

The WatCV Research Study

Jill Tomasson Goodwin
Katherine Lithgow
Joslin Goh
and the WatCV research team

University of Waterloo
29 November 2017

the WatCV research team

- Jill Tomasson Goodwin, Department of Drama and Speech Communication
- Katherine Lithgow, Centre for Teaching Excellence
- Jennifer Roberts-Smith, Department of Drama and Speech Communication
- Joslin Goh, Statistical Consulting and Collaborative Research Unit, Department of Statistics and Actuarial Science
- Stephanie Verkoeyen, Department of Geography
- Brian Lau, mad studios
- Danielle Cruz, Department of Knowledge Integration
- Rob Danisch, Department of Drama and Speech Communication
- Geoff Malleck, Department of Economics/Arts and Business program
- Kathleen O'Hara Pierce, Arts and Business program
- Carol Hulls, Department of Mechanical and Mechatronics Engineering
- Toby Malone, Department of Drama and Speech Communication
- Christine McWebb, Academic Programs, Global Business and Digital Arts
- Annaka Willemsen, Global Business and Digital Arts
- Tim Paci, Department of Drama and Speech Communication
- Leeann Ferries, Department of Recreation and Leisure Studies
- Kelly Grindrod, School of Pharmacy
- Shana MacDonald, Department of Drama and Speech Communication
- Paul McKone, Department of Knowledge Integration
- Rob Gorbet, Department of Knowledge Integration
- Jennifer Doyle, Department of Drama and Speech Communication
- Raveet Jacob, Bridge to Academic Success in English
- Simron Singh, School of Environment, Enterprise, and Development
- Brian Ingalls, Department of Applied Mathematics
- Clare Bermingham, Writing Centre
- Judene Pretti, Centre for the Advancement of Co-operative Education
- Anne Fannon, Professional Development Program
- Angela Rook, GradVentures
- Svitlana Tarabon Gordon, Centre for Teaching Excellence
- Stephanie White, Centre for Teaching Excellence

Tomasson Goodwin , Lithgow, and Goh, 29 November 2017

presentation outline

- 1 study overview
- 2 higher education context
- 3 WatCV intervention
- 4 study findings
- 5 sustainability

1.1 WatCV as research study

Research Question

Does integrating the WatCV assignment into existing course activities increase students' ability to articulate the employability skills (i.e., professional, transferable skills) that they tacitly acquired while completing coursework?

1.2 WatCV as teaching and learning intervention

undergraduate student learning outcomes

identify, articulate, and persuasively demonstrate the implicit, transferable, employability skills that students develop in courses

instructor enhanced teaching outcomes

make explicit the transferable skills that students develop during course activities
assess these skills with the customized and interactive marking rubric

2.1 higher education context

employer demand for transferable skills (Drummond 2015)

“Only 1 in 5 employers - or 20% - believe that new graduates have the skills necessary to fill entry level positions in their companies.”

CareerBuilder.ca, 2015

2.1 higher ed research acknowledges

“Leaving employers to infer skills from content knowledge can lead to claims of a “skills gap” and of employers being unable to find graduates with the necessary skills to fill advertised positions.

Skills, Competencies and Credentials argues that this reflects ‘a failure on the part of universities to talk to students about the skill development inherent in their education.’ ”

Alan Harrison, HEQCO, 5 October 2017

2.3 University of Waterloo response

improve employability of all University of Waterloo
students, regardless of discipline

focus on experiential education, including co-operative
education (*UW Strategic Plan 2013*)

2.4 government call

Ontario government mandate to develop skills
Highly Skilled Workforce Report

(MAESD 2016; Chiose 2017)

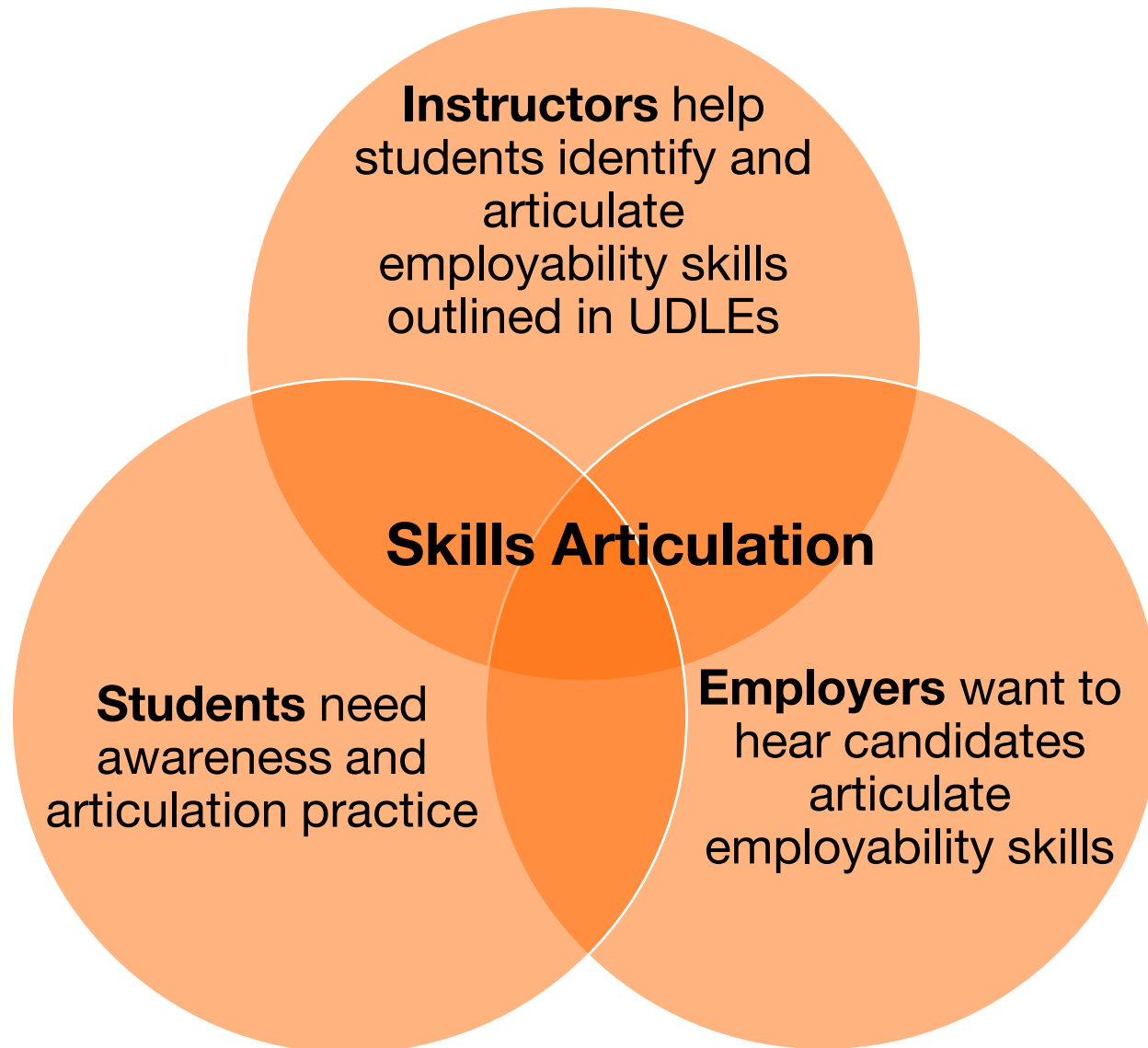
2.5 student call

“It’s time we cast aside the skills-gap myth and instead address the skills awareness gap.

Until course syllabuses, CCRs, and ePortfolios include academic and extra-curricular learning outcomes and become part of a sector-wide policy that ensures a basic standard of taxonomies, positions, experiences and assessment practices, employers and students will not see value in them.”

Victoria Lewarne and Marc Gurissi, OUSA
HEQCO, 24 October 2017

2.6 WatCV stakeholders



2.7 skills articulation movement

Internationally

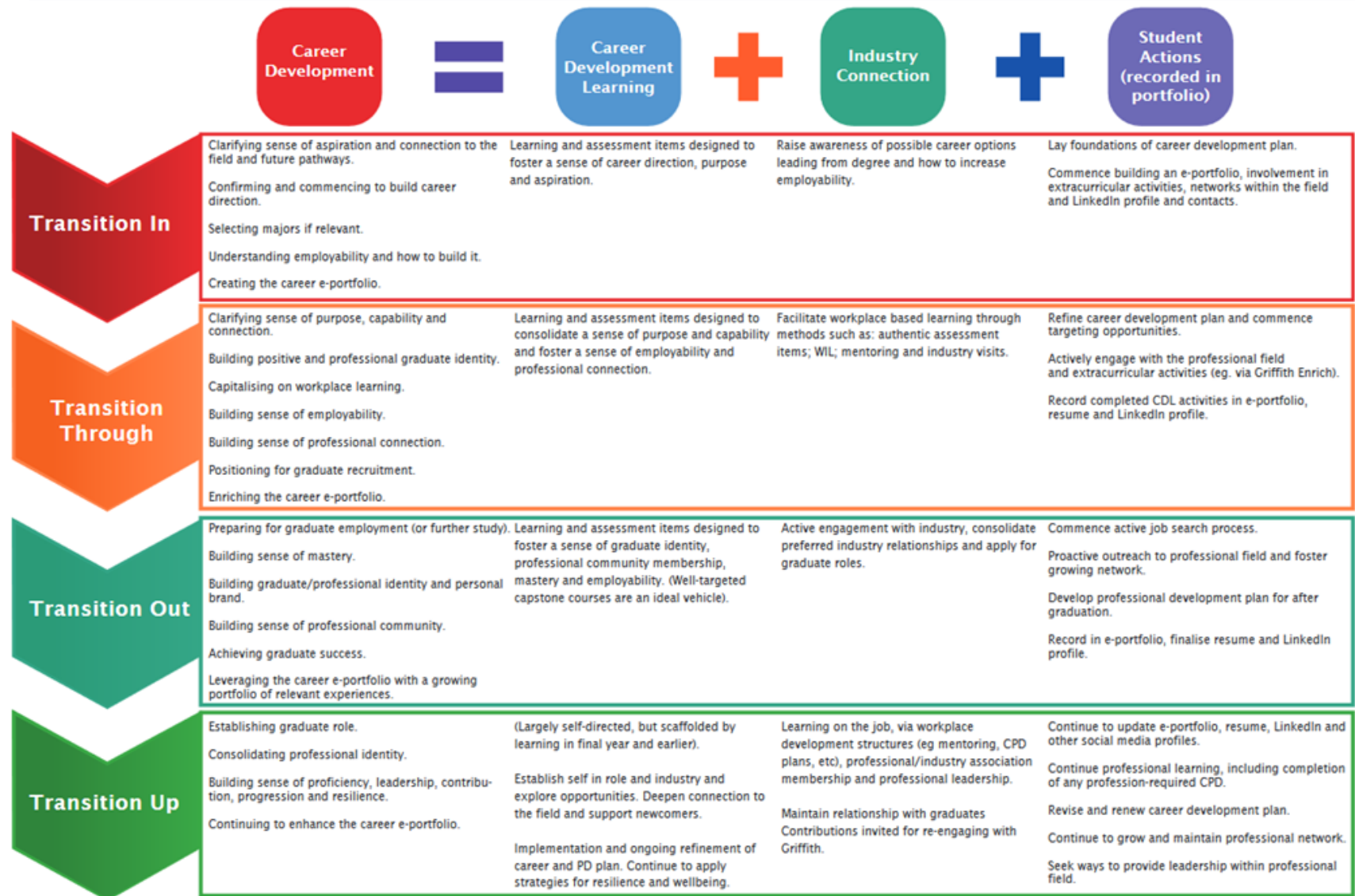
- [Deakin University](#) (Australia)
- [Griffith University](#) (Australia)

Provincially

- [Carleton University](#)
- [Guelph University](#)
- [McMaster University](#)

2.8 Griffith University

Career development and EMPLOYABILITY curriculum FRAMEWORK



2.9 Carleton University

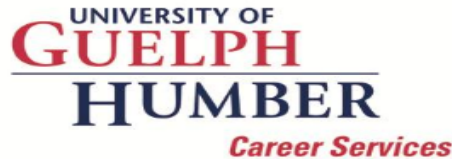
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Skills You Will Gain from this Degree

General/Transferable Skills:

- Academic writing and presentation skills
- Critical thinking and analytical skills
- Abstract reasoning
- Communication and interpersonal skills
- Leadership and teamwork skills
- Organization/time management skills
- Goal setting and prioritizing
- Knowledge of and experience with basic techniques of statistical analysis
- General research skills including database searching, conducting literature reviews, synthesizing and interpreting vast amounts of information, designing and conducting new research, data analysis, and interpreting and understanding both your own and other's research results

2.10 University of Guelph



WHAT CAN I DO WITH MY

**Bachelor of Applied Arts in Media Studies Degree and
Diploma in Media Communications?**

Program Specific Skills

- Advocacy
- Analytical Reading
- Application of Communications Technologies
- Articulation of Ideas
- Audience Evaluation
- Conceptualization
- Contextualization of Social Events
- Computer Proficiency
- Critical Evaluation
- Generation of Original Ideas
- Integration of Knowledge

Transferable Skills

- Adaptability
- Flexibility, Determination, and Enthusiasm
- Ability to Cope Under Pressure
- Thoroughness and Problem Solving Skills
- Ability to Think Strategically
- Written Communication
- Presentation and Persuasion Skills
- Creativity and Imagination
- Excellent Time-management Skills and the ability to Multitask Projects
- Observation and Interpretation
- Confidence

Career Options (Some may require further education):

- Account Executive
- Advertising Photographer
- Advertising Sales Consultant
- Aerial Photographer
- Art Director
- Assistant Editor
- Associate Producer
- Associate Web Editor
- Event Photographer
- External Communications Officer
- Fashion Photographer
- Film or Television Writer/Producer/Director
- Film and Video Editor
- Fine Arts Photographer
- Food Photographer

2.11 employers want

Personal Attributes

Initiative

Work ethic

Leadership

Presentation and Relational Skills

Interpersonal skills

Teamwork

Oral and written
communication

Metacognitive Skills

Critical thinking

Decision making

Problem solving

2.12 institutions promise

Personal Attributes

Initiative

Work ethic

Leadership

Presentation and Relational Skills

Interpersonal skills

Teamwork

Oral and written
communication

Metacognitive Skills

Critical thinking

Decision making

Problem solving

3.1 WatCV as teaching and learning intervention

6 faculties 22 courses

3398 student participants

(1716 non-WatCV control + 1682 WatCV experimental)

2 experimental terms (Fall 2016 + Winter 2017)

standardized assignment instructions + in-class activities

standardized interactive rubric

marker workshops

marker post-mortem focus groups

marker post-survey

3.2 as learning intervention

standardized ePortfolio assignment



template highlights employability skills

3.3 as eportfolio

competency reflection

750-word reflection on course-based skill

format expected in behaviour-based
interview (BBI) contexts
("STAR" - situation/task, action, result)

visual evidence of actions selected by
student

3 iterations over 1 term

student example used with permission
<http://crodrigo3.wixsite.com/ca5rodri>

Tomasson Goodwin and Lithgow, University of Waterloo, 29 November 2017

SKILLS REFLECTIONS

Assignment 1 Reflection



Task

As a communications assistant at TRIUMF, Canada's national laboratory for particle and nuclear physics, I created content and promotional materials to share the lab's research with the community. During my last term at TRIUMF, I demonstrated **my initiative** when I spearheaded the design of new outreach materials. In preparation for their distribution at a national conference, I **took initiative by going beyond requirements**, and produced a final promotional product that doubled as a teaching tool.

My Actions

The creation of these outreach materials began when I **quickly recognized** that TRIUMF lacked outreach materials that were accessible to the general public, since much of the lab's print materials consisted of text heavy posters and challenging scientific jargon. I **decided** that a dynamic new outreach piece was necessary to engage with the public and encourage them to learn more about science. I **pitched** the idea of a "Particle Family" sticker set; these stickers would each represent a fundamental particle and would be accompanied with a description of the particle's qualities, but written more like a "personality profile" and less like a textbook. Once I received approval from the communications team, I **researched** the standard model of particle physics in order to determine what qualities I needed to represent in the design. Since I was unfamiliar with the finer details of the standard model, I **scheduled and conducted** interviews with researchers at the lab. By taking this extra step, I **ensured** that my designs of these particles would reflect their actual scientific properties, making them an effective teaching tool. Following my initial research and several interviews, I **trained myself** in Adobe Illustrator, a program used by professional graphic designers. To do this, I **completed** several online tutorials on my own time, thus maximizing my design time in the office. I **repurposed** the information from my research to draft the particle descriptions, **paying close attention** to word choice in order to keep the information accessible. Once the designs were complete, I **reviewed** the product with the researchers. I **critically reflected** on my design choices with these researchers to identify the areas where the science behind the particles was not being communicated. I **took their feedback** and I **adjusted** my designs and copy until we arrived at the final product. I **discussed** the changes with these researchers, and upon receiving their approval, I sent the stickers and descriptions to print. Finally, rather than simply mailing these stickers and their descriptions to the conference organizers, I **organized** the stickers and copy into packages and placed them into custom designed, hand-stamped envelopes before shipping.

Results

After I **produced** these materials, many conference attendees praised TRIUMF's new stickers as an exceptional piece of science communication. These materials have since been incorporated into the TRIUMF tour to help guests visualize the particles that physicists study. I believe this situation demonstrates **my initiative** by showing how I **go beyond requirements** in order to succeed. Since transitioning back to school, I have worked to maintain this initiative in my coursework.

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3.4 student learning finding

**student success increased significantly
from WatCV1 to WatCV3**

consensus:

if students follow the WatCV assignment instructions and rubric
carefully, they achieve B-level grades

3.5 student response



<https://vimeo.com/239876599/cb9af7fba0>

3.6 as teaching intervention

employability skills made explicit and graded
outlined in syllabus

tied to three course projects/activities
graded as course assignment via eportfolio (6-
30% of final grade)

3.7 as teaching and learning intervention

Design Teaching	Iterative Learning
Instructor provides assignment, rationale, rubric	Student completes WatCV 1
Instructor provides feedback 1	Student incorporates feedback and completes draft WatCV 2
Peers provide feedback 2	Student incorporates peer feedback and completes Final WatCV 2
Instructor provides feedback 3	Students completes WatCV 3
Instructor provides feedback 4	Student uses WatCV to prepare for interviews

4.1 WatCV as research survey

6-month post course survey monkey

2 control (non-WatCV) groups (F2015 W2016)

2 experimental (WatCV) groups (F2016 W2017)

census-style (all students in eligible courses)

4.2 survey participation

Sent to 3998 students (1716 non-WatCV;
1682 WatCV)

31% accessed survey (1048)

77% completed close-ended questions (803)

43% completed open-ended questions (347)

4.3 coding method

Statistical data for close-ended questions:
demographic and self-report statistics

Hand-coding, then statistical data for open-ended questions:

1881 hand-coded answers (627x3)

Coding guidelines from WatCV rubric

4.4 open-ended survey question coding

Open-ended questions: Behaviour-based interview question answered in the STAR (Situation or Task/ Actions/ Result) format

Achievement-level coding:

Sharpen: can student identify (situation, skill, actions, results, new situation)

Deepen: can student provide details (about situation, skill, actions, results, new situation)

Transfer: can student connect details (about situation, skill, actions, results) to bridge to new/ future situations

4.5 most significant findings

1. Writing WatCV reflections helps **all students** to articulate better (sharpen, deepen, and transfer).
2. **Co-op students** articulate better overall (WatCV and non-WatCV groups).
3. **All students** struggle to articulate how to transfer skills.
4. WatCV group **co-op students** articulate their ability to transfer skills better than non WatCV co-op students.
5. More **non-WatCV group students** answered with incorrect skill than WatCV group students.

4.6 completion of open-ended questions

Control Group (non-WatCV)

- None: 67%
- 1 question: 18%
- 2 questions: 15%

Experimental Group (WatCV)

- None: 66%
- 1 question: 3%
- 2 questions: 31%

“This looks less like a survey and more like a test of my STAR skills. I am not quite prepared for this. I apologize.”

4.7 completion of open-ended questions

Co-op Students

- None: 58%
- 1 question: 14%
- 2 questions: 27%

Non co-op Students

- None: 60%
- 1 question: 14%
- 2 questions: 26%

4.8 can students sharpen?

Sharpen: can the student identify (situation, skill, actions, results, new situation)

Control Group

71%

Experimental Group

84%

4.9 can they deepen?

Deepen: can the student provide details (about situation, skill, actions, results, new situation)

Control Group

54%

Experimental Group

70%

4.10 can they transfer?

Transfer: can the student connect details (about situation, skill, actions, results) to bridge to new/ future situations

Control Group

50%

Experimental Group

66%

4.11 how many co-op students answered these questions?

Control Group

86%

Experimental Group

68%

4.13 oral communication

In the last 6 months, describe a situation where you successfully communicated, verbally, your opinion to others.

Describe the situation you were in.

Describe the action(s) you took to successfully communicate your opinion.

Describe the outcome of your action(s). How did the situation end? What did you accomplish? What did you learn?

4.13 oral communication: sharpen

Control Group

69%

Experimental Group

88%

In the last 6 months, describe a situation where you successfully communicated, verbally, your opinion to others.

4.14 oral communication: deepen

Control Group

52%

Experimental Group

81%

4.15 oral communication: transfer

Control Group

47%

Experimental Group

74%

4.16 WatCV as research study

Research Question

Does integrating the WatCV assignment into existing course activities increase students' ability to articulate the employability skills (i.e. professional, transferable skills) that they tacitly acquired while completing coursework?

4.17 student response



<https://vimeo.com/213877768>

5.1 sustainability

CTE WatCV workshops

CTE Website

Campus network: Co-op, EDGE, SSO

5.2 potential applications

Program-level integration
Campus-level integration
Work term reflections

references

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Ontario Ministry of Advanced Education and Skills Development (2016). "Building A Workforce of Tomorrow: A Shared Responsibility." .

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University of Waterloo (2013). *University of Waterloo Strategic Plan 2013: A Distinguished Past -- A Distinctive Future*.

For discussion: WatCV as assessment innovation


**UNIVERSITY OF
WATERLOO**

Student ID or WatIAM

Assignment No.

Course Name

**WatCV
RUBRIC**

D

COMPLETED
 WE RECEIVED YOUR APPLICATION

C

UNDERSTANDABLE
 WE GLANCED AT YOUR APPLICATION

B

PROFESSIONAL
 WE READ YOUR APPLICATION SERIOUSLY

A

PERSUASIVE
 WE WOULD LIKE TO INTERVIEW YOU

A+

MEMORABLE
 WE'VE PUT YOU ON THE SHORT LIST

**ePORTFOLIO
FORMATTING
AND DESIGN**

+4.0
 Uses the template to submit all required elements of the ePortfolio

+3.0
 Uses bold face text in every place required in the assignment

+1.0
 Correctly identifies all the elements of the ePortfolio

- Headings
- Captions
- Labels

+1.0
 Formats the digital

+1.0
 Writes all headings, captions, labels, and explanations to verbally communicate the professional purpose of the ePortfolio

+1.0
 Selects and formats

+1.0
 Adapts layout to draw attention to and/or help explain the most important elements of the reflection

 (e.g. by manipulating font, colour, or by linking to further evidence)

+1.5
 Adapts template to engage the viewer in the presentation of the professional skill

WatCV rubric structure

vertical points in a column add up to highest numerical value in that grade range (at Waterloo, max D+ is 59%)

UNIVERSITY OF
WATERLOO

Student ID or WatIAM

Assignment No.

Course Name

WatCV
RUBRIC

COMPLETED

WE RECEIVED YOUR
APPLICATION

- +4.0 Uses the template to submit all required elements of the ePortfolio
- +3.0 Uses bold face text in every place required in the assignment instructions
- +1.0 Formats the digital artifact so that it can be displayed in the template

UNDERSTANDABLE

WE GLANCED AT YOUR
APPLICATION

- +1.0 Correctly identifies all the elements of the ePortfolio
 - Headings
 - Captions
 - Labels
- +1.0 Formats the digital artifact to a professional quality (eg. cropped, sized and coloured to make content as clear as possible)

PROFESSIONAL

WE READ YOUR
APPLICATION
SERIOUSLY

- +1.0 Writes all headings, captions, labels, and explanations to verbally communicate the professional purpose of the ePortfolio
- +1.0 Selects and formats relevant visual elements to reflect the professional purpose of the ePortfolio

PERSUASIVE

WE WOULD LIKE TO
INTERVIEW YOU

- +1.0 Adapts layout to draw attention to and/or help explain the most important elements of the reflection (e.g. by manipulating font, colour, or by linking to further evidence)
- +0.5 Adapts layout to draw attention to and/or help explain the most important elements of the artifact (e.g. by manipulating size or colour or by adding graphics)

MEMORABLE

WE'VE PUT YOU ON
THE SHORT LIST

- +1.5 Adapts template to engage the viewer in the presentation of the professional skill

CONTENT
SIGN

0
15

ORGANIZATION
OF REFLECTION

- +3.0 Labels and places STAR sections in the correct order
 - Situation/Task
 - Actions
 - Results

- +1.0 Places content in the correct STAR section

- +0.5 Links the content in all sections of the reflection (e.g. refers back to or uses information given in earlier sections)

- +0.5 Meets the length requirements for each STAR section

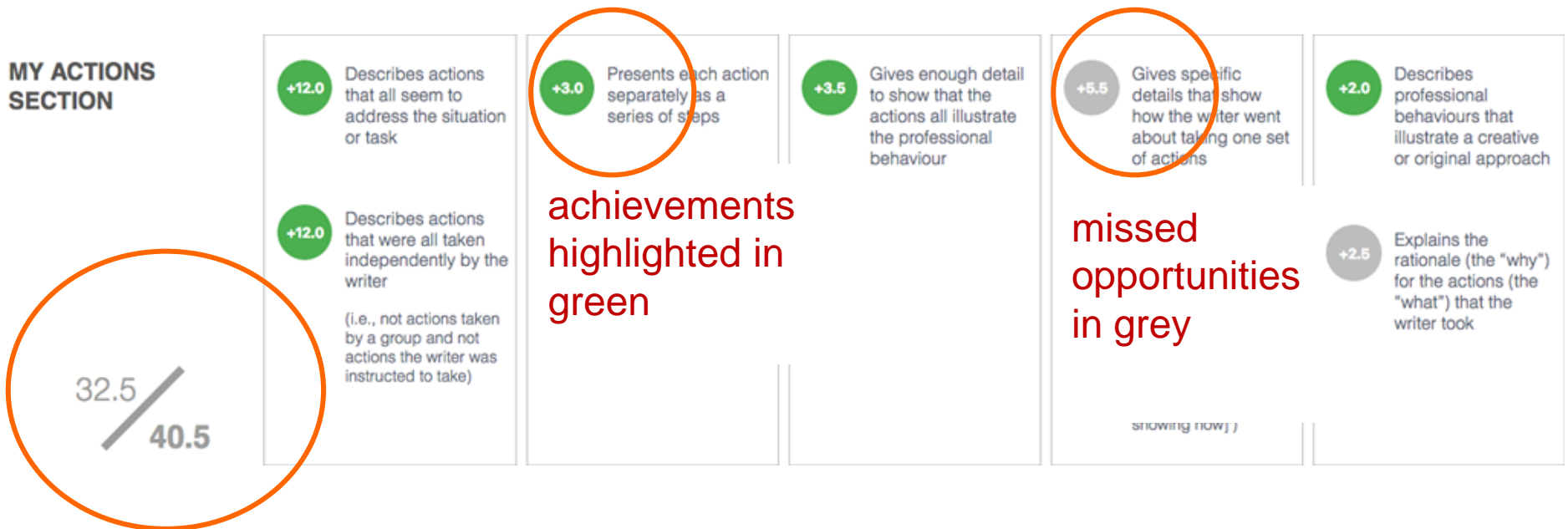
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grade ranges are associated with qualitative outcomes in the application setting (in our case, employer BBI context)

horizontal points in a row add up to highest numerical value for that criterion

communicating achievements

at-a-glance macro- and micro-level feedback



criteria section
subtotals

digital marking interface

centralized, interactive form

MY ACTIONS SECTION

+12.0 Describes actions that all seem to address the situation or task	+3.0 Presents each action separately as a series of steps	+3.5 Gives enough detail to show that the actions all illustrate the professional behaviour	+5.5 Gives specific details that show how the writer went about taking one set of actions (e.g. 'I consulted my co-worker, Melanie, [action] by writing a short, polite email message that gave her the essential information problem, a direct ques and request response to afternoon [showing hc	+2.0 Describes professional behaviours that illustrate a creative or original approach
+12.0 Describes actions that were all taken independently by the writer (i.e., not actions taken by a group and not actions the writer was instructed to take)				+2.5 Explains the rationale (the "why") for the actions (the "...") that the took

32.5 / 40.5

75.75 / 100

B

Student: j33rober | Assignment No. 1

WE READ YOUR APPLICATION SERIOUSLY

Reset Rubric

Print PDF

The WatCV Research Project | 2017-10-16 3:03:59 PM

We can't find this student in the course this term. Please double check the values entered, and contact the office if needed

click-able buttons

export for electronic delivery to students

built-in grade calculator

validation of manually-entered student and course information

WatCV marking rubric interrater reliability finding

markers across disciplines agreed on grades for about 80% of the indicators in the rubric

marker workshop process

leaders review rubric design

participants grade sample assignment

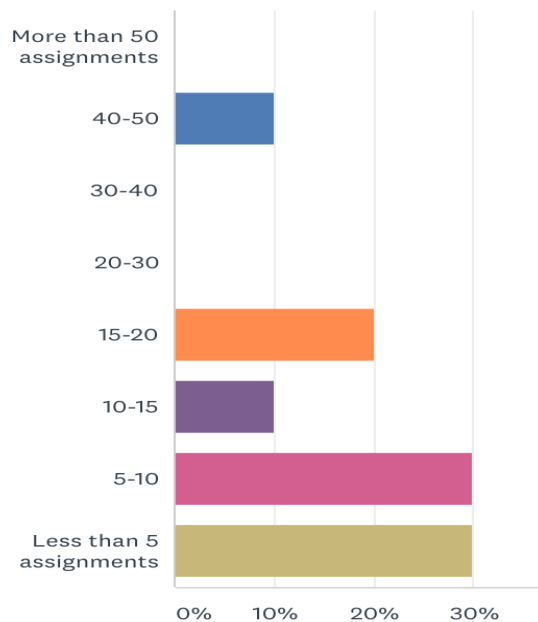
participants compare grades

all discuss points of difference

WatCV marker efficiency finding

how many assignments did you mark before you felt comfortable with marking WatCV?

you (instructors - 10 respondents)



your teaching assistants (6 respondents)

