A Presentation to the National Workshop on Effective Teaching Skills and Instructional Strategies for College Teachers

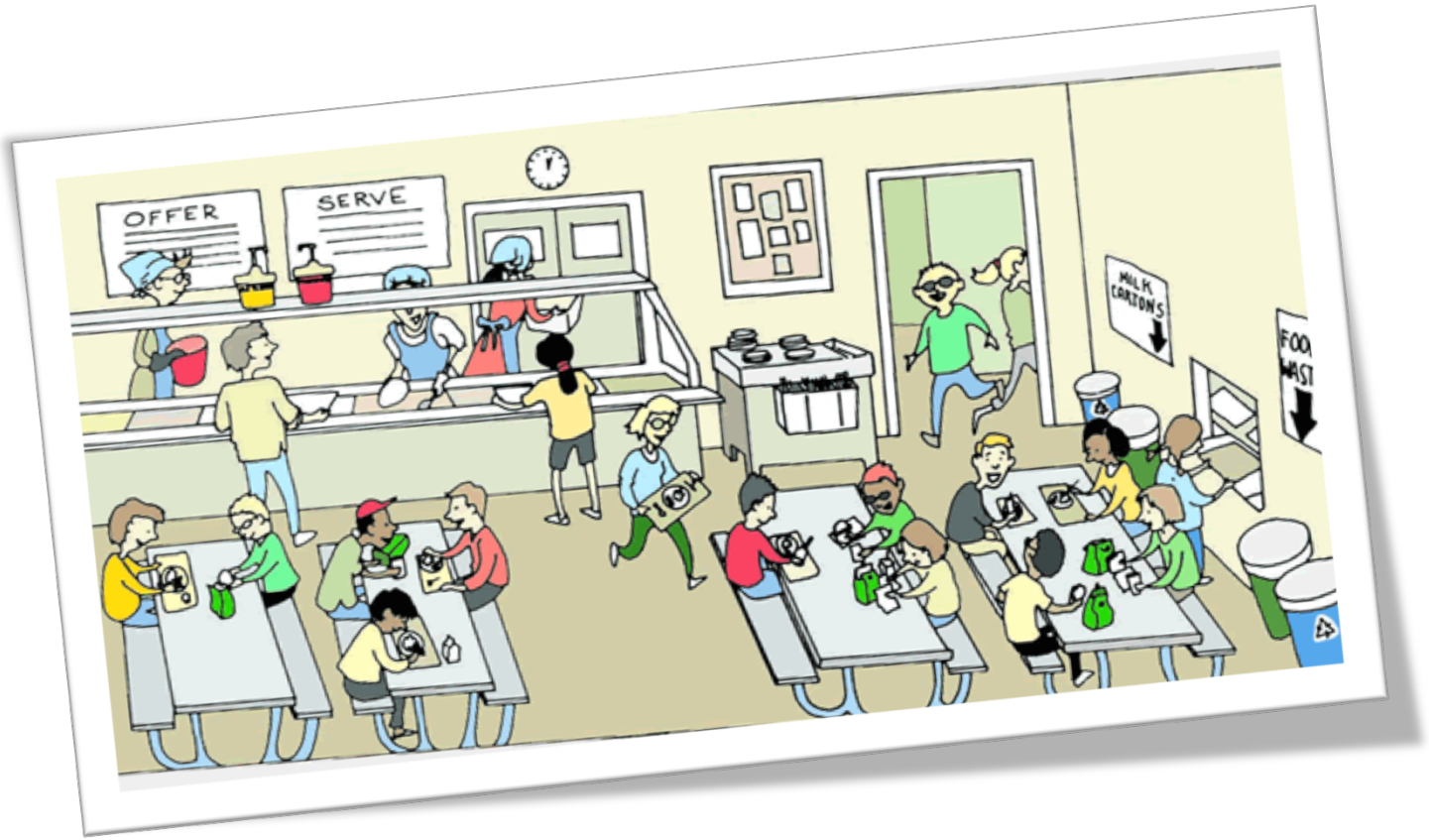
July 19, 2012

By Musabbir Chowdhury, Ph.D.

Presentation Title

ICT Integration Trends and Practices in College Classrooms.

Story - faculty lounge



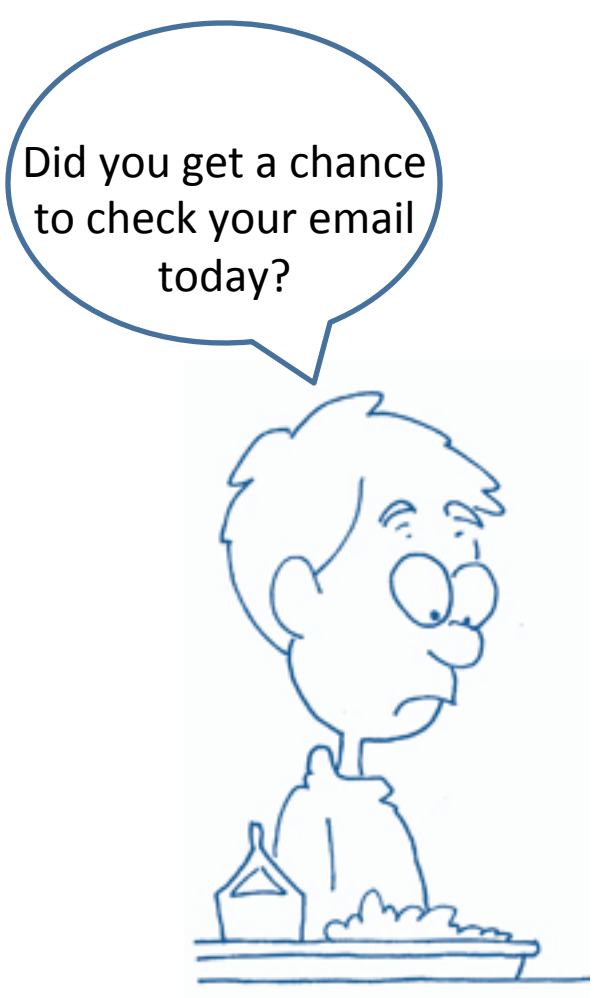
Afternoon Coffee Break – 3:00 pm

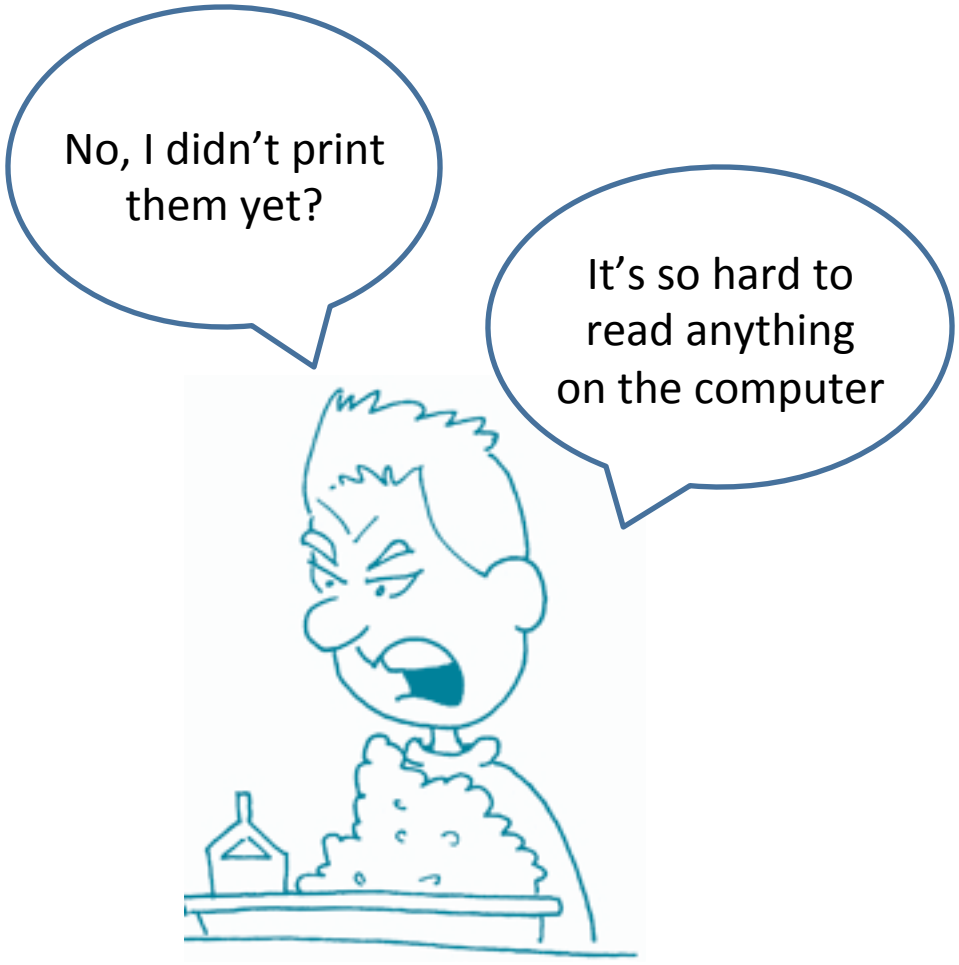
"PowerPoint doesn't work…
I'm going to use my old teaching methods"

Professor B (Mentee)

Professor A (Mentor)

Few minutes later…





That's me …

… went to my office,

… logged in EBSCO HOST

… started downloading related research

Lit Review

significant money invested

not always effectively integrated

(Cuban, 2001; Geoghegan, 1994; Robyler & Knezek, 2003; Schroll, 2007).

Initial Exploration & findings

Net generation of students in the classroom

Access to ICT has improved

Societal change regarding the usage of ICT

Under use of ICT by teachers

Effectiveness of ICT as a teaching tool

Employers have higher expectation of the usage of ICT

Background

Technology integration is not a new concept to educators, and colleges invest a significant amount of money to acquire modern ICTs. In my literature review I found several studies have indicated that significant money has been invested by colleges and universities to purchase modern ICT (Cuban, 2001; Geoghegan, 1994; Schroll, 2007). Several studies (Cuban; Robyler & Knezek, 2003) also indicated that despite the availability of and access to ICT, they are not always effectively integrated into teaching and learning.

In addition, I found

- ✓ Net generation of students in the classroom (Today's students come to the classroom with certain expectations about the use of ICT in teaching and learning.)
- ✓ Access to ICT has improved
- ✓ Societal change regarding the usage of ICT
- ✓ Employers have higher expectation of the usage of ICT
- ✓ Findings about the effectiveness of ICT for teaching and learning
- ✓ Findings related to the under use of ICT by teachers.

Purpose of the Study

The purpose of this nonexperimental study was to examine faculty members' perceptions of ICT use to improve teaching and the ICT integration practices into teaching.

The present study was designed primarily to capture the frequency of ICT integration in college and university teaching, and estimate instructors' perception about ICT use for teaching purposes.

The major objective of the study was to determine the instructors' perception of ICT use in the classroom and the impact of their perceptions on teaching practices.

Research Questions

The two questions guided this study are the following:

1. What is the frequency of ICT integration in college teaching?

2. What are the teachers' perceptions of ICT use to improve teaching?

Research Design

❖This research was quantitative and used a non-experimental research design.

Non-experimental

❖ This study employed a cross-sectional online survey to obtain descriptive data about college instructors' current practice of ICT use and their perception of ICT use to improve teaching.

online survey

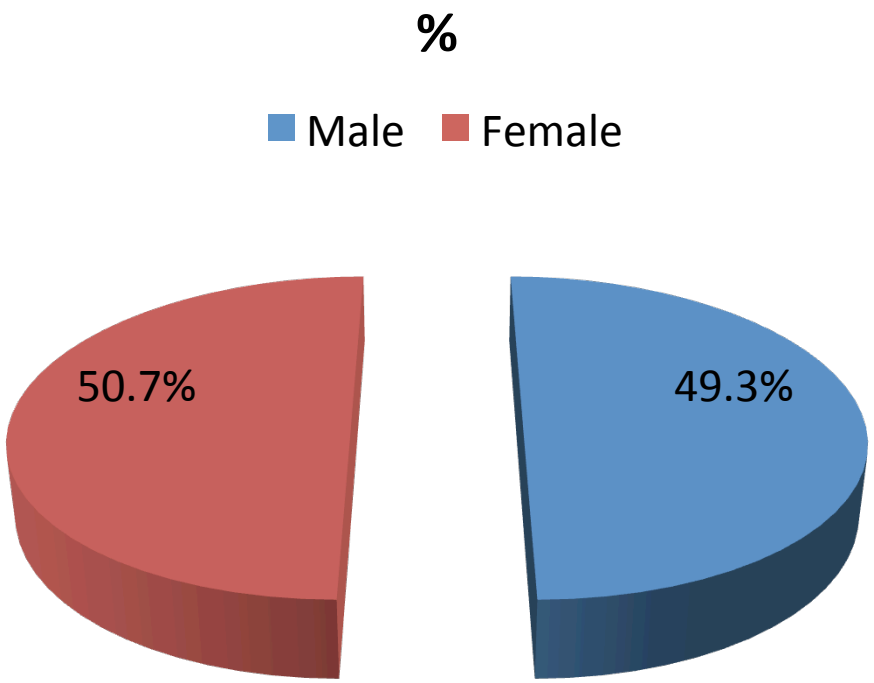
Survey Instrument

1st section	• Gender • Teaching level • Discipline • Teaching Experience • Technology Experience
2nd section	• Practice of ICT use in teaching.
3rd section	• Perceptions of ICT use.

Participating Colleges

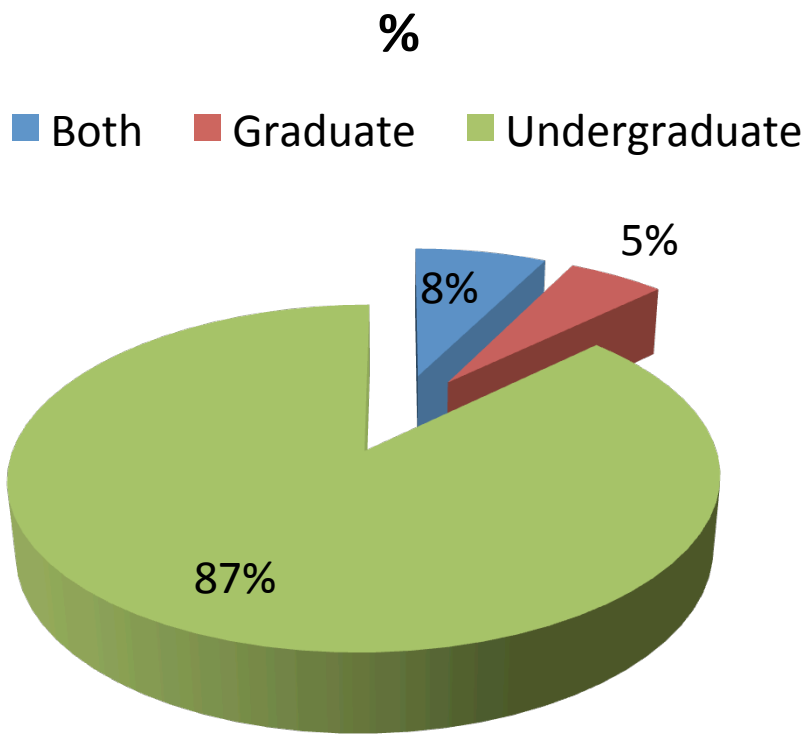
- Vancouver Community College
  - Faculty: 300
  - Response: 47
- Red River College
  - Faculty: 600
  - Response: 51
- Assiniboine Community College
  - Faculty: 200
  - Response: 51
- Niagara College
  - Faculty: 360
  - Response: 54

Responses by Gender



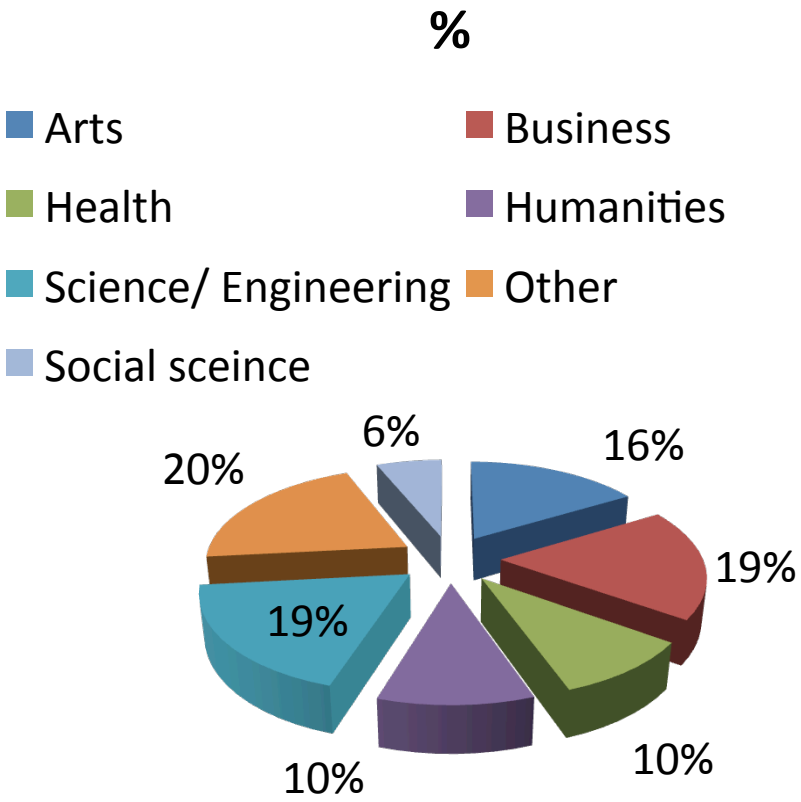
- Female: 103
- Male: 100

Responses by Teaching Level



- Both: 15
- Graduate: 11
- Undergraduate: 177

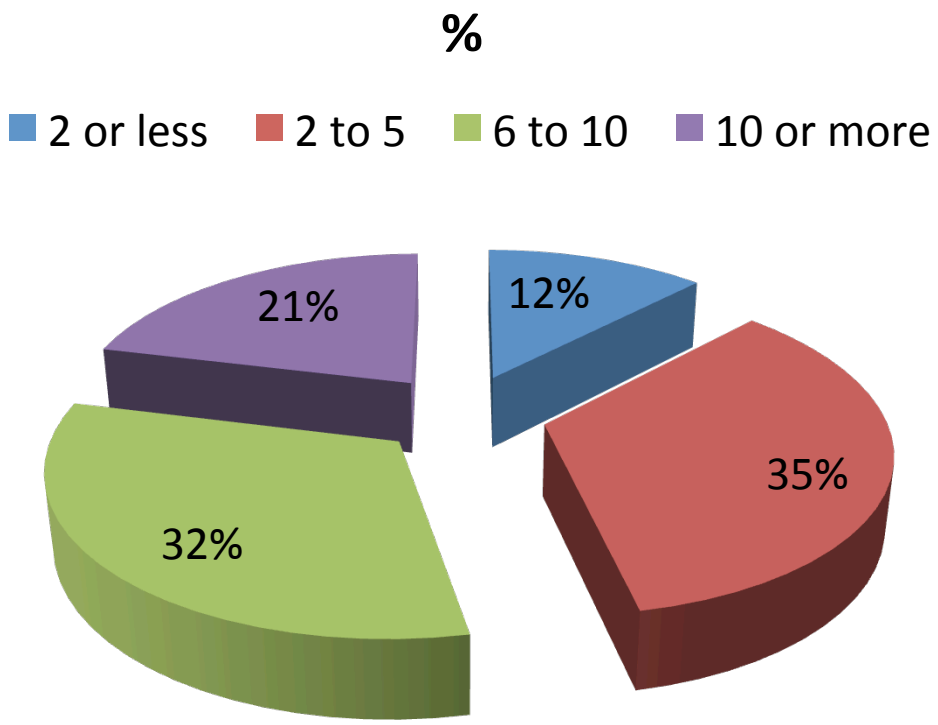
Responses by Teaching Discipline



- Arts: 32 (16.4%)
- Health: 19 (9.7%)
- Natural Science / Engineering: 36(18.5%)
- Social Science: 12 (6.2%)

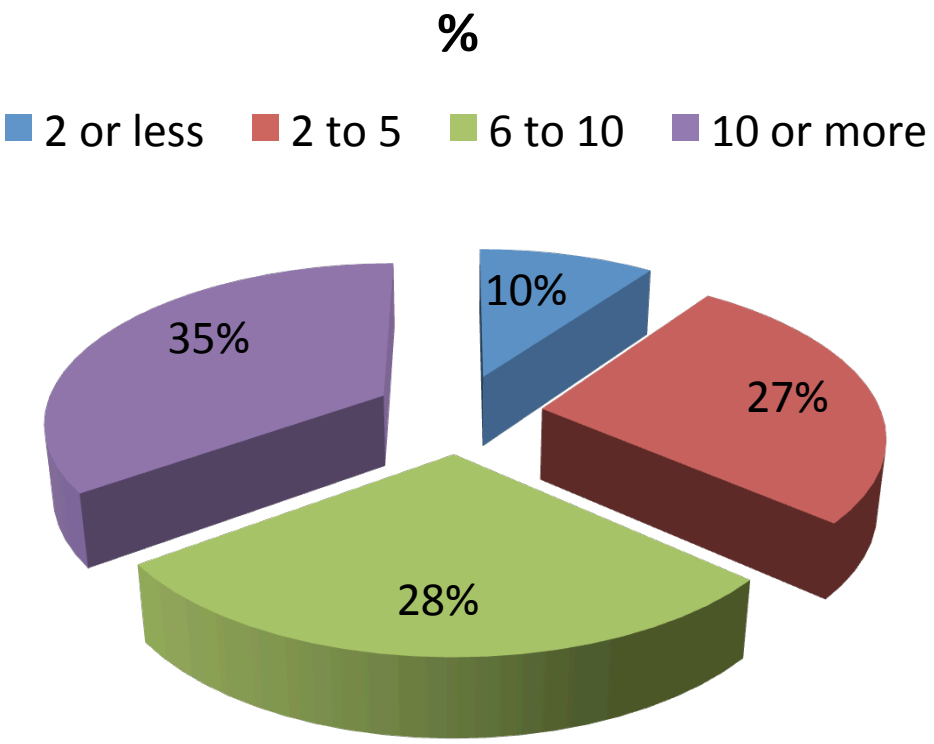
- Business: 36(18.5%)
- Humanities: 20 (10.3%)
- More than one /Other: 40 (20.5%)

Responses by Technology Experiences



- 2 or less: 25 (12.3%)
- 2 to 5: 70 (34.5%)
- 6 to 10: 65 (32%)
- 10 or more: 43(21.2%)

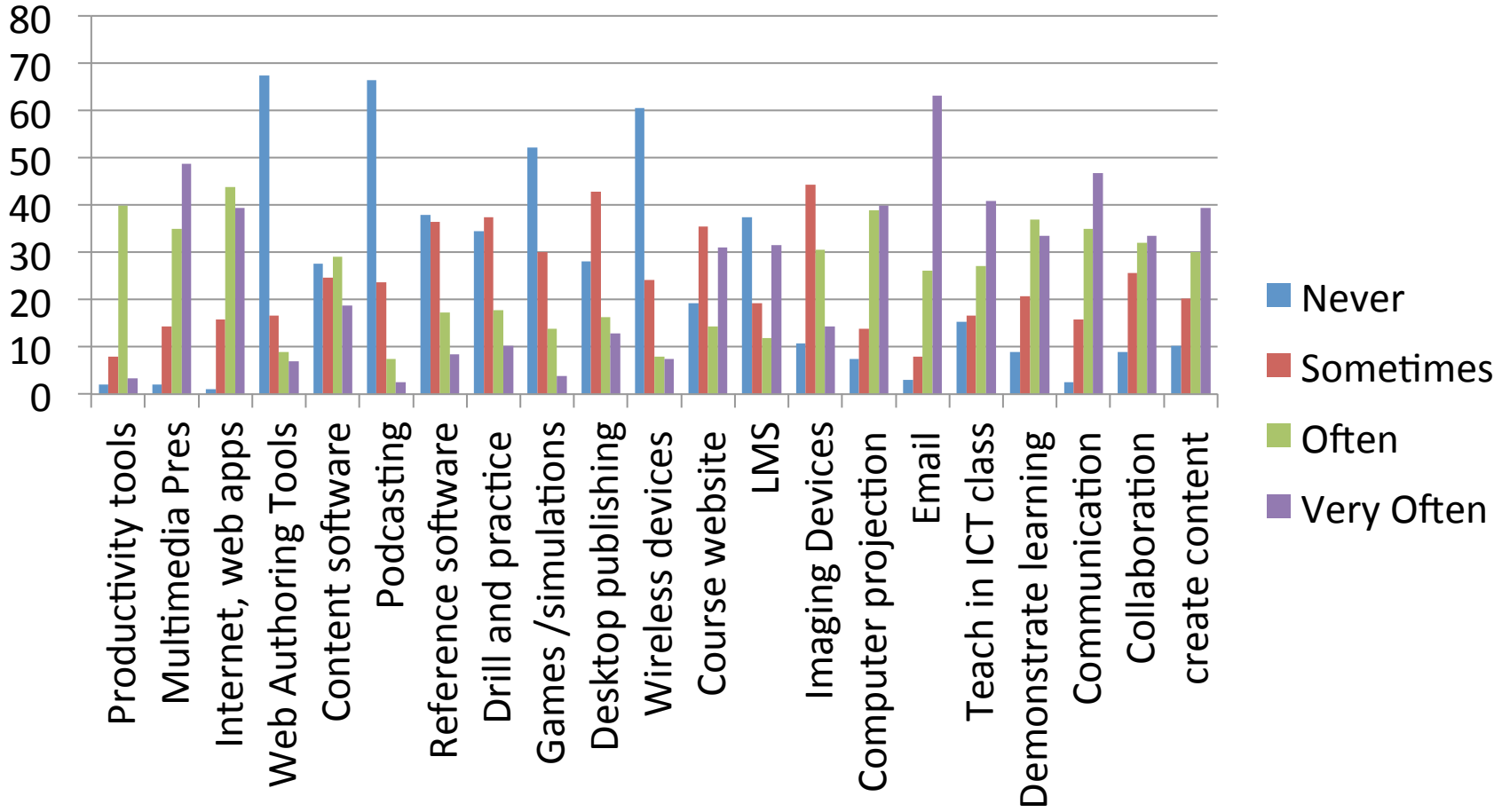
Responses by Teaching Experiences



- 2 or less: 20 (9.9%)
- 2 to 5: 54 (26.6%)
- 6 to 10: 58 (28.6%)
- 10 or more: 71(35.0%)

RESEARCH QUESTION 1:

What is the frequency of ICT integration by college faculty into their teaching?



- The previous graph shows survey responses related to RQ1.

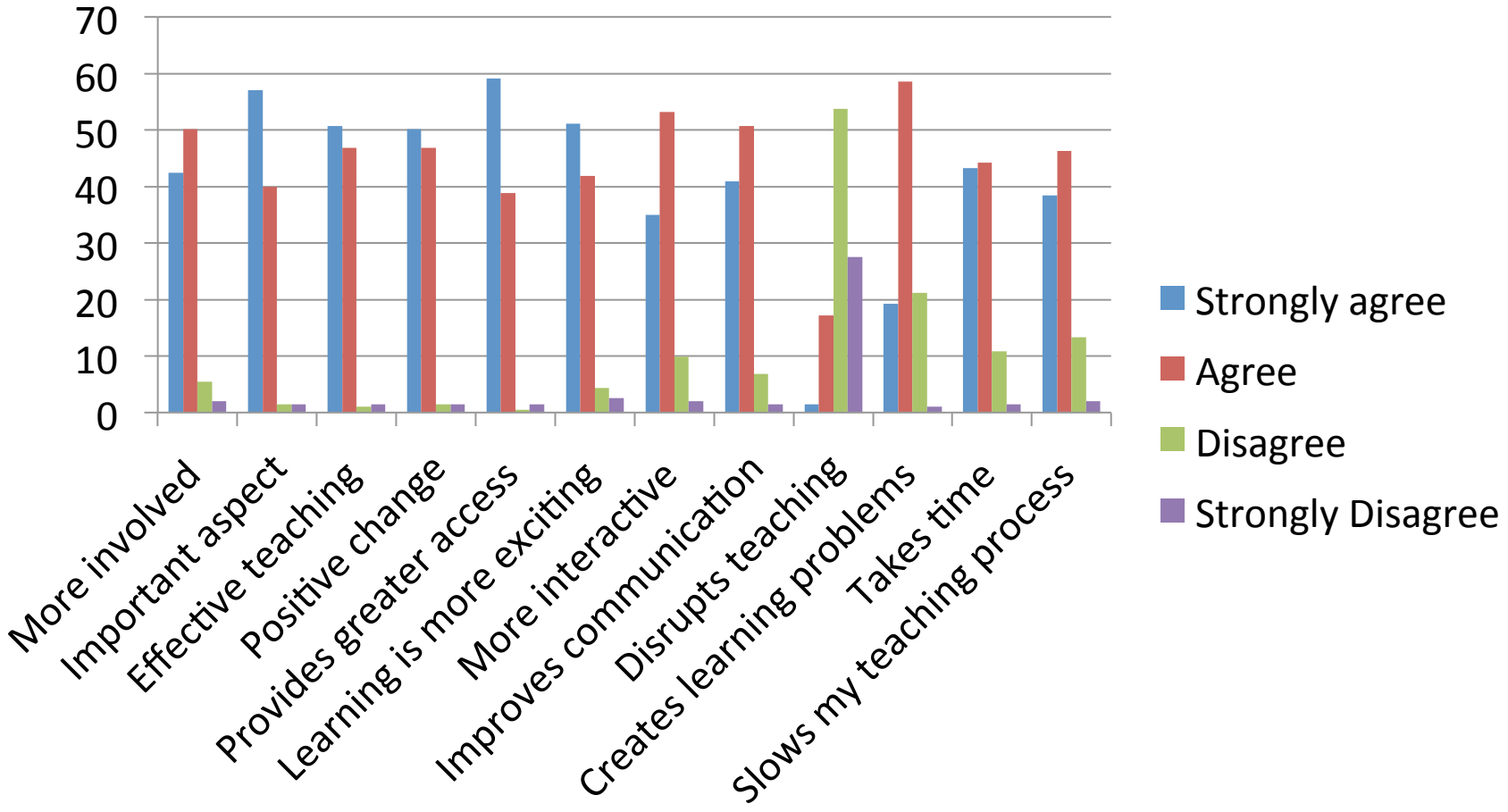
- Most of them reported often or very often
- using productivity tools (e.g., word processing, spreadsheet, database) (90.1%);
- using multimedia presentation tools (e.g., PowerPoint, flash, video) (83.8%);
- using Internet, Web applications(83.2%);
- using computer projection device(78.8%), and
- using e-mail or other Internet communication tool for assignment/project feedback (89.2%).

- Most of the participants also reported often or very often
- teaching in a computer classroom (68%),
- ask students to demonstrate learning using ICT (70.4%),
- using ICT for communication (81.8%),
- using ICT for collaboration (65.5%), and
- using ICT to create content (69.4%).

- Most of the participants reported rarely (never or sometimes) using Web authoring tools (84.2%), reference software (74.4%), drill and practice applications (71.9%), games and simulations (82.2%), desktop publishing (71%), and wireless handheld devices (84.7%). Finally, 90.1% faculty reported rarely using podcasting/ vodcasting/screencasting.

RESEARCH QUESTION 2:

What are the teachers' perceptions of the effect of ICT use to improve teaching?



- The survey responses revealed that most of the faculty members strongly agreed or agreed that:

- ICT integration is an important aspect of their teaching career (97%);
- ICT integration provides greater access to learning resources (98%).
- ICT helps them to get more involved into teaching (92.6%),
- ICT can be integrated to foster an effective teaching and learning environment (97.5%),
- ICT integration can be a positive change agent in student learning (97%),
- ICT integration makes teaching and learning more exciting (93.1%),
- ICT integration makes teaching and learning more interactive (88.2%), and
- that ICT integration improves communication between students and instructors (91.6%).

- In addition, majority also agreed:
- ICT integration creates learning problems, such as trying to find information from the Web (77.8%);
- ICT integration takes time away from actual classroom instruction (87.6%);
- ICT integration slows their teaching process for various reasons (84.7%).

- Finally, 81.3% strongly disagreed or disagreed that ICT integration disrupts teaching.

Findings / Recommendation

- The most significant finding was that the college instructors believed that ICT can be used to foster effective teaching and learning environments, regardless of their teaching technique. This was a promising result and foundation upon which to build programs to promote the expanded use of ICT.

cont ...

- Based on the findings, the researcher speculates that there will be more ICT integration into teaching if ICT developers create content specific tools and applications. If this plan of implementation occurs, faculty use may increase and the level of implementation may also increase to include the use of gaming activities and other applications.

cont …

- Faculty professional development plans and technology integration plans need to be taken into consideration along with factors related to gender, age, discipline, and experience. These findings can be used by administrators, technology planning committees, and faculty development teams as the basis for the development of future technology planning and training that may help instructors overcome the barriers to integrating emerging technologies.

cont ...

- In general, colleges need to support instructors and technical support staff by developing a system for communication between these groups that will facilitate the integration of ICT into teaching and learning effectively.

- Colleges and ICT developers need to establish a clear channel of communication in order to develop ICT that will support teaching and learning needs.

- Provincial programs meant to enhance the professional development of new instructors need to offer courses that will help educators integrate emerging ICT into teaching and learning.

- Colleges also need to consider making ICT integration into curriculum mandatory across all schools and disciplines.

Conclusions

- The results indicated that the college instructors who participated in the study tended to be liberal in their perceptions of ICT use to improve their teaching but far more conservative in their approaches to ICT integration into teaching. This finding might seem somewhat contradictory, but it does reflect support for ICT integration as well as apprehension on the part of college instructors about its value. In other words, the participants recognized the potential of ICT, but they were not convinced of its effectiveness.

- Speculation for the possible cause of these relatively negative perceptions may include the participants' lack of knowledge of effective classroom implementation strategies and an underlying mistrust of the impact of ICT on instructional delivery.

cont ...

- This investigation demonstrated the college instructors' reluctance to integrate emerging ICT into their classroom. If significant strides are to be make in the successful integration of ICT into college classrooms, this viewpoint must be addressed and amended. New ICT and different instructional and learning methods can coexist and provide a wider range of instructional benefits for students.

- The technique of using and integrating cutting-edge ICT into modern instructional and learning theories such as constructivism and connectivism need to be well researched and communicated with teachers across the globe.

cont ...

- ICT alone will not improve the practice of teaching and learning; rather, they need to be integrated into the curriculum through a systematic approach.

- From this study, it became apparent to me that modern ICT have a significant influence upon today's higher education and that most faculty members are aware of this influence in their classrooms. Most of the survey respondents agreed that it is essential to integrate modern ICT into their teaching to foster effective learning environments and prepare the students for the 21st-century workforce.

cont ...

- Further research into the areas of ICT integration and collaboration by the academic community is necessary to keep abreast of the accelerating rate of ICT development across the globe.

- It is important that institutions of higher education support the professional development of faculty members so that they can effectively integrate ICT into their disciplines and classrooms.

- The result of effective ICT integration practices and strategies may create an academic environment that will prepare graduates for tomorrow's challenges.

Discussion

liberal

Perceptions of ICT

conservative

ICT integration

"We're an overconfident species. Ninety-four percent of college professors believe they have above-average teaching skills."
- *David Brook*

cont ...

Reluctance to integrate emerging ICT

successful integration into college classrooms

different instructional and learning methods can coexist

system …

Systematic Integration of ICT.

It is essential to integrate modern ICT

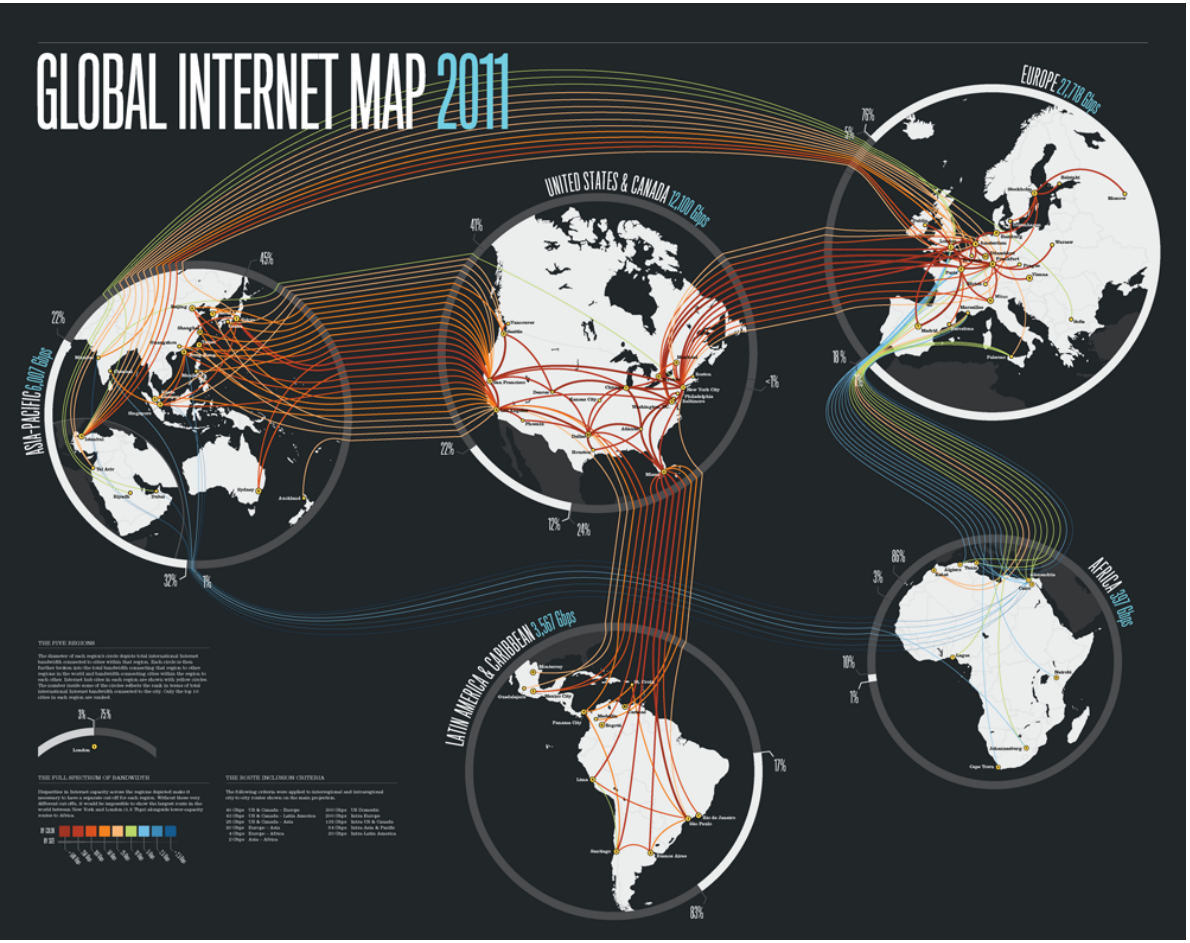
cont ...

ICT integration and collaboration

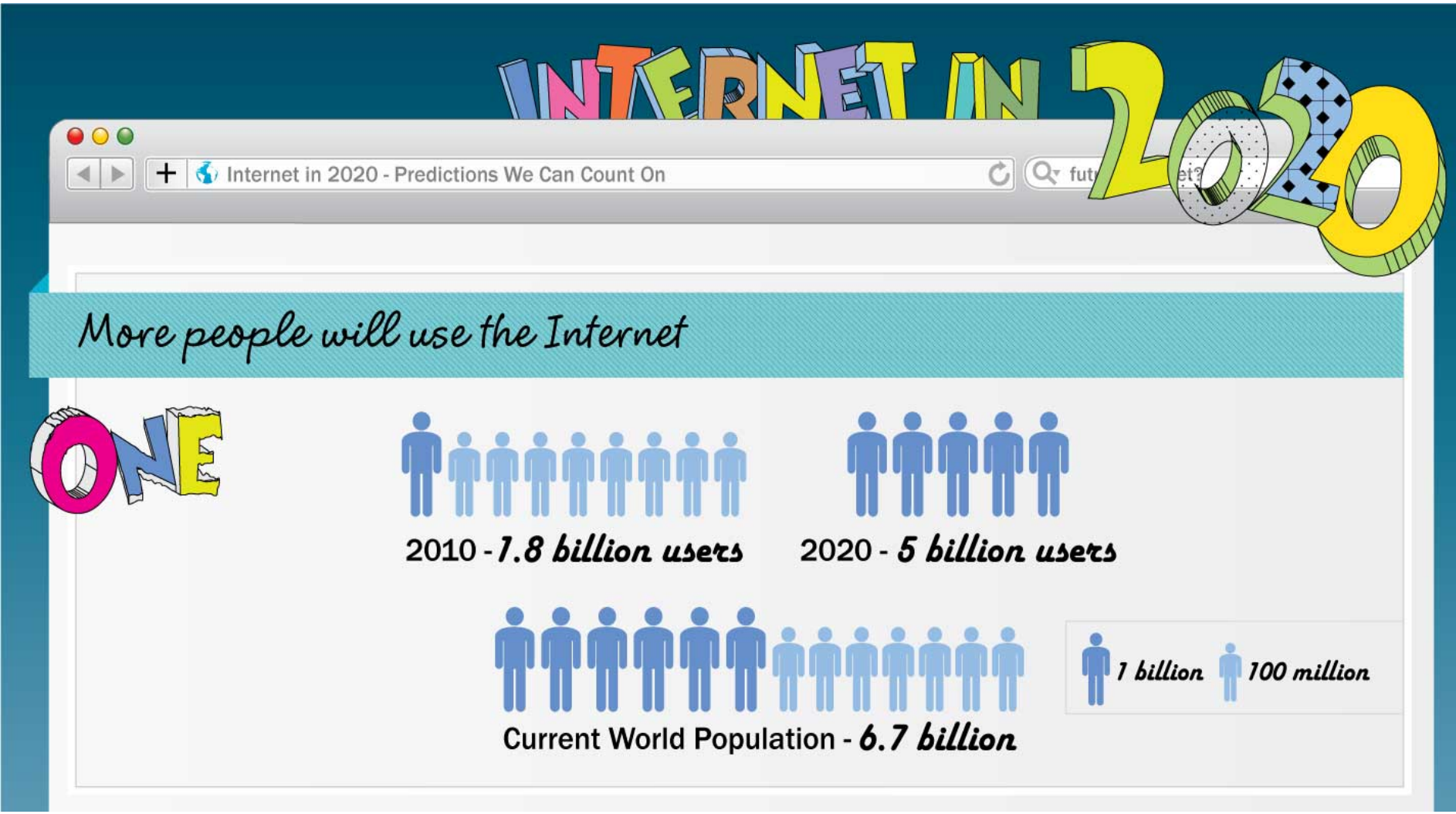
professional development

prepare graduates

Trends-2012

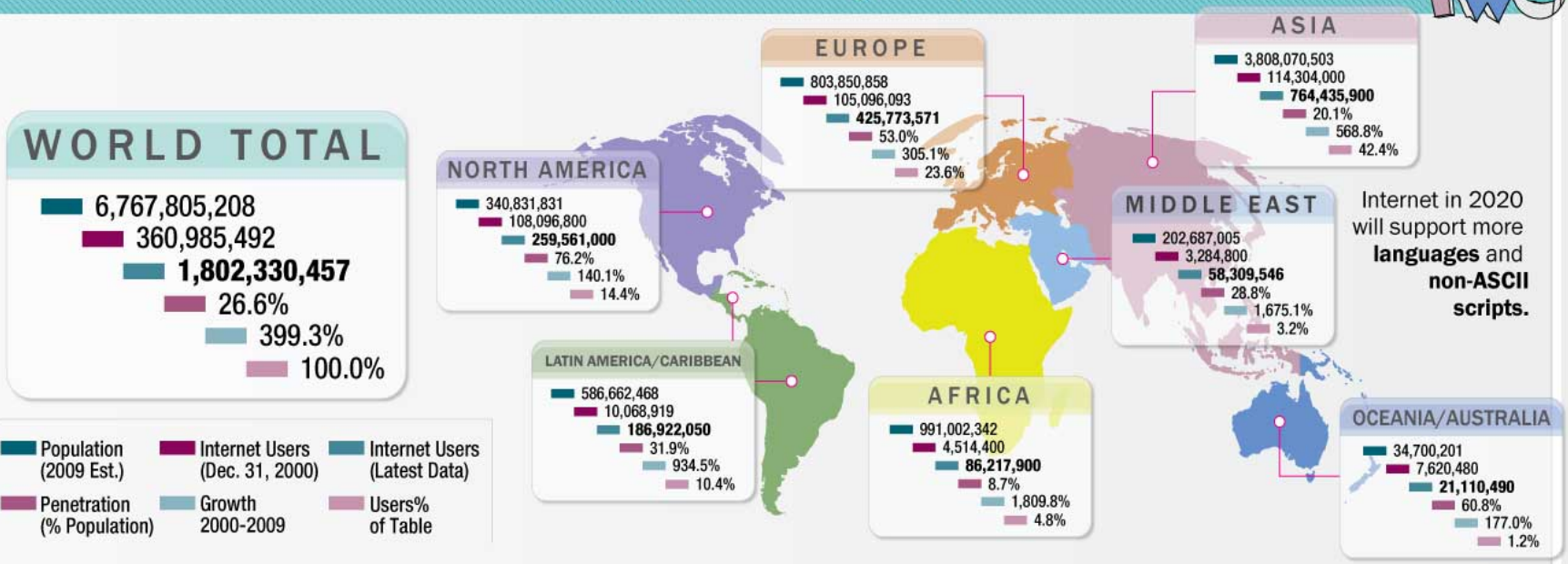


- What's around the corner?
  - More devices, more data, more innovation…


INTERNET IN 2020
Internet in 2020 - Predictions We Can Count On
More people will use the Internet
ONE
2010 - 1.8 billion users
2020 - 5 billion users
Current World Population - 6.7 billion
1 billion
100 million

The Internet will be more geographically dispersed

TWO



Internet in 2020 will support more **languages** and **non-ASCII scripts.**

The Internet will be network of things, not computers

THREE

Today, the internet has **575** million host computers

Expect **billions of sensors** on buildings and bridges to be connected to the internet

The Internet will carry exabytes - Perhaps zettabytes - of content

Internet traffic will GROW to **44 exabytes** per month by **2012**

"exaflood" refer to the rapidly increasing amount of data that is being transferred over the internet

more than double what it is today

FOUR

The Internet will be wireless

FIVE

The Number of **Mobile Broadband Subscribers**

85% increase year-over year for **3G, WiMAX** and other higher speed data networking technologies

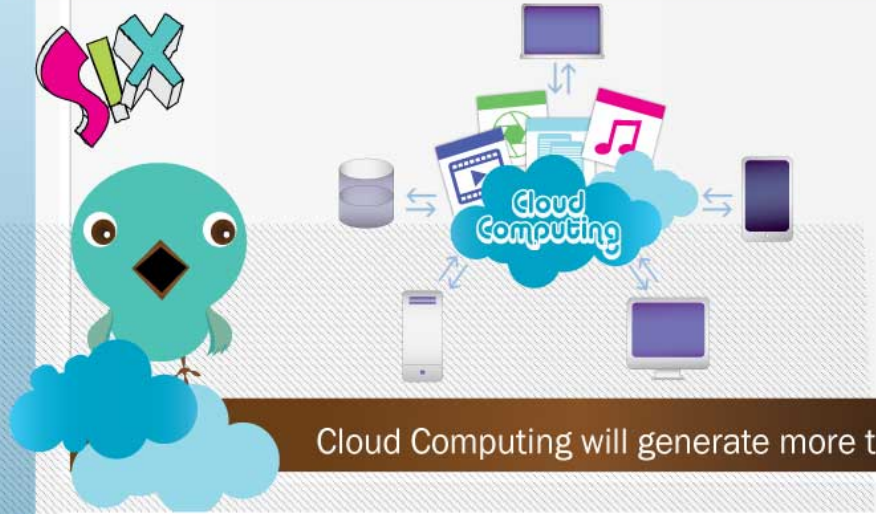
257 million people — second quarter of 2009

2.5 billion people — by 2014

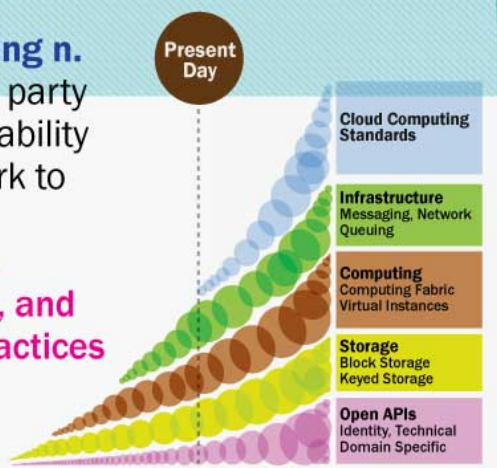
The number of **mobile broadband subscribers** is exploding.

More services will be in the cloud

SIX



Cloud Computing n.
Leveraging 3rd party computing capability over the network to **cut costs, increase scale, improve agility, and access best practices**



Cloud Computing will generate more than **$45.4** billion in revenue by **2015!**

Strategy

- Keep an eye on the changing trends
- Industry Advisory Board
- Educational Technology Advisory Board
- Professional Development/Networking/ Affiliation
  - Training, Conferences [Host], Seminars

Strategy

PROGRAM DELIVERY

- Curriculum: Mixed Model (Behaviorism, Constructivism)
- Blended Learning (F2F/ Online, M-learning, Gaming and Simulation)
- Curriculum: ICT Integration
- Evaluation
- Case Method/Authentic Learning
- Faculty Training

PARTNERSHIP

- International
  - India, China, Emerging economies
  - Visiting Student/Faculty
- Universities (Articulation Agreement)

- INNOVATION
  - Model/Integration technique
  - Instructional design
  - Sustainability

Trends	Challenges
The relationships betweentechnology, education, and innovation	· Developing a culture of innovation · Providing a changing balance to scaffold learners' use of the Internet, social networking, and new media · Supporting sustainable organic growth through encouraging grass roots development · Developing excellent education design practice
A more sophisticated, blended approach to learning	· Recognizing and accrediting learning outside traditional classroom and curriculum settings · Recognizing and supporting informal learning · Adopting and adapting new technological developments for education · Providing a balanced approach to Internet safety · Recognizing and anticipating changing skills requirements · Finding an appropriate and sustainable balance for face-to-face and virtual communications in developing successful communities and networks
More sophisticated assessment and evaluation	· Changing assessment practice to better balance support for learning and for passing tests · Tracking progress individually and collectively while minimizing intervention in learning · Minimizing unnecessary assessment load on learners and teachers · Developing balance of self, peer, and teacher assessment · Assessment of 21st century skills

Learning Theory and Instructional Design

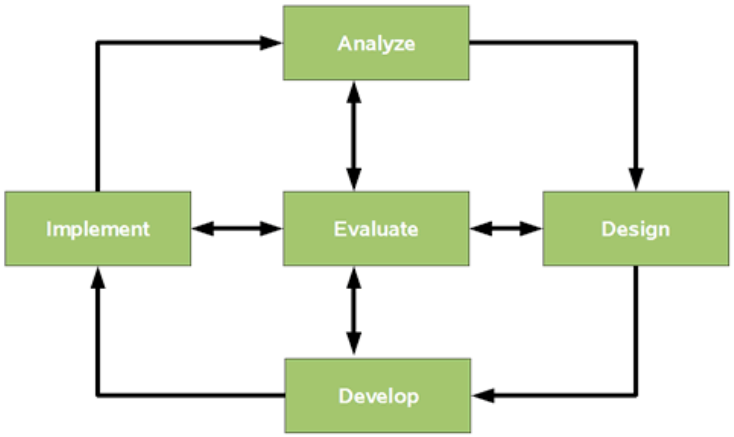
Behaviorism: Based on observable changes in behavior. Behaviorism focuses on a new behavioral pattern being repeated until it becomes automatic.

Cognitivism: Based on the thought process behind the behavior. Changes in behavior are observed, and used as indicators as to what is happening inside the learner's mind.

Constructivism: Based on the premise that we all construct our own perspective of the world, through individual experiences and schema. Constructivism focuses on preparing the learner to problem solve in ambiguous situations.

ADDIE Instructional Design Model

- **ADDIE,**
  Gerlach and Ely
  Kemp, Morrison and Ross
  Heinich, Molenda, Russell and Smaldino



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