



ENHANCING CLASSROOM INSTRUCTION THROUGH EDUCATIONAL TECHNOLOGY (EDTECH) IN THE COLLEGE OF ARTS AND SCIENCES (BAMBANG CAMPUS) OF THE NUEVA VIZCAYA STATE UNIVERSITY

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ABSTRACT

This action plan was conducted primarily for enhancing and modernizing classroom instruction of the different programs of the College of Arts and Sciences of the Nueva Vizcaya State University in Bambang Campus through educational technology.

The proposed action plan sought to answer the following problem statements:

- 1. What are the mechanisms in determining the connection of educational technology to teacher performance and student performance?*
- 2. What are the available resources in providing educational technology to further improve the quality of instruction?*
- 3. How can available technological advances in delivering classroom instruction be maximize to increase teaching and learning performance?*

The proposed action plan will focused mainly on the effects of educational technology in improving the performance of teachers in classroom instruction to increase student motivation and performance as well.

An assessment of the effects of educational technology shall be conducted a year after the full implementation of the action plan to determine the significant effects and influences of educational technology in relation to teaching and learning performances.

KEYWORDS: *Educational Technology, Teacher Performance, Student Performance*

INTRODUCTION

The College of Arts and Sciences of the Nueva Vizcaya State University has always furthered the improvement and development of both the students and the university. As a way of upholding such noble tradition, there is a need for said college to also further improve its instruction with an education that will provide quality knowledge, information, and skills. In doing so, there is a need to consider literacy in today's social context and a compelling need to reflect on the important social forces at work today that frame the changes to literacy that we are experiencing. These social forces include the following:

- Global economic competition within economies based increasingly on the effective use of information and communication
- The rapid emergence of the Internet as a powerful new technology for information and communication
- Public policy initiatives by governments around the world to ensure higher levels of literacy achievement including the use of the Internet and other ICTs

The progression of education and education technology should follow the progression of time. The traditional teaching methods may have been successful in the past, but the minds of the current generation vary from those of the previous generation. This calls for new innovative teaching



models that cater specially to the students of today. Of course it is not wise to throw away all of the models that the past teachers have painstakingly created. These commonly used models are popular for a reason and that reason is that they were once incredibly successful. This is why it is recommended to use these models as a basis for the new ones. If there is a way

to transfer the advantages of these teaching methods to the new concepts then the teachers should do everything in their power to merge the past and the present into one innovative teaching method.

Even though schools should aim for the quick advancement of education and education technology, it is not wise to rush the process. The traditional methods of teaching may have some disadvantages but they are definitely better than half-baked and over-ambitious teaching concepts. Proper research should be put into these new methods because a small piece of information can decide the success and failure of the new innovations. It is important to give these new concepts enough testing time to make sure that they are upgrades and not regressed versions of the traditional teaching methods. Only when these new concepts are properly tested and approved by the proper authorities should the instructors start using them.

Educational technology, sometimes termed **EdTech**, is the study and ethical practice of facilitating e-learning, which is the learning and improving performance by creating, using and managing appropriate technological processes and resources. The term educational technology is often associated with, and encompasses, instructional theory and learning theory. While **instructional technology** is "the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning," according to the Association for Educational Communications and Technology (AECT) Definitions and Terminology Committee, educational technology includes other systems used in the process of developing human capability. Educational technology includes, but is not limited to, software, hardware, as well as Internet applications, such as wikis and blogs, and activities.

Technology in education is most simply and comfortably defined as an array of tools that might prove helpful in advancing student learning and may be measured in how and why individuals behave. Educational Technology relies on a broad definition of the word "technology." Technology can refer to material objects of use to humanity, such as machines or hardware, but it can also encompass broader themes, including systems, methods of organization,

and techniques. Some modern tools include but are not limited to overhead projectors, laptop computers, and calculators. Newer tools such as smartphones and games (both online and offline) are beginning to draw serious attention for their learning potential. Media psychology is the field of study that applies theories of human behavior to educational technology.

Consider the *Handbook of Human Performance Technology*.^[4] The word technology for the sister fields of Educational and Human Performance Technology means "applied science." In other words, any valid and reliable process or procedure that is derived from basic research using the "scientific method" is considered a "technology." Educational or Human Performance Technology may be based purely on algorithmic or heuristic processes, but neither necessarily implies physical technology. The word technology comes from the Greek "techne" which means craft or art. Another word, "technique," with the same origin, also may be used when considering the field Educational Technology. So Educational Technology may be extended to include the techniques of the educator.

According to some, an Educational Technologist is someone who transforms basic educational and psychological research into an evidence-based applied science (or a technology) of learning or instruction. Educational Technologists typically have a graduate degree (Master's, Doctorate, Ph.D., or D.Phil.) in a field related to educational psychology, educational media, experimental psychology, cognitive psychology or, more purely, in the fields of Educational, Instructional or Human Performance Technology or Instructional Systems Design. But few of those listed below as theorists would ever use the term "educational technologist" as a term to describe themselves, preferring terms such as "educator."

Educational technology is intended to improve education for the 21st century learner. Students today are considered "Digital Natives" who were born and raised in a digital environment and inherently think different because of this exposure to technology.

The use of internet in education has had a positive impact on students, educators, as well as the educational system as a whole. Effective technologies use many evidence-based strategies (e.g., adaptive content, frequent testing, immediate feedback, etc.), as do effective teachers. It is important for teachers to embrace technology in order to gain these benefits so they can address the needs of their digital natives



PROBLEM STATEMENT

1. What are the mechanisms in determining the connection of educational technology to teacher and student performance?
2. What are the available resources in providing educational technology to further improve the quality of instruction?
3. How can available technological advances in delivering classroom instruction be maximize to increase teacher and student performance?

OBJECTIVES OF THE ACTION PLAN

1. To provide students with reasonable amount of sound general knowledge through technology-based delivery mode.
2. Provide the necessary training for teachers in designing primary and secondary delivery media that will most appropriately “fit” the course objectives of the different programs of the College of Arts and Sciences
3. Develop among the faculty members the ability to maximize learning process among their students through educational technology.
4. Increase the students’ learning motivation and interest in the subject matter, by using technologies in the classroom and targeting the need for screens and digital material.

METHODOLOGY

High tech tools can be used in the advancement of education technology. Using tools like software programs in the teaching methods of instructors can help instructors attract and keep the attention of their students. However, if the computers aren't regulated then the students can get distracted by the very tools that were made to prevent them from being distracted. Using technology in teaching can be a double edged sword because of the tendency of modern technology to be inclined on leisure instead of work. This is why proper research and testing should be done before deciding on the usage of these items. If the technology is utilized properly then there is a huge probability that it can yield great results.(Teachnology-the online teacher resource)

DEVELOPMENT IMPACT

Some of the claimed benefits of incorporating technology into the classroom are listed below:

- **Easy-to-access course materials.** Instructors can post their course material or important information on a course website, which means students, can study at a time

and location they prefer and can obtain the study material very quickly.

- **Student motivation.** According to James Kulik, who studies the effectiveness of computers used for instruction, students usually learn more in less time when receiving computer-based instruction and they like classes more and develop more positive attitudes toward computers in computer-based classes. Teachers must be aware of their students' motivators in order to successfully implement technology into the classroom. Students are more motivated to learn when they are interested in the subject matter, which can be enhanced by using technologies in the classroom and targeting the need for screens and digital material that they have been stimulated by outside of the classroom.
- **More opportunities for extended learning.** According to study completed in 2010, 70.3% of American family households have access to the internet. According to Canadian Radio Television and Telecommunications Commission Canada, 79% of homes have access to the internet. This allows students to access course material at home and engage with the numerous online resources available to them. Students can use their home computers and internet to conduct research, participate in social media, email, play educational games and stream videos.

Using online resources such as Khan Academy or TED Talks can help students spend more time on specific aspects of what they may be learning in school, but at home. These online resources have added the opportunity to take learning outside of the classroom and into any atmosphere that has an internet connection. These online lessons allow for students who might need extra help to understand materials outside of the classroom. These tutorials can focus on small concepts of large ideas taught in class, or the other way around. Schools like MIT have even made their course materials free online so that anybody can access them. Although there are still some aspects of a classroom setting that are missed by using these resources, they are still helpful tools to add additional support to the already existing educational system.

- **Wide participation.** Learning material can be used for long distance learning and are accessible to a wider audience.



- **Improved student writing.** It is convenient for students to edit their written work on word processors, which can, in turn, improve the quality of their writing. According to some studies, the students are better at critiquing and editing written work that is exchanged over a computer network with students they know.
 - **Differentiated Instruction.** Educational technology provides the means to focus on active student participation and to present differentiated questioning strategies. It broadens individualized instruction and promotes the development of personalized learning plans in some computer programs available to teachers. Students are encouraged to use multimedia components and to incorporate the knowledge they gained in creative ways.
 - This allows some students to individually progress from using low ordered skills gained from drill and practice activities, to higher level thinking through applying concepts creatively and creating simulations. In some cases, the ability to make educational technology individualized may aid in targeting and accommodating different learning styles and levels.
- "Additional Benefits":**
- The Internet itself has unlocked a world of opportunity for students. Information and ideas that were previously out of reach are a click away. Students of all ages can connect, share, and learn on a global scale.
 - Using computers or other forms of technology can give students practice on core content and skills while the teacher can work with others, conduct assessments, or perform other tasks.
 - Using technology in the classroom can allow teachers' to effectively organize and present lessons. Multimedia presentations can make the material more meaningful and engaging.
 - *“Technology’s impact in schools has been significant, advancing how students learn, how teachers teach and how efficiently and effectively educational services can be delivered,” said Carolyn April, director, industry analysis, CompTIA.” With emerging technologies such as tablets and netbooks, interactive whiteboards and wireless solutions gaining ground in the classroom, the reliance on IT by the*

education market will only grow in the years ahead.”

Studies completed in "computer intensive" settings found increases in student centre, cooperative and higher order learning, students writing skills, problem solving, and using technology. In addition, positive attitudes toward technology as a learning tool by parents, students and teachers are also improved.(Educational technology from Wikipedia, the free encyclopedia)

ORGANIZATIONAL OUTCOMES OF THE COLLEGE

The Organizational Outcomes we seek are focused on the organization and its leadership’s capacity to drive towards a clear mission and strategy, outcomes-focused management practices, world-class performance management systems, and effective programs and services for children from low-income families.

Strategic Leadership

We will invest in outstanding organizational leadership and help this leadership get even stronger by staying focused on the core mission and by maintaining management practices that promote program quality, drive program effectiveness, and hold staff and faculty accountable for results.

Outcomes-Focused Management

We will invest in helping faculty members develop or maintain clear performance standards and agreed-upon outcome measurements which shall in turn be monitored and evaluated to understand and improve faculty performance. In addition, we will provide adequate training to the department chairs , program chairs and faculty members so that they can develop sufficient and appropriate skills in integrating educational technology to ensure that they are delivering services at high levels of performance. This shall be in coordination with existing IT experts in the university.

Performance Management Capacities

We shall monitor and utilize data in managing teacher performance so that they can drive towards better outcomes for the students they serve. This means developing world class systems for both day-to-day and strategic data interpretation and use.

Evidence of Program Effectiveness

We will ensure that each program: has codified its core programming and has both implementation and performance standards; monitors implementation and performance, making



adjustments as indicated; and can be relied on to deliver its services at high levels of quality and fidelity. We will help department and program chairs align their programming around elements that research has shown are effective in helping learners achieve development and skills acquisition outcomes.

Target Competencies

Enhancing instruction through educational technology requires a faculty member to: be proficient in the use of the chosen delivery technology, design lessons that are more students centered, adapt to teaching in the absence of nonverbal feedback from students, and develop methods of communicating their content without lecturing, used the World Wide Web as the primary delivery system, use synchronous and asynchronous tools, and be responsible for the design, development, and delivery of the course (e.g., supported by private online vendor, individual faculty). (Regina Schoenfeld Tacher, Colorado State University; Kay A. Persichitte, University of Northern Colorado)

GOALS, OBJECTIVES, KEY RESULT AREAS, PERFORMANCE INDICATORS, STRATEGIES, PROGRAMS, ACTIVITIES, TASKS, RESOURCES

- Actions to achieve the REAP

The faculty members shall be responsible in adopting educational technology to enhance instruction by fulfilling a greater number of roles (instructional designer, technical support, student advisor/counselor, site supervisor, etc.).

The 'quasi-craft' approach for the development and delivery of courses may be applied. In here, the faculty members shall be mildly supported by staff from a private vendor of online courses, but the faculty members shall still be required to: (a) make all decisions about the structure, sequencing, and linking of content, (b) develop alternative learner assessments, (c) become familiar with and make decisions about using the technological tools within the structure, and (d) use HTML. The strong support from the vendor will be in the technical support and maintenance of the course Websites and in providing access to other learner supports (e.g., bookstore, library).

Another approach, the 'craft' approach as defined by Moore and Kearsley (1996) may also be applied. In this approach the faculty members shall receive no support from internal University sources or external vendor sources. The faculty shall be fully responsible for the design, development, delivery, and technical maintenance and support of their online

courses. In all cases, the lack of access to specialized expertise in a variety of areas will force these faculty to hone their instructional and pedagogical craft in a non-traditional media.

A. Challenges and Solutions

Schools that capitalize on the relationship between technology and education reform will help students to develop higher order skills and to function effectively in the world beyond the classroom. Achieving such fundamental change, however, requires a transformation of not only the underlying pedagogy (basic assumptions about the teaching and learning process) but also the kinds of technology applications typically used in classrooms serving students.

Traditionally, however, schools have not focused on technology as a means to support engaged learning. When computers are present in schools serving students, they usually are used for drill-and-practice programs on basic skills rather than as tools to support students in designing their own projects (DeVillar & Faltis, 1991). Schools typically promote learning with technology through the use of stand-alone devices or environments. The knowledge or practice opportunity is put in the computer box or on the videotape. Students work with didactic technology applications, which are designed to teach specific skills. They interact with the technology individually (in the case of computers) or as a whole class (in the case of videotapes and other audiovisual presentations). The technology developers have control of the content.

IMPLEMENTATION PITFALLS: At the school level, a major implementation pitfall is failure to provide teachers with adequate professional development in technology. Teachers need to be trained to use the technology and to apply it instructionally within their particular curriculum. Too often, technology training is discontinued after the teachers acquire rudimentary computer literacy or are taught the basics of using a specific piece of software (Office of Technology Assessment, 1995). But it is one thing to be able to open up a piece of spreadsheet software, for example, and quite another to have a repertoire of instructionally useful activities for students to learn mathematical concepts through constructing spreadsheets and graphing the data.

Besides professional development, teachers need adequate time to experiment with the technology and to design and implement good technology-based activities within their curricula. Technology-using teachers agree that such activities not only take longer to implement with students but also require more advance planning and preparation on the teacher's part (Sheingold & Hadley, 1990).



Schools that give teachers adequate time to acquire technology skills, plan technology-based activities, and share their technology-related work with each other are more successful in bringing a large number of teachers to a level of technological proficiency (Means & Olson, 1995).

At the classroom level, a major challenge facing teachers is maintaining the focus on strong instructional content. Teachers and students may become mesmerized by the glamorous features of the new technology and may fail to grapple with serious curricular content. To avoid this situation, teachers must discipline themselves to design or select technology-based activities that have important learning goals rather than to spend large portions of class time pursuing activities that might be fun or interesting. In some cases, teachers may want to disable some of the options open to the technology user in order to help students focus on essential features. For example, students using word processors for their writing sometimes get so fascinated with the range of type fonts available that they focus more on how their page looks than on what it says. Teachers can restrict the number of fonts so that such behavior is less likely to occur.

Another pitfall common to any cooperative learning activity is the potential for one or two students to dominate the group. When technology is used in the classroom, teachers need to be particularly vigilant that those students with access to technology at home do not take over the tasks of the entire group. Teachers need to teach students how to share leadership. They must ensure that all students have an opportunity to participate in the technology activity and to gain the essential skills and knowledge that the activity is designed to teach. Gender bias also may be an issue, particularly if students are not aware of the wide range of technology uses or have not had female role models who are adept in technology. In these situations, boys may tend to dominate technology-based tasks unless the teacher institutes routines preventing such behavior (Schofield, 1995). Some teachers define particular roles for technology use (for example, the composer, the keyboard user, and the editor) and specify that students must rotate these roles at reasonable intervals.

Today, educational researchers are calling for very different uses of technology. They promote classroom learning activities in which students work in small groups rather than in isolation or as a whole class. The technologies used in the classroom are not those designed explicitly to teach basic skills, but rather are real-world applications that support research, design, analysis, composition, and communication.

CONCLUSIONS, RECOMMENDATIONS AND FURTHER STUDIES

An emerging body of research suggests that technology used in classrooms fulfilling such a vision can be especially advantageous. Means, Blando, Olson, Middleton, Morocco, Remz, and Zorfass (1993) note that technology can engage students in challenging, authentic learning:

"Teachers can draw on technology applications to simulate real-world environments and create actual environments for experimentation, so that students can carry out authentic tasks as real workers would, explore new terrains, meet people of different cultures, and use a variety of tools to gather information and solve problems."

Research on classrooms that have put constructivist teaching and learning models into practice also indicates that technology can enhance student engagement and productivity. More specifically, technology increases the complexity of the tasks that students can perform successfully, raises student motivation, and leads to changes in classroom roles and organization (Baker, Gearhart, & Herman, 1994; Dwyer, Ringstaff, & Sandholtz, 1990; Means & Olson, 1995). These role changes--with students moving toward more self-reliance and peer coaching, and teachers functioning more as facilitators than as lecturers--support educational reform goals for all students.

Technology also can help students develop positive cooperative learning relationships, enabling them to work together while researching topics and creating presentations. In such relationships, students help each other learn. Students with special needs may require more coaching in computer-based activities, but they will benefit from the experience of learning with and from other students.

Technology has tremendous power to help students obtain, organize, manipulate, and display information. Students can use technology tools (such as word processing, database, design, and graphing software) in the same ways as do professionals in business, communications, and research. Such practical uses of technology contrast sharply with the more didactic technology applications designed explicitly for instruction. Using technology for meaningful activities also helps integrate a variety of disciplines, more closely resembling activities that people undertake in the world beyond the classroom. For example, word processing is real-world technologies that can help students develop writing and thinking skills. Using the computer, students write longer, more complex sentences and are more willing to revise and edit their work; they are able to concentrate on the thoughts they want to express



rather than the mechanical skills of penmanship, spelling, and grammar (Hornbeck, 1990).

Many changes will be necessary if schools are to provide such exciting, technology-supported activities for all students. Time, effort, and resources are needed to bring students to a level of computer literacy. Students from low-income families are less likely to have access to computers in their homes and often attend schools with less computer equipment (Becker & Sterling, 1987). Furthermore, schools serving large numbers of at-risk children often lack the funds and resources to support technology. School facilities must be upgraded to support technology networking. After technologies are obtained, school districts need to ensure that all students have technological equity and equal access to the learning tools of the 21st century.

Obtaining the technology for schools serving students is just the tip of the iceberg. Larger issues concern staff development needs. Because students often receive computer-based instruction in a separate computer lab, regular classroom teachers may have little contact with the technology. Teachers need support not just for learning to use new technologies but also for acquiring skills in designing and implementing high-quality, student-centered projects (Kopp & Ferguson, 1996). Teachers also need a strong system of professional development and ongoing support if they are to achieve the dramatic changes in teaching approaches called for by the reform movement. Rules of thumb for professional development are useful for ensuring that teachers have adequate opportunities for professional development in technology.

REFERENCES

WEBSITES

<https://www.yahoo.com/>; <https://www.google.com/>