

A comparative study on challenges and issues in dynamic transformation of techno teaching learning outcomes with traditional teaching methods – strategic directives 2030

Introduction:

Covid has changed the world and has provided new impetus for survival and sustenance. This has provided new thinking, approaches and possibilities across global industries for competitive excellence and strategic impetus towards future. The dynamic change in the global education industry is felt and there is a need for new approaches and strategies. With Covid technology orientation has become the order of the day in modern teaching. This has indeed replaced the traditional teaching methods with online classes, Zoom interactions and group orientations. As this new approaches has modified traditional teaching methods – the relevance, applications and usage of traditional teaching methods, systems and practices is questioned in this study. As the dynamic transformations in teaching and learning have happened – this has forced teaching learning methods and approaches to change drastically. The fundamental orientation of students towards teaching also has changed. This new dynamism is explored and investigated in this study. As this research focuses on challenges and issues prevailing in traditional and modern practices – its implication on teachers and students has to be studied. As the study also aims to provide new strategies and approaches for 2030 – this research is purposive, relevant and contextual. This research would provide comparative results on traditional and modern TLP using mixed research methods. The study intends to provide an academic model which can be applied across western educational systems and practices in Canada and US universities.

Literature Review:

Wong, L.H., Looi, CK. (2022) had done a research on Seamless Hybrid Science Learning methods and practices. In this study the implications on streamlining the Techno-Pedagogical Designs for Wider Diffusion is evaluated. In this study the role of technology on learning methods in science learning process for primary school students was evaluated. The role of mobile devices with a mandatory requirement for possession and application across 24x7 was tested. This study provides a sustainable model for Singapore academic learning environment. This study is longitudinal in nature as the usage of mobile devices for a period of 2 years, with one device per student and it was evaluated in 3 schools. This study provides empirical conclusiveness on five major dimensions: seamless connectivity, constructive social learning method and systems, assessment in formative method, resource management and personalized learning systems. This study proves positive outcome for teachers and students in academic learning environment. However these dimensions and issues have not been studied or evaluated in US academic university environment and this study is an attempt in this direction for the first time towards it.

Fekete, I., (2022) had done a research on Covid 19 impact on technology and its implications on TLP. This study was done to evaluate and profile Hungary K12 teachers to know the existing methods, chances for progress, evaluation and development. In this study technological pedagogical framework and its implications are evaluated. 216 teachers were sample respondents for this study. It was found in this research that the sample group seems to be more homogenous in its nature. It was found that starters needed support and help, independent users modified online relevance and made it more effective as advanced users conducted online classes also.

N = 216	Beginners	Independent users	Advanced users
Self-reported average digital skills before distant education	2.74 (0.66)	3.57 (0.58)	4.30 (0.67)
Self-reported average digital skills after distant education	3.56 (0.59)	4.13 (0.46)	4.60 (0.56)
Growth of the mean average	+0.82	+0.56	+0.30
Statistically significant change?	yes	yes	yes
	$t = 8.51$	$t = 9.77$	$t = 4.73$
	Sig. 2-tailed: $P < 0.001$	Sig. 2-tailed: $P < 0.001$	Sig. 2-tailed: $P < 0.001$

Source: Fekete, I., (2022)

It is found in this study that technology helped in digital skills for teachers and it had improved their level of performance which is evident from the table above across all three group of teachers. However the implications of digital skills on teachers performance in techno TLP with a comparison of traditional TLP has not been done in US universities before and it has been attempted for the first time through this study.

Zheng M, Asif M, Tufail MS, Naseer S, Khokhar SG, Chen X, Naveed RT(2022) had done a study to find out the relationship between COVID and academic pandemonium that evolved during this phase of time. This study also evaluated the nature and extent of techno Stress which was encountered by academic staff due to online activities. This study is specific in nature as it had evaluated techno stress and its impact on teachers only. In this study it was found that psychological health and well being of teachers were affected due to Covid pandemic, pandemonium situation which had created global catastrophy on education industry. In this study the factors which led to techno stress were found and suitable recommendations were provided. However a comparison on techno TLP and its implementation challenges in US universities with traditional teaching and learning methods has not been attempted and this study is an attempt in this direction.

Gomez, F.C., Trespalacios, J., Hsu, Y.C. and Yang, D., (2022) had done an explorative investigation on teacher technology, integration and its effects on self efficacy and its impact on teaching performance and output. This is a quantitative study done for K12 teachers on technology impact and integration challenges. However this study has been done on South California – this study is restricted with K12 teachers only. This study has been done with 327 catholic teachers.

In this study it was found that Teacher participation in technology had a fair confidence and this study suggests continuous professional updation as solution for future. However it is found that these dimensions have not been done in US universities and it has to be attempted. This research is an attempt in this direction for the first time in US universities.

Zhao, G., Wang, Q., Wu, L. et al(2022) had done a study to explore in to the various factors of influence which determine technology enhanced learning. The relationships between support from university through resources, techno learning burnout and estudents stress due to educational technology and applications. The issues and challenges which prevail during techno induced learning environment is evaluated and found. 1785 students studying in 3 Chinese universities participated in this research as self reported questionnaire was deployed and the results were evaluated. CFA and SEM modeling was also attempted in this study. In this study it was found that Techno stress was able to predict educational burnout on students which affected their performance and output. It was found that university administration had a positive impact on student technology related stress and burnout. It was also found that peer support was not very effective in predicting techno stress which was prevalent among university students in China. It was also found that ICT had no effect on techno stress of students. It was found that male students benefitted more on ICT rather than with female students. However these dimensions have not been studied or evaluated in US universities and this study is an attempt towards it in this direction.

Fadli, F., Budiningsih, C.A., Wahyono, S.B., Parthasarathy, K. and Johari, R.J., (2022) had evaluated the impact of techno self learning and its impact on students. This method was assessed as an effective alternative strategy of learning. This study was attempted as a qualitative study. In this study the effects of techno learning on preparation, exploration, verification, analysis, and reflection was evaluated. The study evaluated the role of techno based learning on student self study and its implications. In this study it was found that these factors increased students output and performances. However it is found that these factors have never been studied, tested or applied in US academic university environment and it is attempted with this study.

Research Methodology:

This section would focus on research methodology which would have the following aspects : Aim of the study, Focus, Dimensions and approaches, Variables and their influences, Interference with other researches, Research philosophy, Problem statement, need for the study, Objectives of the research, Hypothesis, Sampling method and sample size, Data collection, Data analysis, scope and limitations of the study, Outcome of the study, Chapter plan & Research plan.

Aim of the study:

This research aims to provide a modern perspective on the role of techno TLP and traditional teaching learning practices on dynamic transition for future inclusive of challenges issues and dynamics. This study aims to provide a comparative analysis on techno TLP and practices and traditional TLP and the prevailing dynamic transitions and strategic perspective towards 2030 would also be provided.

Focus of the study:

This study specifically focuses on two major aspects:

1. Traditional teaching and learning practices
2. Technology based TLP

An assessment of these two aspects is done in this study.

Dimensions and approaches:

The dimensions which are covered in this study are:

- Dynamic transformation
- Learning outcomes
- Challenges and issues
- Strategic directive towards 2030.

Variables and their influences:

Independent variable for the study: Technology teaching and traditional teaching

Moderating variable: teaching learning methods, systems, practices

Control variable : academic class room environment, students and teachers

Dependent variable: strategic directives for 2030

The independent variable would provide the factor which functions independently and which cannot be influenced. In this study the independent variables are technology oriented teaching and traditional teaching methods. Moderating variable would moderate between independent and dependent variable. In this study moderating variable is teaching learning methods, systems and practices.

The dependent variable would be depending on independent variable as it has an influencing role by IV. The control variable is the factors which are consistent and which do not change. In this study the control variable is academic class room environment, students and teachers. The dependent variable in this study is strategic directive for 2030.

Interference with other researches conducted in the field already:

As this study compares between traditional and technology oriented teaching & its dynamic transitions with an aim to provide strategic directives for 2030 – this research does not interfere with other researches which have been conducted in this field.

Research philosophy:

This research would be carried out objectively without any bias or influences. The study would present the facts and interpretations would be done based on factual information only. Prejudices and perceptions do not form a part of this study as it does not have any role. This study would be empirical based as the research is based on the information provided by students and teachers in western educational industry. There would be no representation of any ideology or opinions based on any social, economic, cultural or political factor. Theories would be presented from an academic outlook and there would be no choices or preferences in it. The study would also evaluate the existing theoretical contributions and would provide a new theoretical framework which would add to the existing teaching learning practices with new focus on strategic directives for 2030. There would be no comments or criticism on any aspect, person or anything which would defeat the research philosophy of objectivism which would be followed in each and every aspect of this research.

Problem statement:

The world has become more fluid, dynamic, changing and evolving. This has its impact on outlook, perspective and orientations across all global industries. Educational industry has changed as it is evolving with new impetus and dynamism. Technology has given new rays of hope as it has also provided new wings to explore and bring novelty and innovation in teaching. This has become more convenient for teachers and students. This has added new challenges and problems also. This research is an attempt to find out the various problems faced by modern technology oriented teaching and traditional teaching methods. As this has affected both students, teachers and academic environment – the problems related to this, is studied and approached. The study also would provide specific directives towards 2030 for traditional and techno oriented TLP systems and implementation.

Need for the study:

The vibrant changing educational industry has to be empirically investigated which can provide new thinking, solutions and strategies.

The challenges and problems which are prevalent in traditional and modern teaching methods are compared which would provide empirical realities. As this industry needs directives for 2030 – this research provides it also. As these specific needs and problems which are faced in modern techno oriented and traditional TLP – is compared – this research satisfies academic research gaps which are prevalent and can provide effective results for implementation.

Type of research: this research is exploratory in nature as it explores in to the various dimensions and issues regarding techno teaching and learning outcomes as a comparison is made with traditional teaching methods and outcomes. This research is conclusive in nature as it would provide specific conclusions on the nature of dynamic transformation which has happened in TLP due to technological applications. The study would provide specific strategies and approaches as it can evaluate modern techno TLP and traditional teaching methods for 2030.

Research method : In this research, mixed research approach would be followed which is an effective combination of qualitative and quantitative research methods. As data would be collected using qualitative and quantitative methods, a comparative statistical analysis would also be done. This would be evaluative in nature as the results would be compared and the emerging findings from qualitative and quantitative approaches would be proved to be consistent.

Sample : As the entire universe cannot become a part of this study, in this study 150 students and 40 teachers would be contacted in university of US – for quantitative analysis. This study would deploy both quantitative and qualitative methods of analysis. Convenience sampling method would be used for this study. 10 teachers would be interviewed for qualitative analysis on techno teaching learning process and traditional teaching.

Data collection : Data collection would be done using qualitative and quantitative methods as mixed research approach would be adopted. Primary data for this study would be done by administering Questionnaire with 150 students and 40 teachers with a quantitative focus.

To evaluate Qualitative aspects in-depth interview with 10 teachers & thematic analysis would be done. In this study a comparison on qualitative and quantitative research methods and the results would be proven consistent.

Data analysis : for this study data analysis would be done with SPSS. Demographic analysis, correlation, regression, ANOVA and factor analysis would be done. An SEM model would be provided as the outcome of the study which would evaluate the techno TLP and traditional TLP and give suitable suggestions towards 2030.

Scope and limitations of the study:

1. This study intends to cover students and teachers in US universities only.
2. This study would be a comparative study on Techno TLP with traditional TLP, practices and systems
3. Students and teachers are part of this study as other staffs are not involved in this study
4. This study does not cover other universities across the world except US only.
5. The study deals and evaluates the variables which have been chosen in this study and other variables which could influence or has a chance of representation has not been taken as a part of this study.

Outcome of the study:

1. Dynamic transformation and evaluation of techno TLP and traditional TLP
2. Strategies for techno effective TLP
3. Strategies for traditional TLP and modification
4. Challenges of student perception attitude and self efficacy – comparison
5. Final evaluation on benefits and challenges in techno TLP and traditional TLP

Chapter plan:

The first chapter intends to cover the aspects and dimensions involved in traditional and modern teaching methods.

Backdrop of the study;

The second chapter would deal with role of technology and its influences on dynamic transition in teaching methods, learning and practices would be examined in this study.

Literature review:

This third chapter would provide an outlook on the current dimensions and issues dealt in teaching learning methods with a focused comparison on techno TLP & modern TLP.

Research methodology:

This fourth chapter would extensively cover on the aspects of Aim of the study, Focus, Dimensions and approaches, Variables and their influences, Interference with other researches, Research philosophy, Problem statement, need for the study, Objectives of the research, Hypothesis, Sampling method and sample size, Data collection, Data analysis, scope and limitations of the study, Outcome of the study, Chapter plan & Research plan.

Data interpretation:

Fifth chapter on Data analysis using SPSS would be done as:

I part:

Demographic analysis

Research question based analysis

Objective based analysis

Hypothesis based analysis would be provided

II part:

In the second part correlation, regression, ANOVA, factor analysis, CFA and SEM would be done.

SEM model would be provided as the outcome of the study

Findings, suggestions and recommendations:

In the sixth chapter findings, suggestions and recommendations would be provided.

Conclusion

Seventh chapter would provide conclusions for the study.

Research plan.

Sl.no	Dimension	Time frame
1.	Literature review	6 months writing and guide approval
2.	Research methodology	2 months
3.	Data collection (Pilot testing Phase one with 20 teachers and 20 students)	1 month
4.	Modifications on perceptual construct, variables and dimensions of RM	1 month
5.	Data collection total sample Phase II	2 months
6.	Data analysis coding Stage 1 analysis Stage 2 analysis as clearly provided in chapter plan	2 months
7.	Writing of DA	1 month with guide approval
8.	Thesis writing	2 months finalization with guide
9.	Submission and printing	1 month final draft
10.	Total time period	18 months

References:

1. Fadli, F., Budiningsih, C.A., Wahyono, S.B., Parthasarathy, K. and Johari, R.J., (2022). Techno Self Online Learning PEVAR as a New Learning Alternative: Paradigm and Construction. International Journal of Evaluation and Research in Education, 11(1), pp.392-402.
2. Fekete, I., (2022). Profiling Hungarian K12 teachers based on their techno-pedagogical skills: State of affairs and development possibilities amid COVID-19. Journal of Adult Learning, Knowledge and Innovation, 5(2), pp.111-124.

3. Gomez, F.C., Trespalacios, J., Hsu, Y.C. and Yang, D., (2022). Exploring teachers' technology integration self-efficacy through the 2017 ISTE Standards. *TechTrends*, 66(2), pp.159-171.
4. Wong, L.H., Looi, CK. (2022). Seamless Hybrid Science Learning: Streamlining the Techno-Pedagogical Designs for Wider Diffusion. In: Gil, E., Mor, Y., Dimitriadis, Y., Köppe, C. (eds) *Hybrid Learning Spaces. Understanding Teaching-Learning Practice*. Springer, Cham. https://doi.org/10.1007/978-3-030-88520-5_8
5. Zhao, G., Wang, Q., Wu, L. et al(2022). Exploring the Structural Relationship Between University Support, Students' Techno -stress, and Burnout in Technology-enhanced Learning. *Asia-Pacific Education and Research* **31**, 463–473. <https://doi.org/10.1007/s40299-021-00588-4>
6. Zheng M, Asif M, Tufail MS, Naseer S, Khokhar SG, Chen X, Naveed RT(2022). COVID Academic Pandemic: Techno Stress Faced by Teaching Staff for Online Academic Activities. *Front Psychology*, Jul 28;13:895371. doi: 10.3389/fpsyg.2022.895371. PMID: 35992455; PMCID: PMC9384887.

