Pedagogical integration of technology as an enhancement to teaching and learning in Gauteng public schools

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Presentation outline

- Problem statement or questions that led to this study.
- Objectives and aim of the study.
- Gaps in literature identified.
- The implications, significance, or application of my findings.
- Methodology to address questions and objectives of the study.
- Major findings of the study.
- Next steps: Future studies in line with the current study

BACKGROUND

- The GDE embarked on a transformational journey to infuse ICT in curriculum delivery.
- ICT rollout started in 2014 as a flagship project of the 4th political administration.
- Ontology of the researcher as the Programme Manager in the GDE ICT rollout.
- The study explores how technology can be integrated in the daily school activities of Gauteng public schools from views of educators, Heads of Departments (HODs) and Subject Advisors.

STUDY CONTEXT

- The Gauteng education system is facing the following challenges:
  - teaching quality is not of a uniformly high standard across all schools;
  - learners are not sufficiently engaged across the system;
  - many schools are not well managed.
- Technology in teaching and learning was introduced as a game-changer to:
  - Improve educational outcomes as well as learner attainment rapid and at scale.
  - Change the classroom experience
  - Introduce innovations to unlock administrative efficiencies.

PROBLEM STATEMENT

The problem this study is addressing is the low integration rate of ICT in teaching and learning in Gauteng public schools despite the wide range availability of ICT resources in schools.

RESEARCH OBJECTIVES

- To identify factors that influence the successful integration of ICT for teaching and learning within the Gauteng Province public schools.
- To determine the educators' and subject advisors' perceptions on the use of ICT to enhance curriculum delivery.
- To examine the role of educator training in improving ICT integration in the classroom.
- To make policy recommendations on improving the integration of ICT in the classroom.

RESEARCH QUESTIONS

PRIMARY QUESTION

The main question the study seeks to address is: How does integration of technology in pedagogy enhance teaching and learning in Gauteng public schools?

SECONDARY QUESTIONS

a) What are the factors that influence successful integration of technology to improve teaching and learning within the Gauteng public schools?

b) What are the perceptions of educators and subject advisors on the use of ICT to improve curriculum delivery?

c) How does ICT training assist educators to integrate technology in the classroom?

d) Which policy recommendations can be tabled to the Gauteng Department of Education to integrate ICT in public schools?

RESEARCH PHILOSOPHY

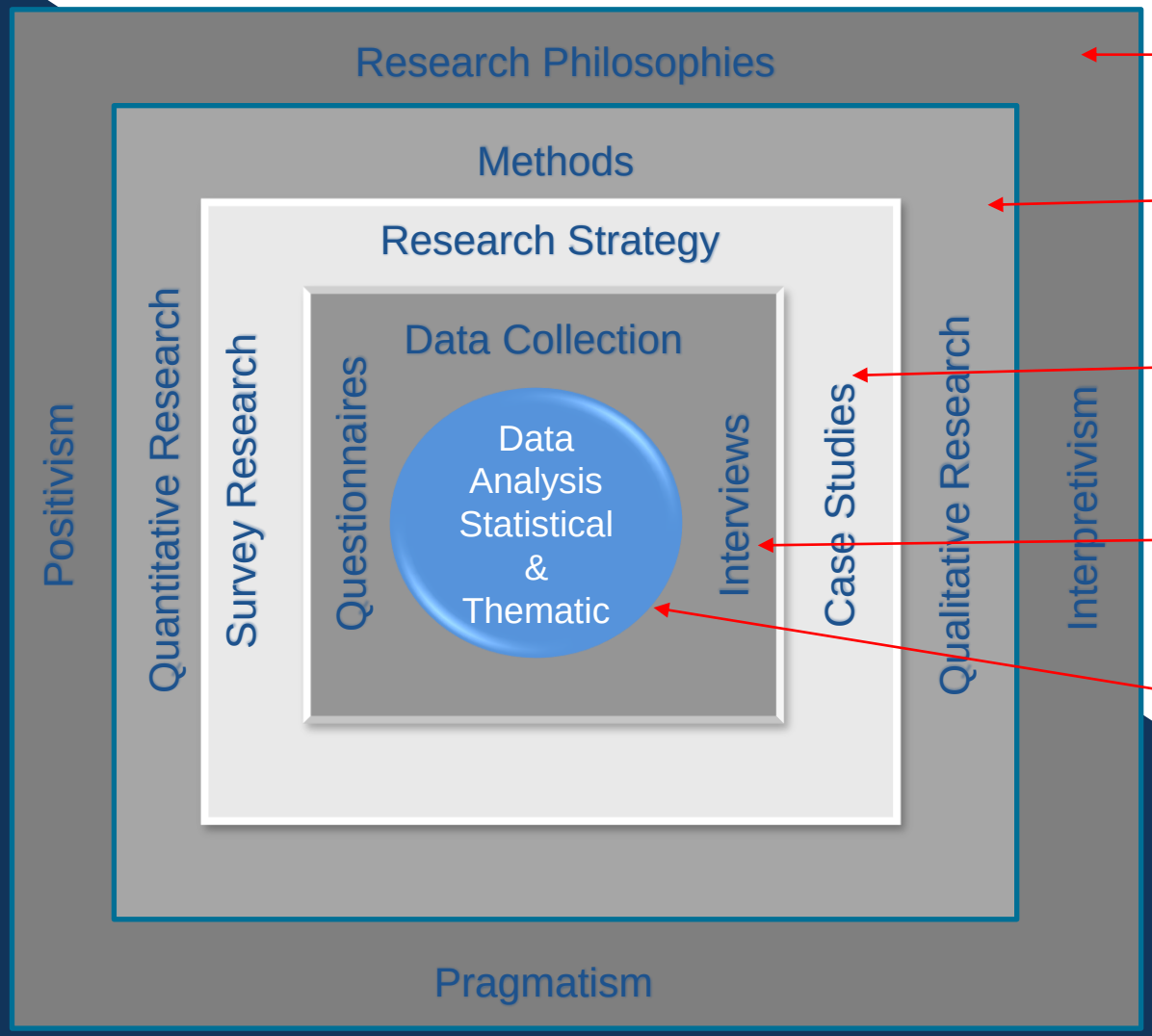
- The study is inclined towards a mixed methods approach, leaning upon a pragmatist orientation.
- ICT by its nature lends itself in the pure sciences and this requires a quantitative approach. However, the implementation of ICT involves people who have a particular orientation, view and experience.
- It is thus important to solicit the views of those involved in the implementation of ICT programmes. The qualitative study is informed by the interpretivist approach.
- The study also uses quantitative secondary data, which leans it more towards a mixed method approach.

RESEARCH METHODOLOGY

Qualitative Dimension	Quantitative Dimension
Strategy : Case Study	Strategy : Survey Research
Data collection : Semi - Structured Interviews	Data Collection: Structured Questionnaires
Data Analysis: Thematic	Data Analysis: Inferential

Saunders et.al. 2019; Creswell, 2015; Neuman,2014

RESEARCH DESIGN



Research Paradigm:
Pragmatism

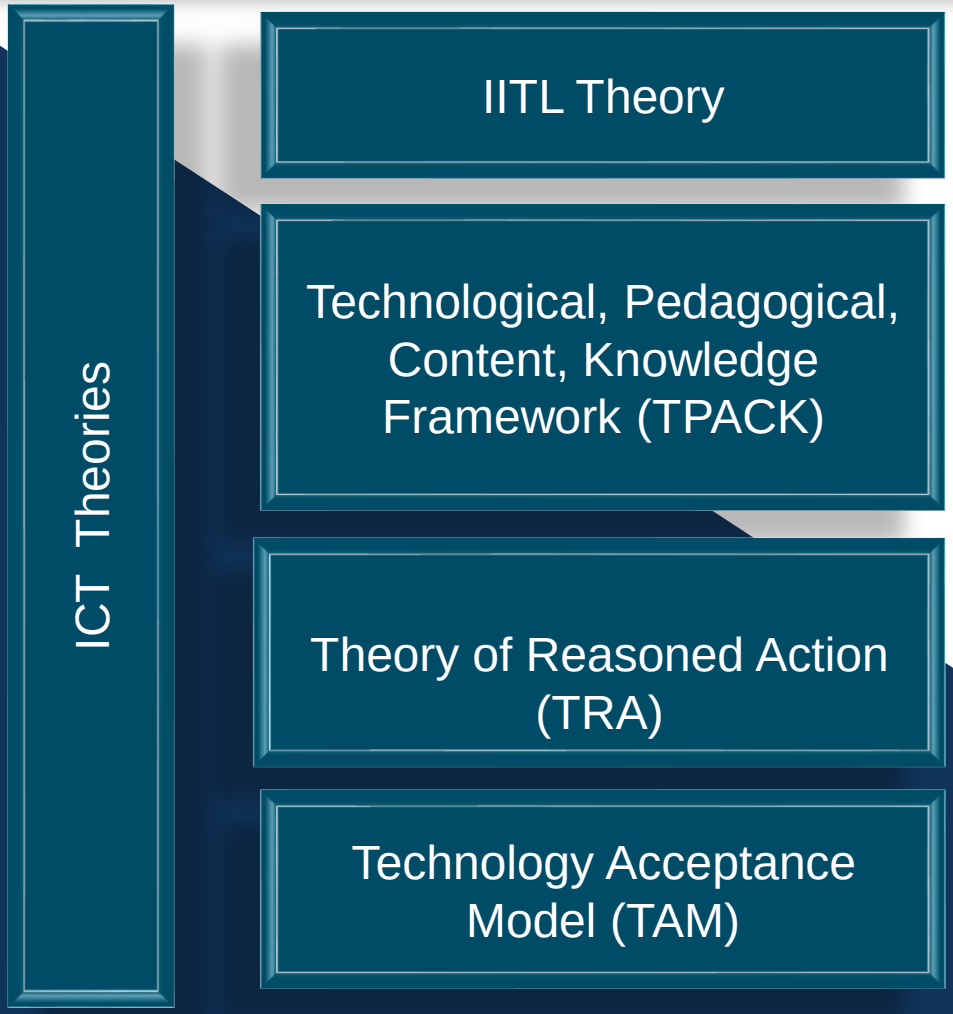
Research Tradition:
Mixed Methods

Research Strategy:
Survey and Case Study

Data Collection:
Questionnaires & Interviews

Data Analysis:
Statistical & Thematic

THEORETICAL FRAMEWORK



IITL Theories
(Luhamya, Bakkabulindi & Muyinda, 2017; Stevenson, 2016)

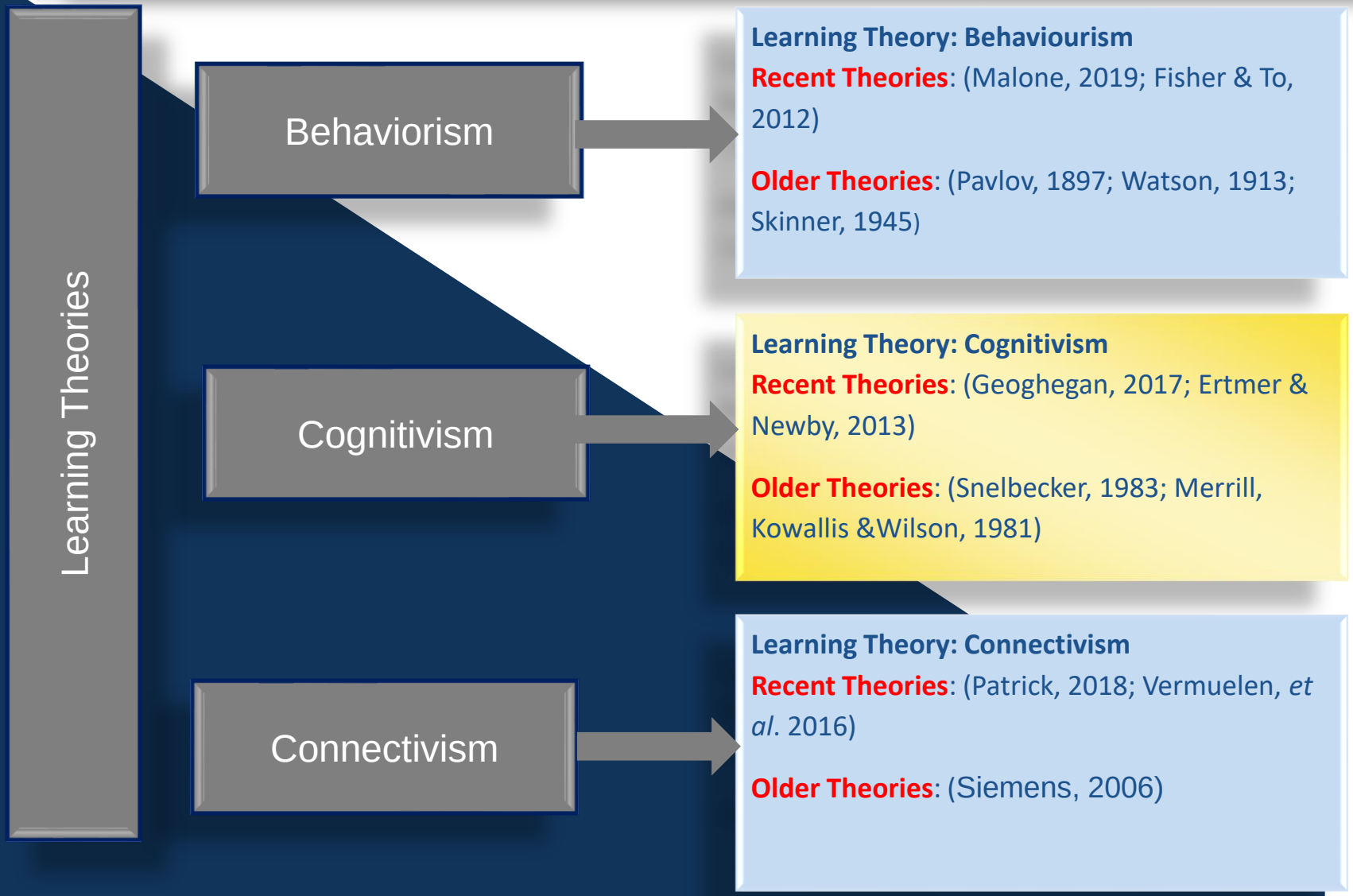
Technological Pedagogical Content Knowledge Framework (TPACK) (Mishra & Koehler, 2006)

Theory of Reasoned Action (TRA) (Ajzen, 1991)

Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980)

Technology Acceptance Model (TAM) (Davis,1989)

CONCEPTUAL FRAMEWORK



CONCEPTUAL FRAMEWORK CONT'…

DEPENDENT VARIABLE

Technology as an Enhancement to Teaching and Learning

- Educator's readiness for ICT tools
- Number of trained educators in ICT
- Number of educators with emails
- Number of educators using ICT tools

INDEPENDENT VARIABLE

Gauteng Public Schools
ICT Infrastructure
Educator's experience in ICT
Educator's personal characteristics

MODERATING VARIABLES

- Integration of Technology
- Government Policies
- ICT policies in schools
- Security issues

MEDIATING VARIABLES

- Educator's personal motivation
- Learner's personal motivation
- Perceived benefits of ICT use in schools

FINDINGS

- Shortage of ICT resources in some schools
- Not all educators have required ICT skills
- Dissimilarity between male and female educators
- Use of ICT perceived as increased workload
- Highly qualified educators willing to use ICT
- Older educators resistant to use new technology
- Young educators keen to learn new technology

FINDINGS CONT'…

- Positive reaction of educators towards use of ICT
  - 35% improve teaching and learning
  - 32% easy to execute work
  - 33% personal development and knowledge acquisition

- Negative reaction of educators towards ICT utilisation
  - 28.5% loss of work time
  - 18% constantly to save work done
  - 23.5% functionality wholly dependent on power supply
  - 21.5% misinformation and unverified sources
  - 8.5% computer skills like typing

- Available ICT resources not optimally utilised.

RECOMMENDATIONS

- Framework that is innovative and responsive.
- Realistic budgets made available for ICT rollout.
- Professional development to be prioritised.
- Change management to be introduced early in the rollout.
- Incentives for the use of ICT.
- Performance monitoring to be factored.
- Online assessments to be formalised to achieve maximum value.
- Appropriate security of ICT infrastructure and mobile device management.
- Strengthen and institutionalise **onsite support** (technical & curriculum support)

BENEFIT TO THE SECTOR AND COMMUNITY

- Developed a benchmark for ICT adoption, utilisation and integration.
- Faster and effective adoption of ICT in GP schools.
- Integration of ICT as part of educators' training.
- More ICT training opportunities for education stakeholders.
- Improved security at schools.
- Changing classroom experience through ICT integration.

CONTRIBUTION TO SCHOLARSHIP

- Opportunity to develop a guide for policymakers for tailored interventions.
- Timing of the study- Study is relevant as it is updating the body of knowledge concerning the subject matter.
- Methodological contribution - ICT Integration Model

GAPS / LIMITATIONS AND FUTURE RESEARCH

- Most available literature on ICT integration is based on European Studies.
- Focus of the study was limited to only three regions in GP.
- The study only looked at integration but did not expand on others requirements for a successful rollout such as infrastructure, costing models, private sector involvement and funding.
- Future studies to look at BRICS ICT integration in the classroom to engender a global benchmark and best practice.

CONCLUSION