Pedagogical Appropriation of Information and Communication Technologies by West African Educators

Thèse présentée à la
Faculté des études supérieures et postdoctorales,
Université de Montréal, Québec, Canada,
en vue de l'obtention du grade de PhD (doctorat) en
Sciences de l'éducation, option techno pédagogie

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Outline of Presentation

- **Context** and **problem**
- **Research objective**
- **Concepts**
- **Methodology**
- **Findings**
- **Conclusion**

Context and problem

Education in Africa

Indigenous and foreign influences

Pedagogies for the times

Flexible pedagogies that facilitate
remixing of cultures and identities

Proliferation of ICT

Internet connectivity, use of ICT in teaching

Promise of ICT?

For pedagogical renewal?
To promote African cultures?

Research Objective

Understand **how** and **why**

West African educators

pedagogically appropriate

information and communication

technologies (ICT)

and with what **perceived effects**

Specifically related to

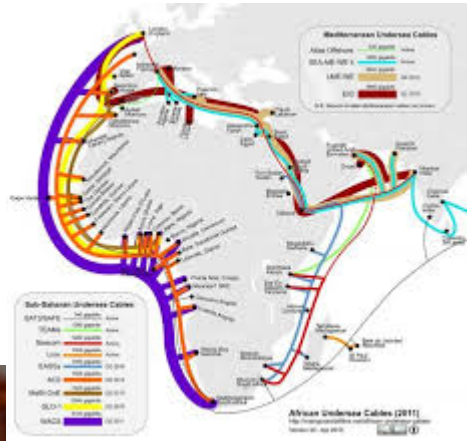
1) Primary and high school **teachers** in Bamako, Mali

2) Teachers' **conversations** about ICT

3) Why university **professors** appropriate ICT

??

Main concepts



ICT as cultural tools

Sociocultural perspective to account for education as rooted in society and specific historical and cultural contexts

Appropriation

Integrating newness, making innovations responsive to contextualized needs and aspirations, **unpacking technologies** within the host culture and **rooting them**, making them **part and parcel of the social fabric**

Qualitative research methodology

Participants

31 participants: 13% women and 87% men,
all involved in the use of ICT in education

Data collection

In-depth interviews,
semi-structured interview guide,
transcriptions

Data analysis

Thick description (Geertz),
feedback from participants,
hermeneutic circles, QDA miner

Result in three parts

1) Primary and high school **teachers** in Bamako, Mali

2) Teachers' **conversations** about ICT

3) Why university **professors** appropriate ICT

??

Results (1) regarding **how** and **why** primary through high school teachers in Mali pedagogically appropriate ICT and, according to them, **changes** that seem to occur in the process

Familiarization with ICT

Learning ICT until it meshes into every day life

Use in teaching and learning

Pedagogical goals guided learning activities using ICT

Changes

Changes perceived in **pedagogy**, among **students and teachers**, in **course content**, in **classrooms and schools**, and in teachers' **professional development**

ICT meshes into everyday life

*"Les TIC étaient **étranges** mais sont devenues **intimes**."* (Jeremiah)

*"La technologie est carrément **liée à ma personne**."* (Hamidou)

Return to Results (1)

from Table 6. Examples of Learning Activities Using ICT, in Relation to Pedagogical Goals and Objectives

Teacher	Pedagogical goal or objective	Learning activity using ICT
using ICT to interact with others – to appreciate culture and learn to speak foreign languages		
Hamidou	ensure students learn to speak, and not just write, English	sharing and learning relationships, via internet, with students in other countries
using ICT to search the Web for information – to learn lifelong learning skills and deepen class discussion		
Dramane	active participation in learning economics	web searches for material to present in class, for example related to the 2008 financial crisis
Alassane	prepare students for university and equip them with methods for lifelong learning; update outdated lessons, from before Africa's independence	in small groups students search Web on topics such as L'aide au Mali, Malian family code, geography of Russia, Japan or the Americas; teacher evaluates substance of group presentations and quality of interaction with internet
Lassana	nurture in students an understanding and appreciation of African literature	surf Web to learn about Senegalese novelist Mariama Bâ and contribute to class discussion before reading her work
Xavier	prepare students for responsible leadership	discuss, in classroom and courtyard, speeches downloaded from Web of Barack Obama and others
using ICT to search Web for new teaching methods – to enhance student learning		
Ibrahima	in math, help students perform division more successfully	less reliance on mental subtraction when doing division (a method teacher learned from Web)
using ICT to produce and share information – to update the curriculum with recent and African content		
***Ibrahima**	in local geography, fill gaps in 5th grade course	students recorded interviews with elders in nearby neighborhoods, organized the information collected and typed it up for future use

Return to Results (1)

from Table 15.

Perceived changes with the use of ICT	
in pedagogy	More active and interactive approaches, in which students are involved and considered and teachers guide students in learning to learn. See Ibrahima and Bintou
among students	More visible and vocal. Motivated to speak, ask questions and be active and engaged in their learning.
among teachers	Motivated by the use of ICT and energized. Humbler about what they know and know that they must keep learning.
in course content	Less monotonous, less stagnant. Courses enriched and updated. Locally available knowledge may be revalorized as it too is interrogated and integrated. See Dramane
in classrooms	Less rigid, more fluid. More dialogue and diverse voices and perspectives. More student initiative and participation and more power sharing.
at school	School life transcends boundaries. More open to community and world and vice versa. New spaces such as computer labs bring new opportunities. School culture can be refreshed and reinvigorated.
in teachers' professional development	Internet becomes a companion for teachers in deepening their knowledge and evolving their pedagogies. See Xavier

Continue to Discussion and Conclusion for Results (1)

Regarding perceived changes in pedagogy with the use ICT

"A l'époque, le maitre dispensait les cours… maintenant on partage les idées, ***l'élève ne conçoit pas seulement ce que je dis****."* (Ibrahima)

"Je ne fais plus les croquis au tableau; je m'étale plus sur les leçons qu'auparavant, ce qui ***facilite la compréhension****."* (Bintou)

Return to Table 15

Regarding perceived changes in course content with the use ICT

"Au lieu de dessiner au tableau, dans la salle informatique, on peut ***comparer les différentes cartes d'Afrique****.*

" On peut ***accéder les infos sur la crise financière de 2008*** *– qui n'est pas couverte dans les manuels scolaires."* (Dramane)

Return to Table 15

Results (1) regarding **how** and **why** primary through high school teachers in Mali pedagogically appropriate ICT and, according to them, **changes** that seem to occur in the process

Discussion and Conclusion

Tensions arise in the negotiation of tradition and novelty – as described by theorists of appropriation processes.

Newness is created.

Teachers embraced ICT in relation to pedagogical goals and for its **transformative possibilities**.

The appropriation process seemed to catalyze active and **socio-constructive learning**.

Teachers were envisioning the future and tentatively **shaping the integration of technology** into learning in some classrooms and schools in Bamako.

Results (2) regarding teachers' conversations with others, about the use of ICT in teaching and learning

Results

Teachers' conversations with various social actors:
peers, school and district directors, pedagogical advisors,
parents, other community members

Discussion and conclusion

Teachers as **border pedagogues** and cultural workers,
engaging others in collectively shaping ICT,
ICT as a catalyst for the renewal of school culture

Continue to Results (3)

from Tables in section 6.4 – Teachers' conversations with (or about) various social actors, regarding the use of ICT in teaching and learning (part 1)

Social Actors	
Nature of conversations	Examples
Peers	
Mutual support and complicity	Pedagogical committees at Hamidou's school became a source of support for teaching learning and experimenting ICT and persisting through difficulties.
Frustration and impatience	Teachers express impatience with peers "caught in a rut," who do not "muster the courage" (Hamidou) to move beyond their comfort zone, to learn how to browse, to update their courses.
School and District Advisors	
Engaging with school directors	Xavier, unable to persuade his director about new pedagogical approaches his use of ICT implies, for example putting students into groups, explains, "The director does not understand why I do that. Schools directors can help us if they listen to us."
Advising district director	Sensing the necessity for school directors to understand ICT, Jeremiah met with the Academy director to suggest he require directors' annual reports be typewritten – as a way to motivate them to learn and use ICT.
Pedagogical advisors	
Advisors learning from teachers	When an advisor asked if what is on internet is credible, Alassane said he replied, "Some is; some is not. You have to know how to navigate… know what you want and how to obtain it."
Expressing frustration with ongoing dependency	"Only yesterday we received science suitcases from an association in France, containing objects to help in teaching about the human body and the earth. Now if an advisor had a computer, they could do research to prepare lessons." (Lamine, a supervisor of advisors)

Continue to part 2

from Tables in section 6.4 – Teachers' conversations with (or about) various social actors, regarding the use of ICT in teaching and learning (part 2)

Social Actor	
Nature of conversations	Examples
Parents	
Importance of connecting with parents	"As long as we do not explain things, parents do not know the impact or importance of ICT in education" (Alassane). Students and their parents must be involved (Mohamed of the ICT ministry).
Discussing pedagogy	When approached by parents about "playing" in class rather than preparing for exams, Hamidou explained the pertinence of activity and interaction for learning to speak and not just write a foreign language.
Discussing course content	Parents of 5th graders did not object (which Ibrahima interpreted as approval) when they received the document teachers and students prepared on local geography, which incorporated local knowledge from recorded interviews with elders.
People in communities surrounding schools	
Synthesis of information from several sources	Issa shares proverbs on the school website, "because of the wisdom in them. I find the proverbs on the Web too universalized, however. That is why I am recording ones shared by elders – to publish and share them."
	"In researching the history of the Bacodjikoroni neighborhood in Bamako, I indicated who in the neighborhood students should go see. When they returned, we wrote a synthesis of what they learned and what I found on the Web." (Alassane)
Culturally embedded attitudes toward newness and change	"Like our griots, the Web gathers and shares information. We consult many people to find a solution to a problem, so also should we consult the Web. We need to encourage the positive sides of it." (Ibrahima) "The African is obliged to adapt." (Dramane)

Return to part 1 of table

Return to Results (2)

Results (3) regarding why university professors pedagogically appropriate ICT

Methodology

Sociocultural interpretation of
ICT itineraries of six West African professors

Results

3 motivations for ICT appropriation,
linked to past, present and future

Discussion and conclusion

Professors **invested their cultures and personalities** in the appropriation of ICT, contributing to **African pedagogies** and **epistemological contexts** for the integration of ICT that **reflect African aspirations**, for a better integration of Africans into society and into the world

Continue summary of results

Kadijatou

*Avec les TIC Kadijatou peut **finir le programme** même lors des grèves sur le campus et suivre des étudiants en dehors de la capitale. Les TIC l'aident à préparer les jeunes à obtenir du travail et à **contribuer à la nation et au monde scientifique**.*

Return to Results (3)

Continue to Sidi

Sidi

Sidi voudrait que les Africains utilisent de façon stratégique les TIC pour apprendre, ***produire des connaissances*** *et* ***réaligner les relations de pouvoir****. Selon lui, il faut « se lancer sur la scène des innovations », rénover et* ***défendre la culture africaine****.*

Return to Kadijatou

Return to Results (3)

from Tables 13 and 17. Professors' motivations for the pedagogical appropriation of ICT

(Re)create positive learning experiences

Engage with ICT to feel more autonomous in learning, enhance reflection, and learn with others

Facilitate African participation in the world

Strengthen African scholarly production, extend the reach of African ideas and perspectives

Transform relations and cultures

Interrogate heritage and renegotiate knowledge, transform learning, and evolve African identities

Return to Results (3)

Summary of findings in relation to
1st specific research objective

How and why teachers appropriate ICT, with what changes

Teachers **learned ICT through others** and used it until it **meshed into everyday life**, harnessed ICT for its transformative possibilities, deployed it in relation to their **pedagogical goals**, experienced **changes in their teaching** (more interactive), classrooms and schools (more open and dialogical)

Suggesting ICT can be a **catalyst for pedagogical change**, in contexts weighed down by the legacy of colonialism

Summary of findings in relation to
2nd specific research objective

Teachers' conversations about ICT in education

Facilitated **social shaping of ICT**, in a **spirit of consensus** that characterizes their culture, opening doors to the reconsideration of local and global cultures and their remixing, pointing to pathways for the **revitalization of learning** and the renewal of education

Summary of findings in relation to
3rd specific research objective

Why university professors pedagogically appropriate ICT

Shape their students' **learning** experiences,
ensure they **participate in the world**,
and help position them to
transform relations and culture

Conclusion

- **Limits**

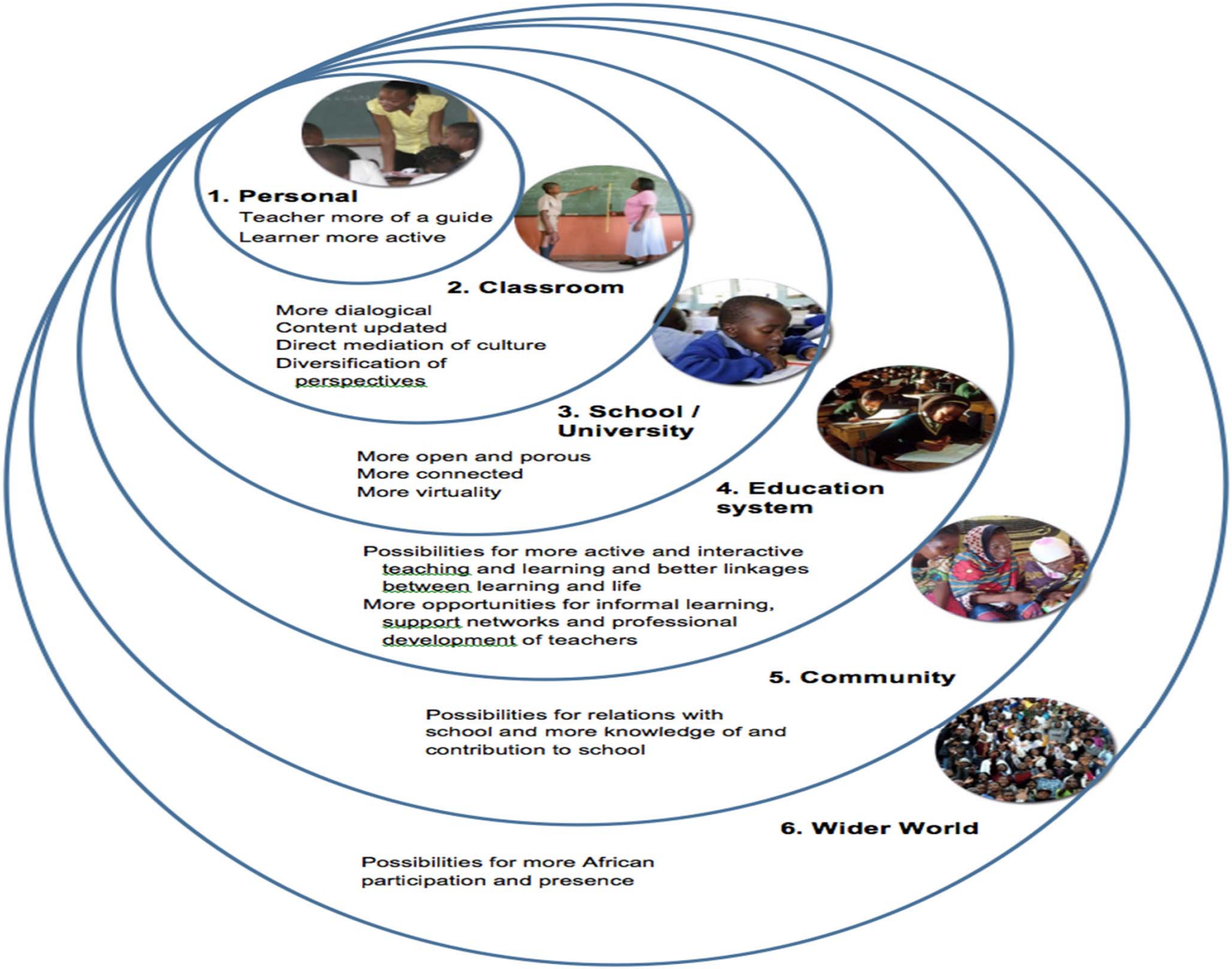
- *Diagram of:*
  Changes evident at multiple levels

- **Strengths**

Some Limits

- Small number of participants (31)
- Results drawn from teachers' perceptions
- Participants fairly enthusiastic about ICT
- Teachers from urban centers, preponderance of private elementary and high schools
- Short term of the study

Changes and possibilities of change evident at multiple levels with the pedagogical appropriation of ICT


1. Personal
Teacher more of a guide
Learner more active
2. Classroom
More dialogical
Content updated
Direct mediation of culture
Diversification of perspectives
3. School / University
More open and porous
More connected
More virtuality
4. Education system
Possibilities for more active and interactive teaching and learning and better linkages between learning and life
More opportunities for informal learning, support networks and professional development of teachers
5. Community
Possibilities for relations with school and more knowledge of and contribution to school
6. Wider World
Possibilities for more African participation and presence

Strengths and Contributions of the Research

- Insights into processes of harnessing ICT
- Literature from sociology and cultural psychology
- African scholars
- Epistemological dilemmas
- Mobilization of the concept of appropriation
- Qualitative research methodology
- Perspectives of teachers
- Holistic approach to formal education
- Upsetting of stereotypes

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