<http://youtu.be/sSPA641oc5Q>: Next-wave mobility & the 3 ages of information



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0:04

lot of people ask about

0:06

bc u\_n\_ it's mobile learning initiative and

0:09

i want to spend a few minutes you're going through some of our rationale some

0:12

of the reason behind why we're doing what we're doing here at a\_b\_c\_ news and

0:16

and i hope this is something that

0:19

explains a little bit not just of what's happening here

0:22

what's happening probably in culture what's happening

0:25

in this new age of information

0:27

i want to start by looking at

0:30

this wonderful postcard by the french artist view mouth

0:34

well known about these postcards as a whole series of them drawn in nineteen

0:37

ten

0:39

imagining the year two thousand

0:41

and when i love about these is

0:43

duma almost always gets the technology right

0:45

so in this case

0:47

we've got video chatting

0:48

he's a fine gentlemen who's sitting at this table

0:51

right he's chatting with this lady n

0:53

the technologies are all almost exactly right he's got this projection screen

0:58

he's got body owns that video all this wonderful stuff

1:01

but the piece that vilma mrs

1:03

everytime

1:05

if he fails to understand how it's changing technology is going to yield

1:09

a-changin' culture

1:10

so in this case

1:11

there's this poor fellow who's so busy he's not only using his hands is using

1:15

his feet to try to keep up with all these technologies

1:18

there's gotta be in underclass in for the most world in his highly

1:22

higher archives world

1:24

they're rich and poor still

1:25

and he doesn't understand the but the changing technology is going to change

1:29

everything it's going to change all of culture

1:32

so want to use that as a starting off place because i think it's important for

1:34

us to understand that as we talk about the changes that are happening

1:38

we're talking about more than just technology

1:40

we're talking about a change in the way we understand the world

1:45

technological change mister sort of four basic steps

1:49

a technology become successful and establishes itself because of that it

1:54

becomes

1:55

uh... successful because it sells a problem

1:59

and in solving the problem anew culture is going to former around that

2:03

technology all kinds of things will come together but as that technology

2:07

solidifies as that culture solidifies

2:09

it's concerts recover problems

2:12

and those problems are going to cause instability in the system

2:15

and so there is suddenly going to be all kinds of new possibilities new

2:19

technologies

2:19

that threaten the existing culture

2:22

one of those will solve the new problem

2:25

and it will in turn then become

2:27

the foundation for a new culture

2:29

so you sort of move from innovation to building to solidification

2:33

to destabilization and then back again and there is tensions that either of

2:37

those polls tensions between innovation in solidification

2:41

and tensions between building

2:42

and destabilizing and i guarantee you that right now

2:45

where on this side of the equation

2:48

we're pursuit of in this

2:50

midst of a a destabilization of innovation

2:53

and probably most accurately

2:55

most of us in university most of the professors and

2:58

and administrators

2:59

or at the destabilization phase

3:01

but most are students have already moved onto innovation there already living

3:05

in answer to the problems

3:07

but these new technologies are solving

3:10

that's a great place to start

3:13

i'm going to start somewhere else

3:16

uh... it turns out that

3:18

only list and so i spend a lot of time thinking about the way technologies have

3:22

changed over time

3:24

and so

3:26

bear with me for a little while while i would go back

3:28

in history and look at some of the ways that things have changed

3:31

not recently but very long ago

3:33

for example i don't know how many people remember this significant change the

3:36

move

3:37

from the scroll to the kodak's

3:39

happened about the third century of the common area

3:42

and it happened for two more really interesting reasons

3:45

the first

3:47

is that the scroll isn't really poor

3:51

there's no structural integrity to it right scroll requires a table it

3:55

requires you to be situated in the particular place

3:59

projects the book

4:00

has this built-in portability mechanism it's got discover this durable cover so

4:04

that you can carry around with you

4:06

so what we know is almost two thousand years ago

4:09

people were interested in mobility they wanted to carry information around with

4:13

them

4:14

there's a second please

4:16

scroll

4:17

is a linear access device

4:19

to get to the end you have to scroll all the way to the end whereas the book is a

4:24

random access technology

4:25

could have your finger in two or three different places flip back and forth

4:28

between them

4:29

and find the information you need

4:31

when you need it

4:33

again this is nothing new people or desiring a new thing when they move to

4:37

these new technologies this is something people of wanted

4:39

for most two thousand years the ability to carry stuff with them

4:43

and to get to what they want when they wanted wherever they are

4:47

so that's an interesting perspective i think in one we need to consider as we

4:51

think about the challenges of these new

4:54

technologies

4:57

it turns out the middle ages we had some wonderful things we had

5:00

hypertext markup these very complex

5:02

textual books

5:03

we had uh... a multimedia

5:05

i think of this is a sort of early version of youtube

5:09

right where we've got pictures in images and

5:11

and all kinds of things helping us to understand how things work and we even

5:14

have a sort of predictive kind of virtual reality

5:17

i what i love about this picture this is a picture of the brother of the king of

5:20

france and he's

5:22

receiving the book in which this picture appears

5:27

and the strange thing

5:28

but the one thing we can say is in this age in the first days of information

5:33

the age of hands the only way to transmit information

5:36

with by hand

5:37

that was the only technology we had

5:39

for distributing information to other people

5:42

now that's really convenient for us meaningless because

5:44

one of the ways we determined the differences between manuscripts is by

5:47

looking the differences

5:49

in the handwriting of the scribes who made these tax

5:52

and that tells us something about the personalization of these tax

5:56

and of course in this age because information is sort of hard to get to

6:01

we developed a special version of teaching for this

6:04

lecture and when lecture originates what it is is it's the teacher reading the

6:08

book out to the students

6:10

so the students can make their own copy

6:12

so they can carry that book with them because there is no other way

6:15

for them to get to the information

6:18

but we have it in this kind of informational model

6:21

was the locus the single point

6:24

but it was good rate access for information that was directly around me

6:29

that-and provided complications it was hard to get to information it was in

6:33

other places

6:34

so if for example

6:36

i was in london in the middle ages now wanted to learn from

6:39

information it was in constantinople i had to actually go there

6:42

which will grow much maligned of paris

6:45

and that meant not everybody had access

6:48

in fact if we look at it

6:50

there were a lot of people that only a few people

6:54

could create

6:55

and only a few people could consume the information it was being made

6:59

because the the most significant problem

7:02

of this for stage

7:03

is the problem of access

7:07

accessing information

7:08

was the chief difficulty of this first information age the age of hands

7:14

if we think about the model of teaching and learning in this age

7:17

we think about the importance of access

7:19

we see some really great teaching situations

7:22

for example

7:23

the the standards uh... apprentice model

7:27

where a person a student went and lived with her worked with

7:31

the person from whom they were learning so this case we have this lovely baker

7:34

right

7:35

and he's learning in a very particular way back to wait

7:38

but characterizes teaching and learning

7:41

from the middle ages all the way back to the dawn of time

7:44

and there are some particular characteristics

7:47

but i want to think about about this age of teaching and learning

7:50

in the first place

7:52

uh... teachers lived and worked in relationship with their students they

7:56

lived together

7:58

teachers in that situation sir disguise your mentors emphasizing winning by

8:03

practice right so that you did things you practiced things over and over again

8:07

until you got it right

8:08

and there is no particular division between

8:11

class time and home time and work time they were all

8:14

blended together

8:16

prison emphasis on contextual learning that's really interesting

8:20

because it turns out that we'll learn differently if the context changes so in

8:24

this case if we think about our our friend the baker

8:27

he would recognize for example that the dole rose differently on cold what days

8:31

than it did on warm dry days

8:33

he'd have to think about all the different factors that worked together

8:36

and see how all these pieces all these disparate pieces connected

8:40

i think it's a really interesting thing that's so often missing from

8:44

but we have in teaching and learning today

8:47

there was anything like that test exactly you just repeated things until

8:51

you got them right

8:53

you know if if

8:55

you bread didn't rise one day it was like you failed wheat bread right

9:00

you made it again and again and again until you got it right

9:04

repetition and assessment

9:06

was designed to lead independent practice so that you became

9:10

colleague with the baker

9:11

that was the goal of this whole situation

9:14

and this case learning with embodied

9:16

it was about

9:18

people working together

9:20

what's wrong

9:21

from who might take some of this information is great scholar with that

9:24

wonderful book called a routing literacy he says missus learning that's close to

9:27

the human life world

9:29

its objective it's very individualized

9:33

it's dialectic it's about

9:35

discussion going back and forth

9:36

and it's probably interconnected every peace

9:39

connects with all the others

9:42

there was still

9:44

problem

9:44

the problem of access

9:47

and so

9:48

how would we solve that problem bump

9:51

are friendly compared to solve the problem by inventing

9:54

the printing press

9:56

and this is a wonderful thing really solve the access problem for the first

9:59

time in human history

10:01

he sets up a press and now

10:04

book after book after book all of them the same can come off of this press and

10:08

they can be produced in quantity so that for the first time in history

10:12

lots and lots of people get access to information

10:15

we get these rate

10:16

giant libraries

10:18

where is the largest libros the middle ages were maybe two or three hundred

10:21

books

10:21

without libraries of

10:23

thousands tens of thousands

10:25

millions

10:26

books

10:29

think about that problem

10:31

how do i find anything in this world

10:35

this is hugely difficulty right

10:37

so finding becomes the

10:40

that this sort of central problem of the second page

10:43

the age of books

10:45

how do i find anything in this chai massive stuff

10:49

so we invented technologies to help us

10:52

how many do you remember this but it

10:54

characterize my early learning certainly card catalog

10:58

think about the complexities of that's right

11:01

i need to start finding something where do i begin

11:04

technically i first had to figure out what the librarians called the thing i

11:07

was looking for

11:09

at least at my library we have these

11:11

four giant red folio volumes the library of congress headings

11:15

and what we do is you go there you'd look up the word that you

11:18

we're looking for nancy with the librarians call that we're looking at

11:21

now you're ready finally to go to the drawers

11:23

to pull out of jordan start coming through

11:27

but use the word of the information

11:29

cigarette on the call number uin information

11:32

looks more find another

11:34

like this whole it's now your job was to wrote about through the library to find

11:37

the thing that you're looking for

11:39

okay let's see where haha you find the area of the library

11:42

where the information was

11:44

still work at the information

11:46

then you find the particular shell haha and the particular book

11:50

but you still

11:51

wanted the information

11:53

do you look at the indexing to table of contents

11:55

now finally you could turn to the page

12:00

that what i'm looking for it all

12:03

if you remember but

12:05

take powers even for a small paper even for a simple project

12:09

witty powers of research

12:11

in this method in the cities

12:14

hours of research in if you're working on something large like a dissertation

12:17

thesis

12:18

it might take weeks or months in the library

12:21

hunting for information

12:24

in this world the teacher's job was to be a kind of

12:28

signposted helped students find the information they were looking for

12:31

and because our technology changed

12:33

or culture changed as well we change the way teaching and learning happened so in

12:37

this age we saw a very different model

12:40

a model that

12:42

that didn't look very much at all like the model of teaching and learning we

12:45

saw in the first page in the age of hands

12:47

in this model

12:49

teacher served as the primary conduits of information

12:52

and he did that because they were helping solve a problem their students

12:55

were having

12:56

if finding information is hard

12:58

and teachers giving information to students

13:01

helps their students' lives

13:04

we focused on

13:05

classification cataloging

13:07

because the most important thing you could do was understand how that system

13:10

worked that was how you would find information

13:12

in the future and also

13:14

how you would think about creating information

13:17

we focused on memorization of facts and data

13:20

and the reason for that was

13:21

for more information i could carry around in my head

13:24

the last time i had to spend

13:26

spend searching and looking and trying to find stuff

13:29

so if i knew

13:30

when an author was born in wherein what movements that offer was associated with

13:34

him

13:35

all of the pieces of information around that person

13:37

that gave me lots of new ways to begin finding information

13:41

so because memorization was important

13:43

we focused on repetition that was the primary thing

13:47

students would repeat back to teachers

13:50

what the teachers who told them and i wanted to focus on they've accuracy of

13:54

their repetition

13:56

and we called out testing right so as a teacher i would give information my

13:59

students at haven't give it back to me as precisely as possible

14:02

and then i knew whether they had memorized information or not

14:06

and that meant that a lot of the analysis got moved to later in the

14:09

educational process

14:11

certainly to the time maybe that students work

14:13

in their later college careers and maybe even all the way to graduate school

14:19

mooning became hierarchical

14:23

objective for the first time for the first time

14:25

in human history we were learning from objects and not just from people right

14:29

we're learning from these books

14:31

and i know that we were learning from books because sometimes i be saying

14:35

wonderful things to my students about chaucer and they'd say well that's not

14:38

in the book

14:40

the book to primacy

14:42

and learning for the first time became standardized

14:45

because the books were standardize

14:48

and has that standardization happened we began imagining

14:51

not only that are materials were standardized

14:53

but that would be needed to standardize students

14:58

and became narrowly defined

15:00

because we were focused on classification cataloging we started

15:03

saying okay

15:04

let's do that with all of our lives let's take

15:07

all of the pieces and put them in their proper box of this is school time and

15:10

that's home time and that's work time

15:12

and there was a significant change

15:15

we had not the locus this time we have the nexus

15:17

the central plains information coming to it from all over

15:20

and that was great because it over turned up a lot of creative world now

15:24

instead of me having to travel all over the world to get information

15:28

information could come to me

15:30

and the wonderful thing was

15:32

it meant that

15:33

a lot more people could consume a lot more people could participate

15:37

we had still have not so many people creating by lots and lots of people who

15:42

gained access for the

15:43

first time to the system

15:45

the book is the basis of universal education

15:49

that's a wonderful thing

15:51

but i don't think that's the age we're living in now

15:55

i think that age

15:56

is one in fact passing the each of the book the age

15:59

of memorization standardization

16:03

because that finding problem how do i find stuff

16:06

has been solved in the third age

16:08

because each of data

16:12

point six step back for just a second note that printing press was the first

16:16

machine

16:16

really to capture the imagination of the west

16:20

and that metaphor that metaphor of the machine with its standardized parts

16:24

became a metaphor that we understood not just

16:26

for printing we begin to think about it for the whole universe

16:30

this is the world a new tony in physics work

16:32

every piece works in its careful

16:35

place cooking together

16:38

beautifully

16:39

but is that metaphor developed as we focused more and more on

16:43

categorization and narrowing

16:46

that metaphor began to break down what we got was not a machine

16:49

clicking together

16:52

beautifully and well what we got was the kind of gridlock

16:55

and in fact from early on we started worrying

16:58

what the machines work serving us with

17:01

we were serving the machines

17:04

we've built classrooms that increasingly

17:07

looked like the mechanized world we understood and so that our classrooms

17:10

became

17:11

effectively places where we can process to dance troupe

17:14

as rapidly as possible

17:15

and in fact we tried to do was make our students look aside tentacle as we could

17:21

club by the way this picture there's

17:23

one fellow

17:24

he's on there

17:25

he's on the far left of the picture

17:27

near the top

17:30

his for cotton has blue blazer anti

17:33

and this is my favorite guy in the whole picture

17:36

look at his body language

17:38

everybody else is sort of sitting you know with good posture in the rectum

17:41

ready to work stress hunched over his pretending to be very busy and too busy

17:45

to worried about

17:46

this blue blazer thing

17:49

i think is interesting is

17:51

it is very often how we treat people who are different in our educational systems

17:56

you can tell the starr feels ashamed he's trying to sort of make up for it

17:59

but

18:01

hasn't feel like he belongs

18:04

and in that standardized model and we do with people who are different

18:09

typically what we do is we take the people at the top of me take the people

18:11

of the body

18:11

we throw them away and we pretend that everybody in the middle of the same

18:16

i'm sure that works

18:19

i think that we need to be considered

18:22

and i'm wondering if the informational model dot delivering information to our

18:26

students to standardize information

18:29

really important in this

18:32

fades

18:33

and think about google for sublets

18:35

let's imagine looking something up like educational technology

18:39

to pull that up

18:42

look at these numbers

18:45

i mean consistent

18:47

stashing amount of information

18:48

more information than you would want covered in a career think about these

18:52

numbers just for a second

18:55

effect look each of these pages for ten seconds

18:59

forty hours a week as your permanent job do that fifty two weeks a year and you

19:03

will process the results of this one search a search that took place in point

19:06

two seconds

19:08

in only eighty-six years six months and twenty eight days

19:13

possible amount of information

19:16

susan locus this isn't the nexus

19:18

this is the nature s with stuff coming from

19:22

everywhere right

19:23

i mean

19:24

and i apologize for oversimplifying this in his right this is stuff coming from

19:27

all over the place i don't know where stuff originates from anymore

19:32

in lots more people who are unable to participate

19:36

lots more people able to create as well and what we get this this giant mess of

19:40

stuff

19:42

and by the way so i can go when you work for you heard the word matrix if you

19:46

thought this that's exactly right

19:49

because the problem of the current age

19:51

is the problem of

19:53

the movie the matrix

19:55

criminal with three

19:56

i don't know what to trust

19:59

the problems occurred ages of six

20:02

and by the way

20:03

that's a problem it's about to get a lot worse

20:06

according to the american library association

20:08

ten years from now by twenty twenty

20:11

information on the internet will be doubling

20:13

every fifteen minutes

20:15

think about that

20:16

every fifteen minutes

20:18

this is geometric progression

20:20

if i go into a standard undergraduate class

20:23

by the time i get out of that class one hour later

20:25

there'll be sixteen times more stuff on the internet

20:29

if it's a three are graduate seminar

20:32

four thousand in ninety six times more stuff than when i went in

20:37

if my model is giving information to people

20:40

it's possible in that world the information i got just before i went in

20:43

the class

20:44

could be outdated before i get out of class

20:48

this informational world leads me to ask a few important questions

20:52

first of all

20:53

if i imagine it my primary job

20:55

as a teacher is to give information by students that job that i have in the

20:59

last information age

21:01

is that making their informational problem better

21:04

present mcnair informational problem worse

21:08

if i imagine myself as the nexus of information in the way that i used to

21:12

need second age

21:14

does that make me look twice in the telestrator seventeen with delusional

21:19

the third question is the most important one

21:22

in this information age

21:25

is the reason the experience of teachers less necessary

21:29

or more necessary

21:31

i would argue it's more necessary but only if

21:35

we're working to solve the informational problems of the current age

21:38

and updates its past

21:42

what is teaching and learning look like in the spiritual let me walk you through

21:44

it

21:45

i think first of all

21:48

we're seeing this in lots of different ways

21:50

i think teaching needs to be come

21:52

relational again

21:54

and we're seeing this through wall of different kinds of social media right

21:57

i mean students and teachers now can communicate collaborate in ways

22:01

there were impossible just a few years ago

22:03

that relationship gives us an opportunity to work with students and

22:07

help them

22:08

worked through the difficulties of assessment in the courage of all that

22:11

stuff

22:13

relationship becomes one way to narrow

22:15

to limit this giant explosion of information that's happening

22:20

i think teachers need to focus on being mentors we need to emphasize learning by

22:25

practicing apprenticeship real world learning

22:27

because applying information becomes another way to narrow down that

22:31

information so that i can use it in real-world situations

22:35

and that makes the information more important more valuable to students who

22:39

can apply it

22:40

in these situations as they work around

22:43

i think we have to focus and therefore contextual learning

22:46

but just broad general principles but

22:49

thinking about how to apply models in particular situations if information is

22:53

changing school rapidly that we can barely keep up

22:56

and what we need to teach is not information

22:59

informational models

23:00

and how to apply those models in particular context so that when the

23:04

information changes

23:05

people still know how to apply the model

23:08

and uh... abdication of information in particular contexts

23:11

used to be something we do over and over again so that people can see the

23:14

difference is

23:14

in the models they create

23:16

and the models they use so they can understand which models are appropriate

23:20

which context

23:21

so we're petition assessment needs to be people to be able to operate

23:26

independently

23:27

and finally we need to understand warning

23:29

that's no longer standardized

23:32

winning that subjective it fits a particular students needs in a

23:34

particular situation

23:36

learning that's dialectic that's about

23:39

discussion because discussion is going to help us understand how to apply

23:42

information

23:43

and learning that's probably interconnected not chopped up into small

23:47

divisions again but learning that brings all those pieces together

23:50

and by the way if this

23:52

list sounds familiar

23:54

it's because it's seamless we started out with

23:58

identical list

23:59

in fact i'm convinced that

24:01

hundreds of years from now

24:03

people look back on this weird age of the book age in which our technology

24:07

determined our culture

24:08

you'll see that as a kind of strange blip in human history

24:12

that were really returning to a way of teaching and learning

24:15

that has dominated humanity since the dawn of time

24:19

that's been the way we always learned

24:21

and always wanted to learn

24:23

what we need to create is not the factory

24:26

we need to blow that up we need to create

24:29

laboratory

24:30

this is a picture of thomas edison's research like the first

24:34

modern research laboratory

24:36

and edison created it because

24:38

he withdrew about ten thousand elements looking for the exact

24:42

right thing to serve as the filament for the intent of simple

24:45

when he realized was

24:47

he didn't know when you needed until we needed

24:49

he needed access to

24:51

everything

24:52

in his lab for example you put in a pipe organ cuz you never know when you're

24:55

going to do organ music

24:57

and put everything else in there too

25:00

this is the world in the hands of our students this is the world

25:03

in the hands of a mobily equipped

25:05

generation

25:06

we're carried out a thousand songs in their pocket

25:10

in addition to those thousand songs they carry

25:12

thousand libraries where pockets

25:15

what we need is the world where books

25:18

are transformed not just that extended hours models but books

25:23

interactive

25:24

books that allow people to work with the information books that are customize the

25:28

big change

25:29

based on

25:30

student experiences and needs

25:32

books that are mixed ipl

25:34

books that are socially connected

25:37

they become places a discussion and analysis on

25:41

you know that something we've always done is talk about the planet

25:44

allow that to happen inside the book itself

25:46

and books that are augmented that nowhere i am and can give me different

25:49

information depending on where i stand

25:52

and we need to use you know it's just as flexible as those books

25:55

teaching that allows lots and lots of people

25:58

to consume yes but absent lots of people to create

26:02

because this is the only we're going to solve the informational problems of this

26:05

world

26:07

take something like climate change

26:09

how do we solve that problem

26:11

if that technological problem

26:14

absolutely

26:15

is that a social problem

26:19

is an economic problem

26:23

a cultural problem

26:25

is a historical problem is it even in the static problem

26:29

what we need are not people who can thrift give narrow definitions

26:33

of information or people who understand only narrow ways

26:37

when your people who can collect things together

26:40

problems of the current world are so complex

26:43

that we need people who can't operate together

26:45

who can come together and community

26:47

so that's what we're doing this mobile learning initiative a senior

26:51

we think it's really important to see

26:53

how these new technologies are going to change culture

26:56

and we want to see how they would change teaching and learning

26:59

were offer excited to see what comes next

27:02

thanks very much