

# Lifelong Learning and Co-operative Education \*

**David Drewery**, WatCACE, University of Waterloo

**Judene Pretti**, WatCACE, University of Waterloo

**Antoine Pennaforte**, CNAM

**Anne Fannon**, WatPD, University of Waterloo

**Erin Smith**, WatPD, University of Waterloo

\* this project was supported by a 2014 WACE-IRG Research Grant

**le cnam**  
Conservatoire national  
des arts et métiers





“

The pace of change in the economy, technology and culture is accelerating, meaning the future of some industries is grim, Mr. Carney said. “It is entirely unrealistic to map out the decades ahead,” he said. **“Many of the jobs and even the industries of today will be gone tomorrow.”**<sup>1</sup>

2

<sup>1</sup> Quinn, June 2016, retrieved from [theglobeandmail.com](http://theglobeandmail.com)

<sup>2</sup> Photo courtesy of [telegraph.co.uk](http://telegraph.co.uk)

# Introduction

- Graduates' career paths are uncertain, potentially unrelated to their training<sup>1</sup>
- Challenge for PSE to equip students with ability to learn across many situations – to develop into *lifelong learners*<sup>2</sup>



<sup>1</sup> Kirby et al., 2010; Voogt & Roblin, 2010

<sup>2</sup> Billett & Choy, 2011; Deakin Crick et al., 2004; Kirby et al., 2010; Su et al., 2012



# Lifelong Learning: Early Perspective

“...every citizen should have the **means of learning**, training and cultivating himself [sic] freely available to him, **under all circumstances** [...]” (p. 163) <sup>1</sup>

“...learning takes place in a **wide variety of settings**” and could benefit from “...the development of **greater links with** industry and other community services and between the formal and informal sectors...” (p. 9) <sup>2</sup>

<sup>1</sup> Faure et al., 1972

<sup>2</sup> Government of Ireland, 2000

# Lifelong Learning: Emergent Perspective

- “set of **self-initiated** activities and information seeking skills that are activated in individuals with a sustained **motivation to learn** and the **ability to recognize their own learning needs**”<sup>1</sup>
- Mix of **attitudes, behaviours, and motivations**<sup>2</sup>
- Lifelong learning may be linked with **graduate success**<sup>3</sup>

<sup>1</sup> Hojat et al., 2006, p. 931

<sup>2</sup> Deakin Crick & Yu, 2008; Wielkeiwicz & Meuwissen, 2014

<sup>3</sup> Drewery et al., 2016; Gardiner & Kline, 2007; Kirby et al., 2010; Wielkeiwicz & Meuwissen, 2014



## Research Gaps

- Issues in conceptualization and operationalization <sup>1</sup>
- Few studies, despite stakeholders' interest in lifelong learning as outcome <sup>2</sup>
- WIL as a pathway to lifelong learning? <sup>3</sup>

<sup>1</sup> Chen et al., 2012; Kirby et al., 2010

<sup>2</sup> Taylor & Neimeyer, 2015; Vasquez 2011

<sup>3</sup> Crebert et al., 2003; Jancauskas et al., 1999

## Purpose



To improve our ability to conceptualize and measure co-op students' lifelong learning characteristics and to explore potential differences in these characteristics between co-op and non-co-op students.

## Research Questions



- How has the literature characterized lifelong learners?
- Might students' degree type, faculty, or sex influence their self-perceptions of lifelong learning characteristics?

# Method

- Development of initial item pool <sup>1</sup>
- Initial instrument (27-items) on Survey Monkey

## 2. To what extent do you agree that you embody the following characteristics?

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I adapt my thinking to the problems at hand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can apply my knowledge across a variety of situations and problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Scale construction (EFA and CFA)
- Scale evaluation (validity and reliability)

<sup>1</sup> Hinkin, 1995

# Results - EFA <sup>1</sup>

Items	(1)	(2)	(3)	(4)
1. I love to learn	0.94			
2. I enjoy learning very much	0.79			
3. I am intrinsically motivated to learn	0.79			
4. I'm looking forward to learning as long as I'm living	0.78			
5. I can apply my knowledge across a variety of situations and problems		0.76		
6. I adapt my thinking to the problems at hand		0.77		
7. I can deal with the unexpected and solve problems as they arise		0.72		
8. I am very good at seeking and retrieving information			0.91	
9. If I discover a need for information that I don't have, I know where to go to get it			0.71	
10. I often know where to look for solutions to complex problems			0.63	
11. I frequently take time to reflect on my own thoughts				0.80
12. I am usually aware of my own thoughts				0.69

<sup>1</sup> example of EFA pattern matrix with Canadian co-op sample

# Results - CFA

Model	$\chi^2/df$	CFI	RMSEA (p)
(1) Canadian co-op ( $n = 1731$ )	2.72	0.96	0.06 (n.s.)
(2) Canadian non-co-op ( $n = 1606$ )	3.63	0.96	0.06 (n.s.)
(3) French co-op ( $n = 172$ )	0.97	0.99	0.01 (n.s.)
(4) Multi-group model - unconstrained	1.96	0.98	0.03 (n.s.)
(5) Multi-group model - weights constrained	1.90	0.98	0.03 (n.s.)

Factor	a	AVE	ASV	Correlations		
				(1)	(2)	(3)
(1) Resilience	0.81	0.59	0.31	--		
(2) Self-direction	0.80	0.57	0.24	0.61	--	
(3) Self-reflection	0.72	0.57	0.20	0.52	0.47	--
(4) Love of learning	0.89	0.68	0.19	0.49	0.41	0.40

# Results – *t* tests

Faculty	(n)	%	Love of learning		Self-direction		Self-reflection		Resilience	
			Sex	Co-op	Sex	Co-op	Sex	Co-op	Sex	Co-op
AHS	450	56	--	--	M>F	--	--	--	M>F	--
Arts	1146	43	--	--	--	N>C	--	--	--	--
Math	781	71	M>F	C>N	M>F	C>N	--	--	M>F	--
Science	960	45	--	--	M>F	--	M>F	--	M>F	--



## Discussion

- Sought to conceptualize, measure, and compare lifelong learning characteristics for co-op and non-co-op students
- Found that four characteristics are most salient:
  - (1) **love of learning**
  - (2) **resilience**
  - (3) **self-direction**
  - (4) **self-reflection**
- Differences in students' **self-perceptions**



## Limitations and Future Research

- Small-scale development with small body of literature → Further scale development and purification
- Self-perceptions → Multi-trait multimethod (MTMM)
- Construct validity → Nomological validity



## Potential Uses in Practice

- Tracking the development of lifelong learners over time
- Demonstrating to external stakeholders effect of curricula on lifelong learning
- Using lifelong learning to explain academic and workplace performance

# Thank you!

## Questions?

**David Drewery**

tjpretti@uwaterloo.ca

**Judene Pretti**

tjpretti@uwaterloo.ca

**Antoine Pennaforte**

antoine.pennaforte@cnam.fr

**Anne Fannon**

anfannon@uwaterloo.ca

**Erin Smith**

elsmith@uwaterloo.ca

**le cnam**

Conservatoire national  
des arts et métiers



UNIVERSITY OF  
**WATERLOO**