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Improving Organizational Problems

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Abstract

The purpose of the study was to develop technology solutions by proposing Electronic Performance Solutions Systems for improving the performance of the educational organization at the university. The study focused on the Technology Enhanced Curriculum Lab at the one of the Universities in Southern area of the USA. The research plans were made by identifying discrepancies between the desired goals and the existing situations and evaluating the organizational activities and performance of the staff members.

Keywords: *Performance Technology, Organizational Problems, EPSS, Evaluation*

1. Introduction

Human Performance Technology (HPT) is a practical approach to improve organizational performance by analyzing, designing, and developing human performance systems in the organizations [10]. It is also an attempt to figure out the best way to solve problems in organizations by using human performance management systems. Studies on human resources development suggest that performance management has to be a holistic process, integrating problems in management and individual performance in the context of specific situations [7], [10], [12]. An organization is an adaptive system, taking in various inputs and producing valued output in diverse formats. Since the organization must continuously and successfully produce items and services, they often fail to provide sufficient working conditions to employees, providing clear goals and necessary support for performance [1, 2].

Many organizations now take advantage of technology solutions by implementing online training and traditional classroom training since blended approach facilitate learners' diverse needs. Parts of learning that require direct contact with instructors are handled in a classroom situation while the rest of parts are available in an online Electronic Support System. With this approach to training, online and onsite interventions complement each other [9], [15]. Educational organizations such as public schools and universities are also in need of training staff, faculty members, and students since the new technologies and tools continuously evolving. In particular, people in the field of teacher education needs to update new information and technologies for accommodating the students' needs [9].

1.1. Problem Statement

The State Board of Education mandated that all applicants applying for a teaching license must have a certain pattern of course work in their chosen teaching field and the teacher education programs in the colleges require students in the Teacher education program to take the ITEC course (introductory instructional technology course) as a part of their undergraduate or graduate coursework. Thus, the number of students who use the Technology Lab increases and the Lab had to be prepared to meet diverse needs of students. However, the TEC Lab has 5 staff members who are 10 hour graduate assistants. The number of staff is relatively small compared to the size of facility and there is not

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enough time for training. Since most of them have to start working immediately without any training, they frequently make mistakes and suffer from a lack of skills and necessary information. This situation sometimes causes serious problems in performance of the staff and results in malfunction of the Lab. Therefore, training the staff members is a great need.

1.2. Purposes of the Study

The purpose of the study was to develop technology solutions by proposing Electronic Performance Solutions Systems for improving the performance of the educational organization at the university. The study focused on the Technology Enhanced Curriculum Lab at the T University. The research plans were made by identifying discrepancies between the desired goals and the existing situations and evaluating the organizational activities and performance of the staff members. The main objectives of this study were to (1) determine the extent to which the objectives of the facility were achieved based on the mission statement after evaluating the performance of organizational activities, and (2) develop a technology solution plan.

2. Literature Review

Studies on human resources development suggest that performance management has to be a holistic process, integrating problems in management and individual performance in the context of specific situations. An organization is an adaptive system, taking in various inputs and producing valued output in diverse formats [3, 7, 14, 15]. Since the organization must continuously and successfully produce items and services, they often fail to provide sufficient working conditions to employees, providing clear goals and necessary support for performance [5, 6]. According to the related literature, learning to work is largely experiential and is on a trial and error basis. Sufficient conditions for learning to perform optimally require several components such as clear goals of organizations, access to required resources, criteria for successful performance, information, task structuring support, data, information, interactive tools, and communications [4, 11].

Usually, organizations attempt to provide those components through traditional training, yet it has not been quite successful in keeping up with necessary conditions as needed: Training plans are often found to be large scale, expensive, and instable in its process and content, requiring a continuous follow-up. There are too many variables that need to be dealt with when developing training. Often times, employees suffer from instruction that is out of context, inefficient, and unmanageable. In fact, the assumptions for training includes (1) one training design works for employees in various situations, (2) organizations have sufficient time and money are for developing successful courses, and (3) employees have enough time to receive training [5, 8, 10].

However, in most cases, it is not true. Therefore, training alone cannot be an effective method to approaching performance problems and there must be an alternative to cover the defect of training. According to Gery [7], nowadays, more and more people are connected by networking and knowledge is increasingly available online. Technology makes it possible to integrate knowledge into software applications, and people use computers to do work and to learn context. Thus, an EPSS is one of the most effective non-training methods that can be used to maximize learning activities. EPSS is an electronic system that provides integrated access to information, advice, learning experiences, and tools to assist employees in performing a task with the minimum support from others [9, 15].

An EPSS enables organizations to save costs and time while improving performance because (1) Employees do not need to leave work places, (2) EPSS

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provides opportunities to practice for ensuring skills retention and transfer to real-world-situation while training does not guarantee retention of skills and knowledge that were taught, and (3) It provides necessary information on time [4, 7]. There are different components and levels in the use of EPSS depending on the context and needs.

Many organizations now take advantage of technology solutions by implementing online training and traditional classroom training since blended approach facilitate learners' diverse needs. Parts of learning that require direct contact with instructors are handled in a classroom situation while the rest of parts are available in an online Electronic Support System. With this approach to training, online and onsite interventions complement each other [11, 13]. Therefore, considering the situations in the TEC Lab, a blended method combining training and an EPSS is an efficient and effective approach.

3. Methodology

3.1. Research Procedures

In order to achieve the study goals, at first, the researcher evaluated the performance of lab activities and determined the extent to which the objectives of the facility were achieved based on the mission statement. The necessary data was collected from the staff, patrons, and administrators using a checklist, a problem log, survey questionnaires, and observations. The collected data was carefully examined by the researcher in order to identify the performance problems of the Lab. Upon identifying the performance problems, the researcher developed a technology solution plan including training and an Electronic Performance Support System (EPSS). The EPSS and training was designed the researcher with the assistance of the staff and the Office of Computer Training (OCT) team. The OCT team supported technical aspects of the training and EPSS. In the technology plan, possible situations blended instructional approaches, the rationale of the selected technology, costs of the implementation, and possible outcomes were identified and discussed.

4. Analysis of Organizational Problems

4.1. Context of the Organization

The Technology Enhanced Curriculum Laboratory (TEC Lab) is one of the facilities in the College of Education, Health, and Human Sciences that supports faculty members and students in preparing their teaching and learning activities. The lab provides students and faculty members with a study area, classroom, resources, curriculum consultations, and technical support. The TEC Lab has 5 staff members who are 10 hour graduate assistants. The number of staff is relatively small compared to the size of facility and there is not enough time for training. Since most of them have to start working immediately without any training, they frequently make mistakes and suffer from a lack of skills and necessary information. This situation sometimes causes serious problems in performance of the staff and results in malfunction of the Lab. Therefore, training the staff members is a great need.

Since many education systems prefer teachers to have competent technology skills and to effectively implement educational technology in classrooms, teacher education programs need to help them to prepare for their future classrooms by requiring students to have an instructional technology course as a part of their undergraduate or graduate coursework. Based on need, the TEC Lab reconstructed, bringing technology into curriculum materials. The lab changed its name from Curriculum Lab to Technology Enhanced Curriculum Lab and expanded its service areas from a simple library to an active service area where learning and teaching practice occur. A variety of technology

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equipment was purchased; including twenty-five computers with various content based software and instructional programs, assistive-technology, a Smart Board, a Smart Cart, and many other multimedia materials that are available for students and faculty member to use in the Lab and check out for their classroom purposes. The Computer Lab and student study area are available to be scheduled for a specific class at any time and the staff is available help. Usually, when not scheduled for specific classes, the computers and curriculum materials are open to students.

4.2. Performance Problem Identified

The staff members have to fulfill their responsibilities according to the job description; the curriculum and technology specialist was especially important in the work setting. However, some of the members were not familiar with the curriculum materials and some of them do not have technology skills as required. The staff should be competent in operating the database system in order to fulfill their jobs appropriately; they need to enter data of new adoptions to the curriculum database so that all the collections are available to be checked out to patrons. They also should be capable of trouble shooting of technical problems that were frequently encountered during the work hours. In addition, they need to be aware of policies, protocols, and regulations that are related to lab activities in order to guide patrons appropriately. However, most staff members do not perform the job as expected since there was no formal training given to them. They find it hard to fix technical errors occurring in the database system and the computers, and do not follow the check in/out procedures correctly, resulting in wrong records or losing transactions.

The staff is usually given one-on-one informal orientation by the coordinator regarding staff responsibilities, activities, guidelines, and protocols of the lab when they begin to work. Generally, specific tasks such as assisting patrons and trouble-shooting techniques are learned case by case from working situations. However, all staff members are graduate assistants who work 10 hours per week and they often do not acquire knowledge and skills necessary until the end of one semester due to the time constraint. Work schedules vary depending on class schedules and the coordinator who is in charge of the Lab cannot plan formal training to accommodate need. It also causes inefficiency in Lab management since training requires the staff to be away from the work place. Therefore, a lack of training often results in performance problems in dealing with database program, assisting patrons, and working on technical problems. The three main areas which need improvement are adequate training, communication, and resources. The problems that the staff members experience everyday are dynamic as well as repetitive. In many cases, those problems should be solved spontaneously. Thus, it is important for the staff members to share ideas, experiences, and techniques by communication and discussions in order to improve performance problems.

4.3 Training and non-training Needs Identified

Training is needed in the areas of using technology and curriculum materials in order to provide necessary services to patrons.

4.3.1 Database: The database of the curriculum collections is available to support library functions. However, most of the staff is not competent with operating the system and has minimal skills. When an error occurs during the work process, they are not capable of fixing the problems. This situation causes poor performance in providing services to patrons and maintaining correct information in the system. Therefore, it is necessary for the staff to be trained for the appropriate use of the database.

4.3.2 Instructional Software and Technology Equipment: Educational and multimedia software installed in the TEC Lab computers (25 computers) are currently

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used in many classes and many workshops and classes held in the TEC Lab on a regular basis. Thus, students often need help in using the curriculum and technology, and the staff receives many questions and requests regarding the use of software programs and technology equipment such as digital movie cameras and editing software. However, the staff is not competent with using those materials and do not have enough skills to offer assistance necessary for students and faculty members. Training is necessary to learn about curriculum materials, basic features of instructional software, and how to handle the equipment.

The following issues can be solved by non-training /non-instructional method.

4.3.3 Curriculum Information: The Staff does not provide enough information regarding curriculum related questions. Most of the staff is limited in their knowledge and skills in the use of curriculum. Providing materials or resources about curriculum and education may solve the problem.

4.3.4 Information Transfer: Information regarding changes or update about lab activities needs to be transferred to other staff members on time to promote efficiency in working. Placing a massage/information board may help communicate with each other.

4.3.5 Regulations and Protocol: The lab regulations and protocols including check out procedures need to be acknowledged and abided by the staff. Some of the staff do not follow the regulations since they are not aware of the existence. The Lab manuals need to be written and should be available to the staff to refer problems.

4.3.6 Trouble Shooting Log: Since there are many kind of activities occurring in the Lab (i.e. class, workshop, training, *etc.*), the staff experiences diverse problems and most of the problems are situational. Documentation of problems and trouble-shooting techniques will help to solve the same problems in the future. Recording a problem log will be a good solution.

5. Proposed Approaches

5.1. Selection of Blended Solution

Based on the problems found at the Lab, a blended approach was proposed to improve performance issues within the TEC Lab. A blended approach is a combination of training and non-training solutions in which Electronic Performance Support System (EPSS) takes a part of Human Technology Performance Management System (HTP). For problem areas which need training, traditional training would be scheduled, and for the non-training problem areas, an Electronic Support System were designed and implemented in order to offer necessary solutions. Training sessions were scheduled on a regular basis at the beginning of each semester, during the semester, and at the end of semester as needed. Tentatively, the training was planned to teach how to use the database, instructional software, trouble- shooting techniques focusing on the management of the T server systems and account management systems, and the EPSS that was implemented in the lab. Three mandatory training sessions is scheduled for each semester, and additional sessions would be scheduled on a need basis. The training was arranged by the TEC Lab coordinator with the collaboration of the OCT technology. The following figure is the summary of the selected blended method.

5.1. Developing the EPSS

The EPSS were designed by the researcher with the collaboration of other members. The content and the functions of the EPSS were discussed in a staff meeting and the

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researcher prepared for a proposal for developing the EPSS in order to get approved by the department. Upon receiving permission, the Macromedia Authorware were purchased, and the EPSS were developed. The necessary data and learning objects such as simulations, video clips, and text materials were be collected with the help of staff members.

The EPSS contained the information base, instructional tool, and coaching and helping tools (Gery, 1991). It included information needed by the staff in performing their jobs and were organized in a way that makes it easily accessible at the moment it is needed. Instructional modules including lessons, tutorials, and simulations were designed, targeting particular tasks. Intelligent coaching and help tools provide assistance in using the system, as well as in performing job tasks. FileMaker Database software and productivity programs (*e.g.*, word processing, spreadsheet, database, and flowcharting applications) were also be included for the staff to use templates and forms that is specific to the job. Online communication tools such as announcement/message/ discussion board were available to transfer information by enhancing communication among the staff.

5.2. Schedule of Training

Based on the discovered needs, training were planned for the necessary areas, collaborating with OTC staff.

Table 1. Training Schedule

Date(s)	Time	Title	Participant	Trainer
Beginning of semester	8:00- 8:30 am 8:30 –9:00 am 9:00 – 10:00am 10:00 – 11:00am	1. TEC Lab Orientation 2. FileMaker Pro Database 3. Software and hardware 4. EPSS	TEC Staff	TEC Coordinator OTC staff OTC staff
During the semester	8:00 – 9:00 am	Trouble shooting techniques	TEC staff	OTC staff
At the end of semester	8:00 – 9:00am	Feedback, suggestions, and ideas for improving performance	TEC Staff	Coordinator

5.3. Usability Test of the EPSS (Pilot Study)

Upon completing the EPSS, the system were uploaded on the TEC Lab server and be tested for two weeks in order to assure the appropriateness of functions. In addition, the EPSS were sent to two of the IT faculty members to be reviewed. The EPSS were modified according to the results of usability test and faculty members' opinion.

5.4. Implementation

Training and the EPSS were implemented as scheduled. Throughout the semester, the EPSS were continually refined on the basis of feedback from the users and developers.

5.4. Evaluation and Restructuring Solutions

During the semester, formative evaluation will be conducted informally with the staff members in order to investigate their reactions to the systems, skills and knowledge

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learned from training and the EPSS. The solutions will be modified during the semester based on the results of the formative evaluation. At the end of each semester, summative evaluation will be conducted in a formal way with the staff and patrons (students and faculty members) considering the effectiveness, major outcomes, and reactions toward the system and training in order to decide the reusability of the selected methods. Detailed information regarding evaluations is as follows.

Table 2. Evaluation Plan

Types of evaluation	Focuses	Data Collection Methods	Participants
Formative Evaluation (during the semester, informal)	- Perceptions, opinions, attitudes to the program - Changes in learning (skills, competencies, knowledge)	- Observations - Informal conversations with patrons - Suggestion Box	- TEC Lab Staff - Patrons
Summative Evaluation (the end of semester, formal)	- Efficiency of learning - Cost of the system development - Continuum of the system - Long-term benefits of the system	- Survey with patrons - System Evaluation with the staff - Suggestion box - Budget report	- TEC Lab Staff - Patrons - Administrators

5. Conclusions

When analyzing the outcomes and benefits from the proposed solutions, there are short-term benefits and long-term benefits possible. As a short-term benefits, the Lab performance will be improved in general and quality services can be provided to patrons. The work will flow well because the staff has ability to add and share messages on the EPSS. It will promote collaboration and teamwork among the staff members. In addition, the staff will be able to get necessary information time from the EPSS and it will allow efficiencies in performing tasks. Information about changes in lab activities and processes will be distributed more efficiently and predictably and unnecessary steps for trouble shooting will be reduced. Information will be current and updated. Individual performance will be improved from the benefits of the individualized online support system.

When analyzing the long-term benefits, the levels of knowledge and skills competency of the staff will increase. The staff will enjoy the convenience of a performance support tool and they will be more likely to use it--thereby maximizing their performance. Frequent use will result in building up work-specific knowledge and experiences and the EPSS will play a great role as a knowledge management system; it will allow the staff great benefits for retrieving and making use of necessary information in a specific context. Service time will be decreased and the quality of services will be improved significantly because the EPSS tool provides just the right type and amount of performance support at the point of need. Service areas will be expanded gradually as the EPSS becomes stabilized. Patrons' satisfaction will be enhanced by offering quality services. Individual as well as organizational performance will be improved.

The HPT (Human Performance Technology) emphasizes human and organizational performance by applying non-training and training solutions. An EPSS is a non-training solution that facilitates to improve human problem solving capabilities within target domain. In this study, a blended method combining the EPSS and training were discussed as a proposed solution for performance problems in the TEC Lab. The EPSS was designed as performance-centered, end user-oriented, and greatly applicable for a variety of situations based on unique situations of the lab. Examining the activities and nature of problems of the lab, the blended method was an excellent section for both intervention and prevention for the TEC Lab management.

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