Analysis of Students' Attitudes on Performance Based Assessment

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Abstract: **Performance-based assessment is the thrust of Higher Education Institutions in the Philippines. Rural schools are faced with variety of pressures that are competing for attention within the community. This research assessed students' attitudes towards performance-based assessment. It also aimed that instructional material will be developed. It utilized descriptive-quantitative research design and used weighted mean, t-test for two independent groups and Pearson r. Respondents of the study were 29 teachers and 238 students. The assessment ratings of students towards their attitude on the four types of assessment is significantly different from the assessment ratings of the teachers. The assessment ratings of students towards their attitude on performance-based assessment is not significantly different from the assessment ratings of the teachers. The students' attitude on the four types of assessment as assessed by the students have significant relationship with the students' attitude on performance-based assessment. The students' attitude on the four types of assessment as assessed by the teachers have no significant relationship with the students' attitude on performance-based assessment. The school officials should encourage teachers to always exhibit positive teaching behavior to further learning of students. An instructional material can be developed emphasizing the usage of performance-based assessment tools.**

Keywords: **Higher education institution, assessment, performance-based assessment, students' attitude and instructional material.**

I. INTRODUCTION

Performance-based assessment, such as portfolios, presentations, and participation is now the thrust of Higher Education Institutions (HEIs) all over the country. Northern Quezon College Incorporated (NQCI) and Southern Luzon State University (SLSU) as rural schools located in Infanta District, Infanta, Quezon are faced with variety of pressures that are competing for attention within the community. The pressures come from a variety of sources and for variety of reasons. They occur when long examination scores become the indicators of success. Pressures may come from the school officials looking for a remarkable performance indicators wherever they can be found.

One of these pressures may be the performance in the Licensure Examinations for Teachers (LET) or it may come from peers or parents/relatives/teachers. It may even come in the form of professional inputs and Commission on Higher Education (CHED) directives. These are contributory to the teaching-learning process and this is related to the process by which students learn the lesson. Licensure Examination for Teachers – Elementary covers Professional Education (60%) and General Education (40%), while LET-Secondary covers Professional Education (40%), Major Field (40%) and General Education (20%). Either for these two, learning is imperative. Hence, this must be given emphasis by the management of NQCI and SLSU.

One of the initiatives was converting course syllabi from the old format to an Outcomes-Based Education (OBE) format that will suit the 21st Century teaching and learning for the attainment of the 21st learning skills. Both schools are committed in developing a competency-based learning standards that comply with existing CHED directives when applicable to achieve quality and perform well in the Licensure Examination for Teachers. One feature of an OBEdized syllabus is the performance-based assessment approach. While these schools adopt a performance-based approach to assessment as reflected in the syllabi, specific inputs like hiring of qualified teachers, acquisition of relevant school

facilities and processes remain important, as they create the environment and shape the learning experience that is made available to students.

In general, a performance-based assessment approach measures students' ability to apply the skills and knowledge learned from a unit or units of study. Typically, the task challenges students to use their higher-order thinking skills to create a product or complete a process (Chun, 2010). On-going assessment of student learning is an essential aspect of effective teaching. Teachers can use a variety of assessment methods to diagnose student's strengths and needs, plan and adjust instruction, and provide feedback to students and parents regarding progress and achievement. A wide variety of methods is available to teachers for assessing student learning (Airasian, 1991; Cross & Angelo, 1988; Ferrara & McTighe, 1992). Regardless of the particular methods employed, effective classroom assessment is guided by three fundamental principles. Classroom assessment should (1) promote learning, (2) use multiple sources of information, and (3) provide, fair, valid and reliable information.

Despite of this initiative, no study has been conducted in Infanta District to determine its effectivity. It was also observed by the researcher during classroom observations in his capacity as department head that there are still some teachers never employ performance-based assessment. Still, some teachers usually employ traditional approach in assessing students' performance. Further, even the syllabi are already OBEdized, still no locally-made instructional materials are made available to teachers in conformity with the OBEdized syllabi. Assessment policies and practices of NQCI & SLSU are in transition period. Call for performance-based assessment seems new to many, it has been a standard advice from the Commission on Higher Education for a long time (CHED Handbook on Typology, OBE, and ISA, 2014).

Darling-Hammond (1994) argues instead for policies that ensure "top-down support for bottom-up reform", where assessment is used to give teachers practical information on student learning and provide opportunities for school communities to engage in "a recursive process of self-reflection, self-critique, self-correction, and self-renewal". He further explains that the equitable use of performance assessments depends not only on the design of the assessments themselves, but also on how well the assessment practices are interwoven with the goals of authentic school reform and effective teaching.

It is for this reason that the researcher is motivated to conduct this study to assess students' attitudes towards performance-based assessment among Bachelor of Secondary Education (BSEd) and Bachelor of Elementary Education (BEED) students in Infanta District, Infanta, Quezon as assessed by the teachers and students themselves.

It is also aimed that instructional interventions suited to the learning needs of the respondents will be developed. Moreover, this paper aimed to provide a snapshot of effective ways in the teaching-learning process in higher education and develop an instructional material appropriate for elementary and secondary education students that can be utilized by teachers at Northern Quezon College Incorporated and Southern Luzon State University, or to any other Higher Education Institutions across the country.

II. MATERIALS AND METHODS

This study made use of descriptive – quantitative research. This method attempted to assess students' attitudes on performance-based assessment to education students in Infanta District, Infanta, Quezon. Specifically, at Northern Quezon College Incorporated (NQCI) and Southern Luzon State University (SLSU) as the only Higher Education Institutions in the district offering education program. Distribution of the validated survey questionnaire was conducted to assess the attitude of students on performance-based assessment. Interviews and FGDs were undertaken with the selected teachers and students who have direct bearing to the study using the interview schedule. Data were treated using weighted mean, mean, t-test for two independent groups, p-value and Pearson r. Statistical Software (SPSS) Version 16 was used for data computation and further confirmed by the MINITAB V.14, a statistical software intended to analyze numerical data.

III. RESULTS AND DISCUSSION

The following specific problems were asked in the study with their corresponding findings.

First: To what extent is the attitude of students towards the four types of assessment and performance-based assessment practices as assessed by teachers and the students themselves?

Extent on Students' Attitude on the Four Types of Assessment as Assessed by the Teachers and the Students Themselves Relative to Tests

For students, the top three highest ranked items were: "I would prefer to be marked on tests", ""Getting marked on test helps me learn", Getting marked on test is good because I have opportunity to show my ability" and "I know what I must do to get a good mark on test" with weighted means of 4.32, 4.28 and 4.28, respectively, all were rated as "Strongly Agree". The lowest item was "Test takes too much time" which was rated as "Agree". The over-all mean was 4.08 which means "Agree".

For teachers, the top three highest ranked items were: "I know what I must do to get a good mark on test", "I would prefer to be marked on tests" and "Getting marked on test helps me learn" with weighted means of 4.68, 4.58 and 4.38, respectively. The lowest items were "Test takes too much time" and "Test(s) is (are) good for showing my ability in English" with the same weighted mean of 3.69 which was rated as "Agree". The over-all mean was 4.16 which means "Agree".

Extent on Students' Attitude on the Four Types of Assessment as Assessed by the Teachers and the Students Themselves Relative to Presentations

For students, the top three highest ranked items were "Getting marked on presentation helps me learn", "Getting marked on presentation makes me to put in more effort in class" and "Getting marked on presentation is good because I have opportunity to show my ability" with weighted means of 4.44, 4.39 and 4.38, respectively, which were rated as "Strongly Agree". The over-all mean was 4.22 which means "Strongly Agree".

For teachers, the top three highest ranked items were "I know what I must do to get a good mark on presentations", "Getting marked on presentation makes me to put in more effort in class" and "Getting marked on presentation is good because I have opportunity to show my ability" with weighted means of 4.62, 4.51 and 4.48 which were rated as "Strongly Agree. The over-all mean was 4.36 which means "Strongly Agree".

Extent on Students' Attitude on the Four Types of Assessment as Assessed by the Students and the Teachers Themselves Relative to Participation

For students, the top three highest ranked items were "I would prefer to be marked on participation", "Getting marked on participation is good because I have opportunity to show my ability" and "Getting marked on participation helps me learn" with uniform weighted means of 4.36 which can be rated as "Strongly Agree". The lowest ranked item was "Participation takes too much time" with weighted mean of 3.65 which can be rated as "Agree". The over-all mean is 4.15 which was rated as "Agree".

For teachers, the top three ranked items were "Getting marked on participation is good because I have opportunity to show my ability", "Getting marked on participation helps me learn" and "I know what I must do to get a good mark on participation" with weighted means of 4.51, 4.48 and 4.44 which were rated as "Strongly Agree". The over-all mean was 4.31 which was rated as "Strongly Agree".

Extent on Students' Attitude on the Four Types of Assessment as Assessed by the Teachers and the Students Themselves Relative to Portfolio

For students, the top three ranked items were "Getting marked on portfolio helps me learn", "I would prefer to be marked on portfolio" and "Getting marked on portfolio is good because I have opportunity to show my ability" with weighted means of 4.22, 4.19 and 4.17, respectively which were rated as "Strongly Agree" and the other two are rated as "Agree", respectively. The lowest ranked item was "Portfolio (s) is (are) good for showing my ability in English" with weighted mean of 3.82 which can be rated "Agree". The over-all mean is 4.02 which can be rated as "Agree".

For teachers, the top three ranked items were "Getting marked on portfolio is good because I have opportunity to show my ability", "Getting marked on portfolio makes me to put in more effort in class" and "I would prefer to be marked on portfolio", I think getting marked on portfolio is fair to me" and I know what I must do to get a good mark on portfolio" with weighted means of 4.48, 4.44 and 4.34 which can be all rated as "Strongly Agree". The over-all mean is 4.23 which can be rated as Strongly Agree".

Extent on Students' Attitude on Performance-Based Assessment Practices as Assessed by the Teachers and the Students Themselves

For students, the top three ranked items were "Students are asked to apply their learning to real life situations", "The department assessment tasks are useful for everyday life" and "Students can show others that their learning has helped them do things" with weighted means of 4.52, 4.25, 4.25, respectively, which can be all rated as "Strongly Agree". The lowest ranked item was "The assessment in the department tests what students' memorize" with weighted mean of 3.65 which can be rated as "Agree". The lowest ranked item was "The assessment in the department tests what students' memorize" with weighted mean of 3.01 which can be rated as "Agree". The over-all mean is 4.12 which can be rated as "Agree".

For teachers, the top three ranked item were "Students are asked to apply their learning to real life situations", (4.62) "Students are aware how their assessment will be marked" and "Students can show others that their learning has helped them do things" with weighted means of 4.62, 4.62 and 4.58 respectively, which can be all rated as "Strongly Agree". The over-all mean was 4.21 which can be rated as "Strongly Agree".

Second: Significant Difference on the Assessment Ratings between the Teachers and the Students on Students' Attitude on the Four Types of Assessment

The data reveal that the test statistics value is –3.10 at an α of 5%, the null hypothesis which states that there is no significant difference between the assessment ratings of students and teachers is hereby rejected. This clearly shows that there is significant difference between the assessment ratings of students and teachers. They do not have similar views on their assessment ratings.

Significant Difference on the Assessment Ratings between the Teachers and the Students on Students' Attitude on the Performance-Based Assessment

The data reveal that the test statistics value is -1.03 at an α of 5%, the null hypothesis which states that there is no significant difference between the assessment ratings of students and teachers is hereby accepted. This clearly shows that there is no significant difference between the assessment ratings of students and teachers. They have similar views on their assessment ratings.

Third: Is there a significant relationship between the four types of assessment and performance-based assessment practices as assessed by teachers and students?

Coefficient of Correlation (r) Between the Four Types of Assessment and Performance-Based Assessment Practices as Assessed by the Students

The computed coefficient of correlation or r-value was 0.63 which denoted a marked substantial relationship. Therefore, their attitudes on the four types of assessment had direct influence in their attitude on performance-based assessment. With the p-value of 0.00 at 1% level of significance, the findings rejected the null hypothesis. This only means that there is significant relationship between the students' attitude on the four types of assessment and their attitude on the performance-based assessment as assessed by the students themselves.

Coefficient of Correlation (r) Between the Four Types of Assessment and Performance-Based Assessment Practices as Assessed by the Teachers

The computed coefficient of correlation or r-value was 0.65 which denoted a marked substantial relationship. Therefore, the students' attitude on the four types of assessment had no direct influence in the students' attitude on the performance-based assessment as assessed by the teachers. With the p-value of 0.05 at 1% level of significance, the findings accepted the null hypothesis.

Fourth: What are the advantages and disadvantages of using different kinds of assessment such as tests, portfolios, presentations and participations as assessed by the groups of respondents?

Frequency and Rank of the Advantages in Using the Different Types of Assessment as Assessed by the Teachers and Students

For students, the top three (3) highest ranked advantages are: Rank 1 pertains to tests show students' real ability, Rank 2 refers to portfolios exercise students' creativity and facilities of the school and Rank 3 pertains to tests challenge students to study hard.

For teachers, the top three are: "Tests show students real ability, "Bright students will really excel in tests'' and ''Individual assessment for tests which will really determine the best in class''.

Frequency and Rank of the Disadvantages in Using the Different Types of Assessment as Assessed by the Teachers and Students

The top three (3) highest ranked disadvantages as assessed by the students are: Rank 1 pertains to "Prone to subjective ratings/scoring in the participation", Rank 2 refers "Feeling that students will fail in the tests" and Rank 3 was "Corrections done in portfolios can be seen by other classmates".

For the teachers, the top three are: "Students have tendency to cheat in tests", "Tests are very hard especially in mathematics'' and ''Materials needed are costly in preparing for the portfolios''.

Fifth: What are the experiences of both respondents on performance-based assessment?

Frequency and Rank of the Experiences on Performance-Based Assessment

The top 3 highest ranked experiences for the students are: Students poor in the English language does not participate in class discussion, Enjoyed working with my classmates and only bright students prepare the presentation.

While for the teachers, the top 3 highest ranked experiences are: enjoy completing/checking portfolios, needs more time in checking student outputs and some presentations are boring.

IV. CONCLUSION

Based on the findings, the following conclusions were drawn:

The over-all assessments of students' attitude on the four types of assessment and performance-based assessment as assessed by the students are "Agree" which means that students manifest positive attitude. While for the teachers, the over-all assessments are "Strongly Agree" which means that teachers are confident the students have positive attitude towards the four types of assessment and performance-based assessment. However, their assessment ratings have no significant difference.

The assessment ratings of students towards students' attitude on the four types of assessment is significantly different from the assessment ratings of the teachers. They do not have similar views on their assessment ratings. The assessment ratings of students towards students' attitude on performance-based assessment is not significantly different from the assessment ratings of the teachers. They have similar views on their assessment ratings.

The students' attitude on the four types of assessment as assessed by the students have significant relationship with the students' attitude on performance-based assessment. The students' attitude on the four types of assessment as assessed by the teachers have no significant relationship with the students' attitude on performance-based assessment.

The first three highest ranked advantages as determined by the students are: tests show students' real ability, portfolios exercise students' creativity and tests challenge students to study hard. As determined by the teachers, the top three are: "Tests show students real ability, "Bright students will really excel in tests'' and ''Individual assessment for tests which will really determine the best in class''.

The first three highest ranked disadvantages as determined by the students are: "Prone to subjective ratings/scoring in the participation", "Feeling that students will fail in the tests" and "Corrections done in portfolios can be seen by other classmates".

For teachers, the top three are "Students have tendency to cheat in tests", "Tests are very hard especially in mathematics'' and ''Materials needed are costly in preparing for the portfolios''. The top three highest ranked experiences as determined by the students are: Students poor in the English language does not participate in class discussion, enjoyed working with my classmates and only bright students prepare the presentation. For the teachers, the top three are: enjoy completing/checking portfolios, needs more time in checking student outputs and some presentations are boring.

V. ACKNOWLEDGEMENTS

REFERENCES

[1] Adams, K. (2006). The Sources of Innovation and Creativity. A Paper Commissioned by the National Center on Education and the Economy for the New Commission on the Skills of the American Workforce. Washington DC: National Center on Education and the Economy.

[2] Airasian, P.W. (1991). Classroom assessment. New York: McGraw-Hill.

[3] Alvarez, C., Salavati, S., Nussbaum, M., & Milrad, M. (2013). Collboard: Fostering new media literacies in the classroom through collaborative problem solving supported by digital pens and interactive whiteboards. Computers and Education, 63, 368-379.

[4] Amabile, T. M. (1998). How to Kill Creativity. Harvard Business Review, September-October 1998.

[5] Applebee, A. N., Langer, J. A., Jenkins, L. B., Mullis, I. V. S., & Foertsch (1990). Learning to write in our nation's schools: Instruction and achievement in1988 at arades 4, 8' and 12. Princeton, NJ: Educational Testing Service.

[6] Baird, J., & Stull, J. (1992). The Seven C's of Communication. Englewood Cliffs,NJ: Prentice Hall.

[7] Baker, E. L. & Herman, J. L. (1983). Task structure design: Beyond linkage. Journal of Educational Measurement, 20, 149-164

[8] Biggs, J. and Tang, C. (2011). Teaching for Quality Learning at University: What the Student Does, 4th Edition (The Society for Research into Higher Education). US: Open University Press.

[9] Boyd, D. (2007). Why youth (heart) social network sites: The role of networked publics in teenage social life. In D. Buckingham (Ed.), MacArthur foundation series on digital learning- youth identity, and digital media volume. Cambridge, MA: MIT Press. Retrieved Nov. 26, 2015, from www.proquest.com http://www.danah.org/

[10] Bransford, J. (1979). Human cognition: Learning, understanding, and remembering. Belmont, CA: Wadsworth Publishing Company.

[11] Breland, H. M., Camp, R., Jones, R. J., Morris, M. M., & Rock, D. A. (1987). Assessing writing skill. (Research Monograph NO. 11). New York: College Entrance Examination Board.

[12] Bruner, J. (1966). Toward a theory of instruction. New York: W.W. Norton & Company, Incorporated.

[13] Calmorin-Paler, L. (2012). Assessment of Student Learning 1. Rex Bookstore, Manila, Philippines

[14] Cannell, J. J. (1988). Nationally normed elementary achievement testing in America's public schools: How all 50 states are above the National average. Educational Measurement: Issues and Practice, 1(2), 5-9.

[15] Capobianco, B., & Tyrie, N. (2009). Problem solving by design. Science and Children, 47(2), 38-41. http://www.nsta.org/elementaryschool/

[16] Chang, M., & Singh, K. (2008). Is all-day kindergarten better for children's academic performance? Australian Journal of Early Childhood, 33(4), 35-42. Retrieved from EBSCO host.

[17] Chi, M. T. H., Glaser, R., & Farr, M. (Eds.), The nature of expertise. Hillsdale, NJ: Erlbaum.

[18] Chun, M. (2010, March). "Taking teaching to (performance) task: Linking pedagogical and assessment practices." Change: The Magazine of Higher Education.

[19] Claro, M., Preiss, D., San Martin, E., Jara, I., Hinostroza, J. E., Valenzuela, S., Cortes, F., & Nussbaum, M. (2012). Assessment of 21st century ICT skills in Chile: Test design and results from high school level students. Computers and Education, 59(3), 1042-1053.

[20] CMO No. 37, series 2012, Policies Standards and Guidelines in the Establishment of an Outcomes-based Education (OBE) System in Higher Education Institutions Offering Engineering Programs.

[21] Collins, A., Hawkins, J., & Frederiksen, J. (1990). TechnQ1~gybased performance assessments. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, April.

[22] Coulson, M. (2006). Developing Teachers' Cognitive Clarity and Communication Style hrough an Inservice Training Program. Doctoral Dissertation, Newcastle, New South Wales: Faculty of Education and Arts, University of Newcastle

[23] Cronbach, L. J. (1988). Five perspectives on validity argument. in H. Wainer & H. I. Braun (Eds.), Test validity, (pp. 3-17). Hillsdale, NJ: Erlbaum.

[24] Cronbach, L. J., Gleser, G. C., Nanda, H., & Rajaratnam, N. (1972). The dependahility of behavioral measurements. New York: Wiley.

[25] Cross, K.P., & Angelo, T.A. (1988). Classroom assessment technique: A handbook for faculty. (Technical Report No. 88-A-004.0). Ann Arbor, MI: University of Michigan, National Center for Research to Improve Postsecondary Teaching and Learning.

[26] Cruickshank, D. R., & Kennedy, J. J. (1986). Teacher Clarity. Teaching and Teacher Education, 2, 43-67. http://dx.doi.org/10.1016/0742-051X(86)90004-1

[27] Darling-Hammond, L. (1994) Performance-based Assessment and Education Equity. Harvard Educational Review: April 1994, Vol. 64, No. 1, pp. 5-31 DOI: http/dx.doi.org/10.17763/haer.64.1.j57n353226536276

[28] Deakin (2014). Critical Thinking. Deakin University, Vic. http://www.deakin.edu.au/__data/assets/pdf_file/0012/51222/critical-thinking.pdf

[29] De Bono, E. (1995). Serious Creativity. The Journal for Quality and Participation,18, 12-18.

[30] Del Socorro, F.R., Omas-as, R.L. & Galela, R.S. (2011). Assessment of Student Learning 1 & 2. GBP Great Books Publishing. West Avenue, Quezon City.

[31] Dewey, J. (1997). Experience and education, New York: Touchstone. (Original work published 1938).

[32] Eggen, P., & Kauchak, D. (2012). Strategies and Models for Teachers: Teaching Content and Thinking Skills (6th ed.). Bos- ton: Pearson.

[33] Facione, P. A. (2011). Measured Reasons and Critical Thinking. Millbrae, CA: The California Academic Press.

[34] Ferra, S. & McTighe, J. (1992). Assessment: A thoughtful process. In A. Costa, J. Bellanca, & R. Fogarty (Eds.), If minds matter: A foreword to the future (Vol. 2). Palatine, IL: Skylight Publishing.

[35] Ferrara, S., & McTighe, J. (1992). Assessment: A thoughtful process. In A Costa, J. Bellanca, & R. Fogarty (Eds.), If minds matter: A foreword to the future (Vol. 2). Palatine, IL: Skylight Publishing.

[36] Fletcher, G. (2007). Curriculum-based reform: An eye on the future. T.H.E. Journal, 34(7), 26. http://thejournal.com

[37] Frederiksen, J. R. & Collins, A. (1989). A system approach to educational testing. Educational Researcher, 18 (9), 27-32.

[38] Fullan, M. (2000). Change Forces: Probing the Depths of Educational Reform. London: The Falmer Press.

[39] Fyrenius, A., Bergdahl, B., & Silén, C. (2005). Lectures in problem-based learning--why, when and how? An example of interactive lecturing that stimulates meaningful learning. Medical Teacher, 27(1), 61-65. DOI: 10.1080/01421590400016365

[40] Gainen, J. & Locatelli, O. (1995). Assessment for the new curriculum: A guide for professional accounting programs. Florida: American Accounting Association.

[41] Haertel, E. (in press). Performance measurement. In M. C. Alkin (Ed.), EncYcloPedia of Educaitonal Research, Sixth edition.

[42] Handsley, E. (2011). Good Practice Guide: Collaboration Skills-Threshold Learning Outcome 5-Promoting Excellence in Higher Education. Surry Hills, NSW: Australian Learning & Teaching Council.

[43] Hieronymus, A. N. & Hoover, H. D. (1987). Iowa Tests of Basic Skills: Writing supplement teacher's guide. Chicago: Riverside Publishing Company.

[44] Hmelo-Silver, C. (2004). Problem-based learning: What and how do students learn?. Educational Psychology Review. http://dx.doi.org.ezp.waldenulibrary.org/

[45] Hoffman, J. (2010). What we can learn from the first digital generation: Implications for developing twenty-first century learning and thinking skills in the primary grades. Education 3-13, 38(1), 47-54.

[46] Hoppe, H. U. (2007). Integrating learning processes across boundaries of media, time and group scale. Research and Practice in Technology Enhanced Learning, 2(1), 31-49.

[47] House, E. R. (1989). Report on content definition process in social studies testina. (CSE Technical Report No. 309). Los Angeles: UCLA Center for Research on Evaluation, Standards, and Student Testing.

[48] IBSA (2009). The Innovation and Business Industry Skills Council of Australia; Developing Innovation Skills: A Guide for Trainers and Assessors to Foster the Innovation Skills of Learners through Professional Practice. East Melbourne, Victoria: Australian Government, Department of Education, Employment and Workplace Education.

[49] Khattri, N., Kane, M.B. & Reeve, A.. (1995). Educational Leadership: Nov. 1995, Research Library

[50] Kivunja, C. (2014a). Do You Want Your Students to Be Job-Ready with 21st Century Skills? Change Pedagogies: A Paradigm Shift from Vygotskyian Social Constructivism to Critical Thinking, Problem Solving and Siemens' Digital Connectivism. International Journal of Higher Education, 3, 81-91. http://dx.doi.org/10.5430/ijhe.v3n3p81

[51] Kivunja, C. (2015d). Teaching, Learning and Assessment: Steps towards Creative Practice. Melbourne: Oxford University Press. (In Press)

[52] Kotzee, B. (2010). Seven posers in the constructivist classroom. London Review of Education, 8(2), 177-187. doi:10.1080/14748460.2010.487340.

[53] Kompf, M., & Bond, R. (2001). Critical Reflection in Adult Education. In T. Barer-Stein, & M. Kompf (Eds.), The Craft of Teaching Adults (pp. 21-38). Toronto, ON: Irwin.

[54] Langer, J. A., Applebee, A. N., Mullis, I. V. S., & Foertsch, M. A. (1990). T.earning to read in our nation's schools: Instruction and achievement in 1988 at grades 4, 8, and 12. Princeton, NJ: Educational Testing Service.

[55] National Academy of Education. (1987). Commentary by the National Academy of Education on the Nation's Report Card. Cambridge, MA: Author.

[56] Lippl, C. (2013). The Four Cs of 21st Century Skills. Zuluma Education Trends. http://zuluma.com/education-trends/four-cs-21st-century-skills/#.VLEHY2SUdew

[57] McGregor, S.L. T. (2014). Through an integral lens. Journal of Family & Consumer Sciences, 106(1), 3. Retrieved November 25, 2015 www.proquest.com

[58] McNierney, D. (2004). Case Study: One Teacher's Odyssey through Resistance and Fear. TechTrends, 48, 64-69. http://dx.doi.org/10.1007/BF02763533

[59] MCEETYA (2008). Melbourne Declaration on Educational Goals for Young Australians. Melbourne: Curriculum Corporation, Ministerial Council on Education, Employment, Training and Youth Affairs.

[60] Messick, S. (1989). Validity. In R. L. Linn (Ed.), Educationa, Measurement, 3rd edition (pp. 13-104). New York, Macmillan.

[61] Miller, S. (1990). Critical Thinking in Classroom Discussion of Texts: An Ethnographic Perspective. Paper Presented at the Annual Meeting of the American Educational Research Association, Boston, MA: ERIC Document Reproduction Service No. ED320886.

[62] Mitchell, R., & Neill, M. (1992). Criteria for evaluation of student assessment of systems. Washington, DC: National Forum on Assessment.

[63] Mulnix, J. W. (2010). Thinking Critically about Critical Thinking. Educational Philosophy and Theory, 44, 464-479. http://dx.doi.org/10.1111/j.1469-5812.2010.00673.x

[64] Muijs, D., & Reynolds, D. (2011). Effective Teaching: Evidence and Practice (3rd ed.). Los Angels, CA: Sage.

[65] National Academy of Education. (1987). Commentary by the National Academy of Education on the Nation's Report Card. Cambridge, MA: Author.

[66] Navarro, R.L. & Santos, R.G. (2012). Assessment of Learning Outcomes (Assessment 1). Lorimar Publishing, ISBN 971-685-748-1, Metro Manila

[67] Pappas, M. (2009). Inquiry and 21st century learning. School Library Media Activities Monthly, 25(9), 49-51. http://www.schoollibrarymedia.com/

[68] Partnership for 21st century skills. (2007). Beyond the three rs: Voter attitudes toward 21st century skills. Retrieved November 25, 2015, from http://www.21stcenturyskills.org/.php?option=com_content&task=view&id=82&Itemid =185

[69] Piascik, D. (2015). Preparing America's Students for College and Career: Common Core Learning Standards.

[70] Rotherham, A. J., & Willingham, D. (2009). 21st Century Skills: The challenges ahead. Educational Leadership, 67(1), 16-21.

[71] Sackett, P. R. (1987). Assessment centers and content validity: Some neglected issues. Personnel Psychology, 40, 13-25.

[72] Saxena, S. (2015). How Do You Teach the 4Cs to Students (Part-1): Creativity and Innovation? Nioda Delhi NCR: Amity University. http://edtechreview.in/trendsinsights/insights/914-how-do-you-teach-the-4Cs-to-students-part-1-creativity-andinnovation.

[73] SBAC (2015). Preparing America's Students for College & Career: The Common Core State Standards-A Commitment to Student Success.

[74] Schoenfeld, A. H. (in press). On mathematics as sense-making: an informal attack on the unfortunate divorce of formal and informal mathematics. In D. N. Perkins, J. Segal, and J. Voss (Eds.), Informal reasoning in education. Hillsdale, NJ: Erlbaum.

[75] Selden, A. & Sleden, J. (1999). Performance-based Assessment and Instructional Change. The College of Mathematics Journal; Sept. 1999. Research Library

[76] Shavelson, R. J, Webb, N. M., & Rowley, G. (1989). Generalizability theory. American Psychologist, ~, 922-932.

[77] Siemens, G. (2005, January), connectivism: A learning theory for the digital age. International Journal of Instructional Technology & Distance Learning, 2(1). Retrieved Nov. 26, 2015, from http://http://www.itdl.org//_05/.htm

[78] Stiggins, R. J. (1987). Design and development of performance assessments. ~Educational Measurement: Issues and Practice, 6(3), 33-42.

[79] Swanson, D., Norcini, J. & Grosso, L. (1987). Assessment of clinical competence: Written and computer-based simulations. Assessment and Evaluation in Higher Education, 1;l, 220-246.

[80] Trilling, B., & Fadel, C. (2009). 21st Century Skills: Learning for Life in Our Times. San Francisco, CA: Jossey-Bass.

[81] Van-Gelder, T. (2001). How to Improve Critical Thinking Using Educational Technology. Melbourne: The University Melbourne, Department of Philosophy, 539-548.

[82] Washington, DC: Smarter Balanced Assessment Consortium. http://www.svsd410.org/cms/lib05/

[83] Western and Northern Canadian Protocol (WCNP). (2006). Rethinking Classroom Assessment with Purpose in Mind. Assessment for Learning Assessment as Learning Assessment of Learning. Manitoba, Canada: Crown in Right of Manitoba.

[84] Wragg, E. C. (Ed). (1984). Classroom Teaching Skills. London: Croom Helm. http://dx.doi.org/10.4324/9780203325445 currencycharts/?from=TRY&to=USD&view=10Y