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Assessing the One-Lecture-One-Test Learning Model in Undergraduate Journalism Program Using Cohort Design

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Abstract

The one-lecture-one-test (OLOT) is a learning model that compels students to write a short test after every lecture for a score that counts toward the continuous assessment and the overall grade. This is different from the traditional system in most universities which allows only two or three tests or assignments. In spite of the accolades for better grades, higher lecture attendance, higher concentration, interest and participation in class which it received when the findings from a one-year survey were presented to the participants at a notable international conference, the model still lacks prominence among lecturers. The unimpressive visibility, according to critics, is on the grounds that the technique would have to be investigated in a longitudinal study to determine its reliability as a learning system. This article presents the reports of a cohort study of journalism teaching over a period of three academic sessions. Improvements in students' performance in the foregoing parameters were visible and consistent with the one-year investigation. Unimpressively, however, it turned out that lack of precision in grading constituted a vulnerable point that the adopters of the system would have to tackle in order to further make the system attractive.
Keywords: Conventional system; Test-wiseness; Teaching; Learning; Journalism; One-lecture-one-test; OLOT model.

1. Introduction

Governments, higher institutions and parents in developing countries are constantly seeking fresh ways of enhancing learning efficiency and productivity in teaching (Okafor *et al.*, 2011) especially in tertiary institutions. One upshot of this is the emergence in Nigeria of the *One-Lecture-One Test* (OLOT), a model which requires students to write a short test after *every* lecture. All the tests written do count toward the continuous assessment and overall grades. Each test concentrates on the subject taught during the lecture and should be written within 10 to 15 minutes. This model contrasts with the popular method in several tertiary institutions that prescribes one, two or at most three tests or assignments in a semester. OLOT is construed as a formalism and should be distinguished from the question and answer session conducted verbally during a lecture and which does not count in terms of scores or grades.

The quest for better pedagogical systems is more common than ever before in the mass communication disciplines in which this study was carried out. The challenge posed by the Web 2.0 technology has elicited calls for new paradigms (Jegede, 2016; Kashem, 2016; Okorie *et al.*, 2018; Omojola, 2012) in the way journalism education is imparted. The society's demand for responsible journalism in the contemporary age and incessant condemnation of journalism schools (Vance, 1930) over the years, have necessitated the intensity with which reporters are being trained (Schramm, 1947). Furthermore, the need to motivate journalism students in their chosen career (Boyle, 1947), is gaining momentum, as teachers attempt to get the best value out of the limited amount of available time in the school education process through innovate teaching and learning techniques.

The assertion is common that any acceptable model should create the platform that makes both the teacher and student more active than the conventional system, thereby generating extra value in terms of teaching, learning and wellbeing (Amoo et al., 2018) as well as creating the environment for visionary educational leadership (Imhonopi et al., 2013) if properly engaged. The OLOT model is conjecturally in line with these assertions.

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1.1. Preliminary Investigation and Problem of the Study

Using four study parameters – *attendance*, *interest*, *participation*, *concentration* in class and *grades* – journalism students were investigated for one semester in one session to determine if the OLOT system brought more improvement than the conventional system. Two courses – *Editorial Writing* and *Newspaper production and Management* were assessed for the conventional system while *Book Publishing* and *Photojournalism* were evaluated for OLOT. The results, at a glance, showed up OLOT as a promoter of test-wiseness with between 20 to 40 per cent improvement over the conventional system in all the four parameters.

The results of the survey were presented in Spain at the 4th annual International Technology, Education and Development Conference (INTED) held in 2014. After a short time of accolades for claimed improvements in all the parameters, issues were raised as part of the critique to make the system workable and attractive. The commonest criticism was that the single survey conducted would never be enough ground to make the model qualify as a reliable one. The argument here is that the unit of analysis, which is one student during a class lecture, should be investigated over a period of at least three sessions to demonstrate its reliability. Repeated measures from the respondents would be required in order to understand the change dynamics and causal inferences to make the model qualify for further investigation. This paper reports the findings of a cohort study of journalism students spread over a period of three consecutive academic sessions.

1.2. Objectives of the Study

The objectives of the study are the following:

To determine if students' performance in the OLOT system is better than the conventional way of administering test to students using four parameters of *attendance*, *interest*, *participation* (1948:577;(Abdulrasheed *et al.*, 2016; Kong *et al.*, 2017), and *concentration*. Since results of the preliminary investigation have shown the OLOT system to have some advantages over the conventional system in one session, this study is also out to determine this effectiveness over a period of three consecutive academic sessions.

1.3. Significance of the Study

By presenting the results of the longitudinal survey, the ground is created to get scholars attention to commence further studies on the OLOT with regard to other issues raised at the conference. With some literature now available, scholars can now create a trajectory for further investigation. Furthermore, a study of the OLOT system can help to understand more about the internal dynamics of the interference theory (Malmi, 1981; Wixted, 2005) which basically states that some memories do interfere with other memories. Proactive interference occurs when an old memory makes it difficult or even impossible to remember a new memory while retroactive interference is made manifest when new information interferes with one's ability to recall or remember a previously learned information.

Literature is not visible enough on the internal processes that influence knowledge interference. This work sheds light on a few of such dynamics such as students' concentration, interest, attendance and participation during lectures.

1.4. Contextualizing the OLOT Model

The conjecture in this study is that students' performance is better with the OLOT system than the traditional system. In a lecture of two hours, the last 15 minutes or less are spent by the students in writing the test. Each test covers only the module that has been taught. Students may not write more than one or two pages as they are strongly advised to imbibe the economy of language to enable them write in a few but meaningful words that focus on key points in their answers. A script takes only between two and five minutes to mark.

OLOT ensures that the test conducted carries a score which is recorded and the scores compiled at the end of the semester for the continuous assessment (CA), which varies from one institution to another. In most universities around the world, a formal test is not given at the end of *every* lecture, though practice questions, question and answer sessions and take-home assignments are popular. The practice in the traditional system has been to give some formal tests periodically. These would not be more than three in several cases in one semester. CAs constitute an integral part of student's grade points. In many reputable institutions any student who does not have a continuous assessment score may not pass that course no matter how high his or her examination score is.

The OLOT model could be psychologically appealing as it can lessen test anxiety (Anyamene et al., 2016). The traditional test dispensation abets test nervousness of students and many instructors are familiar with this experience (Szafran, 1981) to such an extent that special clinics are set up to help students overcome the menace. OLOT can convert anxiety to expectation, then to test appreciation that culminates in positive test performance. It can create a serial position effect which prepares the student for a test after each lecture. Writing a test after a lecture can condition students' minds to assimilating and recalling appropriately what they have learnt.

The one or two questions that are answered in the test after the lecture had been delivered constitute a mnemonic device as they provide the focus for the student to recall those themes that were taught in that module. Besides that, the teacher also gets the idea of how his or her teaching has impacted the students (Samway, 1968). Stimulated recall (Bloom B. S., 1953) enthusiasts should be encouraged by this model as it reduces retrieval or encoding failure since the test focuses attention to only the core area of the module that is taught. It appears this benefit is less visible in the conventional system where students will have to write a test that involves variegated topics.

1.5. Reaction of Students to the OLOT model

A brief focus group discussion by students of one the classes surveyed was held. The conditions for a successful focus group discussion (Okorie *et al.*, 2018; Omojola, 2016) were appropriately satisfied because the students did not only have the knowledge of the model, they were also directly involved in its execution. Their reactions were not positive but some voices were very loud! One student said: "Oh, this will be stressful!" Another said, "sir with your tests you are stressing us out?" Yet another: "Sirs, we know you are hardworking but, in my opinion, you are overworking yourself!" And yet another: "Sir, I'm pretty sure you won't receive double salary for this. This is too much for us!"

Students were placated when the lecturer espoused them to a possible advantage of the model: they have the opportunity to earn a score each time a test is conducted, which enhances the possibility of a robust cumulative for the continuous assessment. This is unlike the conventional system where the boundary of performance is narrowed to only two or at most three tests.

2. Method of Study

2.1. Study Parameters

Six compulsory courses in journalism were selected for the direct observational study of samples - the students - in the Mass Communication department of Covenant University, Ota Nigeria. Three of them – *Editorial Writing(EW)*, *Newspaper Management and Production(NM&P)* and *Critical Writing and Reviewing(CW&R)* were selected for the conventional system for the first semester of each of the three academic sessions (2015/2016, 2016/2017 and 2017/2018) respectively while the other three – *Graphics, Editing & Communication (GE&C)*, *Magazine Management & Production(MM&P)* and *Mass Media & Society(MM&S)* were designated for the OLOT system for the second semesters. In essence, the study lasted three academic sessions. The following are the variables investigated:

- *Lecture attendance* (A). This variable captures the number of absentees during lectures.
- *Class participation* (P): This was operationalized in terms of the number of students who indicated by raising hands to answer questions or discuss matters arising in the lecture (Elmahdi and Shareef, 2016).
- *Interest* (I): This is defined in terms of the number of students who requested for permissions to exit the class to attend to some crucial matters that can't wait till the end of the lecture.
- *Concentration* (C): This seemingly complex variable was operationalized by the number of times the lecturer had to caution or warn students over such misbehaviors as side talk, unauthorized use of electronic or ICT gadget, etc.
- Students' *grades* (G) at the end of the semester in each semester.

2.2. The Survey

The university operates two semesters in each session – *Alpha* and *Omega*. Each semester has 15 weeks. Students would normally spend the first week paying school fees, registering courses, meeting with their course advisers and settling down. The sixth or the seventh of the remaining 12 weeks is spent on mid-semester examinations while the last two weeks are devoted to semester examinations. In effect, only 11 weeks are spent on teaching. In each of the two halves of the 11 weeks, the initial three weeks were selected for the study. For each semester, the second, third and fourth week were selected for the survey in the first half while the eighth, ninth and 10th week were selected in the second. The last three weeks of each half were neglected because it was approaching the examination period, as including them might interfere in the results obtained. For instance, one of the study parameters was *interest*. The predisposition is high that a typical student will normally want to get more interested in lectures from two or three weeks toward examination.

The study used a cohort of 59 students for EW, 56 for NM&P, 54 for CW&R (Conventional) and 59 for GE&C, 56 for MM&P, and 54 for MM&S (OLOT) over a period of three academic sessions. The rate of attrition is less than five per cent over the three sessions. Two lecturers - a professor and assisting junior faculty, handled each lecture in line with the school's policy on teaching. The professor taught in all cases while the junior faculty recorded all the observations with regard to the variables. The study covered only the second, third and fourth (final) year. The attrition recorded comprising those who either dropped out or were suspended for one offence or the other. Students grades comes in the following sequence: A – 5 points (75-100 marks), B – 4 points (60-69), C - 3 points (50-59), D – 2 points (45-49) and F – 1 point (0-44). The grade E is not part of the grading system of the institution.

The six tests given after the six lectures took after a taxonomy of educational objectives (Bloom B., 1956) which provides six types of cognitive processes along which students can be tested. The first test assessed students' *knowledge* of the module treated, second on *comprehension*, third on *application*, fourth on *analysis*, fifth on *synthesis* and the sixth on *evaluation*. Test on knowledge is about definition of concepts and identification personalities, comprehension tasks you to explain, discuss or restate while application asks you to tell how applicable is what you have learned, since it has been found that students will find satisfaction in acquiring a skill that they can apply to real life (1995: 350). Analysis prompts you to compare, examine or contrast the issues involved, while synthesis enables you to use the knowledge gained to construct a pathway into the future as evaluation will make you look back to see what has been lost with the aim of making amends.

2.3. Findings

The following are average figures for the whole of first semester in each parameter.

Table-1. Standard Deviation and Mean distributions of the traditional and OLOT systems over three sessions – 2015/2016, 2016/2017 and 2017/2018

	2015/2016				2016/2017				2017/2018			
	Trad		OLOT		Trad		OLOT		Trad		OLOT	
Variable	μ	σ	μ	σ	μ	Σ	μ	σ	μ	σ	μ	Σ
Attendance	.407	.646	.153	.363	.466	.574	.103	.583	.375	.678	.679	1.441
Participation	.372	.717	.881	.745	.328	.574	1.672	1.680	.143	.401	2.768	1.926
Interest	.509	.898	.085	.281	1.000	.955	.052	.223	.786	.731	.536	.990
Concentration	.458	.567	.051	.222	.828	1.187	.035	.184	.768	.738	.589	.733
Grade	**2.92**	1.10	**3.10**	.915	**2.62**	1.225	**3.14**	.963	**3.11**	1.245	**3.13**	.833
	N=59				N=58				N=56			

The paired samples analysis of the traditional test system with OLOT shows a preponderance of the latter in the mean distribution of the variables *attendance*, *participation*, *interest* and *concentration* though they have varying dispersion values. All the preponderances are enwrapped in the grades marked in white texts. The 2015/2016 comparison shows a significant increase as the graded transited from 2.92 for the traditional system to 3.10 for OLOT. This means from the grade D to C. The 2016/2017 session also shows a visible increase from traditional systems 2.62 to OLOT's 3.14. There is also an increase of grade in the case of the 2017/2018 session (3.11 o 3.13) but this is very low as that increase is tuck inside only one grade cadre (C). The mean difference in the traditional and OLOT grades for the 2015/2016 session is 0.18. It climbs up to 0.52 in the 2016/2017 and then down to 0,02 in the 2017/2018 session. The dispersion in the means also shows a normal distribution in all cases with few extremes such as OLOT's *attendance* (1.441) and *participation* (1.926) for the 2017/2018 session.

The flukiness of the one-year superiority of the OLOT over the traditional as claimed by critics at the conference are debunked by the figures on Table 1 but knowing how each of the four predictor variables performed in relation to the criterion variable, grade, is necessary to determine how each, in turn, predicted the overall performance of the students. Multiple regression tests were carried out for the two categories using the *ente*r method. The results are presented as follows.

Table-2. Regression metrics of the Traditional and OLOT systems in the 2015/2016 session

2015/2016				
	Traditional		*OLOT*	
Predictor variables	**Beta**	*p*	**Beta**	**P**
Attendance	-.158	*P > 0.05*	-.080	*p >0.005*
Participation	-.013	*P > 0.05*	-.304	*p <0.029*
Interest	-.125	*P > 0.05*	.189	*p > 0.005*
Concentration	-.072	*P > 0.05*	-.080	*p >0.005*
Report (Criterion variable is *grade*)	$F_{4,54}=.538, p > 0.05$ Adjusted $R^2 = -.033$		$F_{4,54}= 2.704, p > 0.005$ Adjusted $R^2 = .105$	

Table-3. Regression metrics of the Traditional and OLOT systems in the 2016/2017 session

2016/2017				
	Traditional		**OLOT**	
Predictor variables	**Beta**	*p*	**Beta**	**P**
Attendance	.119	*p > 0.05*	.179	*p > 0.005*
Participation	.045	*p > 0.05*	.112	*p > 0.005*
Interest	.106	*p > 0.05*	-.204	*p > 0.005*
Concentration	.091	*p > 0.05*	-.132	*p > 0.005*
Report (Criterion variable is *grade*)	$F_{4,53} = .418, p > 0.05$ Adjusted $R^2 = -.042$		$F_{4,53} = 2.327, p > 0.05$ Adjusted $R^2 = .085$	

Table-4. Regression metrics of the Traditional and OLOT systems in the 2015/2016 session

2017/2018				
	Traditional		**OLOT**	
Predictor variables	**Beta**	**P**	**Beta**	**P**
Attendance	.152	*p > 0.05*	.139	*p > 0.005*
Participation	-.215	*p > 0.05*	-.307	*p < 0.005*
Interest	-.088	*p > 0.05*	-.291	*p < 0.005*
Concentration	.095	*p > 0.05*	-.245	*p < 0.005*
Report (Criterion variable is *grade*)	$F_{4,51} = 1.450, p > 0.05$ Adjusted $R^2 = .032$		$F_{4,51} = 7.078, p < 0.005$ Adjusted $R^2 = .307$	

The *traditional* system component of Table 2 (2015/2016) presents negative betas for all the four predictor variables. When the squared value of the correlation between the observed levels of the reported grades and the levels (of grades) predicted was adjusted (Adjusted $R^{2)}$, it amounted to highly insignificant and unimpressive -33 %, implying that none of the four predictor variables was influential in the grade recorded. The OLOT component would have repeated the same trend except for the predictor *participation* which predicted the grade recorded to some extent: $p < 0.029$ ($p < 0.05$) with adjusted R^2 at 10.5%. The traditional and OLOT systems on Table 3 show metrics similar to its counterpart in Table 2 as none of the four predictors predicted the grades recorded. The all-variable non-predicting sequence is repeated in the traditional component of the Table 4 (2017/2018). But for the OLOT system the same session, all the four predictors except attendance predicted the grades recoded with an adjusted squared correlation value of 30.7 %.

3. Discussion

From Table 1, the means and the means of means in the four variables of attendance, participation, interest and concentration show that students' performance was better in the OLOT than in the traditional systems. All these also reflect in the means of the grades recorded. As stated earlier, the grading system of the university used raged from A (5.0), B (4-4.9), C (3-3.9), D (2-2.9) and F (0-0.9). This restatement of the grading system is necessary in order to appreciate the import of this two-part discussion.

First, in the 2015/2016 session, the mean of the OLOT grades exceeded the traditional system by mere .18 (i.e 3.10-2.92), though the result moved from D grade to C grade. The assertion could be made that the movement from grade D to C is still nebulous because the .18 difference could exist in another format that make students' performance in both cases still domicile in one grade – in the D grade for instance - thereby implying that the OLOT system does not really enhance performance. What this means is that the significance of the OLOT's marginal increase over the traditional system can only be visible or valuable relative to the point of transition from one grade to another.

In the case of the 2016/2017 session, the preponderance of the OLOT is more visible with a mean interval of .43 (i.e 3.14-2.62). Similarly, in comparison with the traditional system, students performed better as noted earlier, but the differential of the two means grades (.43) could still exist in the D grade (2-2.9) where the traditional system is located and the students' performance under the OLOT would not be any better.

This explanation becomes clearer with the 2017/2018 session where the means differential is a negligible .02 (i.e 3.13-3.11), even though the performance of students in the OLOT system is still higher. The mean grade of the traditional system moved from the D grade (2.0-2.9) in the previous two sessions to the domain of the C grade (3.0-3.9), meaning that the performance of students is effectively the same with that of the OLOT system within the context of the grading system that is used here.

These differential issues are a clear demonstration of the lack of precision of the grading system in use in judging the performance of students. This grading system presents a façade that does not give detailed information about what lies behind the grades. Besides this, the grading system shows that students could perform differentially and be graded uniformly or given an omnibus treatment, leading to the grouping together of students with different academic destinies. A few authors have noticed this abnormally recently (Boleslavsky *et al.*, 2015; Knapp, 2007) Carey *et al.* (2012). The indication here, therefore, is that any learning system that is being floated must take into cognizance the existing grading policy.

Besides conveying less information, this grading system could actually be a disservice to the parents and guardian of students as well as other publics of a university. The liberal assignment of grades in this situation does not provide the details of students' performance. These are details that parents and guardians may never get to know.

The second part of this discussion deals with the influence of the predictor variables on the criterion variable of grades. The 2015/2016 traditional system component of the six models of the multiple regression shows that none of the predictor variables significantly predicted the grade recorded for the session. The analysis of all the predictors (ANOVA) shows a boggling .794 significance! This is surprising and unimpressively so as no reasons could be identified for this finding yet. Literature is also not visible enough to show the influence of these four variables on grades on the traditional learning system. The 2015/2016 OLOT component replicated the traditional system counterpart except for the predictor *participation* which emerged significant, albeit unimpressively. However, the ANOVA in this case had showed a significance of .040 with the *participation* being the visible predictor. In comparison, the preponderance of participation as a fair significant predictor also showed up with a mean of .881 compared to .372 for traditional counterpart. One ramification of this is that the OLOT system enabled more students to contribute to lecture in the form of raising questions or answers and discussing matters, thereby helping to promote learning.

The 2016/2017 model for the traditional system is a repeat of its 2015/2016 counterpart as no predictor could influence the grades. The ANOVA value of significance is .794 compared to the .068 (figures not shown on tables) of the OLOT system for the same 2016/2017session; though the predictors of the OLOT, when taken individually, have a higher insignificance showing.

The 2017/2018 model for the traditional system also repeated the trend recorded for the two previous sessions with the ANOVA showing .231 significance. Of the poor prediction, *participation* had .147 significance. This picture changes impressively in the case of the OLOT component of the 2017/2018 model as all variables except attendance predicted the grades. The ANOVA test returned .000 significance. One fact shoots up from the multiple regression tests: the four variables, when taken together, do generally predict the grades in the OLOT system but do not in the traditional system.

4. Conclusion and Recommendations

This work addressed the concern of critics that the effectiveness of the OLOT system should be demonstrated in a longitudinal study for it to be meaningful test-wise and qualify for proper assessment. With the foregoing findings, it appears that the contention about which system produces better grades now has some breather, as the OLOT shows some promises over the traditional system. The descriptive, which exemplify the frequencies, show that the OLOT system has some advantages as students' performance exhibited some improvement, though unimpressive in some cases. But it turned out that the lack of precision in grading was the OLOT system's Achilles heel. The A-B-C-D-F grading did not allow the visibility of this better performance because it (the grading) captures scores as a whole bloc, not minding the details. It is on this note that the following recommendations are made:

1. Precision grading system that helps reflect accurately students 'performance should be in place in order to determine effectively the performance of students under the OLOT system.
2. Any new learning system should consider the grading system in place as a critical factor that could make or mar the effectiveness of a leaning system.
3. A study of the OLOT in different climes preferable in an advanced country is still needed to test its ecological validity.

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