

Teacher Effectiveness in Academic Research Writing: An Exploratory Factor Analysis

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The study was conducted to examine the factors of teaching effectiveness for possible application to research writing teacher effectiveness. Three existing studies on teacher assessments served as basis for the construction of a 100-item questionnaire administered to 324 students of seven research writing classes at a university in Manila. Using exploratory factor analysis of eleven teacher assessment domains, the study was able to reduce the factors into four structures - social interaction, clear feedback, mastery of content, and authority. Means, standard deviations as well as Pearson correlation among the four factor structures were also obtained. With a mean of 59.6, social interaction was the first in the four categories. This was followed by mastery at 54.6, clear feedback at 47.8 and authority at 32.3. The findings have pedagogical and administrative implications.

Keywords: social interaction, clear feedback, mastery of content, authority

Teaching is a specialized skill that involves not only expertise in the given academic field but also the ability to create for the learners an environment where they can get optimal learning gain. The length of teaching experience is a factor that favors teaching effectiveness. However, senior teachers still need to keep themselves abreast with new teaching strategies. Measures, in fact, have been exerted to increase teacher effectiveness. Enrichment programs like teacher seminars, for one, designed to heighten teacher awareness regarding the different teaching strategies that may be used to involve student participation in the exchange of information involved in the learning process, are organized by different educational institutions. Also, universities regularly check the curriculum and instruct department heads to constantly update their course syllabi to check that the course objectives meet the current needs of the

learners enrolled in their programs. These factors aid in promoting teacher growth since they provide teachers with venues to always be on the alert to look for opportunities to apply what they know and have planned to better their teaching performance. These two factors - professional growth and planning - are, in fact, only two out of the nine factors that served as the basis for teacher assessment that was used by the administrators in Washoe County School District (Kimball, 2002). The other seven factors include communication, instruction skills, management skills, student growth and development, knowledge of subject matter, interpersonal relations, and use of educational materials (6). Students' assessments also measure teacher effectiveness. Previous studies, in fact, abound both locally and internationally. In 1981, a study written jointly by a Filipino and an American authors, compared students' perceptions of what constitute teacher effectiveness. Mina and Bail, after doing a factor analysis and MANOVA found out that Filipino and American undergraduate students rate their teachers on teaching effectiveness differently. Results specifically reveal that Filipino undergraduate students rate their teachers based on their personal appearance and degree of authority more than their Western counterparts. The authors concluded that difference may be due in part to culture (Bail & Mina, 1981). Another study on teacher assessment conducted by Magno and Tangco (2009) examined the teacher assessment tool used in the College of Saint Benilde to determine whether the assessment tool being used adheres to and reflects the quality of an effective teacher. Consultations were done with stakeholders along with a metaevaluation of the tool. Results reveal conformity with the Joint Committee Standards for Evaluation. In the international arena, Scriven (1995) wrote a paper titled "Student Ratings Offer Useful Input to teacher evaluations". The article raises several concerns regarding the reliability of students' rating of teacher classroom performance. The author claims that student ratings are usually based on peer teacher merit rather than what students actually learn in the class. The study therefore suggested nine areas of consideration that will make student ratings valid. Among these are the relationship between learning gains and student ratings, the evaluation of the students regarding their own improvement, the students' assessment of how well they were motivated by the course and the teacher, the evaluation of the teacher's competence and punctuality, the ability of the students to ask questions, the scope of the test the teacher gives in class, the bearing of attendance or even the bulk of homework the teacher assigns. Literatures that have dealt with teacher effectiveness have yielded multi-dimensional factors affecting teacher effectiveness. However, these teacher effectiveness factors touch a more general frame of reference. There is scant mention of specific factors that concern directly assessment of the effectiveness of research writing teacher. There is a need therefore to create a new set of factors that directly measure the effectiveness of a research writing teacher. The purpose of the study is to use existing factors drawn from previous teacher assessments that contribute to students' perception of what an effective writing teacher is through a self-designed questionnaire. This is done by collecting from a set of

reviewed teacher assessment tools factors that are relevant in directly assessing a research writing teacher. The secondary goal of the paper is to extract underlying factors other than those that are already established in these previous assessment tools.

The current study draws from the framework initiated by Tigelaar, Dolmans, Wolfhagen, and van der Vleuten (2004). They posit that teaching effectiveness covers the following major areas. These are the individuality of the teacher, his/her mastery of the subject matter, his/her roles as facilitator of learning processes, organizer, and scholar/lifelong learner. The factor that has been added to this framework covers aspects of a teacher's personality that are conducive to learning. This domain identifies the teacher as person.

The study uses exploratory factor analysis (EFA) to reduce the eleven factors taken from Bail and Mina's (1981) factor analysis study, Scriven's (1995) proposed factors for teacher effectiveness as well as Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework and to come up with derivative factors that may be applied in evaluating teacher effectiveness in a research writing class.

Method

Participants

Three hundred twenty-eight participants from a total of seven research writing ENGLRES (Basic English Research) classes were selected for the study during the first trimester of 2010-2011. ENGLRES is a 3-unit English for Specific Purposes (ESP) course that aims to teach the students the rudiments of research through the writing of a research paper. The participants of the study belonged to different colleges from a university in Manila.

Instrument

Based on existing scales that measure teacher effectiveness, a Likert-Scale with 100 items was developed to measure the students' perceptions of research writing teacher effectiveness. Statements regarding what constitute an effective research writing teacher were designed that required participants to rate their level of agreement or disagreement on a 1- 5 scale. Points were given by students based on their perceptions of the qualities of an effective research writing teacher (5 for Strongly Agree, 4 for Agree, 3 for Not Sure, 2 for Disagree, and 1 for Strongly Disagree). Items for the teacher effectiveness questionnaire were designed using the suggested characteristics of an effective teacher from previous studies. Specifically, the study derived its newly-constructed factors from Bail and Mina's (1981) factor analysis study, Scriven's (1995) proposed factors for teacher effectiveness as well as Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework. The 100 items reflected the newly- constructed factors that constitute research writing teacher effectiveness. Among these are social

interaction, clear feedback, mastery, punctuality, organization, class management, motivational influence, course-specificity, course-generality, authority, and strategy. Concretely, the factor that was taken from Bail and Mina (1981) is authoritarianism. To fit the research writing class parameter, this factor was further broken down into two separate features, authority and class management. The sub-division is deemed necessary since the required outputs that the students need to submit at specific periods of the program reside mostly on how the research teacher allocates the time spent in class for writing and the time outside the class that students either collect their data or related literatures. Next, five factors came out from Scriven's (1995) study. These factors are clear feedback, motivational influence, punctuality, course-generality and course-specificity. Statements addressing each of the factors were tailored to fit the research writing class requirement. Finally, Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework suggested four factors that the present study used and modified to fit teaching research writing specifications. These are strateg, mastery, social interaction, and organization.

Procedure and Data Analysis

Three hundred twenty-eight research writing students were administered a 100-item questionnaire requiring them to rate statements concerning the effectiveness of research writing teacher according to their level of agreement or disagreement. Their responses were encoded in STATISTICA 7. Exploratory Factor Analysis (EFA) was done on the eleven factors. Means, standard deviations and Pearson correlation were likewise obtained on the four factors that came out from the initial EFA. The nature of EFA centers on validating previous assessment tools, hence the choice of that particular analysis was made. Also, upon examination of the assessment tools, eleven factors of research writing effectiveness emerged. It is now the task of EFA to find out unidimensionality among these factors for the purpose of further reducing the given factors.

Results

An exploratory factor analysis using principal components analysis in STATISTICA 7 was done on the 100 items of the Teacher Effectiveness Questionnaire to determine whether essential unidimensionality was present and supported Bail and Mina's (1981) factor analysis study, Scriven's (1995) proposed factors for teacher effectiveness as well as Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework. Figure 1 reveals four underlying factor structures of research writing teacher effectiveness. These factors have been renamed social interaction, clear feedback, mastery, and authority.

Figure 1
Scree Plot and Parallel Analysis of the Eigenvalues of the Teacher Effectiveness Questionnaire

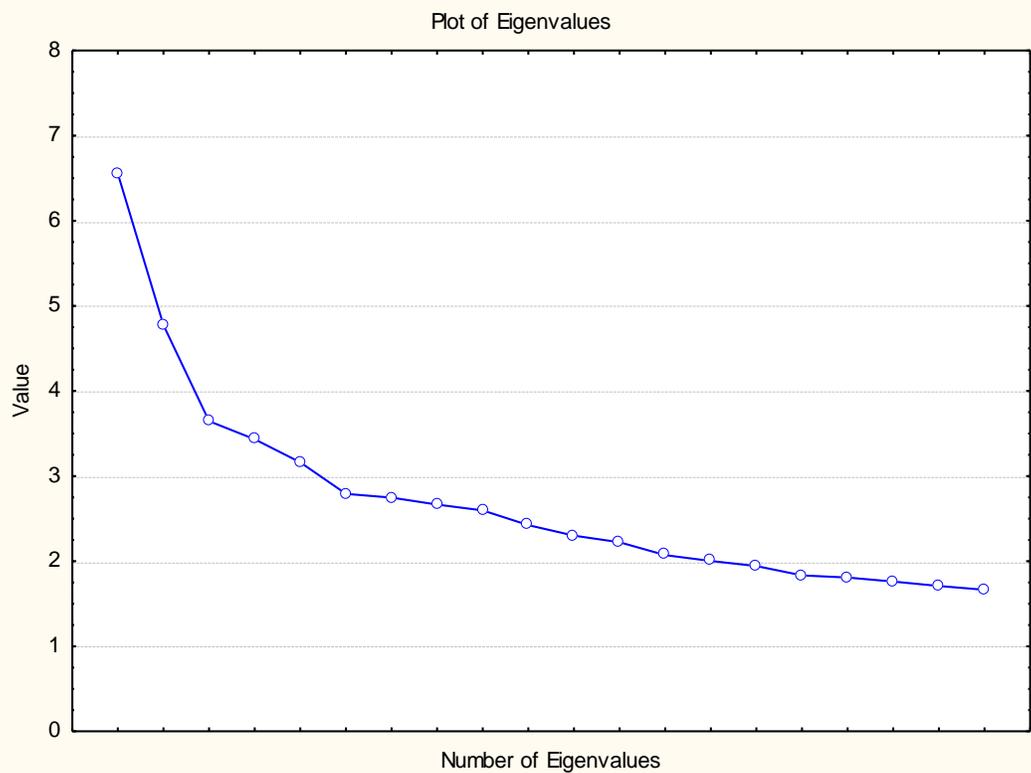


Table 1 displays the means scores of the four underlying factors structures that came out of the initial EFA. The first factor had an eigenvalue of 6.55 and explained 37.09% of the variance in participants' responses. The second eigenvalue was 4.7. Marked loadings were examined and those that had values greater than .70 were noted. Cronback's alpha was 0.87. The names of the four categories were derived from the original names of the categories used in Bail and Mina's (1981) factor analysis study, Scriven's (1995) proposed factors for teacher effectiveness as well as Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework.

The largest cluster came from social interaction. The cluster on social interaction is reflected on the thirty-four items (9,15,23,32,34,38,39,41,55,61-66,69-71,77-86,90,95-99) of the questionnaire given to the participants. This covers the teacher's approachability, interaction outside class hours to discuss research paper concerns of the students, personal interest on the students themselves and their topics, general disposition towards students' questions, respect for each student, amiable personality, openness to talk to students about their research topics inside the classroom, as well as fair treatment in dealing with all students.

The second cluster came from clear feedback. Thirty-four items (1-4,7,14,17-22,24,33,37,40,43-46,49,54,56,59,60,73-76,87-89,92,100) from the questionnaire were based on this factor. Topics covered include the teacher's announcement of course requirements at the beginning of the term, explicit comments on the markings made on the students' papers, specific comments on writing areas that need to be improved on and what specific writing actions they need to do to work on this weak points, immediate explanations of lessons that are unclear to the students, individualized comments on the students' papers.

The third cluster formed came from mastery of the subject matter. Twenty items (5,6,8,11-14,16,25-27,42,47-48,50-53,57,58) covered here include the teacher's linking of course contents to relevant areas outside the scope of the course, ability to choose relevant strategies to maximize students' learning gains, the relevance of the examples given, the ability to answer students' questions, as well as the use of authorities and sources that the students can use to improve the research paper.

The fourth cluster has twelve (28-31,35,36,67,68,71,91,93,94) items. Labeled as authority, the items reflected the teacher's handling of the class, the ability to command respect both in the manner of speaking and dressing, strict conformity to research requirements including neatness of the students' work.

The emergent factors of the present study - social interaction, clear feedback, mastery, and authority - were labeled such since the most number of items that were subsumed in the clusters reflected the given factors. In short, they were not labels the present study created, rather, they were labels already termed by previous authorities who have dealt with studies on teaching effectiveness, more concretely terms used in Bail and Mina's (1981) factor analysis study, Scriven's (1995) proposed factors for teacher effectiveness as well as Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework.

Table 1
Means +/- and Standard Deviations of the Factors of Teaching Effectiveness

Factors	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Social interaction	328	59.6	15.12	-3.32	.05
Clear feedback	328	47.8	11.76	-3.99	1.19
Mastery	328	54.6	13.28	-3.0	-.71
Authority	328	32.3	6.56	-3.84	-2.26

Table 2 displays the correlations among the four factors of teaching effectiveness. There is a very strong relationship between mastery and social interaction. This supports Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework. Those that pose a negative strength of relationships are social interaction and authority, clear feedback and mastery, and mastery and authority.

Table 2
Correlation Matrix of the Factors of Teaching Effectiveness

Factor	Social interaction	Clear feedback	Mastery	Authority
Social interaction	---			
Clear feedback	0.16*	---		
Mastery	0.83*	-0.23*	---	
Authority	-0.72*	.01*	-0.25*	---

* $p < .05$

Discussion

The goal of the study is to examine the existing factors drawn from Bail and Mina's (1981) factor analysis study, Scriven's (1995), proposed factors, and Tigelaar, Dolmans, Wolfhagen, and van der Vleuten's (2004) teaching effectiveness framework to determine what may be done to reduce the eleven factors for teacher effectiveness that carry a more general frame of reference. After EFA has been done, four factor structures that are more suitable in assessing an effective research writing teacher emerged and are labeled as social interaction, critical feedback, mastery, and authority.

Social interaction facilitates more learning gains as the research writing teacher opens up for students more opportunities to ask questions that will aid them in understanding how to approach their own writing more effectively. Also, the role that social interaction plays in a research writing class becomes apparent since different research pairs have different topics and through the teacher's social interactions, research writing concerns are given their own solutions and suggestions much more than when the research teacher simply gives general guidelines to the class. Second, clear feedback the next emergent factor is important in the light of the transformative framework that the university is implementing. The research teacher provides definitive feedback so that the research pairs may begin to question what writing style they can employ to address the feedback given by the instructor. For instance, items from the teacher effectiveness survey generated strong agreement from students pertaining to statements containing the idea that research writing teachers are effective when they explain to the individual students what aspects in the papers needed to be revised and how the students can start revising them. This principle on feedback coincides with the study made by Fregeau (1999) indicating that research writing students need to be made aware of what the course expectations are. This principle on feedback clarity is also supported by Jian's paper (1990) indicating that identifying the success criteria in self-assessment for writing benefits the students' writing of essays. Third, mastery of content is undoubtedly an important factor in determining a research teacher. After all, research writing conventions are unique and specific and requires the teacher to be updated on whatever new trends there are in producing a good research paper among the students. A case in point is mastery of the APA 6th edition as it is useful in so far as the teacher will be the

source by which students will keep themselves informed about the different formats in the 6th APA edition. Without the research teacher necessarily spoon feeding the students with the current edition, the students will themselves take the initiative to do research on the format. Finally, even as there is interaction between teacher and students in an atmosphere that is open to learning and creating useful insights, the teacher must not lose sight of the fact that as facilitator in the research class, his/ her authority - moral and informational - needs to be clearly visible for his/her students to see and emulate.

In the light of the findings presented, research teachers may thus work out useful strategies that will enhance and reflect, if not embrace the characteristics of an effective research writing teacher. The academe also stands to benefit from the insights presented as they can move their university framework in general and teacher seminars in particular towards highlighting the four structures that emerged from this EFA.

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About the Author

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Appendix A Items by Factor

A. Punctuality

Teacher starts the class on time.
Teacher finishes the class as scheduled.
Teacher returns the papers on time.
Teacher comes to the room always on time
Teacher is strict with punctuality.

B. Clear feedback

Teacher identifies what she wants the class to complete clearly.
Teacher gives written feedback on the papers.
Teacher reminds students of their absences.
Teacher points to the students areas that they are weak on
Teacher asks students for things that are unclear to them
Teacher discusses each feedback to her students.
Teacher explains things that are unclear to students.
Teacher explains the feedback to class.
Teacher discusses classroom requirements at the start of the term
Teacher guides the students throughout the entire process of research writing
Teacher reminds students not to plagiarize by acknowledging sources.
Teacher comments on all items / features of the paper.
Teacher asks the students if they have questions regarding the feedback given.
Teacher gives feedback that are specific and relevant to the student's paper.
Teacher gives suggestions on how to write the paper better.
Teacher commends the students for a paper that is well written.
Teacher understands the nature of each students' paper and gives valuable suggestions.

C. Strategy

Teacher gives points to students for attendance.
Teacher asks the students to talk about their paper in class
Teacher uses visual aids to facilitate student learning.
Teacher uses her publications as sample texts for writing papers.
Teacher ensures that lesson is fun by letting students play games about guessing information elements of a structure
Teacher uses other research articles as references for students to imitate.
Teacher uses other facilities of the university to make the class interesting.
Teacher gives students freedom to work according to their own pace as long as they submit on scheduled deadlines.
Teacher allows students to work with laptop or music on.
Teacher is generous with grades.
Teacher lets students brainstorm in class about how to write a paper

D. Mastery of the subject matter

Teacher knows the subject matter well.
Teacher is able to give clear examples to help students understand better.
Teacher's voice is audible.
Teacher uses authorities in her discussion.
Teacher simplifies a complex concept for the students.
Teacher uses up-to-date materials to explain her points.
Teacher uses language that the students can easily understand.
Teacher is able to address the writing needs of her students well.
Teacher gives input in class.
Teacher uses visual aids to facilitate student learning.
Teacher answers the students' questions satisfactorily.

E. Organization

Teacher discusses the structure of the paper that is to be written
Teacher ensures system when submitting papers
Teacher requires students to be neat with work
Teacher's handwriting on the board is clear

F. Course- general

Teacher discusses the verb form and tenses to use on the paper.
Teacher discuss what point of view to use
Teacher calls students' attention to grammar irregularities or inconsistencies.
Teacher relates the discussion topics outside course requirement.
Teacher gives relevant announcements

G. Management

Teacher disciplines the class as needed.
Teacher requires a deadline for submitting papers and expects it to be met.
Teacher ensures all items in the syllabus are met.
Teacher addresses concerns of research partners in class.
Papers of students are seldom returned.
Teacher has requirements that are easy to meet.
Teacher gives sanctions to students who are not paying attention inside the class.
Teacher does not call the attention of the students if they are noisy.
Teacher allows the students' time to do their research
Teacher is lenient with requirements.
Late papers are not accepted.
Teacher is consistent with house rules.

H. Social interaction

Teacher is always approachable.
Teacher talks to students outside the class to discuss the research papers.
Teacher knows the research topics of her students by heart
Teacher is considerate in giving requirements and grades.

Teacher gets annoyed with repetitive questions.
Teacher is pleasant
Teacher looks down on students.
Teacher is approachable.
Teacher respects students' individuality.
Teacher does not insult the students for papers incorrectly written.
Teacher once in while jokes with her class
Teacher talks to students in friendly manner.
Teacher greets students by their nicknames
Teacher maintains a friendly atmosphere inside the room.
Teacher goes around the room to talk to students about their papers.
Teacher treats everyone in a fair manner
Teacher does not insult the students for papers incorrectly written.

I. Authority

Teacher has a lot of published articles to her credit.
Teacher checks students' APA format strictly.
Teacher commands respect in the manner of dressing.
Teacher commands respect in the manner of speaking.
Teacher comments on handwriting.
Teacher checks whether students use in text citations for their major points.
Manner of speaking commands respect.

J. Course specific

Teacher checks the functions of the parts in relation to the whole paper.
Teacher gives quizzes that are related to the scope of the research paper.
Teacher shows the relevance of primary sources of data.

K. Motivational influence

Teacher allows papers to be submitted late rather than not at all.
Teacher is never absent.
Teacher makes sure that students do not forget the goal of the course.
Teacher gives questions that are thought provoking.