3 Factors

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.505	43.563	43.563	6.972	22.489	22.489
2	3.388	10.928	54.492	6.162	19.879	42.368
3	2.267	7.313	61.805	6.025	19.437	61.805

From table 8, it is found that component 1 explains 22.489 percent of the variance, component 2 explains 19.879 percent of the variance where as component 3 explains 19.437 percent of the variance.

In the third step, the rotation of factor and interpretation were conducted. It was implemented after the proper number of factors had been identified. Therefore, the varimax rotation method was performed to increase the expected results and reduce the complex items. The results of varimax rotation that was carried out are shown in the following Table 9:

Table 9 : Matrix of Components with Varimax Rotation on the Workload Questionnaire

Item	Description	Component 1	Component 2	Component 3
1	Carrying out academic assessments of the students	.768		
2	Ensuring students complete their assignments	.728		
3	Entering data into the system	.727		
4	Becoming replacement teacher	.700		
5	Managing resources or school equipment	.688		
6	Too many students in the class	.654		
7	Bringing students' work home	.639		
8	As an accompanying teacher for students	.597		
9	Too many teaching periods in a week	.584		
10	Teaching a subject that is not an option	.564		
11	Preparing paperwork, minutes of meetings, reports and documentation	.544		
12	Updating students' information		.834	
13	Establishing collaboration with external parties		.735	
14	Involving in students' orientation program		.724	

Item	Description	Component 1	Component 2	Component 3
15	Managing students' affairs (discipline, scholarships, health, etc.)		.669	
16	Performing the role of a teacher on duty		.660	
17	Ensuring students are in compliance with rules of the school		.655	
18	Attending programs organized by the District Education Office, the State Education Department or Ministry of Education Malaysia		.591	
19	Co-curricular gatherings and meetings of			.824
20	Preparing reports and filling up the marks for co-curricular activities			.806
21	Following courses related to co-curricular			.794
22	Preparing other alternatives for co-curricular activities			.788
23	Updating activities on the information boards of clubs and societies, games and sports, as well as uniformed bodies			.740
24	Implementation of co-curricular skills test			.710
25	Planning and managing of co-curricular activities and competitions			.705

From table 9, the results of varimax rotation found that item 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 are clustered in the same component, namely component 1, whereas item 12, 13, 14, 15, 16, 17 and 18 are clustered into component 2. Meanwhile, item 19, 20, 21, 22, 23, 24 and 25 are clustered into component 3. The value shown by each item displays the correlation between the items and the factors. With reference to previous studies, the items contained in component 1 are placed under the factor of curriculum, the items under component 2 are related to the factor of students' affairs and the items that are clustered into component 3 are related to the co-curricular.

4.3 Reliability Analysis

Table 10 : Internal Reliability Analysis of the Questionnaire

Variable	Cronbach's Alpha Value (α)	Number of Item
Workload	0.933	25
Curriculum	0.891	11
Students' Affair	0.881	7
Co-curricular	0.942	7

In table 10, the results of internal reliability analysis of the questionnaires used show that the value of Cronbach's alpha for the entire item is 0.933. Meanwhile, the values of Cronbach's alpha for each component of the teachers' workload are 0.891 for curriculum component, 0.881 for students' affairs component and 0.942 for co-curricular component.

5.0 DISCUSSION

The workload questionnaire of the teachers consisted of 31 proposed items analyzed by using factor analysis. The eigenvalues and graph of scree plot, as well as the comparison of actual eigenvalues of the principal component analysis and criterion values of the parallel analysis show that these items contain more than one factor.

Based on the results, the researchers decided that the items of the questionnaire contain more than one construct. Through the varimax screening procedure, Rotated Component Matrix table shows that the items of the questionnaire are 3 dimensional, which contain three factors. Therefore, the three factors are extracted from the proposed questionnaires.

These three factors predict a total of 61.805 percent on the overall variance of the variables in teachers' workload with factor 1 = 22.489 percent, factor 2 = 19.879 percent and factor 3 = 19.437 percent. By examining the items under each factor, it is found that the items under factor 1 are related to the curriculum, the items under factor 2 are related to students' affairs and the items under factor 3 are related to the co-curricular.

6.0 SUMMARY

The construct validity tests by using exploratory factor analysis have successfully extracted 3 factors. The factors are curriculum, students' affairs and co-curricular. The three factors are obtained after taking out 25 items out of 31 items analyzed. The calculation of the reliability coefficients that has been analyzed shows that the coefficient of reliability for the workload questionnaire used is 0.933.

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