

How Can BYOD Help Enhance Students' Reflective Engagement? SONG Yanjie

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Overview

- Introduction
- Pedagogical approaches
- Affordances of mobile devices
- Pedagogies or affordances?
- Example



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Evolving process of various learning modes







Seamless learning

(無縫學習)

Please use "QR Code Reader" on your mobile device to scan the following QR Code. Then complete a simple task indicated in the QR code.







Classification of pedagogical approaches to designing seamless learning activities for reflective engagement

Pedagogical Approaches

Behaviorist

Drill & practice

Content delivery

Resource-based

Social Constructivist

Collaborative

Inquiry-based

Project-based

Situated

. . .

Knowledge building Personalised learning

Differentiated learning

Self-directed learning

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Content Delivery: Example -Improving English Vocabulary Learning through SMS

- Purposes : To improve freshmen English vocabulary learning through SMS
- Methods: Integrated use of SMS and online learning. To send SMS messages containing one new word and one example sentence twice daily (Morning and afternoon). In the meantime, students can go online to reading articles in which the new word is used to consolidate the vocabulary learning.





Content delivery: Example Improving English Vocabulary Learning through SMS







Content delivery: Example Improving English Vocabulary Learning through SMS



Social Constructivist Learning: Example - Collaborative learning







Social Constructivist Learning: Example – Inquiry-based learning





Such learning is also situated learning



5-E Inquiry-based Learning Model



5-E Inquiry-based Learning Model





Personalized learning

- Personalized learning provides an approach tailored to the abilities, preferences, interests, and other diverse needs of the individual students.
- It helps "increase learner choice and voice" in which learners have the power and control over their learning (Rudd, 2008).



Self-directed learning SDL

"In its broadest meaning, 'self-directed learning' describes a process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identify human and material resources for learning, choosing and implement appropriate learning strategies, and evaluating learning outcomes." (Knowles, 1975, p. 18)



Source: http://www.selfdirectedlearning.org/what-is-self-directed-learning

Self-directed learning SDL

SDL refers to the learning in which the learner takes

- the initiative to pursue a learning experience, and
- the responsibility for completing their learning.



Source: http://www.selfdirectedlearning.org/what-is-self-directed-learning

Mobile Technology-assisted Personalized Learning

Two unique characteristics of mobile technology-supported learning: (a) learning occurs in environments that move with the learners (b) learning is more personalized in continually reconstructed contexts (Looi, Wong & Song, 2012)





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Situated learning: QR code



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Affordances

 According to Gibson (1977), affordances refer to "what it [the environment] offers the animal, what it provides or furnishes, either for good or ill" (p. 127).

• Affordances are possibilities for action. (Young, Barab, & Garrett, 2000; Barab & Roth, 2006).





Affordances of technology tools

Technology tools for varied learning activities, including but not limited to:

(1) learning by exploring;

(2) learning by conversing;

- (3) learning by reflecting;
- (4) learning by visualizing, and
- (5) learning by constructing



Affordances (1)

Apps	Affordances	Uses
Search engines (e.g., Google, Yahoo, Chrome); Viewing tools (e.g., Adobe reader); Learning platforms (e.g., Moodle, Edmodo)	Resource access	Instructional
		Referential
		Reflective
		Informative
		Explorative
		Collaborative
Camera; Recording; Video-taking; Note- taking	Resource collection	Reflective
		Referential
		Instructional





Affordances (2)

Attordances	Uses
Communication	Socializing
	Informative
	Coordinating
	Collaborative
	Inquiry
	Socializing
Resource sharing	Referential
	Collaborative
	Peer assessment
F	Attordances Communication Resource sharing

Affordances (3)

Apps	Affordances	Uses
Google Map;	Augmented	Location-aware
MapKing QR code (QR code	reality	Interactive
reader/scanner		
MindMeister; MS PowerPoint;	Representation	Visualizing
Prezi Dhatay apmara		
Photo; camera		Construction
other downloaded software;	Constructive	Construction
Google docs		
Google Form;	Survey	Researching
Google spreadsheet;		
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Affordances (4)

Apps	Affordances	Uses
Data analysis software or apps such as Graphic calculating software	Data analysis	Analysing
Calculator	Productivity	Visualizing
Calendar; tasks; excel; Notes	Scheduling	organising







Pedagogies in the technologyrich environment

 In today's complex technology-rich learning environment,

1. What pedagogies shall we adopt?





BYOD

 With the increased availability of personal mobile devices, and the increased costs of providing IT equipment,

> 2. Are affordances of BYOD (Bring Your Own Device) seen as a viable way for enhancing students' reflective engagement?





The niche for seamless learning on reflective engagement

BYOD-supported learning environment + Pedagogies

Α

Affordance network

Uses of affordances



The "niche" for seamless learning (adapted from Song 2013)



Social Constructivist Instructional Principles

P1: Working on authentic problems
P2: Encouraging diverse ideas
P3: Providing collaborative opportunities
P4: Doing embedded assessment
P5: Making constructive use of authoritative information

(Song & Looi, 2012; Zhang et al., 2011; Vygotsky, 1978)



How to plan and carry out the group project in a seamless learning environment?





Group Research Topic

- The effect of Kuso on society
- Online shopping and society
- Facebook depression and its impact on teenagers
- The phenomena and impacts of Nomophobia on Hong Kong students
- The Internet and Generation Lap
- Cyberbullying and its effects on teenagers



Search information online

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Discuss research method







Construct questionnaire items on Google Drive (Survey template)



Construct questionnaire items on Google Docs (spreadsheet)







Interview students on campus







Interview students on campus






Upload survey findings to [Moodle]



Upload survey findings to [Moodle]

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Share group research findings





Where is the niche for the group's seamless learning (*Reflective engagement in the group project*)?





The "niche" for the group's seamless learning (*Reflective engagement in the outline of the group project*)

Framework of examining the "niche" for BYOD supported seamless learning

BYOD-supported learning environment

Α

Affordance network

Effectivity set



The "niche" for the group's seamless learning

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創作QR Code

•請用移動裝置掃描下面的QR Codes:



QR code產生器: <u>http://createqrcode.appspot.com/</u>





Choose Spreadsheet in Google Drive to compose questionnaire

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Example 1: Questionnaire in "Spreadsheet" in Google Drive

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Share with others

Sharing settings

Visibility options:



Public on the web

Anyone on the Internet can find and access. No sign-in required.



Anyone with the link

Anyone who has the link can access. No sign-in required.



Private

Only people explicitly granted permission can access. Sign-in required.

Access: Anyone (no sign-in required) Can view -

Note: Items with any visibility option can still be published to the web. Learn more

Save

Cancel

Learn more about visibility



Example 2: Created in "Form" in Google Drive Group 1: Mobile phone use survey

How many times do you use your mobile device each day?

- 🔘 less than 5 times
- 5-10 times
- Over 10 times

What do you think of the usefulness of mobile technologies for learning?

- 🔿 Not useful
- 🔿 Useful
- 🔿 Very useful
- If you construct questionnaire here, you have to add the respondents names in order to get their feedback online.
 Alternatively, you can ask the respondents questions while to the questionnaire on your mobile device.

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Conducting a survey





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Bring your own device (BYOD)

 BYOD initiatives refer to technology models where learners bring a personally owned device to school for the purpose of learning (Alberta Education, 2012; Collier & Halpin, 2012).





Premises of BYOD pedagogical designs

- The pedagogical designs: are premised on ecological and social constructivist learning principles.
- Learners' role: having more engagement in knowledge construction and more access to digital contents
- Learning: enabling personalization, participation and productivity in learning.

(Alberta Education, 2012; Edelsen, 2001)











Ecology is a branch of science that studies the relation between living things and the environment.

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Ecological niche for living things

- Functional role of a species in its community
- Not just "where it lives"!
- •But also what it does, what it eats, how much of resources it uses etc.



Ecological niche for students' learning

- Roles of learners
- Not just "where she/he learns"!
 But also what s/he learns, why s/he learns, how much of resources s/he uses etc. in the life-worlds (learning environment)



Perceive	 Opportunities/affordances and constraints of the life world
Act on	• These factors in order to learn better.
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The elements of the ecological niche

- Affordance networks
- Effectivity sets
- Life-worlds

(Barab & Roth, 2006)

Niche: an <u>area</u> or <u>position</u> that is <u>exactly suitable</u> for a <u>small</u> <u>group</u> of the same <u>type</u> (Cambridge online dictionary)



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Affordance networks

 Functionally bound possibilities extended in time that can be acted upon to realize particular goals (Barab & Roth, 2006).





Example of An affordance network

My goals: To share and communicate with you here.

Be acted upon to achieve my goals.

Functionally bound potentials: When doing the presentation, I can notice particular information and engage in an affordance network.



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Affordance Network



Effectivities

• <u>Effectivities</u> are complimentary to affordances (Gibson, 1979).

 Barab and Roth (2006) posit that "If an affordance is a possibility for action by an individual, an effectivity is the dynamic actualization of an affordance" (p. 6).





Effectivity sets

 <u>Effectivity</u> sets: The attunements and behaviors that an individual can employ to realize an affordance network.

(Barab & Roth, 2006)

With capability and intention



Life-world

- Life-world: refers to the environment from the perspective of an individual.
- Therefore, a life-world is inherently different from the material world surrounding the person from the material aspects of one's mind.





Different ecological niches

This lecture room affords a different ecological niche to you and me than to a maintenance worker due to different goals.





Example: How to accomplish the niche for seamless learning supported by BYOD?

- Where is the area/niche that is exactly suitable for seamless learning?
 - Affordance networks
 - Effectivity sets
 - Life-worlds



Example

How did HKIED students in the GED1001 course achieve their goals supported by BYOD?

Goals:

(1)Work out the outline of group project(2)Plan and carry out the group project



How to work out the outline of group project?





What is the life world / environment?

- without computers
- Classroom WiFi
- LCD projector
- BYOD-supported learning environment



Familiarize themselves with QR code









Present their findings after decoding the QR code in the newspaper







Use BYOD to decode the group task



Read the decoded group task







Discuss outline of group project



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Write the outline of group project

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Create their QR code (Group outline) and exchange the QR code with other groups





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Revise their outline based on other groups comment



Share their outline of group project









What is the affordance network?

• BYOD

- QR code reader application
- QR code on newspaper
- QR code creation application
- NFC application
- Online learning platform [Moodle]
- Social resources (peers)



What is the effectivity set?

- The attunements and behaviors that students employed to realize the affordance network in the environment.
- e.g, use of the following affordances:
 - BYOD
 - QR code reader application
 - QR code on newspaper
 - QR code creation application
 - NFC application
 - Online learning platform [Moodle]

Education Library Social resources (peers)







The Hong Kong Institute of Education Library For private study or research only. Not for publication or further reproduction. **The "niche" for the group's mobile learning** (*Reflective engagement in the outline of the group project*) Are the "niches" for seamless learning stand alone?

 This type of knowing involves not just one successful experience in certain context but developing the capacity and interest to create new action possibilities, even reconstructing relations that might not have been readily apparent in the environment (Shaffer, 2004).



Is this kind of learning individualized learning?

 Learning in this view is an ecological, not an individualistic, phenomenon that is distributed and enables the learner to engage in progressively more adaptive individual-environment relations.

(Barab & Roth, 2006)

Hence better reflective engagement.



How does learning take place?

- As a learner's "niche" expands, it involves sets of experiences (building up effectivity sets and spanning multiple affordance networks, and evolving into new ways of interacting with the "niche").
- Transfer can occur when individuals begin to see different contexts as having similar underlying affordance structures—even in the context of differing contextual particulars (Barab & Roth, 2006)

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Conclusion & implications

From an ecological perspective, the presentation

- discusses how "niche" seamless learning happens using the concepts of affordance network, effectivity sets and learning environment, and
- develops a framework of the "niche" to examine seamless learning for reflective engagement
- provides an example



Conclusion & implications

Employing the framework to examine the "niche" for seamless learning helps us understand

- how learners interact with the seamless learning environment
- recognize that joining in the affordance network, expanding and even creating the affordance network is the key to realize effectivity sets and
- hence obtain the "niche" for seamless learning for reflective engagement.



Thank you! Q & A



