

Development of Classroom Assessment Literacy Training Program for University Teachers in Punjab

Jahan Ara Shams* and Muhammad Zafar Iqbal**

Abstract

The major aim of the study was to develop Classroom Assessment Literacy Training Program for university teachers. At first stage, the researchers investigated the classroom assessment literacy of university teachers. The data were collected from 500 public and private sector university teachers using stratified proportionate sampling technique, i.e., 40% of public and private sector universities' regular teaching faculties in Lahore, Punjab using SPSS. The data on teachers' classroom assessment literacy was collected by adapting a test developed by Mertler (2003). The collected data were analyzed using descriptive and inferential statistics. The results showed that teachers have low level of classroom assessment literacy, and due to its importance there is dire need to enhance it. In the light of the results and recommendations of the researchers in previous international studies on teachers' classroom assessment literacy, the researcher addressed the issue of low classroom assessment literacy in teachers by developing a related training program.

Keywords: Formative assessment, summative assessment, teachers' skills

* Assistant Professor at Higher Education Department, Govt. of the Punjab, Lahore.

Email: jahanarashams@gmail.com

** Lecturer at Allama Iqbal Open University, Islamabad. Email: mzafar.iqbal@aiou.edu.pk

Introduction

Educational assessment has a critical role to play in enhancement and promotion of students' learning. Assessment literacy is the focus of researchers owing to increased interest in the field of educational assessment. It has been the focus of educational researchers from the past decade because of two main reasons. Firstly, there are demands of using different techniques for students' assessment. Secondly, the calls for creating student centered classrooms by making the knowledge more explicit, has increased the expectations of stakeholders (Webb, 2002). Therefore, teachers should understand how to assess student learning; determine their achievement and related expectations and interpretations of gathered assessment data. It also highlights the role of teachers as key stakeholders who decide assessment methods which can tell them about students' achievement and help to improve students' learning.

Assessment literacy can empower the teachers to use data gathered from various assessment methods, interpret it properly and make their instruction better (Gotch, 2012). Teachers' classroom assessment literacy is an important factor to conduct accurate assessment and ultimately achieve objectives at higher education to raise its level to meet international standards. Because of growing need and importance of teachers' classroom assessment literacy and inadequate teachers' training in educational assessment, in 1990, different institutions in USA, i.e., American Teachers' Federation, Education Association at National level, and National Council on Measurement in Education had jointly developed seven standards to measure teachers' competence in students' educational assessment. The standards regarding teachers' classroom assessment literacy are; choosing methods of assessment, development of methods of assessment, administration of tests, scoring of tests, and assessment results interpretation, decision making by using assessments, grading using assessments, communication of assessment results, recognizing unethical methods of assessment. These standards are taken as an authority in the field of teachers' classroom assessment literacy (Yamtin & Wongwanich, 2014).

Classroom assessment literacy is also important for teachers' professional development (Lorente-Catalan & Kirk, 2015; Randel, Apthorp, Beesley, Clark, & Wang, 2016; Huang & He, 2016) and wellbeing that will ultimately give benefits to their students and institutions they are working in (Popham, 2009). Research suggests that teachers are facing classroom assessment literacy related issues (Taylor, 2009; Popham, 2011; Herrera & Macías, 2015; Gavin, Iris, & Kelvin, 2015; Xu & Brown, 2016; DeLuca, LaPointe-McEwan & Luhanga, 2016; Huber & Skedsmo, 2016; Deneen & Brown, 2016; Koh, Burke, Luke, Gong, & Tan, 2017; Deeley & Bovil, 2017; Looney, Cumming, Kleij, & Harris, 2017; Tan, Ng, & Cheng, 2017) especially in higher education institutions which provide a turning point for future lifestyle. Classroom assessment literacy develops

competencies in teachers and enables them to deal with assessment related issues of diverse students in higher education classroom settings. Literature shows that teachers' scarce knowledge of assessment can distort the quality of education (Popham, 2009; Herrera & Macías, 2015).

In the last decade, international researchers, e.g. Plake and Impara (1992), Mertler and Campbell (2005), Popham (2006), Volante and Fazio (2007), Wolfe, Viger, Javinen, and Linkman (2007), Xu and Liu (2009), Stiggins (2010), Abell and Siegel (2011), and Tao (2014), Michigan Assessment Consortium (2015), Harding and Kremmel, (2016), Hsieh (2016), Peng and Zheng (2016), focused on primary and secondary schools pre-service and in-service TCAL due to its importance. In Pakistan, some research work has been done on examining assessment practices of teachers (Government of Pakistan, 1971; Ghafoor & Farooq, 1994; Mirza, Nosheen & Masood, 1999; Rehmani, 2003; Shah & Afzaal, 2004; Shirazi, 2004; Government of Pakistan, 2007; Khan, 2011; Ahmed & Malik, 2011) but hardly there is any research on investigating this phenomenon at higher education institutions in Pakistan. The study on teachers' classroom assessment literacy is the pioneer and provides a way forward to educational researchers by developing classroom assessment literacy training program for university teachers.

Research Objectives

The objectives of the study were to:

1. investigate the level of university teachers' classroom assessment literacy
2. compare the level of private and public sector university teachers in classroom assessment literacy
3. develop Classroom Assessment Literacy Training Program for university teachers

Research Methodology

Population

Regular teaching faculty (i.e. 5780, retrieved from Higher Education Commission) in private and public sector general universities of Lahore Punjab, was the population of the study.

Sampling

It was a survey study. The researchers selected 6 (out of 17) private and 2 (out of 5) public universities using stratified proportionate sampling technique, i.e. 40% of public and 40% private universities in Lahore, Punjab. The selection of general universities helped to increase generalizability of the findings because of homogeneity. Then the researchers selected 500 university teachers using simple random sampling.

Research Instrument

Teachers' Classroom Assessment Literacy test (Mertler, 2003) was adapted as a research instrument to collect the data. It covers the seven assessment literacy standards measuring the competence of teachers in students' assessment, developed by American Federation of Teachers, National Council on Measurement in Education, & National Education Association (AFT, NCME, & NEA 1990), regarding teachers classroom assessment literacy i.e., 1) choosing methods of assessment; 2) development of methods of assessment; 3) administration of test, scoring of test, and interpretation of the results; 4) Making decision using assessments; 5) Grading using assessments; 6) communication of assessment results; 7) recognizing unethical methods of assessment. The test consisted of 35 multiple choice questions type items. (For example one of the statement was "Ms. Farah wants to assess her students' skills in organizing ideas rather than just repeating facts. Which words should she use in formulating essay exercises to achieve this goal?" leading to four options). The test was adapted by the researcher to make it suitable for Pakistani context. Further it was validated through field experts. The instrument was piloted on 30 university teachers and the reliability of the instrument was calculated by applying Cronbach Alpha. The value of Cronbach Alpha was calculated as 0.889. The researchers personally collected the survey data.

Data Analysis

The data collected through survey, were analyzed by descriptive statistics i.e., mean and standard deviation to investigate the classroom assessment literacy level in the public and private university teachers.

Results

Mean score in classroom assessment literacy were calculated using TCAL test. Thirty five items related to classroom assessment literacy were part of TCAL test. Each correct answer was awarded one mark. The results are given below.

Table 1

Level of University Teachers on TCAL

Total Score	N	Mean	Std. Deviation
	430	13.64	1.79

In table 1 the mean value shows the level of classroom assessment literacy of 430 university teachers. It includes the scores of the total of both private (N=220) and public (N=210) sector university teachers. The mean value of scores (M=13.64) achieved by university teachers on test items showed low level of classroom assessment literacy in university teachers.

Table 2*Comparison of Private and Public University Teachers Mean Scores in Classroom Assessment Literacy*

Type of University	N	\bar{X}	SD	df	t	Sig.
Private	220	13.46	1.66	428	-2.18	.030
Public	210	13.81	1.90			

p = .05, (N=430)

There was significant difference between the mean scores of private and public university teachers in classroom assessment literacy. The value of $t_{428} = -2.18$ with $p = .030$ was significant at 5% alpha. The mean scores of private and public university teachers, i.e., 13.46 and 13.81 in classroom assessment literacy showed that the public sector university teachers performed slightly better than the private sector university teachers.

Discussion

This study was conducted to develop Classroom Assessment Literacy Training Program for university teachers. It also investigated classroom assessment knowledge related needs of teachers. The findings of the present study supported the literature (Stiggins, Conklin & Bridgeford, 1986; O'Sullivan & Chalnack, 1991; Daniel & King, 1998; Marso & Pigge, 1987; McDonald, 2002; Quilter & Gallini, 2000; Zhang & Burry-Stock, 2003; Volante & Fazio, 2007; Iqbal, Azam, & Aboidullah, 2009; Alkharusi, 2011; Plake & Impara, 1997; Alkharusi, Kazem, & Al-Musawai, 2011; Yamtim & Wongwanich, 2014; Beziat & Coleman, 2015; Mohammed, Kamis, & Ali, 2016) by showing that teachers have inadequate classroom assessment literacy. The above findings consequently highlight the need of teachers training in classroom assessment literacy.

It was found that there is dire need of enhancing assessment literacy of university teachers. Slight differences were found in classroom assessment literacy of private and public sector university teachers. It shows that the phenomenon of assessment literacy is somewhat same in both sectors.

The study has provided a training program to address the issue of inadequate assessment literacy of university teachers. Such trainings will consequently improve students' learning. Students can use the feedback of their teachers to know where they are now and where they ought to be. This awareness is central to achievement of unbeatable success. The teachers' use of sound principals in classroom assessment can make the students to demonstrate in standardized assessments, the unprecedented gains in scores (Chappuis & Stiggins, 2002). Such types of surveys are the first step towards bringing improvements in existing classroom assessment knowledge of teachers. The information obtained from the results of such surveys can give feedback to teachers about their weak areas in the whole process of assessment. This and similar training programs can be developed and used to deal with the weaknesses in different identified areas.

Conclusion

In the light of the results it was concluded that university teachers have low level of classroom assessment literacy. The comparison of private and public university teachers in classroom assessment literacy showed that public sector university teachers were slightly better than private university teachers in classroom assessment literacy. Classroom assessment acts like a backbone in the whole process of education system. It is much needed to address this issue; therefore, the researchers have developed Classroom Assessment Literacy Training Program for teachers at higher education. The process of program development is stated below.

Development of Classroom Assessment Literacy Training Program

Classroom Assessment Literacy Training Program was developed by the researcher covering seven assessment literacy standards, i.e., 1) choosing methods of assessment; 2) development of methods of assessment; 3) administration of test, scoring of test, and interpretation of the results; 4) Making decision using assessments; 5) Grading using assessments; 6) communication of assessment results; 7) recognizing unethical methods of assessment. After writing the objectives of the training, the content list was finalized by intensive literature review. The instructional aids were selected and assessment strategies were developed. It was consisted of 14 training sessions. Two lessons covered one standard of teachers' assessment literacy. The researcher incorporated different teaching methods e.g. lecture, discussion, activity based, role playing, multi-media, assignments, presentations, and group tasks etc. in the training program. The contents (e.g. Bloom taxonomy, learning objectives, assessment methods, assessment tools, table of specifications, constructing test items, writing directions, physical and psychological settings involved in test administration, etc.) of Classroom Assessment Literacy Training Program were validated and refined in the light of experts' opinions. It was validated by four experts in the field of educational assessment and one English language expert. They identified and suggested some technical, language and documentation related issues for the refinement of the program. It was again validated after incorporating the suggested changes.

Recommendations

This study had shown the weak assessment literacy competence in university teachers. Further the public sector university teachers performed better when compared to private sector university teachers. Higher Education Commission may provide opportunities to the private sector university teachers to enhance their classroom assessment literacy by arranging seminars and assessment training workshops. Further they can operationalize the given program for enhancing classroom assessment literacy of university teachers.

It was a quantitative type study. Further research in this area may use qualitative data using interviews or focus group discussions to explore the phenomena of classroom assessment literacy of teachers at higher education. Experimental studies can be conducted to explore the effectiveness of this training program.

References

- Abell, S. K., & Siegel, M. A. (2011). Assessment literacy: What science teachers need to know and be able to do. In D. Corrigan, J. Dillon, & R. Gunstone (Eds.), *The professional knowledge base of science teaching*, 205–221. The Netherlands: Springer.
- Abranovic, W. A. (1997). *Statistical thinking and data analysis for managers*. MA: Addison-Wesley.
- Ahmed, S., & Malik, S. (2011). Examination scheme at secondary school level in Pakistan: Composite vs Split. *Canadian Social Science*, 7(1), 130-139.
- Alkharusi, H. (2011). Teachers' classroom assessment skills: Influence of gender, subject area, grade level, teaching experience and in-service assessment training. *Journal of Turkish Science Education*, 8(2), 39-48.
- Alkharusi, H., Kazem, A. M., & Al-Musawai, A. (2011). Knowledge, skills, and attitudes of pre-service and in-service teachers in educational measurement. *Asia-Pacific Journal of Teacher Education*, 39(2), 113-123. Retrieved from <http://dx.doi.org/10.1080/1359866X.2011.560649>
- American Federation of Teachers, National Council on Measurement in Education, & National Education Association (AFT, NCME, & NEA) (1990). The standards for teacher competence in the educational assessment of students. *Educational Measurement: Issues and Practice*, 9(4), 30-32. Retrieved from <http://dx.doi.org/10.1111/j.1745-3992.1990.tb00391.x>
- Beziat, T. L. R., & Coleman, B. K. (2015). Classroom assessment literacy: Evaluating pre-service teachers. *The Researcher*, 27(1), 25-30.
- Daniel, L. G., & King, D. A. (1998). Knowledge and use of testing and measurement literacy of elementary and secondary teachers. *Journal of Educational Research*, 91(6), 331-344.
- Deeley, S. J., & Bovill, C. (2017). Staff student partnership in assessment: Enhancing assessment literacy through democratic practices. *Assessment & Evaluation in Higher Education*, 42(3), 463-477. doi: 10.1080/02602938.2015.1126551.

- DeLuca, C., LaPointe-McEwan, D., & Luhanga, U. (2016). Teacher assessment literacy: A review of international standards and measures. *Educational Assessment, Evaluation and Accountability*, 28(3), 251-272. doi:10.1007/s11092-015-9233-6
- Deneen, C. C., & Brown, G. T. L. (2016). The impact of conceptions of assessment on assessment literacy in a teacher education program. *Cogent Education*, 3(1), 1-14. Retrieved from <http://dx.doi.org/10.1080/2331186X.2016.1225380>
- DeVellis, R. F. (1991). Scale development: Theory and applications (*Applied Social Research Methods Series*, 26). Newbury Park: Sage.
- DeVon, H. A., Block, M. E., Moyle-Wright, P., Ernst, D. M., Hayden, S. J., Lazzara, D. J. et al. (2007). A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship*, 39(2), 155-164.
- Downing, S. M. (2004). Reliability: On the reproducibility of assessment data. *Med Education*, 38(9), 1006-1012.
- Gavin, W. F., Iris, C. H. L., & Kelvin, H. K. T. (2015). Multi-level model of contextual factors and teachers' assessment practices: an integrative review of research. *Assessment in Education: Principles, Policy & Practice*, 22(4), 475-494. doi: 10.1080/0969594X.2015.1017445
- Ghafoor, A., & Farooq, R. (1994). *Pakistan: System of education in the international encyclopedia of Education*, (2nd ed.) New York: Elsevier Science, 4270- 4263.
- GoP (Government of Pakistan). (1971). *Examination system in Pakistan: Current practices, problems and possible solutions*. Report of National Committee on Examination 1970-71, Islamabad: Ministry of Education and Scientific Research.
- GoP (Government of Pakistan). (2007). *A report on Pakistan examination system*. Islamabad: Ministry of Education.
- Gotch, C. M. (2012). *An investigation of teacher educational measurement literacy* (PhD dissertation). Washington State University, Department of Educational Leadership and Counseling Psychology.
- Harding, L., & Kremmel, B. (2016). *Teacher assessment literacy and professional development*. In D. Tsagari, & J. Banerjee (Eds.), *Handbook of second language assessment*. 413-428. Berlin & New York: Mouton de Gruyter.
- Herrera, L., & Macías, D. (2015). A call for language assessment literacy in the education and development of teachers of English as a foreign language. *Colomb. Appl. Linguist. J.*, 17(2), 302-312.

- Hsieh, C. (2016). Examining content representativeness of a young learner language assessment: EFL teachers' perspectives. In M. Nikolov (Ed.), *Assessing young learners of English: Global and local perspectives*. New York: Springer.
- Huang, J., & He, Z. H. (2016). Exploring assessment literacy. *Higher Education of Social Science*, 11(2), 18-27. doi: <http://dx.doi.org/10.3968/8727>
- Huber, S. G., & Skedsmo, G. (2016). Assessment in education-from early childhood to higher education. *Educational Assessment, Evaluation and Accountability*, 28(3), 201-203. doi:10.1007/s11092-016-9245-x
- Iqbal, H. M., Azam, S., & Abiodullah, M. (2009). Using assessment for improving student learning: An analysis of university teachers' practices. *Bulletin of Education and Research*, 31(1), 47-59.
- Khan, I. (2011). Reading assessment techniques among selected secondary school teachers in Pakistan: Current trends and practices. *International Journal on New Trends in Education and their Implications*, 2(2), 58-75.
- Koh, K., Burke, L. E. C., Luke, A., Gong, W., & Tan, C. (2017). Developing the assessment literacy of teachers in Chinese language classrooms: A focus on assessment task design. *Language Teaching Research*. Retrieved from <https://doi.org/10.1177/1362168816684366>
- Krejcie, V. R., & Morgan, W. D. (1970). Determining sample size for research activities. *Educational and psychological measurement*, 30(3), 607-610.
- Looney, A., Cumming, J., Kleij, F. D., & Harris, K. (2017). Reconceptualising the role of teachers as assessors: Teacher assessment identity. *Assessment in Education: Principles, Policy & Practice*, 25(5), 442-467. doi: 10.1080/0969594X.2016.1268090
- Lorente-Catalán, E., & Kirk, D. (2015). Student teachers' understanding and application of assessment for learning during a physical education teacher education course. *European Physical Education Review*, 22(1), 65-81. doi:10.1177/1356336X15590352.
- Marso, R. N., & Pigge, F. L. (1987). A state-wide assessment of the testing and evaluation needs and proficiencies of beginning teachers: Implications for staff development. Paper presented at the Annual Meeting of the Association of Supervision and Curriculum Development, New Orleans: LA.
- McDonald, M. (2002). The perceived role of diploma examinations in Alberta, Canada. *Journal of Educational Research*, 96(1), 21-36.

- Mertler, C. A. (2003). *Pre-service versus in-service teachers assessment literacy: Does classroom experience make a difference?* Paper presented at the annual meeting of the Mid-Western Educational Research Association, October 15-18, Columbus, Ohio.
- Mertler, C. A., & Campbell, C. (2005). *Measuring teachers' knowledge and application of classroom assessment concepts: Development of the assessment literacy inventory.* Paper presented at the annual meeting of the American Educational Research Association, April 11-15, Montréal, Quebec, Canada.
- Michigan Assessment Consortium. (2015). *Assessment literacy standards-a national imperative.* Lansing, MI: Author.
- Mirza, M., Nosheen, M., & Masood, N. (1999). *Impact of examination system on teaching styles of teachers at secondary and higher secondary classes.* Lahore: Institute of Education and Research, University of the Punjab.
- Mohammed, S., Kamis, A., & Ali, N. (2016). Gauging the assessment literacy of Malaysia's home economics teachers: An empirical study. *Malaysian Journal of Society and Space, 12*(3), 130 - 138.
- Nunnally, J. (1978). *Psychometric theory.* New York: McGraw-Hill.
- O'Sullivan, R. G., & Chalnack, M. K. (1991). Measurement-related course work requirements for teacher certification and recertification. *Educational Measurement: Issues and Practices, 10*(1), 17-19.
- Peng, J., & Zheng, S. (2016). A longitudinal study of a school's assessment project in Chongqing, China. In M. Nikolov (Ed.), *Assessing young learners of English: Global and local perspectives.* New York: Springer.
- Plake, B. S., & Impara, J. C. (1992). *Teacher competencies questionnaire description.* Lincoln, NE: University of Nebraska.
- Plake, B. S., & Impara, J. C. (1997). Teacher assessment literacy: What do teachers know about assessment? In G. D. Phye (Ed.), *Handbook of classroom assessment (53-68).* New York: Academic Press.
- Popham, J. W. (2006). Needed: A dose of assessment literacy. *Educational Leadership, 63*(6), 84-85.
- Popham, W. J. (2009). Assessment literacy for teachers: Faddish or fundamental? *Theory Into Practice, 48*(1), 4-11.

- Popham, W. J. (2011). Assessment literacy overlooked: A teacher educator's confession. *The Teacher Educator*, 46(4), 265-273.
- Quilter, S. M., & Gallini, J. K. (2000). Teachers' assessment literacy and attitudes. *The Teacher Educator*, 36(2), 115-131.
- Randel, B., Apthorp, H., Beesley, A. D., Clark, T. F., & Wang, X. (2016). Impacts of professional development in classroom assessment on teacher and student outcomes. *The Journal of Educational Research*, 109(5), 491-502.
- Rehmani, A. (2003). Impact of public examination system on teaching and learning in Pakistan. *International Biannual Newsletter ANTRIEP*, 8(2), 3-7.
- Shah, D., & Afzaal, M. (2004). *The examination board as educational change agent: The influence of question choice on selective study*. Paper presented at 30th annual IAEA Conference. Philadelphia, United States of America.
- Shirazi, M. (2004). *Analysis of examination system at university level in Pakistan* (PhD dissertation). Rawalpindi: University of Arid Agriculture.
- Stiggins, R. J., & Conklin, N. F. (1991). *In teachers' hands: Investigating the practice of classroom assessment*. Albany, NY: SUNY Press.
- Stiggins, R. J. (2010). Essential formative assessment competencies for teachers and school leaders. In H. L. Andrade & G. J. Cizek (Eds.), *Handbook of formative assessment* (233-250). New York: Routledge.
- Stiggins, R., & Chappui, J. (2005). Using student-involved classroom assessment to close achievement gaps. *Theory into Practice*, 44(1), 11-18. doi:10.1207/s15430421tip4401_3
- Stiggins, R., & Chappuis, S. (2005). Putting testing in to perspective: It's for learning. *Principal Leadership*, 6(2), 16-20.
- Tan, H., Ng, D. K. E., & Cheng, L. P. (2017). Towards a conceptual framework for assessment literacy for mathematics teachers. In B. Kaur, W. K. Ho, T. L. Toh, & B. H. Choy (Eds.), *Proceedings of the 41st Conference of the International Group for the Psychology of Mathematics Education*, 4, 249-256. Singapore: PME.
- Tao, N. (2014). *Development and validation of classroom assessment literacy scales: English as a Foreign Language (EFL) instructors in a Cambodian higher education setting* (PhD dissertation). College of Education Victoria University Melbourne, Australia.

- Taylor, L. (2009). Developing assessment literacy. *Annual Review of Applied Linguistics*, 29, 21-36.
- Volante, L., & Fazio, X. (2007). Exploring teacher candidates' assessment literacy: Implications for teacher education reform and professional development. *Canadian Journal of Education*, 30(3), 749-770.
- Webb, N. L. (2002). *Assessment literacy in a standards-based urban education setting*. Retrieved from <http://www.wcer.wisc.edu/archive/mps/AERA2002/Assessment%20literacy%20NLW%20Final%2032602.pdf>
- Wolfe, E. W., Viger, S. G., Jarvinen, D. W., & Linksman, J. (2007). Validation of scores from a measure of teachers' efficacy toward standards aligned classroom assessment. *Educational and Psychological Measurement*, 67(3), 460-474. Retrieved from <http://journals.sagepub.com/doi/10.1177/0013164406292091>
- Xu, Y., & Brown, G. T. L. (2016). Teacher assessment literacy in practice: A reconceptualization. *Teaching and Teacher Education*, 58, 149-162. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0742051X16300907>
- Xu, Y., & Liu, Y. (2009). Teacher assessment knowledge and practice: A narrative inquiry of Chinese college EFL teachers' experience. *TESOL Quarterly*, 43(3), 493-513.
- Yamtim, V., & Wongwanich, S. (2014). A study of classroom assessment literacy of primary school teachers. *Procedia - Social and Behavioral Sciences*, 116, 2998-3004. doi:10.1016/j.sbspro.2014.01.696.
- Zhang, Z., & Burry-Stock, J. A. (2003). Classroom assessment practices and teachers' self perceived assessment skills. *Applied Measurement in Education*, 16(4), 323-342.