

WORKPLACE LEARNING PRACTICES ADOPTED BY TECHNOLOGY EDUCATION TEACHERS IN HIGHER INSTITUTIONS IN NIGER AND KADUNA STATES, NIGERIA

Raymond Emmanuel & Jagaba Paul Daniels
Department of Industrial and Technology Education
Federal University of Technology
Minna, Niger State

Abstract

*The purpose of the study was to investigate the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna states, Nigeria. Two research questions and one hypothesis guided the study. A cross-sectional survey research design was adopted for the study. The study was carried out in four (4) tertiary institutions offering technology education related courses in Niger and Kaduna states. The population of the study consists of 98 technology education teachers in Federal University of Technology, Minna; Kaduna Polytechnic, Kaduna; Kaduna State College of Education, Gidan Waya; and Niger State College of Education, Minna. 46 were senior lecturers of technology education while 52 were other lecturers of technology education. Data was collected using a 28-items questionnaire designed by the researchers titled: Workplace Learning Instrument (WOPLI). Data collected for the study was analyzed using mean, standard deviation, and z-test statistics. Findings revealed that workplace learning practices adopted by teachers include learning through peer group interaction, learning through interaction with students, learning through collaboration with other colleagues within the institution and colleagues from other institutions among others. Furthermore, findings also revealed that the techniques for improving workplace learning practices among technology education teachers include the following: institutions should support their teachers to attend courses and educational programmes, teachers should be sponsored to attend conferences and workshops so as to interact with colleagues from other institutions, and institutions should provide teachers with easy access to computer technology and other resources. It was therefore recommended that **government**, institutions, and individuals (teachers) should collaborate to ensure a more conducive work-learning environment.*

Keywords: workplace, learning practices, technology education, teachers, and higher institutions

Introduction

Learning is an important aspect of organizational life because it helps members of organizations adapt to changing environments, aids in innovation and growth, and helps develop competitive advantage. Learning according to Eikebrokk and Olsen (2009) has been positively associated with organizational and individual performance. Learning is about how we perceive and understand the world, and about making meaning (Marton and Booth, 1997). But learning according to Fry, Ketteridge, and Marshall (2009) is not a single thing; it may involve mastering abstract principles, understanding proofs, remembering factual information, acquiring methods, techniques and approaches, recognition, reasoning, debating ideas or developing behaviour appropriate to specific situations, and it is about change.

Learning takes place in organizations through formal and informal means. Marsick and Watkins (2001) described formal learning as resulting from planned, structured, instructor-led courses and programmes that are often institutionally based. Informal learning is more under the learner's control and generally occurs outside the classroom. In terms of learning location, work related learning according to Gruber, Mandl and Oberholzner (2008) can be classified into the following three categories: (1) Learning tied to work: Location of learning and work are identical; (2) Learning connected to work: Work and learning are organized separately but sharing location and/or organization models; and (3) Learning oriented toward work: Learning takes place in centralized venues such as vocational education and training (VET) institutions. They further explain that the first category, that is, identical location of learning and work, has become the centre of workplace learning and learning by working as well as learning through systematic instruction at the workplace are methods seen to be tied to work. That is, the workplace has increasingly been recognized as an important learning environment in which work or experience is seen as a vital source of knowledge.

In recent times, learning has evolved from the classroom to the work place. Workers in industries,

companies, institutions, and organizations are seen acquiring one form of knowledge or the other with the aim of been productive in the work place or environment. According to Reeve and Gallacher (1999), workplace learning is seen as a flexible form of learning which enable employees to engage in the regular processes of up-dating and continuing professional development which have been increasingly emphasized. Furthermore, workplace learning could be seen as a type of learning which is generated or stimulated by the needs of the workplace including formal on-the-job training, informal learning and work-related off-the-job education and training. Boud and Garrick (1999) observed that the workplace has become a site of learning associated with two quite different purposes. The first is the development of the enterprise through contributing to production, effectiveness and innovation; the second is the development of individuals through contributing to knowledge, skills and the capacity to further their own learning both as employees and citizens in the wider society.

Workplace learning could be achieved through (a) classroom training: a type of learning whereby courses are offered in a classroom setting with instructions by a skilled instructor (b) e-learning: a type of learning that is carried out using electronic applications and processes (c) blended learning: a formal education programme in which a student learns in part through delivery of content and instruction using digital and online media with some element of student control over time, place, path, or pace (d) Social learning: a type of learning that takes place through social interaction between peers, and (e) collaborative learning: a situation in which two or more people learn or attempt to learn something together. One is expected to acquire knowledge at the workplace through any of these avenues. The Australian National Training Authority (ANTA) (2003) described an ideal workplace learning situation as follows: (1) Workplace learning is directed to increase innovative capacity and work capability in organizations; (2) Organizational culture supports and values workplace learning; (3) Workplace learning is an integral part of business and organizational strategic planning; (4) Workplace learning in all forms are valued and employed; and (5) Workplace learning is tailored to individuals; and (6) Networks, partnerships and supply chains are used to facilitate workplace learning.

The importance of workplace learning cannot be over-emphasized, as it helps the employee to better understand and respond to workplace challenges, increases job satisfaction and engagement satisfaction, and help the employee to adopt and grow into new and needed skill areas. It also improves productivity, promote team work, and increases decision making and participation at the workplace. But despite these numerous benefits of this form of learning, there are some barriers or challenges which hinder the effectiveness of the workplace learning. Some of these challenges according to Crouse, Doyle, and Young (2009) include time constraint, lack of access to training opportunities, lack of access to learning resources, financial constraints among others. These barriers need to be eliminated in order for workplace learning to be effective.

Teachers like other professionals are required to update their knowledge everyday in order to overcome the challenges of the workplace. The technology education teacher for instance is required to improve his/her knowledge and skills so as to be effective and productive in the face of new technologies. This can only be achieved through learning at the workplace where individuals are allowed to acquire knowledge while they work. This calls for a greater synergy between the employer and employee so that it may be realistic. Therefore, the need to investigate the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna states, Nigeria with the aim of providing ways of improving these practices.

Aim and Objectives

The aim of the study is to investigate the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna states, Nigeria. Specifically, the objectives of the study is to determine the

1. Workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States.
2. Techniques for improving workplace learning practices among technology education teachers in higher institutions in Niger and Kaduna States.

Research Questions

The following research questions guided the study

1. What are the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States?

2. What are the techniques for improving workplace learning practices among technology education teachers in higher institutions in Niger and Kaduna States?

Hypothesis

The null hypothesis below was formulated and tested at 0.05 level of significance

H₀₁ There is no significant difference in the mean responses of senior lecturers and otherlecturers on the workplace learning practices adopted by technology education teachers in higher institutions in Nigerand Kaduna States

Methodology

The study adopted the cross-sectional survey research design. According to Shaughnessy, Zechmeister and Jeanne (2008), cross-sectional survey research is a study whereby samples are drawn from a population and studied once. The study was carried out in four (4) tertiary institutions offering technology education related courses in Niger and Kaduna states. The population of the study consists of 98technology education teachers in Federal University of Technology, Minna; Kaduna Polytechnic, Kaduna; Kaduna State College of Education, Gidan Waya; and Niger State College of Education, Minna. The population distribution consisted of 46 senior lecturers of technology education and 52otherlecturers of technology education. Data were collected using a 28-items questionnaire designed by the researcher titled Workplace Learning Instrument (WOPLI).

The WOPLI was made up of two (2) sections A and B. Section A contains the personal data of the respondent. Section B which contains 28 questionnaire items was further divided into two sub-sections according to the research questions 1 and 2. The WOPLI was structured using the four point rating scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The instrument was face validated by three lecturers of technology education in Federal University of Technology, Minna and their comments and suggestions were considered in preparing the final draft of the instrument. The instrument was trial tested in Abubakar Tafawa Balewa University (ATBU) Bauchi and data collected were used to determine the internal consistency of the items of the instrument using the Cronbach alpha method which resulted to a reliability coefficient of 0.81. Data collected for the study were analyzed using mean and standard deviation for the research questions. An inferential statistics z-test was also used to test the hypothesis at 0.05 level of significance to compare the mean responses of the two groups. A mean of 2.50 and above was considered agreed (A) while responses with mean below 2.50 were considered disagreed (D). A z-calculated less than z-critical was considered accepted while z-calculated more than z-critical was considered rejected.

Results

Research Question 1

What are the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States?

Table 1

Mean and Standard Deviation of Senior Lecturers and Other Lecturers on the Workplace Learning Practices
N=98

| S/N | ITEMS | \bar{X}_1 | SD ₁ | \bar{X}_2 | SD ₂ | \bar{X}_t | SD _t | REM |
|-----|---|-------------|-----------------|-------------|-----------------|-------------|-----------------|--------|
| 1 | Learning through the use of new technologies in the classroom | 2.54 | 0.50 | 2.52 | 0.49 | 2.53 | 0.50 | Agreed |
| 2 | Learning through peer group interaction | 3.28 | 0.53 | 3.42 | 0.49 | 3.35 | 0.51 | Agreed |
| 3 | Learning when interacting with students in the classroom and workshop | 3.30 | 0.45 | 3.39 | 0.49 | 3.35 | 0.47 | Agreed |
| 4 | Learning through seminars and workshops that deals with the use of new technologies in teaching | 3.23 | 0.42 | 3.63 | 0.48 | 3.43 | 0.45 | Agreed |
| 5 | Learning through project design and construction in the workshop | 3.75 | 0.44 | 3.72 | 0.45 | 3.74 | 0.45 | Agreed |
| 6 | Learning from new and difficult tasks that involves sharing of knowledge and ideas | 3.39 | 0.51 | 3.63 | 0.54 | 3.51 | 0.53 | Agreed |

| | | | | | | | | |
|-----------------------------------|---|------|------|------|------|------|------|--------|
| 7 | Learning through collaborative research with colleagues from other institutions | 3.77 | 0.42 | 3.67 | 0.47 | 3.72 | 0.45 | Agreed |
| 8 | Learning through reading and research on the internet | 3.32 | 0.47 | 3.52 | 0.50 | 3.42 | 0.49 | Agreed |
| 9 | Learning through organized training by external trainers on utilization and maintenance of modern machines and equipment in teaching | 3.66 | 0.47 | 3.53 | 0.49 | 3.60 | 0.48 | Agreed |
| 10 | Learning through knowledge sharing with colleagues on the internet | 3.30 | 0.45 | 3.39 | 0.49 | 3.35 | 0.47 | Agreed |
| 11 | Learning when using new machines that involves the use of computer technologies and resources | 3.74 | 0.44 | 3.53 | 0.49 | 3.64 | 0.47 | Agreed |
| 12 | Learning through field trips with students | 3.70 | 0.47 | 3.55 | 0.49 | 3.63 | 0.48 | Agreed |
| 13 | Learning through professional lectures and presentations such as inaugural lectures and seminars on how modern equipment and machines operate | 3.66 | 0.47 | 3.53 | 0.49 | 3.60 | 0.48 | Agreed |
| 14 | Learning when troubleshooting equipment and devices | 3.49 | 0.50 | 3.45 | 0.49 | 3.47 | 0.50 | Agreed |
| 15 | Learning from mistakes or error committed when working with machines | 3.24 | 0.42 | 3.35 | 0.48 | 3.30 | 0.45 | Agreed |
| 16 | Learning when demonstrating how equipment and machine work | 3.30 | 0.47 | 3.30 | 0.45 | 3.30 | 0.46 | Agreed |
| GRAND MEAN AND STANDARD DEVIATION | | 3.41 | 0.46 | 3.44 | 0.49 | 3.43 | 0.48 | Agreed |

Key: X_1 = Mean of senior lecturers, SD_1 = Standard Deviation of senior lecturers

X_2 = Mean of young lecturers, SD_2 = Standard Deviation of young lecturers

X_t = Average mean, SD_t = Average Standard Deviation

The results that emerged from Table 1 revealed that the respondents agreed with all the items on the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States. This implies that technology education teachers in higher institutions in Niger and Kaduna States are learning in the workplace.

Research Question 2

What are the techniques for improving workplace learning practices among technology education teachers in higher institutions in Niger and Kaduna States?

Table 2
Mean and Standard Deviation of Senior Lecturers and Other Lecturers on the Techniques for Improving Workplace Learning Practices

| S/N | ITEMS | \bar{X}_1 | SD ₁ | \bar{X}_2 | SD ₂ | \bar{X}_t | SD _t | REM |
|-----------------------------------|--|-------------|-----------------|-------------|-----------------|-------------|-----------------|--------|
| 1 | Institutions should support their teachers to attend courses and educational programmes | 3.49 | 0.50 | 3.45 | 0.49 | 3.47 | 0.50 | Agreed |
| 2 | Teachers should be sponsored to attend conferences and workshops so as to interact with colleagues from other institutions | 3.39 | 0.51 | 3.63 | 0.54 | 3.51 | 0.53 | Agreed |
| 3 | Interactive sessions should be organized among teachers where they can discuss and interact with each other | 3.77 | 0.42 | 3.67 | 0.47 | 3.72 | 0.45 | Agreed |
| 4 | Teachers' proficiency should be rewarded by the institutions | 3.30 | 0.47 | 3.30 | 0.45 | 3.30 | 0.46 | Agreed |
| 5 | Teachers should be engaged with demanding and challenging duties which will prompt them to learn and share ideas | 2.54 | 0.50 | 2.52 | 0.49 | 2.53 | 0.50 | Agreed |
| 6 | Institutions should provide easy access to internet facilities around the workplace | 3.50 | 0.50 | 3.58 | 0.49 | 3.54 | 0.50 | Agreed |
| 7 | Institutions should provide teachers with easy access to computer technology facilities and other resources | 3.39 | 0.51 | 3.63 | 0.54 | 3.51 | 0.53 | Agreed |
| 8 | Teachers should be given time off duties in order to acquire additional knowledge | 3.30 | 0.47 | 3.60 | 0.49 | 3.45 | 0.48 | Agreed |
| 9 | Inaugural lectures should be organized by institutions where teachers can listen and learn | 3.56 | 0.52 | 3.57 | 0.50 | 3.57 | 0.51 | Agreed |
| 10 | Teachers should be encouraged to exhibit interpersonal relationship so that they can learn from each other | 3.70 | 0.46 | 3.64 | 0.48 | 3.67 | 0.47 | Agreed |
| 11 | Institutions should strive to make workplace learning a priority | 3.66 | 0.47 | 3.49 | 0.50 | 3.56 | 0.49 | Agreed |
| 12 | Institutions should provide the teachers with new and up-to-date learning resources | 3.66 | 0.47 | 3.53 | 0.49 | 3.60 | 0.48 | Agreed |
| GRAND MEAN AND STANDARD DEVIATION | | 3.44 | 0.48 | 3.47 | 0.49 | 3.45 | 0.49 | Agreed |

The results that emerged from table 2 revealed that the respondents agreed with all the items on the techniques for improving workplace learning practices among technology education teachers in higher institutions in Niger and Kaduna States. This implies that once these techniques are been adhere to, teachers' workplace learning practices will be effective.

Hypothesis

There is no significant difference in the mean responses of senior lecturers and other lecturers on the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States.

Table 3
Z-test Analysis of Mean Responses of Senior Lecturers and Other Lecturers on the Workplace Learning Practices Adopted by Technology Education Teachers

| Respondents | N | \bar{X} | SD | df | z-cal | Decision |
|------------------|----|-----------|------|----|-------|-------------|
| Senior Lecturers | 46 | 3.41 | 0.46 | 96 | -1.63 | Not |
| Other Lecturers | 52 | 3.44 | 0.48 | | | Significant |

The analysis in table 3 above revealed that the z-cal value of -1.63 is less than the z-table value of 1.99. Therefore, the null hypothesis was accepted regarding the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States. Hence, there is no significant difference in the mean responses of senior lecturers and other lecturers on the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States.

Discussion

Findings emerging on workplace learning practices adopted by technology education teachers in higher institution in Niger and Kaduna states shows that teachers learn in the workplace through interaction with peer group and with students. This is possible because learning takes place when positive interaction with individual is established. Lampel and Bhalla (2004) explained that interaction is important in learning as learning takes place in the negotiation of meaning which happens between people. Similarly, Handley, Clark, Fincham, and Sturdy (2006) observed that interaction and collective reflection are seen as a necessary context for learning and creating knowledge especially in the workplace. Furthermore, finding revealed that teachers learn in the workplace by taking courses and programmes in the classroom, participation in organized seminars and workshops, participating in organized training by external supervisors, and through lectures and presentations such inaugural lectures.

Finding also indicated that teachers' learning in the workplace occurs through group research with colleagues in the workplace, collaborative research with colleagues from other institutions, and carrying out practical experiences with colleagues from different institutions. This is not surprising owing to the fact that working in group and team avails one the opportunity to share and obtain knowledge and experience of the known and unknown. Rain bird, Fuller, and Munro (2004) opined that workers bring to work experiences, abilities and attitudes which affect the ways in which they can work and learn. The teacher is allowed to brainstorm with colleagues thereby learning from other colleagues' experiences. Finding also revealed that teachers learn in the workplace through reading and research on the internet and through the use of computer technologies and resources. The advent of electronic learning (e-learning) that is, learning through the use of computers has made learning to be easier and faster in every aspect. The internet and other computer technologies and resources available in the school environment allow the teacher to learn and upgrade his/her knowledge in the workplace.

Finally, for the teacher to effective learn in the workplace, government, institutions, and employer of labour must do their part in order to provide an enabling work-learning environment. The teacher must also show commitment to learn. Finding on Table 3 reveals that there is no significant difference in the mean responses of senior lecturers and other lecturers on the workplace learning practices adopted by technology education teachers in higher institutions in Niger and Kaduna States. This implies that technology education teachers at all level apply and utilize the same methods or practices of learning in the workplace.

Findings on techniques for improving workplace learning practices among technology education teachers in higher institutions in Niger and Kaduna States revealed that institutions should support their teachers to attend courses and educational programmes, and that teachers should be sponsored to attend conferences and workshops so as to interact with colleagues from other institutions as a way of encouraging them to learn. This is in line with McCracken and Winterton (2006) who explained that organizational and managerial support is a key facilitator to workplace learning and has been shown to have a positive impact on workplace learning. Furthermore, finding revealed that interactive sessions should be organized among teachers where they can discuss and interact with each other. This is in relation to Lohman (2005) who reported that school teachers prefer interactive learning activities where they can share knowledge and experiences with their colleagues there by learning from each other's experience.

Finding also revealed that there should be easy access to internet facilities around the workplace, and that institutions should provide teachers with easy access to computer technology and other resources. This confirms the assertion of Lohman (2005) who identified increasing internet and computer resources as a facilitator of workplace learning. This is not surprising giving the fact that computer and the internet has made learning to be easier. There is a need to make the workplace conducive for learning so that employees/ workers can improve their knowledge and skills for effective performance in the modern workplace.

Conclusion

Based on the findings of the study, it could be concluded that technology education teachers in higher institutions in Niger and Kaduna States are learning in one way or the other in the workplace. This trend when properly managed and supported will enhance teachers' skills and knowledge thereby improving their performance in the workplace. Despite teachers' show of commitment towards workplace learning, more need to be done by the government, institutions, and individuals (teachers) to ensure a more conducive work-learning environment.

Recommendations

Based on the findings of the study, the following recommendations are made

1. Institutions of learning should provide an enabling environment through right policy formulation where workplace learning can thrive.
2. Institutions should partner with government at all levels so as to make adequate the resources and equipment required for effective workplace learning.
3. Government should sponsor teachers to attend trainings, conferences, seminars, and workshops locally and internationally.
4. Institutions and individuals (teachers) should strive to make workplace learning a priority by utilizing the available resources and opportunities.

References

- Australian National Training Authority (ANTA) (2013). What Makes For Good Workplace Learning? National Centre for Vocational Education Research (NCVER).
- Boud, D. & Garrick, J. (1999). *Understandings of Workplace Learning. Understanding Learning at Work*. London: Routledge.
- Crouse, P., Doyle, W., & Young, J. (2009). HRM's Trends and Shifting Practitioner Roles and Competencies: Preliminary Evidence from Nova Scotia. *Proceedings of Southeast Decision Sciences Institute Conference*, Charleston, USA.
- Eikebrokk, T. R., & Olsen, D. H. (2009). Training, competence, and business performance Evidence from E-business in European small and medium-sized enterprises. *International Journal of E-Business Research* 5(1) 92–116.
- Fry, H., Ketteridge, S., & Marshall, S. (2009). *A Handbook for Teaching and Learning in Higher Education*. New York, NY: Routledge Taylor and Francis group.
- Gruber, E. Mandl, I., & Oberholzner, T. (2008). Learning at the workplace in Modernizing Vocational Education and Training. CEDEEP, Ed., 1-71
- Handley, K., Clark, T., Fincham, R., & Sturdy, A. (2006). A space for reflection and learning? An investigation of physical, relational and existential space in client-consultancy projects. Paper presented at the OLKC 2006, University of Warwick.
- Lampel, J., & Bhalla, A. (2004). Let's Get Natural: Communities of Practice and the Discourse of Spontaneous Sharing in Knowledge Management. Paper presented at the Fifth European Conference on Organizational Knowledge, Learning and Capabilities, Innsbruck, Austria.

- Lohman, M. C. 2005. A Survey of Factors Influencing the Engagement of Two Professional Groups in Informal Workplace Learning Activities. *Human Resource Development Quarterly*, 16 (4)
- Marsick, V. J., & Watkins, K. E. (2001). Informal and Incidental Learning. *New Directions for Adult and Continuing Education* 89: 25–34.
- Marton, F. & Booth, S. (1997). *Learning and Awareness*, Mahwah, NJ: Lawrence Erlbaum Associates.
- McCracken, M., & Winterton, J. (2006). What about managers? Contradictions between lifelong learning and management development. *International Journal of Training and Development*, 10 (1), 55–66.
- Rainbird, H., Fuller, A., & Munro, A. (2004). *Workplace Learning In Context*. Retrived on 5th July, 2015 from www.tlrp.org
- Reeve, F. & Gallacher, J. (1999). How are the Discourses Of Work-Based Learning Influencing Practice? Researching Work and Learning: A first International Conference, 10th – 12th Sept 1999, Trinity and All Saints College, University of Leeds.
- Shaughnessy, J. J., Zechmeister, E. B., & Jeanne, S. Z. (2008). *Research Methods in P s y c h o l o g y*. Pennsylvania, McGraw-Hill Higher Education.