

# Language Learner Attitudes towards Technology and their Preferences for Learning Tools/Devices at Two Universities in the UAE

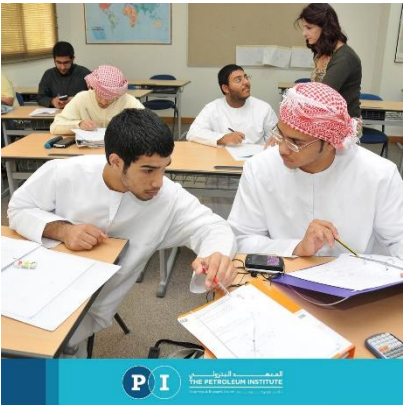
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# Motivation for the Study

# University A



# University B



1. Compare student attitudes between the two universities.



2. Opportunity to use data to provide recommendations



# What we mean when we say technology....



# Context of the Two Universities

## Pre-implementation

Technology implementation is in early stages  
Students use more paper and books

## Post-implementation

Technology has been formally implemented  
Students use more laptops and tablets



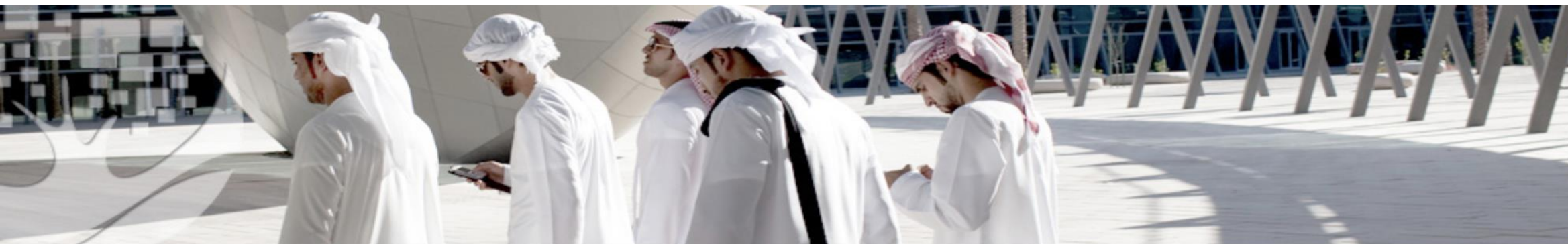
Pre-implementation University		Post-implementation University	
Jenny Taylorson Matthew Andrew	Foundation Studies	Aimee Grange	Foundation Studies
John Langille	General Studies	Norman Williams	General Studies



# Two programs

General Studies	First year general education courses	Year 1-2
Foundation Program	English-language program	Pre-Degree

# Mobile Learning



Home » Center for Educational Innovation » Pedagogy » Institutional Mobile Enhanced Learning

Center for Educational  
Innovation

Innovative Teaching  
Program

Pedagogy

• Pedagogical Framework

▼ Institutional Mobile Enhanced  
Learning

• About

• Announcement

• Project Description

## Institutional Mobile Enhanced Learning Project

Zayed University is actively engaged in supporting the UAE Vision 2021 through projects and initiatives designed to integrate and establish a culture of vision, innovation and opportunity available to all Emiratis. The Mobile Enhanced Learning Project (MEL) is such an initiative and is considered a University wide initiative. In a comprehensive 3 year project that is well aligned with elements of each of the four pillars of the UAE Vision 2021 as well as ZU's strategic objectives, we will establish Zayed University as an international leader in Mobile Enhanced Learning as measured against international benchmarks.

### Strategic Alignment

The MEL project, designed as a multi-layered and fully integrated project, will support national Key Performance Indicators and UAE Vision 2021 statements through the enhancement of a Vibrant Culture (UAE Vision 2021, 1.1), will enhance our international standing (UAE Vision 2021, 2.3), contribute to and guide a knowledge and evidence-based educational model (UAE Vision 2021, 3.3), and provide students with an unparalleled educational experience that will transcend the borders of our institution (UAE Vision 2021, 4.2). The MEL project is strategically aligned with ZU's strategic objectives including:

- Establish a cutting-edge educational environment that promotes creativity and innovation.
- Deliver high quality education that focuses on enriching students' knowledge and skills
- Upgrade the University's academic and research level

# Use of the iPad in class 2014

## Student background experience



# Laptop use in class 2018 BYOD





# Using laptops to present information



# Why?

Use of laptop in General studies

Benefits for reading/writing (typing)

Screen size

Ease of use for using/opening multiple documents, etc.

# Literature Review

# Attitudes towards technology

Technology acceptance model (Davis et al., 1989)

Higher ongoing use and more positive attitude (Martinez, 2017)

However, not all students have a positive attitude towards technology (Edmunds et al., 2012).



# Mobile Learning

Rethink how information is learned in our mobile age as people “learn across space” (Sharples et al., 2005)

The mobility of devices allows students to engage with learning in “brief spurts, on-the-go” (Cassidy et. al)

More student autonomy and positive impact on motivation (Jones & Issroff, 2007)

# Device Preferences

Increase in personal device usage (Pew Research Center, 2015, 2018).

Device ownership: higher in educational context than general population (Cassidy et al., 2014; Pew Research Center, 2015, 2018)

Mobile learning devices are not taking over standard tools like laptops for academic work (Dahlstrom and Warraich, 2012).

# Paper vs Screen

Students preferred to read printed materials rather than read from a screen (Davidovitch, 2017).

Participants preferred doing in-depth reading on paper (Liu, 2005)

New forms of technology do not replace older forms of technology, but rather “stimulate a synergy” between them as they “complement” and “reinforce each other” (Liu & Stork, 2000).



# The research gap

Student attitudes towards technology	Done
Student attitudes towards technology comparing two universities at different stages of tech implementation	Not yet

# The research gap

Student attitudes towards technology	Done
Student attitudes towards technology comparing two universities at different stages of tech implementation	Not yet
Students' choice of devices	Done
Students' choice of devices for specific tasks	Not yet

# Methodology

**(N = 1102, 83% female, 17% male)**

Institution	N	Program
Pre-implementation University (N=483)	295	Foundation Studies
	188	General Studies
Post-implementation University (N=619)	394	Foundation Studies
	225	General Studies



1. What are student attitudes towards using digital technology for learning in regards to **enjoyment** and perceived **usefulness**?
2. What **tools/devices** do students **prefer** to use to assist their learning?
3. How do student opinions about digital technology and preferred learning tools and devices **differ**?

# Mixed Method: Quantitative and Qualitative

Self-designed survey:

- multiple choice, 4-point Likert scale, ranking, and open-ended

Semi-structured focus group interviews

- (n=4,3,2)

# Data Analysis

Mean scores and standard deviations for four-point Likert scale

T-tests and ANOVA for significant differences between groups (0.05)

Percentages used for survey items not on a four-point Likert scale

# Results—Device Ownership and Usage

**Comparison of device ownership (percentage of respondents who said 'yes')**

	<i>N</i>	Laptop (%)	Tablet (%)	Smartphone (%)
Pre-implementation University	480	85	58	99
Post-implementation University	609	68	89	99

### Comparison of device ownership (percentage of respondents who said 'yes')

	N	Laptop (%)	Tablet (%)	Smartphone (%)
Pre-implementation University	480	85	58	99
Post-implementation University	609	68	89	99

### Breakdown of learning tools and device usage by program. Which do you mostly use to study with in class?

	N	Books/Paper (%)	Laptop (%)	Tablet (%)	Phone (%)
Pre-implementation University					
Foundation Studies	279	89	5	2	4
General Studies	180	81	16	1	2
Post-implementation University					
Foundation Studies	340	45	10	44	1
General Studies	215	18	79	2	1

	Lowest is 1	Highest is 4	Strongly Disagree	Disagree	Agree	Strongly Agree
6	I often use technology in the classroom		1 ☹	2	3	4 ☺

I often use technology in the classroom.			
	<i>N</i>	<i>M</i>	<i>SD</i>
Pre-implementation University	482	2.78	0.76
Post-implementation University	604	3.09	0.81

Results—RQ#1  
Attitudes towards  
Technology



### Student enjoyment and perceived usefulness of using technology

	N	M*	SD
I enjoy learning how to use new kinds of technology (e.g. new apps).	1086**	3.20	0.76
Learning how to use technology will help me learn in university.	1092	3.28	0.64
Learning how to use technology will help me in my future job.	1095	3.63	0.56

# Comparing the universities

**Technology enjoyment and usefulness for Pre-implementation and Post-implementation Universities**

		I enjoy learning new kinds of tech		Learning how to use tech will help me learn at university		Learning how to use tech will help in my future job	
	N	M	SD	M	SD	M	SD
Pre-implementation University	481	3.17	0.79	3.21	0.64	3.60	0.54
Post-implementation University	605	3.23	0.72	3.33	0.63	3.64	0.58
P value		0.18		0.002**		0.251	

\*\*Level of significance  $p < 0.01$

# Comparing the programs

Technology enjoyment and usefulness for Foundation Studies and General Studies participants at the Pre-implementation University

Pre-implementation University	N	I enjoy learning new kinds of tech		Learning how to use tech will help me learn at university		Learning how to use tech will help in my future job	
		M	SD	M	SD	M	SD
Foundation Studies	293	3.23	0.76	3.27	0.64	3.62	0.53
General Studies	188	3.06	0.84	3.12	0.63	3.57	0.55
P value		0.022*		0.014*		0.343	

	<i>N</i>	A lot (%)	A little (%)	It does not (%)
Technology improves learning	1082	70.3	28.0	1.7

We asked students why they thought technology improves learning.

26	Technology improves learning....?	a lot	a little	it does not
<p>Why? <i>write your answer here</i></p> <p>* Because, its an intresting thing that its attract a lot of teenagers students now aday-</p>				

**Reasons why participants stated that technology helped or didn't help learning (number of times themes emerged across both universities)**

	Theme	Number
Positive	<b>Easy:</b> easy to use; makes learning easier; find information easier	173
	<b>Fast</b> / saves time / quick	64
	Necessary for the <b>future</b> (“future job” mentioned 25 times)	52
	Learn <b>new: information;</b> things; technology; ways of learning	48
	Helps find “a lot” or “more information”	47
	<b>Interesting</b> / fun / not boring	46
	Videos, visuals help learning	38
	Improves / <b>develops skills</b>	25
	Helps understanding of content	20
	Enables creativity	8
	Gain knowledge	8
Negative	Distracting / hurts concentration	12
	Hurts eyes	6
	Causes problems	5
Neutral	Depends on use of technology; depends on user	9

“It saves time and effort and adds a little excitement to the class.”

A theme that emerged in the focus group interviews was the need to learn technology to keep up with the world:





“... the world is in progress, and technology is taking over, and it will be a big part of our...actually, it will be the only thing you will be doing later on.”

Some participants were doubtful of the learning benefits of technology.



“I don't think it has much of an impact but it sometimes might be interesting.”

“I don't think it has much of an impact but it sometimes might be interesting.”

“Technology can be used for fun and activities only. It can't improve my learning”.

“I don't think it has much of an impact but it sometimes might be interesting.”

“Technology can be used for fun and activities only. It can't improve my learning”.

“I find that useless for learning--good for having fun only.”

“It depends how you use it.”

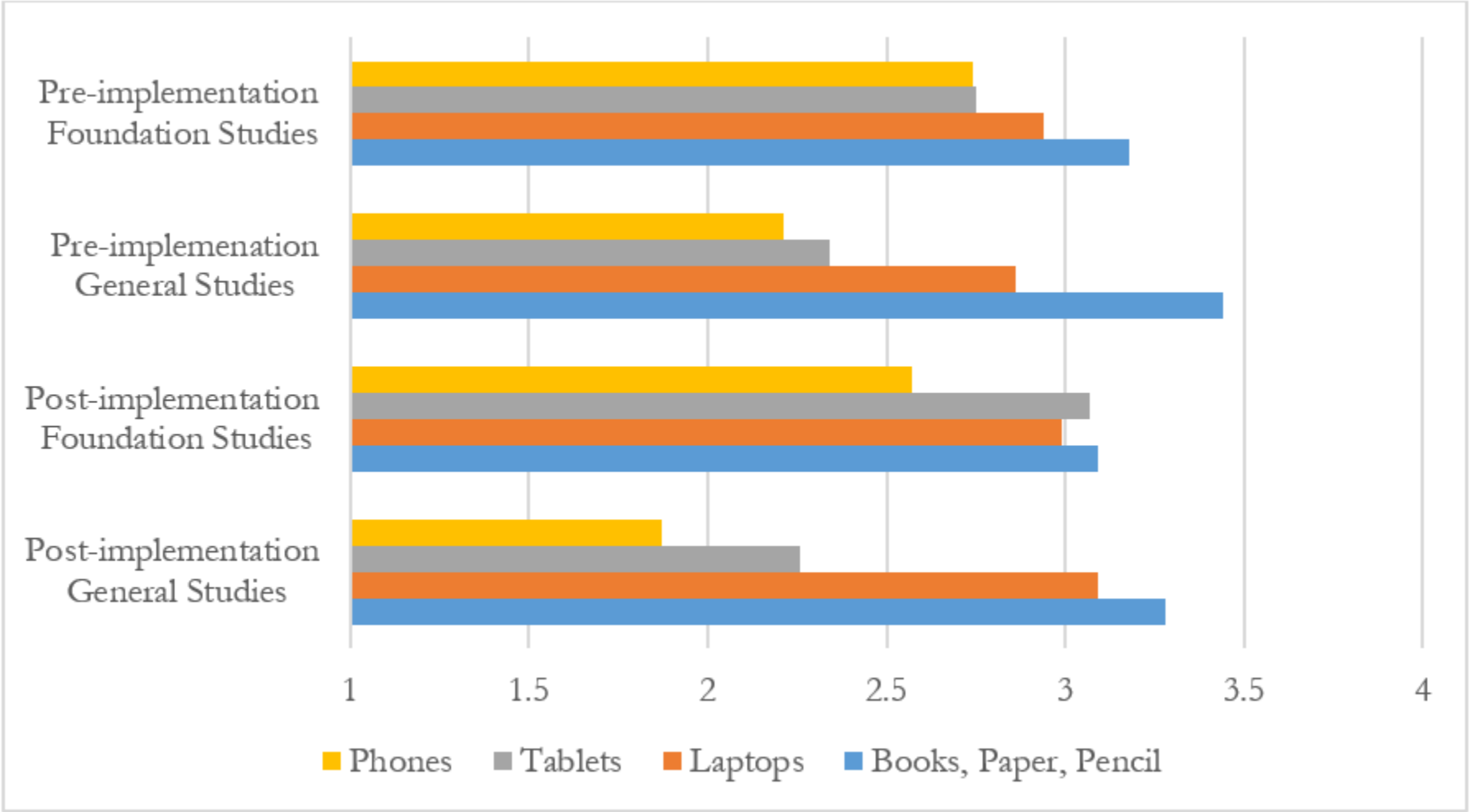


Results—RQ#2  
Learning Tool/Device  
Preferences

### Student enjoyment of using different learning tools

	N	M*	SD
I enjoy using books, paper, and pens/pencils to learn	1083	3.21	0.82
I enjoy using laptops to learn	1088	2.97	0.83
I enjoy using tablets (e.g. iPads) to learn	1081	2.69	0.94
I enjoy using phones to learn	1086	2.41	1.03





# Comparisons between universities

Comparisons between universities for enjoyment of different learning tools/devices

	I enjoy using books, paper, and pens/pencils to learn			I enjoy using laptops to learn		I enjoy using tablets (e.g. iPads) to learn		I enjoy using phones to learn	
	N	M	SD	M	SD	M	SD	M	SD
Pre-implementation University	480	3.28	0.78	2.91	0.79	2.59	0.92	2.53	0.99
Post-implementation University	608	3.16	0.85	3.03	0.86	2.78	0.95	2.31	1.06
P value*		0.012*		0.017*		0.001**		<0.001***	

\*Level of significance  $p < 0.05$ ; \*\* Level of significance  $p < 0.01$ ; \*\*\*level of significance  $p < 0.001$

# Learning tool preference—specific tasks

	1=first choice 2=second choice 3=third choice 4=fourth choice	Books/ printed paper	Laptop	Tablet	Phone
Ex:	<i>Example: What do you prefer to look at pictures on?</i>	4	2	3	1
16	What do you enjoy learning on the most?				
17	What do you prefer to read information on outside of class for fun?				
18	What do you prefer to read information on in class?				
19	What do you prefer to do in-class activities on (e.g., English worksheets, math problems)?				
20	What do you prefer to write a paragraph or essay on?				

# Learning tool preference—specific tasks

	Pre-implementation University	Post-implementation University
Enjoy learning on the most	Books/paper	Books/paper
Read information outside of class for fun	Phone	Phone
Read information on in class	Books/paper	Books/paper
Do in class-activities on (e.g. worksheets)	Books/paper	Books/paper
Write a paragraph or essay on	Books/paper	Books/paper
Do an infographic on	Laptop	Laptop
Make a video on	Laptop	Laptop
In general, what do you prefer to use?	Books/paper	Laptop

**Reasons why participants preferred books/paper, laptop, tablet, or phone (number of times themes emerged) (n =691)**

Laptop		Books / paper	
	N		N
Easy / easy to use	127	Easy / easy to use	44
Portable	26	Remember / memorize / save information in mind	41
Search / find information	23	Taking notes	39
Type / writing is better on laptop	22	Better / easier for learning and understanding information	38
Save work	20	Writing: Easier to write; prefer writing; writing helps me learn better	32
Better / easier for learning	16	Not distracting / better focus	20
Big screen	13	Highlight / underline	13
Future or future job	11	Screen hurts eyes	8
Tablet		Phone	
	N		N
Easy / easy to use	44	Easy / easy to use	9
Portable	44	Portable	9

“Because reading books and studying from paper is better to remember what you memorize.”

“Because reading books and studying from paper is better to remember what you memorize.”

“I believe that writing on paper and looking on what you write helps you understand more.”

1. Do you prefer learning with ...?

	<i>N</i>	Books, paper and pencil (%)	Laptops, tablets and phones (%)	Both (%)
Pre-implementation University	474	27.43	11.60	60.97
Post-implementation University	599	18.53	13.86	67.61
Total overall	1073	22.46	12.86	64.68



# Conclusion and Recommendations

	Conclusion
1	<p>Most participants:</p> <ul style="list-style-type: none"><li>● enjoy using technology,</li><li>● believe it improves learning,</li><li>● believe that technology is important for future jobs</li></ul>

	Conclusion	Recommendation
1	<p>Most participants:</p> <ul style="list-style-type: none"><li>● enjoy using technology</li><li>● believe it improves learning</li><li>● believe that technology is important for future jobs</li></ul>	<p>Institutions should adopt digital literacy learning outcomes to help students:</p> <ul style="list-style-type: none"><li>● learn more effectively in the classroom</li><li>● become more skilled professionals in their working lives</li></ul>

	Conclusion
2	<p>Books/paper were the most preferred tools for learning</p> <p>Laptops were a close second</p> <p>Tablets and phones were less preferred</p>

	Conclusion	Recommendation
2	<p>Books/paper were the most preferred tools for learning</p> <p>Laptops were a close second</p> <p>Tablets and phones were less preferred</p>	<p>Don't leave out paper when adopting an educational technology policy</p> <p>Books and paper may be the best tool for learning</p> <p>But, students still need to be exposed to new forms of technology because of their future jobs.</p>

	Conclusion
3	Many participants do enjoy using tablets and phones, and some prefer them for certain tasks.

	Conclusion	Recommendation
3	Many participants do enjoy using tablets and phones, and some prefer them for certain tasks.	Adopt a 'bring your own device' (BYOD) policy

	Conclusion
4	Students preferred combination of traditional tools (paper) and technological tools (devices).



	Conclusion	Recommendation
4	Students preferred combination of traditional tools (paper) and technological tools (devices).	<p>Classrooms practices which incorporate both traditional and technological tools might be most effective because:</p> <ul style="list-style-type: none"><li>● they provide flexibility to find the best learning tool for the task</li><li>● accommodate different learning styles</li><li>● the variety can better engage students</li></ul>

Thank you for listening.

Here's a link for our paper:

<https://goo.gl/13FQhs>

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