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An Investigation Of The Effects Of Computing On Educational Practices And Their Ramifications For Business And Culture

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ABSTRACT
This research-based dissertation project focusses on the many players, including politicians, investors, and others, who have contributed to the advancement, critique, and examination of the educational potential of information and communication technology (ICT). Research indicates that the optimal use of ICT requires a combination of constructivist pedagogy and information and communication technologies. There are still several components involved in the integration of ICT. The inadequate integration of information and communication technology (ICT) in the classroom is often ascribed to teachers due to their crucial role in facilitating its successful implementation. This initiative aims to educate, empower, and motivate educators to use information and communication technology (ICT) into their teaching practices, grounded on a research-based professional development plan. The effective integration of information and communication technology (ICT) necessitates a professional development program that focusses only on the teacher-related dimensions of ICT.
Keywords: *Computing culture, Industry, Influence of computing, Technology, Classroom instructions.*

1. INTRODUCTION:

Many ICT technologies have become much more user-friendly and accessible to the typical American classroom throughout the last 20 years. Teachers should be heavily utilising ICT every day, according to all the claims made about its ability to improve American education, all the programs passed by federal and state governments, and all the money spent on classroom equipment. Most students still do not get education that makes the most of ICT, even though technology has become more commonplace in recent years (Fields et al., 2018).

Those who have grown up with technology are now enrolling in the country's schools. Their day-to-day lives, leisure options, social connections, and aspirations for the future are all improved and even created by various technological advancements, one of which is information and communication technology (ICT). The rise of digital communication technologies has had little impact on the American educational system, in contrast to other sectors of the economy. Students are slipping behind because schools refuse to let go of the Industrial Age, say García-Peñalvo and Mendes (2018), even though the world is moving towards the Information Age. The lack of training and resources for educators to effectively incorporate ICT into classroom instruction is the primary cause of the current

integration gap, according to recent studies. In an effort to close the digital divide between students and professionals, some schools have begun including technology education into teacher preparation programs in response to government licencing requirements. Nevertheless, as stated by García-Peñalvo and Mendes (2018), there is no correlation between studying how to include ICT and actually using these tactics into teachers' regular lesson plans (García-Peñalvo and Mendes, 2018).

2. BACKGROUND OF THE STUDY:

The Commission for Excellence in Education issued A Nation at Risk in 1983. It was suggested in A Nation at Risk that all high school students should be forced to take computer science. A Nation at Risk restated the prioritisation of innovation above other factors in determining a country's success. As seen in A Nation at Risk, some people find it haughty to blame schools for America's economic problems. But it did start a trend towards reform in American schools. Since the report was published in 2008, educational programs throughout the globe, including in the US, have continued to use ICT. Some have argued that, despite many changes since A Nation at Risk, technology should still be required coursework for all students (Allen, 2008). Numerous government technology papers highlight various aspects of technology pertaining to integration, while all of them emphasise the importance of readily available and dependable hardware. Both the National Technology Plan of 2000 and A Nation at Risk stressed the need for better teacher training to successfully integrate technology into the classroom.

Both houses of Congress approved No Child Left Behind in 2001. The plan was signed into law by Bush in January 2002. The purpose of passing this legislation was to reclaim disenfranchised students and end the literacy crisis. The characteristics of No Child Left Behind were the government's commitment to reforms based on science and the extension of educational responsibility. Furthermore, it raised the bar for pupils to avoid carrying their low expectations into the next grade and instructor. Research suggests that teaching kids how to properly utilise technology devices should be taught alongside conventional reading abilities (Allen, 2008).

3. THE PURPOSE OF THE RESEARCH:

Most classes still don't make much use of the school's robust IT infrastructure and well-thought-out strategy for technology. The present strategy for technology ignores the vital importance of professional growth in this field, even if incorporating technology into the core curriculum is crucial. Given the limited opportunities for career advancement, it is very doubtful that the essential abilities for incorporating ICT would be cultivated in the absence of this program. This professional development plan has the potential to pave the way for other schools to launch similar initiatives addressing other pressing issues in education. In addition to helping kids grow into future leaders in their communities, this professional development course will show teachers how to maximise the school's yearly technology budget. Giving teachers the tools they need to implement best practices in the classroom will improve the quality of education the students receive at this school. Students will

learn the abilities necessary to thrive in today's technological environment in this course (Brush et al., 2020). Additionally, a professional development plan tailored to each teacher will be in place. Taking this course would provide students with several benefits, including a solid foundation in information and communication technology, a boost to their creativity, improved collaboration with teachers, and many chances to showcase their progress in the classroom. Most importantly, it will allow them to make the most of their limited resources for the sake of their pupils' education.

There has always been pushbacks whenever there has been an effort to ask dedicated teachers for extra time. Convincing educators that the program would help both their kids and them advance professionally is crucial. Avoid starting with a school-wide project if you anticipate significant resistance by working with a smaller group of volunteer teachers. Researchers should take the time to hear from the first cohort of instructors about the course in order to refine it and enhance the on-site professional development opportunities for subsequent cohorts.

4. LITERATURE REVIEW:

The use of technology in the classroom has evolved greatly over the years, from the earliest days of writing on slates and chalk to the present day with computers and their array of software and hardware components. The United States' educational system has benefited greatly from the innovations and discoveries of scientists and engineers who have worked tirelessly to improve classroom instruction. Hsu et al. (2018) found that researchers mostly looked at new technologies that are a component of ICT.

There were early attempts to incorporate ICT into the field of education with the advent of personal computers. There have been a lot of improvements made to make PCs easier to use in preparation for their anticipated adoption in educational settings. Computers made their way into classrooms for the first time in the 1970s. More and more innovations in the 1980s enhanced the use of desktop computers in classrooms. The Information Age ended with the launch of the Internet in the 1990s (Kwon et al., 2018).

These materials became more accessible and useful in classrooms as a result of a plethora of other advances in ICT that happened concurrently with the growth of the Internet. Both within and outside of the classroom, teachers' usage of technology rose sharply. It is worth mentioning that most schools throughout the country neglected to integrate these new kinds of ICT into their teaching and learning practices, even though they were created and introduced (Hsu et al., 2019).

5. RESEARCH QUESTIONS:

i. What is the impact of the cultural industry on the learning process?

6. METHODOLOGY:

a. Research Design

In quantitative research, numerical data on variables is collected and entered into statistical models in an effort to discover statistically significant correlations between them. The end goal of quantitative

research is to have a better knowledge of society. Concerning human-related subjects, quantitative methods are often used by researchers. Tables and graphs are common ways that quantitative research presents its findings to the audience. The systematic collection and analysis of numerical information is essential for quantitative data. Data averaging and forecasting are only a few of its many possible applications; others include studying relationships and expanding findings to larger populations. Qualitative studies, on the other hand, depend on in-depth interviews and observations (via text, video, or audio) and are therefore diametrically opposed to quantitative research. Numbers and statistics are the backbone of many academic disciplines. This category encompasses disciplines as varied as economics, sociology, chemistry, biology, and marketing.

b. Sampling

Twenty Chinese consumers served as a pilot for the questionnaire, while 749 customers made up the final sample for the study. Clients were selected at random and issued 800 questionnaires. In this study, the researcher did not take incomplete questionnaires into consideration.

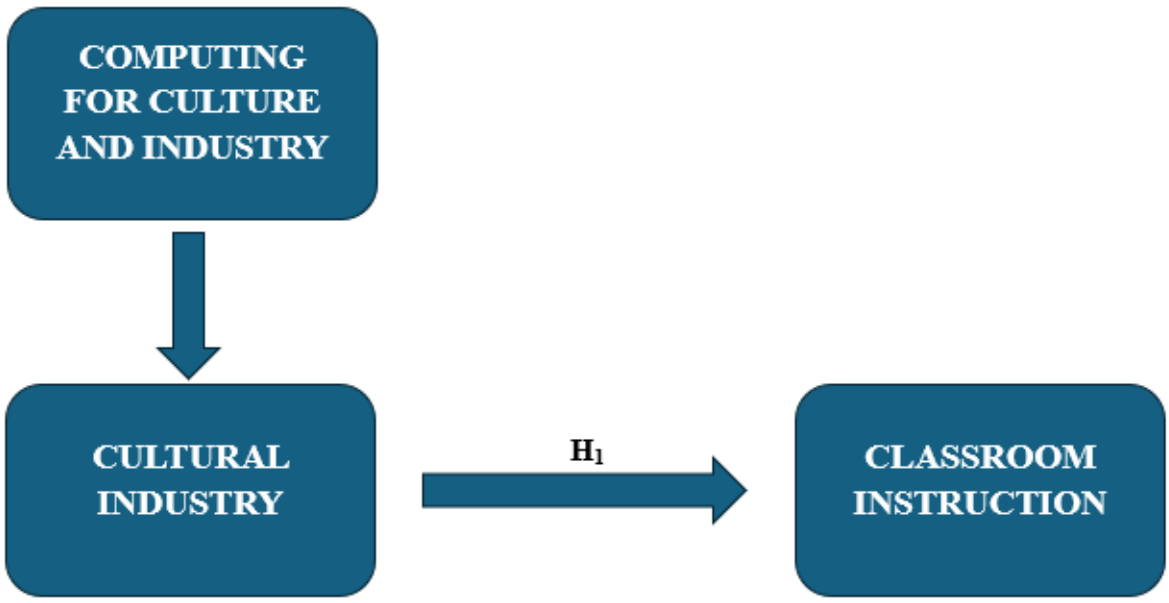
c. Statistical Software

The statistical analysis was conducted using SPSS 25 and MS-Excel.

d. Statistical tools

Using descriptive analysis, researchers were able to understand the data's essential nature. To determine validity, factor analysis was used.

- **Conceptual Framework:**



7. RESULTS:

A total of 900 questionnaires were sent to the individuals who took part. Seven hundred and forty-nine

out of eight hundred seventy-five surveys were examined using the STSS version 25.0 program.

8.1 Factor Analysis

A common use of Factor Analysis (FA) is to validate the underlying component structure of a collection of measurement items. Latent factors are theoretically considered to account for the observed variable scores. This model-centric methodology is referred to as accuracy analysis (FA). The main objective is to illustrate the connections among variables, including the impacts of measurement error and unobserved factors.

Researchers may use the Kaiser-Meyer-Olkin (KMO) Method to assess the appropriateness of data for factor analysis. To assess the adequacy of the sample, the researcher evaluated each model variable separately as well as the overall model. The statistical measures evaluate the potential shared variance across many variables. The appropriateness of the data for component analysis is often enhanced when the ratio is decreased.

KMO yields values ranging from zero to one. Sampling is considered sufficient if the KMO value is between 0.8 and 1.

Remedial action is required if the KMO is below 0.6, indicating insufficient sampling. Exercise sound judgement; some writers utilise 0.5 for this purpose, therefore establishing a range of 0.5 to 0.6.

KMO If it is near 0, it indicates that the overall correlations are minimal in comparison to the partial correlations. Component analysis is significantly impeded by substantial correlations.

The subsequent approval requirements established by Kaiser are as follows:

Extremely low, ranging from 0.050 to 0.059.

0.60–0.69 is below the standard.

Middle grades often range from 0.70 to 0.79.

Exhibiting a quality point score between 0.80 and 0.89.

Significant fluctuation exists between 0.90 and 1.00.

Table 1: KMO and Bartlett's Test[a]

KMO and Bartlett's Test[a]		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.858
Bartlett's Test of Sphericity	Approx. Chi-Square	4950.175
	df	190
	Sig.	.000
a. Based on correlations		

Claims made just for sampling purposes are really legitimate. The correlation matrices underwent Bartlett's Test of Sphericity to verify their significance. The Kaiser-Meyer-Olkin measure indicates that a sample adequacy value of 0.858 is suitable. The researchers achieved a p-value of 0.00 using Bartlett's sphericity test. Results from Bartlett's sphericity test indicated that the correlation matrix is

not an identity matrix, a significant discovery.

8.2 Test for hypothesis

Scientific groups often "propose a hypothesis," which is essentially an educated guess or assumption, before discussing it with other members of the group and doing experiments to see whether it holds water. Research in science begins with reading up on the subject so that one may formulate a hypothesis that can be tested. It turned out that the investigation's main premise was right. A "hypothesis" statement is all that's needed to provide a potential explanation for the observed event. It was necessary to formulate and test several hypotheses for the inquiry to be comprehensive.

- **DEPENDENT VARIABLE**
  - **Classroom Instruction**

Classroom instruction refers to the practice of teaching and learning inside a predetermined framework of a school building. Most of a curriculum consists of teacher-led classes or other gatherings of students. As part of this process, students engage in various interactive learning activities such as class discussions, practical demonstrations, and lectures in order to better understand and retain the subject. The purpose of classroom instruction is to captivate students, provide them with knowledge and skills, and foster their capacity for analytical reasoning and practical problem-solving. Good classroom teaching includes assessing student work, providing feedback, and adapting courses to meet the needs of individual students.

- **INDEPENDENT VARIABLE**
  - **Computing for Culture and Industry**

Classroom instruction refers to the practice of teaching and learning inside a predetermined framework of a school building. Most of a curriculum consists of teacher-led classes or other gatherings of students. As part of this process, students engage in various interactive learning activities such as class discussions, practical demonstrations, and lectures in order to better understand and retain the subject. The purpose of classroom instruction is to captivate students, provide them with knowledge and skills, and foster their capacity for analytical reasoning and practical problem-solving. Good classroom teaching includes assessing student work, providing feedback, and adapting courses to meet the needs of individual students.

- **FACTOR**
  - **Cultural Industry**

Any business that develops, manufactures, and sells products and services that have their origins in cultural expressions, original ideas, or protected intellectual property is considered part of the cultural industry. The cinema, music, art, literature, TV, theatre, design, fashion, video game, and digital media sectors are all part of this broader category. Artistic innovation and commercial interests come together in the cultural business, which has a big impact on cultural identities, diversity, and economic progress. Max Horkheimer and Theodor Adorno popularised the idea in their critiques of the "culture industry," which involves the mass production of cultural commodities and its effects on society. Contemporary readings, on the other hand, stress its possibilities for monetary growth, cultural preservation, and

international impact.

- **Relationship between Cultural Industry and Classroom Instruction**

Interactions between the cultural and creative industries and educational practices are mirrored in the connection between classroom teaching and the cultural industry. Media, entertainment, literature, and the arts are all parts of the cultural business, which provides teachers with materials and ideas to improve their lessons. Educators may heighten students' engagement, critical thinking, creativity, and cultural understanding by incorporating components such as films, music, digital media, and cultural narratives into their classes. Classroom education, on the other hand, may help cultural creation and distribution by fostering talent, increasing cultural literacy, and encouraging involvement in creative areas.

On the basis of the above discussion, the researcher formulated the following hypothesis, which analysed the relationship between Creative Industries and Classroom Instruction.

H_{01}: "There is no significant relationship between Cultural Industry and Classroom Instruction"

H_1: "There is a significant relationship between Cultural Industry and Classroom Instruction"

Table.2: ANOVA test (H_1)

ANOVA					
Sum					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	75207.347	235	4700.459	672.417	.000
Within Groups	681.563	513	8.212		
Total	75888.910	748			

"In this study, the result is significant. The value of F is 672.417, which reaches significance with a p-value of .000 (which is less than the .05 alpha level). This means the ***H_1: "There is a significant relationship between Cultural Industry and Classroom Instruction"*** is accepted and the null hypothesis is rejected."

8. DISCUSSION:

While the need for continuing education for technology and communication integration professionals is acknowledged and discussed in chapter two of this thesis, the specific choices that led to the creation of this program may not be immediately apparent. In order to gauge the culture of ICT integration in schools, the first step of the course is an instructor survey. School administration and teacher-leaders will convene after this poll to formulate a plan for integrating ICT. School leaders, educators, and others may benefit from taking this poll to better understand the ethos of the institution. If the implementer doesn't pay attention, the software might be set up to fail. If the school's culture isn't supportive of technology integration, individual educators may find it difficult to implement it. A first-

order integration obstacle, according to researchers, is school culture. Two advantages result from administrators and teachers collaborating on an ICT integration strategy for the whole school. Get the teachers on the steering committee started. Government support for initiatives to integrate ICT is also guaranteed. According to research Kwon et al., integrating ICT requires assistance from administrative personnel. Strong leadership is recommended by academics as a means to maintain successful integration of ICT (Kwon et al., 2020).

9. CONCLUSION:

Efforts are being made by the government to integrate ICT into schools via various programs and funding. A lot of people think that teaching using technology inspires and equips kids for the modern world. The lack of proper integration of ICT is shown by the history of its usage in classrooms. Through innovation, collaborative learning, intervention, and inquiry-based learning, the incorporation of ICT enhances investments in ICT components. Most people think that only a constructivist approach to teaching can make this happen. The focus of constructivist education is on learning that is inquiry-based and student-centered. Cooperation and critical thinking are fostered via constructivist education. Learners may benefit from tech-enhanced constructivism. The promises made by academics, reformists, and integrationists on the use of ICT are not fulfilled. It seems that instructors will never be able to successfully integrate ICT into their classes. Problems with science, administration, students, and teachers are only few of few areas that are impacted by the incorporation of ICT in schools. Given their significance, teachers are sometimes held to a higher standard when it comes to the integration of ICT. The ideas, attitudes, self-efficacy, inventiveness, and abilities of teachers are the primary factors that affect classroom activities. Each educator faces an infinite number of unique challenges due to the interplay of these traits with college, technical, administrative, and student variables. Training, support, and incentives are necessary for teachers to use ICT.

REFERENCE:

Allen, L. (2008, April). The technology implications of A Nation at Risk. Phi Delta Kappan, 608-610.

Brush, T., Ottenbreit-Leftwich, A., Kwon, K., & Karlin, M. (2020). Implementing socially relevant problem-based computer science curriculum at the elementary level: students' computer science knowledge and teachers' implementation needs. Journal of Computers in Mathematics and Science Teaching, 39(2), 109–123

Fields, D. A., Kafai, Y., Nakajima, T., Goode, J., & Margolis, J. (2018). Putting making into high school computer science classrooms: Promoting equity in teaching and learning with electronic textiles in exploring computer science. Equity & Excellence in Education, 51, 21–35.

García-Peñalvo, F. J., & Mendes, A. J. (2018). Exploring the computational thinking effects in pre-university education. Computers in Human Behavior, 80, 407–411.

Hsu, T.-C., Chang, S.-C., & Hung, Iskrenovic-Momcilovic, O. (2019). Pair programming with scratch. Education and Information Technologies.

Hsu, T.-C., Chang, S.-C., & Hung, Y.-T. (2018). How to learn and how to teach computational

thinking: Suggestions based on a review of the literature. Computers & Education, 126, 296–310.
Kwon, K., Lee, S. J., & Chung, J. (2018). Computational concepts reflected on Scratch programs. International Journal of Computer Science Education in Schools, 2(3), 1–15.
Kwon, K., Leftwich, A., Brush, T., & Jeon, M. (2020). Effects of problem-based learning curriculum for computer science education in an elementary school. Paper presented at the AERA Annual Meeting, San Francisco, CA.
Selwyn, N. (2008). Realising the potential of new technology? Assessing the legacy of new labour‟s ICT agenda 1997-2007. Oxford Review of Education, 34, 701-712.