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Developing a Bachelor's Level Creativity Course Outline Through an Understanding of Neuroscience

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Developing a Bachelor's Level Creativity Course Outline Through an Understanding of Neuroscience

by

Juliette Ripley-Dunkelberger

An Abstract of a Project
in
Creativity and Change Leadership

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

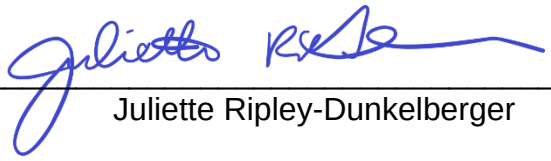
May 2022

Buffalo State
State University of New York
Department of Creativity and Change Leadership

ABSTRACT OF PROJECT

Developing a Bachelor's Level Creativity Course Outline Through an Understanding of Neuroscience

This project documents the creative process of developing a bachelor's level basics of creativity course. Through conversations with instructors who teach creativity courses, learning models and approaches in adult education, and analysis of lower division student's needs, the course focus was established as a basics of creativity course based in an understanding of the neuroscience of creativity. Learning goals, objectives, activities, and assessments were developed for lower division students.



Juliette Ripley-Dunkelberger

May 1, 2022

Date

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May 10, 2022 _____ _____
Dr. Susan Keller-Mathers
Associate Professor

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Juliette Ripley-Dunkelberger
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DEDICATIONS AND ACKNOWLEDGEMENTS

This work is dedicated to my parents for instilling in me a passion for learning and a curiousity about how things work. The joy I find in learning new things, following my curiousity to its illogigal end, and making obscure connections is from you giving me space to explore and letting me ask so many questions. Thank you for trusting me to find my own way.

Thank you to my family for supporting my passion during this process. You all let me work late when I got obsessed with some research. And you made me go out and play when I needed breaks. Thank you for smiling when I say “How might we?” and tolerating my need to come up with so many options to simple challenges.

Thank you to a fabulous cohort who kept me laughing and allowed me to vent. You all are the best team I could have hoped for to go on this adventure with.

Thank you to the dedicated professors who offered us so many ways to explore and built this experience I have been blessed to have. I am so appreciative of Dr. Keller-Mathers who offered her time to give me feedback and advice during my project.

I am deeply grateful for the generosity of busy professionals who took the time to answer my questions and encourage my passion during my feedback conversations.

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Purpose and Description of Project

I am a visual artist, musician, and arts education advocate who has worked with students of all ages as a teaching artist. I previously collaborated with my local school district creating, developing, and managing a program supporting volunteers who taught elementary school art lessons. This experience and passion brought me to the Buffalo State Creativity and Change Leadership program in the spring of 2020. I enjoy learning and being in academic environments and want to teach at the college level. Developing a creativity course outline that I can present to colleges will be the next step towards that goal.

During Buffalo State's Master of Science in Creativity and Change Leadership Program I have wanted to deepen my understanding of how creativity works. Specifically, I explored how it works in my mind and how can I better train others to use their creativity. Building lower-level creativity course based in neuroscience was my pursuit to achieve that end. The development of a neuroscience-based course and a case for teaching creativity is the culmination of multiple personal goals. First, I wanted to develop course environments and processes that enables students to recognize their innate creativity, understand creativity as both intuitive and intentional processes, and grow in their creative abilities increasing their creative agency. Building a neuroscience-based creativity course utilizes knowledge I have gained through my course work and pursues my passion for exploring the biomechanical and innate nature of creativity.

Secondly, I asked for feedback from colleagues about my course outline, its content, and the potential student market. My conversations explored how they received

support from their respective schools for their courses, how they refined their course content, and where the course best fits into their college departments. I explored what degrees and paths my colleagues took to reach their current positions, informing my next steps on my journey.

Lastly, I strengthened multiple creative areas. When we took the FourSight assessment (FourSight, 2014) at the beginning of the program, I discovered a high preference for ideating and implementing. Clarification and development were my lower preferences, which are essential skills when developing a course. The process of engaging in course outline development, feedback conversations, and stakeholder analysis of colleges, enabled me to clarify my course direction and focus. I expanded my creative potential by learning about course design and assessment by taking Buffalo State Adult Education Instructional Design and Assessment course, supporting creation of a course scaffold.

I focused my work on Highlighting the Essence (Torrance & Safter, 1999) through the development of concise learning objectives as well as honing the course materials and activities down to the essential elements best supporting learning objectives. Strategic thinking (Puccio et al., 2011) was required as I approached people for feedback, created questions for the conversations, developed a case for creativity courses, and refined the course outline. I built courage (Williams, 1979) or tolerance for risk (Puccio et al., 2011) through the process of approaching instructors whom I admire and asking for feedback. I will extend my learning, after completion of my project, by talking to colleges about the potential impact that creativity courses could have on their students and brand, guided by the case for creativity courses I have built.

Developing a creativity course required multiple creative skills that I learned in this program. Gathering information about the potential stakeholders (colleges where I might teach) required strategic thinking, reflection, tolerance for risk, and change leadership. I leaned into my strengths as an ideator and implementor (FourSight, 2014) to identify multiple ways to present course content, engage students, and approach potential colleges. I used Creative Problem Solving (Puccio et al., 2012) to explore course objective possibilities and develop them into an effective course outline.

I want to establish myself as a creative change leader through the development of college creativity courses. As an extension of this work after I have completed my Master of Science Project, I will do market research and conduct informational interviews to find out what my community believes creativity is, what they would like to see in a creativity course and hone my case for creativity programing within a college. This exploration will inform both my job search and change leadership work.

Rationale for Selection

I have a passion for teaching creativity in a way that develops agency and efficacy in students. My favorite experience as a teaching artist has been watching students “Aha” moments as they discover their creative abilities. This project has been the next step on my path to teaching creativity at a college level and becoming a creative change leader in my community.

My belief that creativity is an innate and universal ability (Richards, 2009) that can be taught and improved (Torrance & Safter, 1999) has led me to study how creativity works. Humans are all creative and creativity is an essential part of our evolutionary ability to survive (Carson, 2010). I believe that we all have biomechanically based creative abilities and utilizing these assets can create change for individuals and my community.

Providing students with the opportunity to learn how their mind works, to acquire tools that work with how they think, and to practice creative thinking skills can make them more effective in life. As our world becomes more complex ever faster, we can no longer depend on past knowledge to solve problems to adapt. We must be able to observe our current reality, assess the gaps, and develop original solutions. It is essential that we invest in our creative abilities to make positive change in our world (Puccio & Lohiser, 2020).

The paradigm change I would like to ignite in my community is that creativity is neither extra nor other. By extra I mean that creativity is for the arts and therefore not a necessary thing to teach or practice unless you are pursuing artistic endeavors. By other I mean that most people do not identify as artists, the idea of being creative is for

other people and not a personal attribute. I would like the paradigm of creativity being extra and other to change to creativity being both essential and within everyone. Seeing creativity as an innate problem-solving tool that can be improved, through experiences in a creativity course, may help to change that paradigm.

Creativity is a complex and highly flexible phenomenon. Ideation is particularly complicated considering recent findings that it combines the processes of curiosity, associative thinking, flexible attention (Zabelina, 2018), and analytical thinking. Ideation is a balance of internal and external focus, and can be purposely directed or happen during incubation, when we are unaware. According to Wang, Gu & Lu (2018), much of what happens during thinking occurs unconsciously with only some cognitive control, which includes conscious thought and awareness. Understanding the biomechanics of our mind can help us use it more effectively. I have found multiple areas of neuroscience research which can improve student's creative training experiences. The activities, learning objectives, and learning modalities I choose will be guided by this research.

The use of neuroscience as a basis for a creativity course is not a new idea. I was introduced to this idea while attending a Drexel University School of Education Neuroscience, Creativity, and Innovation course I took last fall which aligned with my own previous research in psychology and neuroscience. Neuroscience explains how creative processes occur in our brain, directing us to optimal practices that improves innate creative abilities and skills (Elouafi et al., 2021). If I want to develop more effective creativity trainings, a deeper understanding of our neural systems is required. Elouafi et al. says that "neuroscience, in its broadest sense, studies the processes by

which the brain learns and remembers at the molecular and cellular levels" (2021, p. 1). The bourgeoning intersectional study of neuroscience and creativity offers a peek into our creative biomechanics. According to Elouafi et al., "studies of brain function can contribute, alongside behavioral data, to an understanding of underlying learning processes, and may lead to improved teaching and learning" (p.1). Gaining knowledge about how and why we are innately creative can build creative efficacy. Therefore, by understanding current knowledge of the neuroscience of creativity, I can build environments and processes that more effectively engage and empower the creativity of others (Onarheim & Friis-Olivarius, 2013).

I believe that current studies in the neuroscience of creativity will help me design more effective creative ideation training in several ways. First, I will be able to clearly describe creativity as complex processes that when applied in personal and effective ways will improve creative productivity (Onarheim & Friis-Olivarius, 2013). Secondly, I will be able to focus my training energies on the parts of the creative process we have conscious control over, enabling me to align course structure and activities according to how learning works in the brain (aware and unaware). Lastly, this knowledge will allow me to be transparent with students about why we are doing what we are doing. By overtly teaching the neuroscience, they can continue to utilize this meta-cognitive knowledge as they build their own processes in the future.

SECTION TWO: PERTINENT LITERATURE

These works were chosen due to their being essential in my process for development of this course. They include books, articles, a Buffalo course from the Adult Education department, and conversations with university staff and professors. Each item provided a unique and important component for my project.

The Neuroscience of Creativity

Abraham, A. (2018). *The neuroscience of creativity*. Cambridge University Press. https://doi.org/10.1017/9781316816981

Anna Abraham's book, *The Neuroscience of Creativity*, is a detailed overview of the current understanding of the neuroscience of creativity. Abraham maps creativity from meaning to cognitive explanations to domain specific creativity all through the lens of neuroscience. Multiple connections between psychological experiences, biomechanics, and practical applications are explored.

Carson, S. (2010). *Your creative brain: Seven steps to maximize imagination, productivity, and innovation in your life*. Harvard Health Publications.

Shelley Carson's book changed the way I thought about creativity. It sparked my interest in the neuroscience of creativity and expanded my understanding of how creativity works in the mind. One of the reasons I began looking for masters' programs in creativity was this introduction to the various mindsets and brain processes involved in creativity.

Jung, R. E., & Vartanian, O. (Eds.). (2018). *The Cambridge handbook of the neuroscience of creativity.* Cambridge University Press. http://doi.org/10.1017/9781316556238

The Neuroscience of Creativity, is a collection of essays from a broad range of authors in the fields of neuroscience and creativity, edited by Rex E. Jung and Oshin Vartanian. It expanded my understanding of current creativity neuroscience. My concept of divergent and convergent thinking changed due to a deeper understanding of the associative and analytical processes our brain uses to store memories and retrieve information. This new understanding opened connections between creative neuroscience and effective creativity training practices.

Educating for Creativity

Elouafi, L., Lotfi, S., & Talbi, M. (2021). Progress report in neuroscience and education: Experiment of four neuropedagogical methods. *Education Sciences, 11* (373). https://doi.org/10.3390/educsci11080373

Establishing links between neuroscience research, learning theory, and instructional practice is difficult to do. This article is based in the belief that “brain science could transform and improve teaching practice” (p.1). The authors worked to explain the neuroscience basis for pedagogical activities. This caused me to wonder what the neuroscience is behind creativity tools and how might understanding the neuroscience impact learning transfer.

Onarheim, B. & Friis-Olivarius, M. (2013). Applying the neuroscience of creativity to creativity training. *Frontiers in Human Neuroscience*, *7*(656). http://doi.org/10.3389/fnhum.2013.00656

This study provided the basis for the idea that teaching students about the neuroscience of creativity could improve their creative practice. Creativity training is often experiential, linking learner's current knowledge with application. The addition of the meta-cognitive knowledge of why learner's minds biomechanically do what they do (neuroscience) can provide a deeper understanding of creativity and its applications.

Torrance, E.P. & Safter, H.T. (1999). *Making the creative leap beyond*. The Creative Education Foundation Press.

Making the Creative Leap Beyond by E. Paul Torrance and H. Tammy Safter provides a deeply researched practical structure for teaching creativity to students. It covers theory, assessment, and detailed descriptions of creative skills that can be incorporated into course planning. I found the Torrance Incubation Model (TIM) intuitive. When I was first introduced to it, it immediately made sense and fit the way I had approached teaching in my creativity integrated arts programing. Breaking my course into TIM phases will make it more digestible and engaging for students.

Buffalo State Adult Education Instructional Design and Assessment course

I am taking two courses from the Buffalo State Adult Education Department, which together provide a micro-credential in online adult education. I will use the information from the Buffalo State Adult Education Instructional Design and Assessment course to

better design and develop my course as I learn models and techniques for instructional design and assessment for adult learners in a systematic way (Mike, 2022). The second course in the series Adult Education Departments' Introduction to Online Teaching and Learning in Adult Education will focus on online teaching models, techniques, and formats, which is taught this coming summer of 2022.

Feedback Conversations and Networking

A large part of my project plan includes feedback conversations and networking. After building a course outline, I will seek for feedback from colleagues on the course outline, the content, and the potential student market informing my course development. My conversations will explore how they got support from their respective schools for their courses, how they refined their course content, and where the course best fit into their college departments. This will also provide me an opportunity to become familiar with other creativity instructors in my field whom I can be of service to in the future.

SECTION THREE: PROCESS PLAN

Goals and Outcomes

This stage of my journey started with my questions about creativity and will end with a course outline and a case for creativity courses that I can use when later conversing with colleges. Multiple creative tools and skills have been used throughout this process. Mind Mapping and Positives, Potentials, Concerns, and Overcoming concerns (Puccio et al., 2012) have both become a part of my creative process on a regular basis. Brainwriting (Puccio et al., 2012), How-How diagrams (Higgins, 1994), stakeholder analysis, Appreciative Inquiry (Cooperrider et al., 2008), and Other People's Views (DeBono Thinking Lessons, n.d.), also known as empathizing, have been used during the development of this course and when talking to colleges.

Creative skills such as noticing gaps, clarifying, and ideation were important parts of my process to identify course objectives, student interests, and each college's needs and motivations. After the completion of this project, my understanding of change leadership will help me discuss new programing with schools to enhance what they do well while supporting their future goals. Change leadership is also useful when planning for student learning. I will lead students through a change process from an identity of not being creative to a new identity of being creative and having creative agency. Preparing for their discomfort during that change will be essential to engage student' learning.

I built a creativity course outline. This course includes multiple mindsets which support creative cognition, creative blocks, and tools to overcome them; both intuitive and intentional creative processes; the precursors to creative cognition (wonder & curiosity); and building of creative environments. A better understanding of how our

minds work during creative cognition in partnership with meta-cognition can improve our ability to create change.

My process started last fall with my Buffalo State Creativity Department Current Issues in Creativity course's Big Question paper where I researched the current neuroscience of creativity to find areas that would support effective creativity training. I spent the semester taking Drexel University's School of Education Neuroscience, Creativity and Innovation course where I gained a deeper understanding of the neuroscience of creativity and found multiple areas which could expand and support student understanding of creativity. I also found several resources showing how the understanding of neuroscience could enhance the learning of creative skills (Abraham, 2018, Elouafi et al., 2021, Onarheim & Friis-Olivarius, 2013).

This semester, the products of my project included a course description with learning objectives, a weekly learning objective supported by readings and/or video content, and a sample learning activity. I also created a spreadsheet tracking structures of course design used to frame my thinking and a weekly learning log to track and reflect on the progress and potential changes I need to make. The timeline for product creation and workflow can be found in Figure 1. And each product's success criteria are tracked in the evaluation rubric in Figure 2.

After building a course outline, I asked for feedback from colleagues about the outline, learning objectives, and potential student market informing my course development. I conducted multiple feedback conversations. My conversations explored how they got support from their respective schools for their courses, how they refined their course content, and where the course best fit into their college departments. Using

what I learned from these conversations I honed my course description and learning objectives. This information will also help me to make a case for creativity courses that I can use when discussing the possibility of teaching with various colleges. This project enabled me to better understand the requirements to teach at a college level as well as have a general course to share with prospective colleges.

One potential block might have been my dependence on other people's availability for feedback. While I hoped to have as many as five conversations, I anticipate getting about a forty percent return rate from my requests. To mitigate this reliance on other people's availability I created a lengthy list of people to ask for feedback and I asked, at the end of each conversation, for recommendations of other people I should talk to. My requests for feedback were accepted at an eighty percent return rate, which was twice as many as expected. I did not need to change to a plan B which would have included conducting an online seminar from a single course unit. The point at which I would have needed to make a choice between feedback conversations and developing a workshop is detailed in my project timeline, see Figure 1.

Project Timeline

Figure 1

Project Timeline

Dates	Activity	Hours	Support
January	Read Amabile & Torrance articles	1	
January 5, 2022	Appointment to discuss project	1	Dr. Keller-Mathers
January 5, 2022	Sounding Board partner	-	Tatiana
	Read past students masters project write ups	2	
	Mind map course ideas and objectives, PPCO assorted options	5	
	Asked for FourSight four skill sets & descriptions	-	Dr. Puccio
	Concept paper Timeline, Evaluation Plan, Project Plan & Literature	15	
	Acquire Buffalo course 'creator' document	-	Dr. Keller-Mathers
	Concept Paper edit and refine	3	
February 3 - 10			
February 3, 2022	Class – Direction of project	1.5	Dr. Keller-Mathers
	Concept paper turn in	-	Dr. Keller-Mathers
	CITI training, apply to IRB & Sections 1 – 3	15	
	create email introduction for feedback	5	
	Meet with Tatiana	2	Tatiana
	Create course objectives (4 – 7) and description & update weekly learning log	8	
February 10 - 17			
February 10, 2022	Class - Share concept paper	2	Dr. Keller-Mathers
February 14, 2022	Concept paper due	-	
	Sections 1 – 3	6	
	Meet with Tatiana	2	Tatiana
February 17 - 24			
February 14 – 24, 2022	Continue with feedback conversations or change to an online seminar to illicit feedback on general course idea?	1	Dr. Keller-Mathers
	Sections 1 – 3 Update weekly learning log	12	
	Meet with Tatiana	2	Tatiana
	Contact feedback contacts	3	
	Create questions feedback conversations	2	
February 24 – March 3			

February 24, 2022	Class - Share project direction	2	Dr. Keller Mathers
	Create list of potential second round feedback conversations, find contact information, create emails and contact	3	
	Feedback conversations	5	
	Compile feedback and impressions from feedback conversations	5	
	Build out weekly course objectives, build learning structures spreadsheet	20	
	Create case for creativity points spread sheet	2	
	Individual Meetings	1	Dr. Keller-Mathers
	Meet with Tatiana	2	Tatiana
	Update learning log	1	
March 3 - 10			
	Sections 1 – 3, edit and finalize	6	
	Update learning log	1	
	Feedback conversations	5	
	Compile feedback and impressions from feedback conversations	5	
	Begin finding materials & activities and add to learning structures spreadsheet	5	
	Make changes to course objectives, weekly objectives and description, track edits and learning based on feedback	7	
	Write up course general description draft 2 based on feedback	3	
	Add to case for creativity points spread sheet	2	
March 10 - 17			
March 17th, 2022	Class – share sections 1 – 3		Dr. Keller-Mathers
	Work on weekly course objectives and add to learning structures spreadsheet	5	
	Find materials & activities and add to learning structures spreadsheet	10	
	Sections 4 – 6 & update learning log	15	
	Feedback conversations	5	
	Add to case for creativity points spread sheet	2	
March 17 - 24			
March 21, 2022	Sections 1 – 3 due	-	Dr. Keller-Mathers
	Make changes to course objectives, course description, and weekly course objectives, track edits and learning based on feedback	15	
	Find materials & activities and add to learning structures spreadsheet	10	

	Sections 4 – 6	10	
	Add to case for creativity points spread sheet	2	
March 24 - 31			
	Complete course objectives, course description, and weekly course objectives and add to learning structures spreadsheet	10	
	Sections 4 – 6, and update weekly learning log	22	
	Add to case for creativity points spread sheet	2	
	*Stakeholder analysis of colleges	10	
April 1 - 7			
	Sections 4 – 6 refine and edit Update weekly learning log	15	
	Finalize materials & activities and add to learning structures spreadsheet	10	
April 7 - 14			
April 14, 2022	Class – Draft sections 4 - 6	3	
	Sections 4 – 6 refine and edit Update weekly learning log	10	
	Whole document review	15	
April 14 - 21			
April 18, 2022	Sections 4 – 6 Due	-	Dr. Keller-Mathers
	Whole document review & update learning log	15	
April 21 - 28			
April 28, 2022	Class	3	
	Whole document review	10	
May 1 - 19			
May 2, 2022	Masters due	-	Dr. Keller-Mathers
May 9, 2022	Approval for uploading	-	Dr. Keller-Mathers
May 10 – 18, 2022	Build class presentation	5	
May 19th, 2022	Class - Presentation	3	Dr. Keller-Mathers

Evaluation Plan

Figure 2

Evaluation Rubric

What I want to learn	Development			Clarifying		Course design and assessment		Highlighting the Essence		Courage	Strategic Thinking	
How will I know when my product has attained my learning objectives - learning criteria	Examining and tracking the pluses and minuses of ideas with PPCO	Analyzing and comparing potential solutions	Planning the steps to implement	Utilizing a methodical approach to analyzing feedback	Creating questions to illicet the necessary feedback	Structures for designing a effective and engaging course.	Assessment tools and techniques which encourage active and experiential learning.	Writing engaging and concise descriptions of the course, learning objectives, and assignments.	Honing materials and activities down to the essential elements that best support learning objectives.	Approaching feedback with curiousity & passion for the subject.	Develop a case for creativity as an elevator speech I can use when approaching schools for a job.	*Stakeholder analysis of colleges to ascertain the best way to approach them based on their needs and how they present themselves to the community.
Products												
Course Learning Objectives (4 to 7)	List of ideas, PPCO	Written list of my possible objectives. And why did I pick the ones I picked.	1st	Method? How does it impact my course?		Written record of how these are based in creativity/neuroci ence research.	Written record of how these are assessable.	Yes/no	Are the objectives both concise and descriptive?	Asking for feedback if this description is clear.	How do these objectives support the creative needs of students? How does this align with my case for creativity?	How might this be changed to meet several focuses? Ie. teachers, business, parents
Course description (short paragraph)	List of ideas, PPCO	Written list of my possible descriptions or focues. And why did I pick the ones I picked.	1st	Method? How does it impact my course?		Written record of how these are based in creativity/neuroci ence research.	Written record of how these are assessable.	Yes/no	Is the description both concise and descriptive?	Asking for feedback if this description is clear.	How does this course support the creative needs of students? How does this align with my case for creativity?	How might this be changed to meet several focuses? Ie. teachers, business, parents
Feed back Conversations	Track feedback and analyze ideas	List of ideas, PPCO	2nd	Track feedback and look for patterns or common comments	Are they clear and asking what I want to know?			Are they clear and asking what I want to know?		Am I enjoying talking about a shared passion with others?	Track feedback for case for creativity.	Am I getting feedback from those that have done what I want to do?
Weekly Learning Objectives	List of ideas, PPCO, Benchmarks/When to stop or change - If by March 10th I have not started these, cut down to half of the course or less.	Written list of my possible objectives. And why did I pick the ones I picked.	3rd			Written record of how these are based in creativity/neuroci ence research.	Written record of how these are assessable.	Objectives are concise and descriptive	Is the description both concise and descriptive?		How do these objectives support the creative needs of students? How does this align with my case for creativity?	
Video or Reading assigned per Weekly objective	List of ideas, PPCO, Benchmarks/When to stop or change - If by March 10th I have not started these, cut down to half of the course or less.	Written list of my possible objectives. And why did I pick the ones I picked. Benchmarks/When to stop or change - If by March 10th I have not started these, cut down to half of the course or less.	Done in collaboration with other products.			Written record of how these support the learning objective.	Written record of how these will be assessed.	Is the video or reading possible for a BA student (reading level?) to complete in the time alloted?	Does it illustrate the essence of the objective?			
Sample Weekly Assignment	List of ideas, PPCO, Benchmarks/When to stop or change - If by March 10th I have not started these, cut down to half of the course or less.	Written list of my possible objectives. And why did I pick the ones I picked. Benchmarks/When to stop or change - If by March 10th I have not started these, cut down to half of the course or less.	Done in collaboration with other products.			Written record of how these support the learning objective.	Written record of how these will be assessed.	Is the assignment possible for a BA student (reading level?) to complete in the time alloted?	Activity supports learning objectives and practices essential skills			
Spreadsheet tracking structures for course design	Written list of structures used to refine the course design and how they relate to content. Benchmarks/When to stop or change 3+ structures (Blooms Taxonomy, TIM phase, Creativity skill)	Track choices made due to particular structure of framwork.	Done in collaboration with other products.	Spreadsheet		Spreadsheet showing structures used.	Assessement structures included in spreadsheet.					
Case for Creativity elevator speech	List of points informed by feedback and conversations.	Written list of my possible points. And why did I pick the ones I picked?	Done last		Follows from list, PPCO, and analysis.			Does it flow logically and do I have enough to answer questions?	Case informed by information from conversations	Speaking to colleges (2) about their need for creativity.	Will be useful for asking for a job, may not be completed with this project.	
Weekly learning log	Written tracking of learning, notes from interviews and editing tracked within particular product.		Ongoing tracking of thoughts and learning									
*Optional: Stakeholder analysis.	Looking for supporters and blockers to my desire to teach creativity and how I can overcome the blockers while identifying the supporters . Reasons they are already creative and may make a simple change to really claim it.	How might I approach schools? How might schools identify where they are currently creative? How might they reframe something to get a "free" boost by creativity?		Creating a set of criteria to evaluate all of the schools by.	Creating questions to look for the criteria I am looking for.							Where might a workshop in creativity for staff help them identify what they do and see it in a new way? How might they position themselves as creative change agents in our community? Where might programing be accentuated with a single unit of creativity?
*Optional products will only be attempted if time allows and other products will not suffer.												

SECTION FOUR: OUTCOMES

There have been several shifts in my overall concept of this project that effected my project outcomes. While these changes still fit under the umbrella of a creativity course based on neuroscience, I realized during the development of my project that I needed to make changes to my content. During conversations with creativity instructors and professionals, it became clear that the course content I was creating based solely on the neuroscience of creativity would require a PhD to teach at most colleges. Since I am entering the teaching profession for the first-time, once I complete my Buffalo State Master of Science in Creativity and Change Leadership program, I will be teaching lower division courses. Therefore, the bases of my original concept would be incompatible with my potential student market and so needed to undergo several shifts.

When considering my future goals, I realized I needed to make some choices based on strategic thinking (Puccio et al., 2011). I had assumed that what was my passion for the biomechanics of creativity would also be the solution for what others needed to learn about creativity. I revisited Creative Problem Solving (Puccio et al., 2012) to clarify the problem. After analyzing the needs of potential students through the lens of an adult in continuing education and a young adult just starting college, I realized that neither sets of students would have basic knowledge of creativity and assume they are not creative. I determined that my passion was an unnecessary focus as the students I would be teaching will not have the educational foundation to make the step into neuroscience explanations. This resulted in a re-work of my content into a creative basics course.

After taking a deeper look at the basics of creativity that are supported by the neuroscience, I redesigned my learning goals, outcomes, and objectives. These new goals, outcomes, and objectives are now based in adult education theories and research. I am thankful that I made time for this incubation period as the connections I made between the neuroscience of creativity and basics of creativity became clearer enabling me to design a course I could teach.

This project resulted in more outcomes than I had planned. Initially, I intended to only create a learning log, course learning objectives, a short course description, feedback conversation notes, sample readings or videos for a course unit, sample activities, a spreadsheet tracking the use of various creativity structures and their use in course development, and a case for creativity. However, I developed multiple additional products supporting my process of course development. These include mind maps, worksheets, and a new course proposal. Some of these came about through the added information I was introduced to in the Buffalo State Adult Education Instructional Design and Assessment course. These will be listed below in a semblance of chronological order (as everything overlapped in its creation).

Learning Log

Throughout this process, I kept a weekly log where I recorded my observations about learning and motivation as well as thoughts and questions I experienced. An abbreviated copy is shown in Appendix A. The process of writing about what I was doing, how I was approaching it, and why I choose certain methods was both useful and enjoyable. As I look back, I see where an idea started and how it progressed. I am glad I set myself the task of writing at least once a week, as a daily practice was not realistic.

Course Learning Goals

Over the December 2021 winter break, I developed a course outline, shown in Appendix B. This incorporated the knowledge I had gained through the Drexel University School of Education Neuroscience, Creativity and Innovation course and the Buffalo State Creativity Department's Current Issues in Creative Studies course I took in fall of 2021. It was the starting point for the first set of learning objectives I created for a neuroscience-based creativity course. However, as my course changed its focus it was useful to rework my previous ideas into a new outline.

The outline, shown in Figure 3, reflects my current course after my shift in focus to a general creativity course for lower division students.

Figure 3

Course Learning Goals

1. Examine creativity
    a. Explain when creativity is the appropriate type of problem solving
    b. Relate personal examples of creativity to academic creativity models
    c. Summarize the uses for various creativity methods

2. Identify and expand personal and community creative solutions
    a. Distinguish daily creativity use
    b. Inventory community creative solutions
    c. Examine when creative problem solving could be applied

3. Summarize, diagram, and reflect on personal creative process
    a. Construct a personal creativity definition informed by definitions presented in the course and in personal experience
    b. Differentiate between flow, incubation, and insight
    c. Interpret creativity as an innate set of abilities that are learnable and teachable

4. Detect factors that lead up to, support or enhance, and inhibit creativity
    a. Prescribe and apply the precursors to creativity
    b. Detect factors that support or enhance creativity
    c. Detect factors that inhibit creativity

5. Apply the creative process to personal challenges
    a. Create effective questions to guide ideation
    b. Utilize meta-cognition, divergent, and convergent thinking in the appropriate settings
    c. Choose between options and revise solutions using select methods
    d. Produce solutions that have retained novelty through iterative development.

6. Analyze, select, and facilitate creativity tools
    a. Distinguish the appropriate tools to use in each phase of the creative process
    b. Assess which tools are effective for the situation at hand
    c. Facilitate small group creativity tool use

7. Exemplify greater comfort with risk taking and failure
    a. Describe starting comfort with risk taking and failure
    b. Describe ending comfort with risk taking and failure
    c. Appraise the factors involved with change
    d. Employ various tactics and tools during personal and group creative process

This course will be taught in an experiential way. Much like my experience here at Buffalo State, my students will practice what they are learning through personal reflection and group interactions. I am building this with the belief that I will be teaching in person, however, after completing my master's program I hope to develop an online version as well.

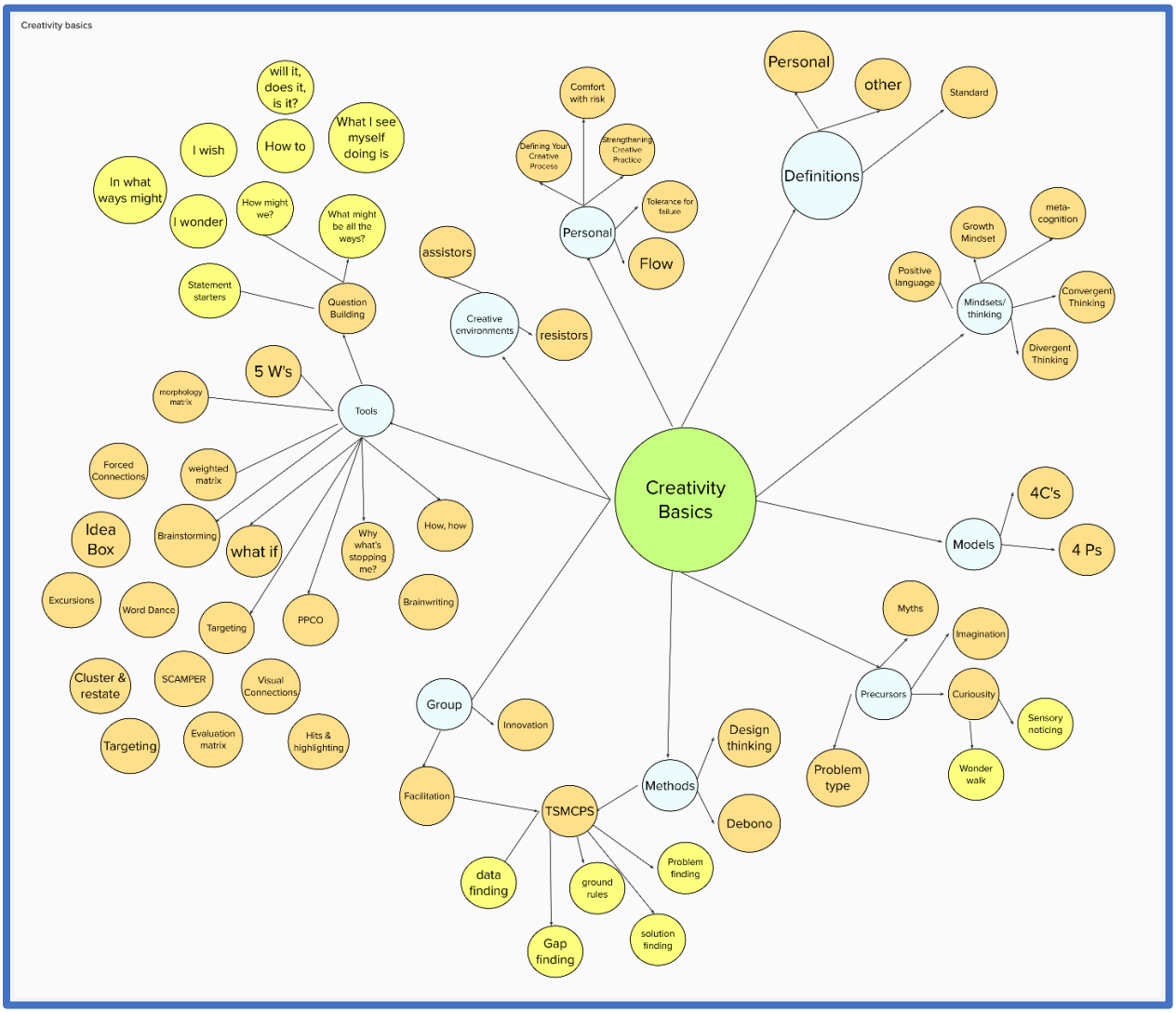
Mind Maps

I started my process with a mind map of all the types of creativity courses I might teach. Once I choose neuroscience as my focus, I created a second map based on the connections between neuroscience, and creative methods and tools. This mind map is shown in Appendix C. After multiple feedback conversations, I pivoted to a basic

creativity course for lower division students. As I reimagined the course, I focused on the needs of the students who may be taking a two-hundred level creativity course as shown in Figure 4. (This is a loose use of mind mapping as not all the thoughts are connected.) This course will touch on the basics of creativity and give students personal experience with concepts and tools while working on a personal challenge.

Figure 4

Basics of Creativity



Mind maps were added products during the development of the project. I often use mind maps to get my ideas out in a way that reflect their connections and relationships, which proved to be a useful tool when I pivoted from my original focus of an overtly neuroscience-based course.

Feedback Conversations

My feedback conversations have played an influential role in the direction of this project. I spoke to multiple instructors who teach creativity at the university level, my master's program cohort, and a creative business owner. There were multiple goals for setting this as a task in my project. I did not want to create a course in a vacuum. I knew that getting input from others who were already doing the work would be essential to my creation of a quality course. Secondly, I wanted to do some professional networking. Mentorship work with multiple high school and college students has taught me that the best way to learn about doing something is to talk to people who do it. And developing a network of fellow professionals that are interested in supporting my professional growth will be important as I start a new career path. Lastly, I wanted to practice courage (Williams, 1979) and tolerance for risk (Puccio et al., 2011). As an introvert I can find it difficult to approach people that I admire and respect initially. I know that doing it more will make it easier. Strategically, I realized that as a student who was asking for feedback, I was more likely to get responses of support from professors lowering the risk for me when making connections. And by purposely grading myself on getting it done, I knew I would be more likely to do the uncomfortable work.

I approached this feedback task by first contacting instructors that I have a relationship with. Once we agreed on a time to meet, I emailed a current draft of my

course objectives to the instructor and then took notes as we talked. These processes resulted in a broader understanding of course planning and development, academic culture, job search techniques, lower division student markets, and the variety of paths others have taken to become an instructor. Each conversation informed me at the various stages of my project's process and each interaction created change in my final outcomes.

Course Description

The course description iteration, as shown in Appendix D, changed as my understanding of how to build learning goals and objectives grew. Thinking about the needs of lower division students and information from the Buffalo State Adult Learning Department's Instructional Design and Assessment course informed my course description. Each iteration provided more clarity and specificity about what content would be covered and what would be expected of students. The final iteration reflects the change of focus from overt neuroscience to creativity basics.

Figure 5

Course Description

This course examines and applies creativity through personal and group experiences. Ties to flow, innovation, creative environments, and curiosity are explored. Developing skills in facilitation of creative problem solving, integrating creative thinking habits, and building creative tools kits for the future are introduced. Students demonstrate understanding through interactive, collaborative, and personally relevant projects.

Structures for Course Design

When I began this project, I was searching for structures to guide my thinking as I built a course. My initial thought was to incorporate the Torrance Incubation Model, Bloom's Taxonomy, and particular creativity skills into a frame for my course. Buffalo State Adult Education Department's Instructional Design and Assessment course has provided several theories and models that provide accepted and well supported structures for adult course development.

I adapted Fink's (2013) Twelve Steps for Integrated Course Design and created a workbook for myself shown in Appendix E, to develop my final set of learning goals, outcomes, and objectives. This was helpful because it breaks down the process of course design into small chunks and asks one to think deeply about why something is being taught. There are several key points that Fink makes that resonated with me as they are aligned with how I have created trainings in the past. The first one is to work with the end goal in mind. I wanted to structure a course that started with the changes I wanted my students to make in their lives that would still be evident three to five years later and then work backwards to form the course goals, learning objectives, activities, feedback, and assessments accordingly.

Secondly, I needed to integrate each of the previously mentioned components so that they all support each other. Focusing on how something is taught can teach as much as the content itself so the modes of teaching and learning need to support the learning objectives. In the same way the assessment of the learning needs to be done in a way that aids in learning. For example, if my goal is to teach students to fill in bubble sheets, then giving them standardized tests would be an excellent activity and

assessment. If I want students to learn to think divergently, then I need to give them open-ended challenges that can be solved in multiple ways so I can assess them on the number of options they produce (fluency) or how many diverse types of ideas they create (flexibility) as a starting point.

Course Learning Objective, Criteria, and Standards Samples

The learning goals and outcomes I developed over the process of this project, as shown in Figure 3, are the basis for my creativity course. Examples of learning goals expanded into an objective and set of standards are shown in Figures 6, 7, and 8. Each learning goal I create will eventually be expanded to this level of detail and each activity will have a rubric that may contain multiple learning objectives.

Figure 6

Sample 1 of a Course Learning Goal, Objective, and Standards

Learning goal: Explain when creativity is the appropriate type of problem solving.

Learning objective: Given instructor presentation and course content, students will correctly classify (by type: Predicament, Opportunity, Formulaic, or Maintenance) four of five problems from a give list.

Standards:

- 100% credit: Student classifies four or five problems correctly
- 75% credit: Student classifies three problems correctly
- 50% credit: Student classifies two problems correctly
- 0% credit: Student classifies one or less problem correctly

Figure 7

Sample 2 of a Course Learning Goal, Objective, and Standards

Learning goal: Inventory community creative solutions

Learning objective: Given a common definition of creativity and creativity models, inventory three instances of creative solutions found in your community, gauging their effectiveness and novelty on a 1 – 5 scale and relating them to the course content. Explain the rating.

Standards:

- 100% credit: Student describes in two or more detailed paragraphs, three instances of creative solutions from their community. They explain their rating of both effectiveness and novelty referencing content from the course and using keen, specific observations.
- 75% credit: Student's description of three instances of creative solutions from their community lack details and are a single paragraph in length. Their rating of both effectiveness and novelty using content from the course lack specific observations.
- 50% credit: Student describes fewer than three instances of creative solutions from their community. Their rating of both effectiveness and novelty contain content from the course.
- 0% credit: Student describes fewer than three instances of creative solutions from their community. Their rating of both effectiveness and novelty are unrelated to course content.

Figure 8

Sample 3 of a Course Learning Goal, Objective, and Standards

Learning goal: Detect factors that lead up to, support, enhance, or inhibit creativity.

Learning objective: Given course content on imagination, students will list multiple situations supporting imagination. Using this information, they will develop and use three opportunities over the course of a week in which they imagine for fifteen minutes. Then they will reflect on those experiences and the impacts in their creativity log in at least one fully developed paragraph.

Standards:

- 100% credit: Student reflects in detail, upon their experience and the impacts of using their imagination for fifteen minutes, three separate times, over the course of the week. This reflection is at least one full paragraph.

- 75% credit: Students reflects upon their experience and the impacts of using their imagination for fifteen minutes, three separate times, over the course of the week. This reflection is one paragraph and lacks details.
- 50% credit: Students reflects upon their experience and the impacts of using their imagination for fifteen minutes, two separate times, over the course of the week. This reflection is one paragraph and lacks details.
- 0% credit: Students reflects upon their experience and the impacts of using their imagination for one time, over the course of the week. This reflection is one paragraph and lacks details.

Case for Creativity

I often need to make a case for creativity when speaking to people in my community. I developed a written case for creativity to ground and crystalize my thinking about our need for creativity in both society and education. I developed it through my feedback conversations, research, and documentation that various instructors sent me.

This was an interesting and fun product to put together. I broke my research into multiple arguments to cover the span of thinking on this topic. When talking to community members about what creativity is and how they already use it, I will focus on the power of creativity as a problem-solving method that improves mental health. I was especially excited to find research completed during the pandemic, indicating that well-being increased when people identified problems, produced ideas, and developed solutions. “The results of the study add evidence to the positive hidden potential of creativity (Richards, 2007; Kaufman, 2018), thus having profound implications for crisis management, personal development, and positive functioning of individuals and society” (Tang et al., 2021, p. 13).

I was also intrigued by two studies that examined the impact of openness to new experiences on equitable thinking (Richmond, 2014). “Additionally, creativity research suggests that creative individuals are shown to be less likely to participate in

stereotyping and bias (Tadmor, et al., 2013, p.3).” As a society we need to overcome pervasive inequities and teaching creativity is a vital component.

Several instructors I spoke to needed to make a case for teaching creativity courses at their school. While their process was different than mine, they shared their rational with me in forms of papers and course proposals. The main focuses for why we should teach creativity includes the economic drivers that require students to have a creative edge, the broad proven impacts creativity training has on students, and our need as a civilization to develop responses to new global challenges. When looking for employment as an instructor of creativity I will have to make an argument for why teaching creativity as a subject is important for students. This is important when we consider the need for creative skills in our growing economy. The World Economic Forum (2021, July 2) noted that creativity is becoming more important than knowledge, and potentially even more than intelligence. Appendix F contains the full case for creativity statement and references.

New Course Proposal

Originally, I did not include a course proposal as a product in my project concept. During one of the feedback conversations, a professor asked if I she could see my course proposal. I responded quizzically, “What is a course proposal?” After our conversation I found the College Senate Curriculum Committee portion of the Buffalo State website. The Buffalo State College Senate Curriculum Committee New Course Template (2018) provided context and structure for the course information I created during the process of my project, as shown in Appendix G. I then found new course templates within two local schools’ websites and used my course information to

complete these forms. A completed course proposal is an important next step on my new career path.

SECTION FIVE: KEY LEARNINGS

Throughout the course of my project, my main learning goals of increasing my use of clarifying and developing (FourSight, 2014); learning more about course design and assessment; practicing highlighting the essence (Torrance & Safter, 1999); embracing courage (Williams, 1979); tolerance for risk and using strategic thinking (Puccio et al., 2011) have remained the same. However, due to the shift in my foundational focus, my supporting criteria changed. My description of each product will show how they were originally gauged and how it may have changed over the course of the project

Learning Log

My criterion for the success of my learning log was simple: did it or did it not happen. Journaling was not an integral part of my previous creative process, at least not text-based journaling as I have years of sketch books. However, this new practice has proved to be an invaluable processing tool. I am much less judgmental of my work making it faster and easier to get my ideas out. Editing my work still requires a significant amount of time for me so, I have enlisted help. The process of having my work edited has taught me more about writing mechanics which is making me a better writer than before beginning this program.

Course learning goals

I leaned into my strengths as an implementor (FourSight, 2014) to change my course focus, identify multiple ways to present course content, and engage students.

Building learning goals utilized Torrance's' Highlighting the Essence (Torrance & Safter, 1999) as well as ideation (FourSight, 2014). Narrowing my goal to the basics of creativity was challenging as it contains so many related topics and important aspects. Once I changed my project direction it was necessary to rebuild a course outline using the new learning goals and outcomes for a beginning creativity course. Much of the content remains consistent with the first course outline, however, the activities and assessments have shifted to reflect the basic nature of the course.

Feedback Conversations

My feedback conversations played an influential role in the direction of this project. Two distinct conversations made me realize that I was trying to teach content incompatible with my potential student market. I had a choice to make: Do I continue in the direction of my personal passion, or do I create a new course I was more likely able to teach? After some reflection, I chose to go with my desire to teach over my passion for overtly teaching the neuroscience of creativity. I chose to re-work my course into a basics of creativity course. While this will still utilize my understanding of neuroscience as I introduce students to how their minds work, they will not be directly graded on their understanding of neuroscience.

I had three primary criteria I looked for changes in during those feedback conversations. Those included developing changes in my course, gaining a deeper understanding of academic culture, and enjoying my opportunity to have conversations with creativity instructors. Regarding my learning objectives, I anticipated that these conversations would gradually lead to changes, so I set up a spread sheet to track the feedback and how it was altering my objectives. Establishing learning objectives for a

basics of creativity course was straightforward. I was able to glean information from my previous two years of training and incorporated thoughts from my feedback conversations.

Another criterion of my success was gaining information that supported my understanding of academic culture and career path. During our conversations, I asked each instructor the path they took to get to where they were and, given the current environment in academia, how would they approach today if they were starting fresh. These personal stories added to my understanding of academic culture and career development. I feel like I was given a glimpse behind the magician's curtain (Wizard of OZ reference) into the reality of an academic career.

My last criterion was if I enjoyed talking with instructors and was able to develop more comfort approaching people to ask for feedback. I most definitely did. The opportunity to talk to multiple instructors about their experiences as course developers, mentors, and academics was rewarding and enjoyable. I had underestimated how much fun it is to talk to people about their passion, especially as someone genuinely curious about what they are doing. I feel like I have built a new cohort of colleagues whom I can call on for support or to share my success with. The feedback conversations have been invaluable. I am deeply grateful for the generosity of the busy professionals who took the time to answer my questions and encourage my passion.

Course description

The development of a course description, shown in Figure 5, required my use of Torrance's Highlighting the Essence skill (Torrance & Safter, 1999) and a focus on both

development and clarification (FourSight, 2014). My criteria for the success of my course description were, was it both concise and descriptive. I spent time word smithing to be sure I could say what I intended with as few words as possible while also being clear to bachelor level students. I presented this description to several instructors for feedback, and they felt it was understandable and concise. This description is also versatile enough to present in a course proposal that may change depending on the school and program I teach in.

Structures for course design

At the beginning of this project, I thought I would combine the Torrance Incubation Model, Bloom's Taxonomy, and particular creativity skills into the framework of my course. However, new learning in Buffalo State Adult Education Instructional Design and Assessment course provided detailed structures needed for adult course development. Using the model of Andragogy (Cercone, 2008) and the Twelve Steps for Integrated Course Design (Fink, 2013) enabled me to build a more robust and potentially effective course.

Course learning objective, criteria, and standards

This was a product that I had planned, however, the rubric criteria shifted significantly. I had planned to measure these by tracking Positives, Potentials, Concerns, and Overcoming concerns through each iteration. Once I changed my course focus, I used my strengths as an ideator (FourSight, 2014) and techniques from Creative Problem-Solving (Puccio et al., 2012) to rebuild a course outline, explore new course objectives, and develop them into effective learning goals.

The information I learned from the Buffalo State Adult Education Instructional Design and Assessment course made it clear that my early learning objectives were not measurable or specific. Dr. Mike, the instructor for the Buffalo State Adult Education Instructional Design and Assessment course, helped me perfect my understanding of writing learning objectives. Although building learning goals and objectives that fit a precise department within a school was not required for my project, I found the structure within the chaos helpful. This learning and Highlighting the Essence (Torrance & Safter, 1999) will make my course better understood by students due to the clarity and specificity of my learning objectives.

New learning in Buffalo State Adult Education Instructional Design and Assessment course pointed me to the Science Case Network (n.d.) that provided a specific structure for the creation of activity level learning objectives. This structure includes the condition (what is given to the learner before expected objectives are met), the measurable behavior that provides evidence of learning, and the criteria for success (what am I measuring the evidence of learning by). An example of this structure, pertaining to my course is shown in Figures 6, 7, & 8.

Using this structure made it easier for me to think about how I can measure the behaviors I desire. Quality Matters (n.d.), a collaborative course review structure, provided checks for how well learning goals, outcomes, and objectives are written as well as identifying what is essential to include and how to keep the learner the focus. This rubric will be quite useful in the future when I am able to fully develop this course for a particular school, department, and market.

I have built activities and assessment strategies that enable students to recognize their innate creativity, understand creativity as both intuitive and intentional processes, and grow in their creative abilities increasing their creative agency.

Case for creativity spreadsheet

My criteria for this product's success were: "Was it informed by my feedback conversations?" and "Can I use it to make a case when talking to schools where I might teach?" I believe in both cases the answer is, yes, it most definitely was informed by my feedback conversations. Several professors mentioned the rational they used when proposing creativity courses, such as economic drivers and social emotional learning, and those arguments (with further research) were included in my case.

Researching the topics also provided a broad overview of the arguments used and I incorporated them all into my statement. I am also considering creating a tri-fold pamphlet that I can leave after an in-person conversation using this information. The pamphlet might be an effective way to introduce creativity, extend the conversation, and advertise what I am offering to a school.

SECTION SIX: CONCLUSION

Through this project I have explored how creativity works in my mind and how can I better train others to use their creativity. While the focus to my course changed, my passion for explaining, in a simple and engaging way, why our minds work the way they do is not deterred. My students will be introduced to how their minds work and how that impacts their ability to be creative.

Creativity can be messy and uncomfortable

All processes that build new results illicit change and change can be messy and uncomfortable. This is something I previously learned in my studio as a ceramic artist. Ceramics can be overtly messy, and I discounted the potential messiness of the intellectual creative processes. While chaos and churn are common in my artistic process, I think the key difference was my inability to anticipate the chaos during this project. There were more iterations due to the bigger shift to my course focus during this project than I would experience when building a ceramic sculpture. I tell my kids that if they are mildly uncomfortable or frustrated then they should check for evidence that they are learning something. Applying that to my own experience, I learned a great deal through this process.

There were multiple times in the project where I had to find a way get re-grounded. I felt like there were too many unknowns and I had no idea what to do next to provide clarity. I found that reaching out to my cohort was useful when I needed perspective. I had several friends who were able to remind me of my passion and reignite my desire to get back to work. I also found that incubation was an essential part

of my process, something I had not appreciated. Taking time away from the work was just as valuable as working, sometimes even more so.

Creativity takes courage

Creativity takes courage for all sorts of reasons. Working without prescribed constraints is one kind of courage and for me reaching out to people I admire is another. I have built courage (Williams, 1979) or tolerance for risk (Puccio et al., 2011) through the process of approaching instructors and asking for feedback. I asked for feedback about my course outline, its content, and the potential student market. I also asked questions about becoming an instructor. Hearing the individual stories of paths they each took to reach their current position was informative and enjoyable. It reminded me to look for the joy in the process. Creating personal connections with instructors helped me to develop greater courage when approaching others and asking for feedback.

Writing has always intimidated me, and this project was an intensive writing process. Applying for this program was an act of courage and trust in myself that I could learn what I needed to complete it. The rhythm of writing is different for me than artistic creation or creative problem solving. However, I am finding that writing is less intimidating and more useful than it was when I began this program. I have become better at writing while deferring judgement, providing me with much more content to edit. I am also finding that I am making connections as I write and I can record those as I go, some of which are valuable insights. I found this especially true in my learning log. I was able to write what ever came to mind so when I went back to it, I was able to notice patterns and idea development.

Creativity requires community

While I have found collaboration and discussion enjoyable parts of my artistic creative process, I did not consider them essential before. I now believe, despite my introversion, I found my limit to how little community interaction I can have and be creatively successful. My need for more community contact was based on several things. Intellectually heavy creative work was new to me. As a beginner and to normalize my experience, I realized that I needed more contact with others to hear what they were doing and how they were struggling. I craved more collaborative play time with ideas. I did not need more feedback on my work, I simply needed more time to talk about what was going on in my head. Over the course of the project my feedback partner and I have met regularly, which was quite helpful. I have also reached out to create other connections that might feed that need. In the same way I have connections with several artistic communities, I need to also build a creative community that will support my intellectual projects moving forward.

I am pondering how to build creative community in a learning environment. Building creative community is tricky. We are trained to know the rules required in a typical learning environment. Making a shift to a creative learning environment requires some of the same components such as clear communication, social boundaries, participation options, and empathetic feedback. I think the required tolerance for risk is higher and we must take ourselves less seriously. With playfulness in mind, I asked myself “How might I create course activities and assessments that are fun and novel?” I plan to incorporate activities from my artistic experiences, devised to foster experimentation, iteration, and collaboration. These activities encourage students to let

go of their focus on rightness and move towards a focus on effective and useful, both personally and as a community. As I continue to explore ways to teach creativity, I will also be expanding my understanding of building creative community.

Creativity takes time

As I mentioned in my opening, I come from an artistic ceramic sculpture practice. After many years I have developed a process and rhythm that works well for me. I learned when to diverge to develop new ideas and solve challenges and when to capture new ideas with sketching instead of incorporating them into a current work because it is time to converge and finish. This project has reminded me of how time-consuming creativity was when I was a beginning artist. I had taken for granted how much energy it takes to be creative as a beginner.

Being a beginner again, was a valuable reminder that creativity creates change, and when we change it takes time. As an instructor I need to be empathetic to the beginner's space that my students will inhabit and pace how much change I ask of them. I will need to incorporate more summative assessment opportunities to check in with students and gauge their flexibility and learning capacity. Perhaps doing something I have not done before each quarter would help me retain that beginner's mindset.

Change Leadership

Change leadership is based on one's knowledge of the needs of others. I went into the project thinking that I could share my passion with others and that would change how they thought about creativity and by extension change how they operated in the world. However, by starting with myself I limited my potential to impact others.

Change leadership starts from understanding the change others want to make. To put it in hiking terms, my initial course outline was like an overview of the valley halfway up the mountain. It was a beautiful view; however, my students were waiting for me at the trail head (or at Starbucks down the street from the entrance to the nature preserve).

Change leadership is the planning, building, and management of processes that enable change. I have come to see education as change building. Instructors are change leaders simply by introducing new ideas and content to students who integrate that into their current understanding and experience. Andragogy, the theory of adult education (Cercone, 2008), says that adult learners often have a problem they are fixing that drives them to seek out learning opportunities. Application of added information needs to be tied to personal experience and to help them solve current problems. Creativity is a perfect fit for this sort of education as it can apply to so many challenges.

Next steps

I started this project thinking that it was the capstone to my time here at Buffalo. While that is true, I now understand that it is also another step in my future development. I have multiple ways I hope to build on this project and given my constant generation of ideas, I will have no shortage of ways to apply this current learning. I will continue to build the course learning objectives, activities, and assessments to prepare to teach this course. I hope to use the same learning objectives to develop an online version of the course that I can offer either synchronously or asynchronously (I have yet to decide which modality would be best for me and my students).

I see myself teaching either an online course or a continuing education class in the fall using the course outline I developed. That experience will give me the

opportunity to revise my course and better understand the needs of a particular group of students. I will extend my learning, after completion of my project, by talking to colleges about the potential impact that creativity courses could have on their students and brand, guided by the case for creativity courses I have built. I want to develop course environments and processes that enables students to recognize their innate creativity, understand creativity as both intuitive and intentional processes, and grow in their creative abilities increasing their creative agency.

I am considering continuing to a PhD. program in the future. I enjoyed my time as a student and would like the opportunity to do deeper research in specific areas of interest. If I had a PhD. then I would have a better chance of teaching my passion in creativity and neuroscience at the college level.

I want to establish myself as a creative change leader through the development of college creativity courses. As an extension of this work, I see myself creating a community survey to get a better understanding of what my community believes creativity to be and how they use it. This will inform my search for a school to teach with and potentially the way I position an online course. This will also give me ideas of what needs to change and how I might approach starting those changes as a leader in this field.

As I mentioned in my opening, I am interested in changing the way my community views creativity. While I cannot compare myself to Big C creatives working to change cultural paradigms, I can now imagine the isolation that being the only person working towards a particular goal can cause. That leads me to a handful of curiosities that I want to explore. Curiosities such as: How could I build a support system to meet

my need for collaboration? How could I chunk my work into small enough goals so I can work with others to complete them? Are there be other people, that would like to work with me to create paradigm change and how could I find them? How do I build a creativity community?

These questions and curiosities bring me back to the beginning of another creative process. I have gained confidence in asking for feedback and in my written expression, developed new perspectives on the need for community throughout a creative process, and deepened my appreciation for the importance of a beginner's mindset. As I begin another creative cycle in my creative journey, I am energized by the courage I have developed through this experience.

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APPENDIX A

Learning Log Abbreviated

1/3/2022

- Mind mapped the possibilities for my master's project. Gave a good week over to incubation and continued to track my ideas on the mind map. I have no problem seeing many ways to use this material I have collected from the Drexel project last fall.

1/9/2022

- After chatting with Kelly, I realized several things.
    - I am putting too much weight on this project. This is a step in the process of becoming, not the end point.
    - I love new shiny ideas. I love how they intrigue me, and I get quite excited about all the possibilities. What comes next is the challenging work, for me, of development. And some scary work of putting myself out into the world in ways that I may get rejected.

1/16/22

- Developing the timeline and evaluation of the project helped me to hone my production and project. I tend to want to do it all at once. Trying to do less, will give me more time to develop what I do into a better product.

1/23/22

- Talking to Tati about my project was immensely helpful, as usual. She reminded me that I am a student approaching professors for help. I have some fan girl stress going on.
- The main reason I choose conversations for feedback was to make sure I was clear and that I am seeing the situation I am wanting to go into (teaching at a college level) clearly.

2/7/2022

- My adult education course will be a huge help for what I am doing this quarter.

2/14/22

- I love that teaching adults not only feeds me, when I have done it in the past, and it may feed the intellectual inside of me dying to have company.

2/16/22

- This last couple of weeks has been a whirlwind. I have landed a teaching job at KAC which I had not intended to get. I was not expecting the opportunity.

2/17/22

- Thank you to Dr. Keller-Mathers for helping me to refocus on what I intended to do from the beginning. Cutting back on feedback interactions will make my project better by giving me more time to hone the content.
- I found a serious gap in my planning when I was going over my products rubric. I have precise definitions for what success looks like and many of those are not in my timeline. So, while I had thought out how to measure my success and I had not put the work in my workplan. Big, big gap!

2/24/22

- Met with our group this morning to chat about projects. That is helpful to hear where others are and what they are doing. Their excitement provides momentum.

3/7/22

- I have reflected on a conversation and the explanation of how courses are developed was quite helpful. I learned that a professor could suggest a 'topic' course that might be taught once or twice. Past that the course needs to be reviewed by the department and then by the university

assembly. That includes representatives from each department that are the gatekeepers for their departments content. Each representative makes sure that new courses do not overlap too much with their department's courses. I did ask how collaboration works. And while that does not seem to happen often, when it does it requires that both departments sign off on it. And that the course be defined enough that either department could teach it and it would be the same course.

3/9/22

- Conversation with Dr. yesterday recommended some basic additions like a brain 101 unit to get students oriented to the "space" we would be working in and adding amygdala high jacking to my list. I have creativity enhancers but not creativity blockers in my topic list.
- Dr. feedback was especially useful. The course I am building is a master's level course for those that are already creatively knowledgeable. For BA the neuroscience is too much. Dr. recommended that I consider more basic information like creativity and problem solving for first-year student. Other options might be creativity and innovation for a business focus or creativity and well-being/mental health for psychology or general students. Or a becoming more creative course for general consumption.
- I am going to ponder the possibility of changing my focus to build something that I could teach, versus continuing on the path of building a course I would not get to teach.
- The question is which goal is more important? Do I want to have something that may get me a teaching gig? Or do I want to pursue my curiosity?
- I think changing the course focus is my best bet.

3/17/22

- Dr. started by teaching a continuing education course and consulting with the community college, taking CPS out to local business for the college. Over time she got to know staff at the school and started to do some work with the departments staff regarding incorporating creativity training into their courses and using it to solve problems in the departments. She was able to migrate her course into an academic credit course that was a general elective. Over time this elective has become a requirement for some programs and is still a general elective for all students.

3/23/22

- I have created a "workbook" based on the Fink outline of how to create online courses. This is from the literature in the adult education course. Working through this has really helped to clarify the goals for the course and what steps I should take next.
- I have mostly finished the Course Learning Goals and am moving on to the unit/module learning outcomes. While I am wanting to make these "perfect" I am reminding myself that this is a draft that I can use to start conversations.

3/26/22

- Ok overwhelm time. I realize this is a natural part of the process and I will work through it. However, I now have 2.5 weeks until sections 4 – 6 are due and I do not have enough done to write up something.
- This process has been about
    - Defining and redefining what is possible
    - Managing my own health and wellness
    - Trying to stay focused on something that is not my favorite thing to do.
- I adapted the new course proposal worksheet to suit the information that I want to show prospective schools.

- A conversation with Dr. M has gotten me back on track with some structure. He provided me several examples of course proposals and links to find course development information.

3/29/22

- I have spent this weekend churning away at the large mass of writing I need to do. I always avoid writing as it is not super easy for me.
- Talking to Dr. was great. Networking! Look up people who are doing work that interests me. Find the school they are affiliated with and talk to them. She says that nothing can replace a Zoom meeting. Calls are great, but she gets a better sense of the person via Zoom. Like Dr., she recommends talking to people.

4/5/22

- There are times I do not want to learn new things.

4/9/22

- I am getting much faster at making choices about what should go in and what I should leave out of my paper.

APPENDIX B

Course Learning Goals Iterations January 2022 – May 2022

1/03/22 Neuroscience of Creativity Course Learning Goals

- Defining creativity broadly as both intentional and intuitive innate processes
- Identify and overcome blockers to creativity
- Developing a neuroscience-based understanding of creative cognition
- Utilizing meta-cognition to direct creative cognition
- Recognize and utilize multiple mindsets conducive to creative processes
- Integrate flow, insight, mindfulness, and incubation into personal creative practice
- Practice collaborative creative processes
- Create a tool kit of creative thinking ideation strategies based in an understanding of neuroscience

1/27/22 Neuroscience of Creativity Course Learning Goals

- Define novelty
- Develop criteria for solution success
- Neuroscience of creativity
- Evaluating ideas for novelty, effectiveness, and surprise
- Retaining novelty throughout development and implementation
- Preparing the environment
- Stay focused and get it done
- Fostering curiosity and wonder
- Defining creativity broadly as a problem-solving process
- Utilizing meta-awareness of personal creative process
- Building a tool kit of creative thinking strategies
- Building broader personal identities as creative individuals

2/10/22 Neuroscience of Creativity Course Learning Goals

- Defining creativity broadly as both intentional and intuitive innate processes
- Developing a neuroscience-based understanding of creative cognition
- Utilizing meta-cognition to direct creative cognition
- Integrate flow and incubation into personal creative practice
- Building broader personal identities as creative individuals
- Create a tool kit of creative thinking ideation strategies based in an understanding of neuroscience

3/8/22

- Defining creativity broadly as both intentional and intuitive innate processes
- Identify and overcome blockers to creativity
- Developing a neuroscience-based understanding of creative cognition
- Recognize and utilize multiple mindsets conducive to creative processes
- Integrate flow, insight, mindfulness, and incubation into personal creative practice
- Practice collaborative creative processes
- Course Project - Create a tool kit of creative thinking ideation strategies based in an understanding of neuroscience

3/12/22 What do I want my students to know about creativity basics in three years?

Learner's will be using their innate creativity as a problem-solving tool that can be improved, through learning experiences and practice.

Learning Goals

- Creativity appropriateness
- Interpret creativity as innate and learnable.
- Demonstrate use of multiple intentional creative problem-solving tools
- Creative Definitions and models
- Methods
- Creative process
- Building a tool kit of creative thinking strategies
- Building a creative environment
- Integrate flow, insight, mindfulness, and incubation into personal creative practice
- Building broader personal identities as creative individuals

3/18/22 Course Learning Goals, Unit Learning Outcomes, & Learning Objectives

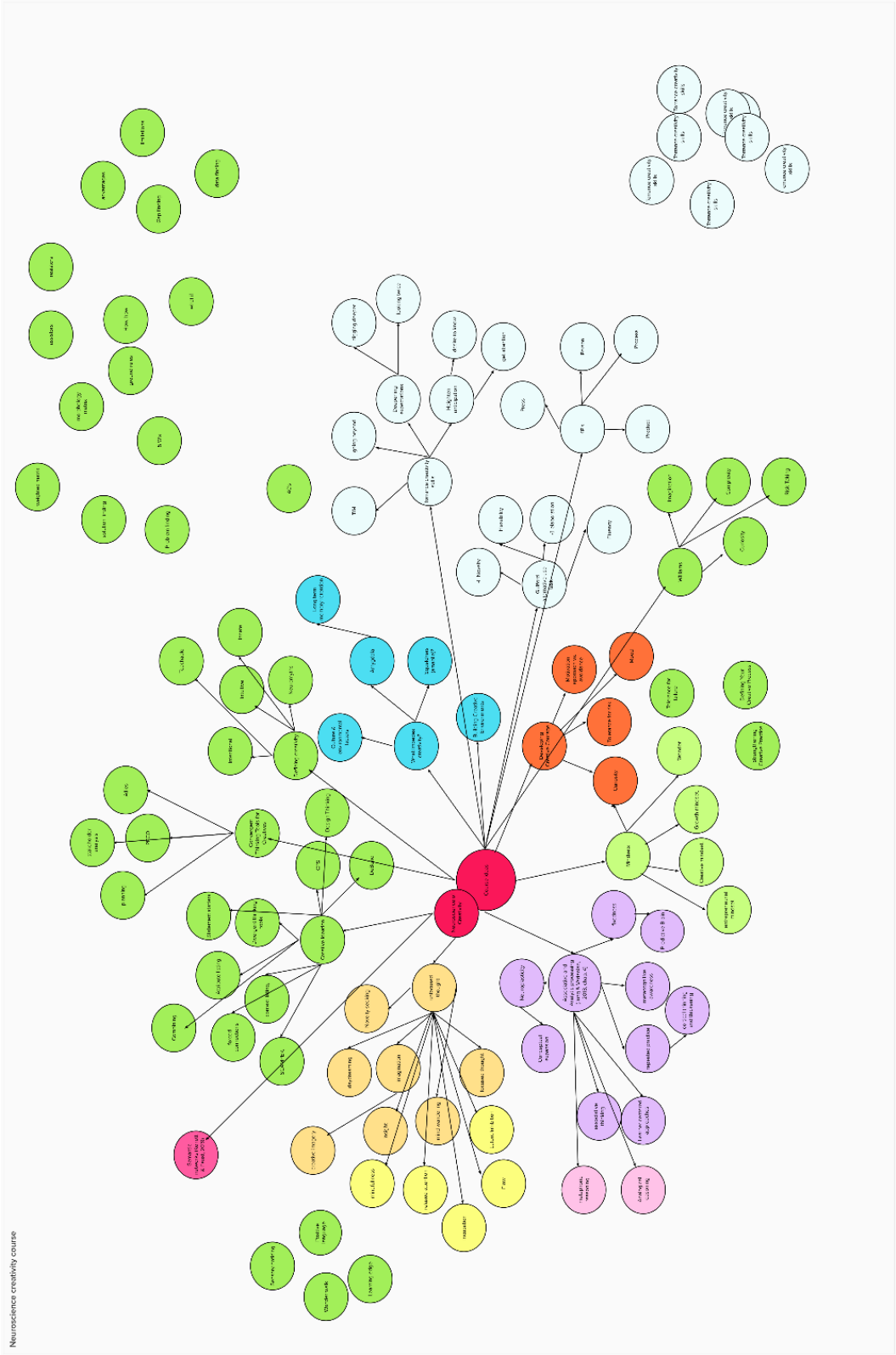
- Recognize multiple creativity models and methods.
- Identify creative solutions in their own lives and world.
- Apply the creative process to both personal and group challenges.
- Analyze, select, and facilitate creativity tools in small groups.
- Summarize and diagram their personal creative process.
- Detect factors that support/enhance and inhibit creativity.
- Exemplify greater comfort with risk taking and failure.
- Employ various tactics and tools during personal and group creative process

3/28/22

- Examine creativity (myths, characteristics, definitions, models, & methods)
    - Distinguish creativity myths
    - Discuss various creativity definitions
    - Explain when creativity is the appropriate type of problem solving
    - Relate personal examples of creativity to academic creativity models
- Identify and expand creative solutions in their own lives and world
    - Distinguish daily creativity use
    - Inventory creative solutions in our world
    - Examine when they could apply more creative problem solving
- Summarize, diagram, and reflect on their personal creative process
    - Construct a personal creativity definition
    - Differentiate between flow, incubation, and insight
    - Illustrate their personal creative process
    - Reflect upon changes in personal beliefs about creativity
    - Interpret creativity as an innate set of abilities that are learnable and teachable
- Detect factors that lead up to support or enhance and inhibit creativity.
    - Detect factors that support or enhance creativity
    - Detect factors that inhibit creativity
- Apply the creative process to personal challenges
    - Create effective questions to guide ideation
    - Utilize meta-cognition, divergent and convergent thinking in the appropriate settings
    - Produce solutions that have retained novelty through iterative development.
- Analyze, select, and facilitate creativity tools
    - Distinguish the appropriate tools to use in each phase of the creative process
    - Facilitate a small group creativity tool
- Exemplify greater comfort with risk taking and failure
    - Describe starting comfort with risk taking and failure
    - Describe ending comfort with risk taking and failure
    - Appraise the factors involved with change
    - Employ various tactics and tools during personal and group creative process

APPENDIX C

Creativity and Neuroscience Course Mind Map



APPENDIX D

Course Description Iterations

January 2022

This course will utilize our current understanding of neuroscience to support the development and implementation of creative ideas, building innovation.

February 2022

Through this course you will learn tools and actions that you can take to create the ideas you can come up with and better identify yourself as a creative person. You will develop a personal definition for creativity, build creative thinking habits, understand how your creative mind works, and strengthen your curiosity.

February 23, 22

This course looks at the neuroscience which underlies creative problem-solving, flow, memory, mindfulness, and insight. Neuroscience based strategies for improving defining of problems, finding of ideas, utilizing multiple mindsets, and developing creative ideas into innovations will be explored. Students will develop facilitation skills in creative problem solving, integrate creative thinking habits, understand creativity as an innate intentional and intuitive process, and build creative tools kits for the future. Students demonstrate understanding through interactive, collaborative, and personally relevant projects.

March 1, 2022

This course looks at the neuroscience which underlies creative problem-solving. Neuroscience based strategies for improving defining of problems, finding of ideas, utilizing multiple mindsets, and developing creative ideas into innovations will be explored. Students will demonstrate understanding through collaborative and personally relevant projects in creative problem solving and building creative thinking tools kits for the future.

March 30, 2022

This course inspects and applies creativity through personal and group experiences. Ties to flow, innovation, creative environments, and curiosity are explored. Developing facilitation skills in creative problem solving, integrating creative thinking habits, and building creative tools kits for the future are introduced. Students demonstrate understanding through interactive, collaborative, and personally relevant projects.

APPENDIX E

Fink (2013) Adaption of Course Development Worksheet

Initial Design Phase: Build Strong Primary Components

Step 1. Identifying important situational factors

What is the special instructional challenge of this course?
General Context of the Learning Situation/What is expected of the course?
- By students?
- By the department?
- The institution?
- The profession?
- By society at large?

Specific context of the teaching/learning situation?
How many students?
Is the course lower division, upper division, or graduate level?
How long and frequent are the course meetings?
How will the course be delivered: live, online, or in a classroom or lab?
What physical elements of the learning environment will affect the class?

Nature of the Subject

Is this subject primarily theoretical, practical, or a combination?
Is the subject primarily convergent or divergent?
Are there significant changes or controversies occurring within the field?
Characteristics of the Learners
What is the life situation of the learners (e.g., working, family, professional goals)?
What prior knowledge, experiences, and initial feelings do students usually have about this subject?
What are their learning goals, expectations, and preferred learning styles?

Characteristics of the Teacher

What beliefs and values does the teacher have about teaching and learning?
What is his/her/their attitude toward:
The subject?
The students?
What level of knowledge or familiarity does she/he/they have with this subject?
What are his/her/their strengths in teaching?

Step 2. Identify important learning goals

What do you want students to learn by the end of the course, that will still be with them several years later?

Foundational Knowledge

What key information (e.g., facts, terms, formulae, concepts, principles, relationships, etc.) is/are important for students to understand and remember in the future?
What key ideas (or perspectives) are important for students to understand in this course?

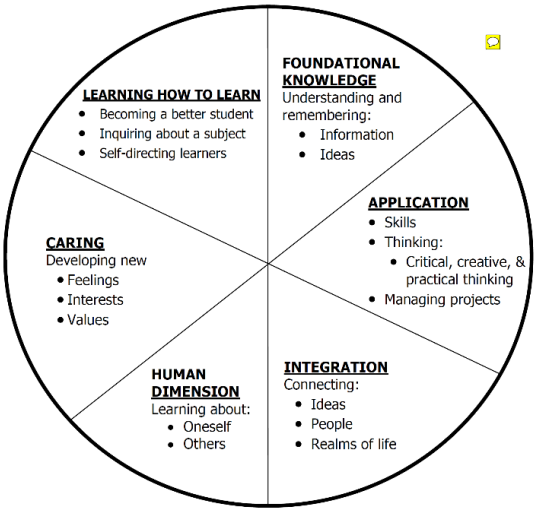
Application Goals
What kinds of thinking are important for students to learn?
Critical thinking, in which students analyze and evaluate
Creative thinking, in which students imagine and create
Practical thinking, in which students solve problems and make decisions
What important skills do students need to gain?
Do students need to learn how to manage complex projects?

Integration Goals
What connections (similarities and interactions) should students recognize and make
Among ideas within the course?
Among information, ideas, and perspectives in this course and those in other courses or areas?
Among material in this course and the students' own personal, social, and/or work life?

Human Dimension Goals
What could or should students learn about themselves?
What could or should students learn about understanding others and/or interacting with them?

Caring Goals
What changes/values do you hope students will adopt?
Feelings?
Interests?
Ideas?

Figure 1
A TAXONOMY OF SIGNIFICANT LEARNING



Learning How to Learn Goals
What would you like for students to learn about?
How to be diligent students in a course like this?
How to learn about this subject?
How to become a self-directed learner of this subject, i.e., having a learning agenda of what they need/want to learn, and a plan for learning it?
Think expansively, beyond "understand and remember" kinds of learning.
Suggestion: Use the taxonomy of "Significant learning" (Figure 1) as a framework.

<u>Step 3. Formulate appropriate feedback and assessment procedures</u>
What will students have to do, to demonstrate that they have achieved the learning goals (as identified in Step "2" above)?
Think about what you can do that will help students learn, as well as give you a basis for issuing a course grade.
Suggestion: Consider ideas of "Educative Assessment."

Forward-Looking assessment: what situations will students need this skill in? Replicate this context in the open-ended activity or question. Formulate one or two ideas for forward-looking assessment. Identify a situation in which students are likely to use what they have learned, and try to replicate that situation with a question, problem, or issue.

Criteria & Standards: Clearly explain the criteria and standards used to assess work. Select one of your main learning goals and identify at least two criteria that would distinguish exceptional achievement from inferior performance. Then write two of three levels of standards for each of these criteria.

Self-Assessment: generate appropriate criteria for self-assessment. What opportunities can you create for students to engage in self-assessment of their performance?

Forward Assessment requires "FIDeLity" Feedback*:* What procedures can you develop that will allow you to give students feedback that is:
Frequent
Immediate
Discriminating (based on clear criteria and standards)
Kind

Step 4. Select effective teaching/learning activities
What would have to happen during the course for students to do well on the Feedback & Assessment activities?
Think creatively for ways of involving students that will support your more expansive learning goals.
Suggestion: use "Active Learning" activities, especially those related to:
Active-learning advocates Bonwell and Eison (1991) describe active learning as "[involving] students in doing things and thinking about the things they are doing."
"Rich Learning experiences" in which students achieve several kinds of significant learning simultaneously.
"In-depth Reflective Dialogue" opportunities for students to think and reflect on what they are learning, how they are learning, and the significance of what they are learning.
Assemble these activities into an effective instructional strategy, i.e., an interdependent sequence of learning activities, and a coherent course structure.

Step 5. Make sure the primary components are integrated
Check to ensure that the key components (Steps 1 – 4) are all consistent with and support each other.

Intermediate Design Phase: Assemble the Components into a coherent whole
Step 6. Create a thematic structure for the course
Step 7. Select or create an instructional strategy
Step 8. Integrate the course structure and the instructional strategy to create an overall scheme of learning activities

Final Design phase: Finish important remaining tasks
Step 9. Develop the grading system
Step 10. De-Bug potential problems
Step 11. Write a course syllabus
Step 12. Plan an evaluation of the course you are teaching

Fink D.L. (2003). *A Self-directed guide to designing courses for significant learning*. San Francisco: Jossey-Bass.

APPENDIX F

Case for Creativity

As educators, we need to provide our students a creative edge. Creativity is a teachable and learnable set of skills that have economic value, improve equity, increase well-being, and deepen learning. We can hone our student's creative edge through overt creative problem-solving education. Building engaging open-ended and personally impactful problem-solving opportunities into all domains and providing both resources and guidance as our students enables them to create novel solutions to challenges.

Creativity is a driving economic force

According to World Economic Forum's Future of Jobs Survey in 2018, creativity, originality, innovation, collaboration, empathy, and complex problem-solving will all be essential skills needed in the workforce (Whiting, 2019). Significant economic growth has come from the creative economy driving knowledge transfer and innovation (UNCTAD Creative Economy Program). The Covid19 pandemic has forced robotic automation to move faster than previously predicted making quintessentially human skills, like creativity, even more important to our future workforce. "Success for the next generation of workers will come down to making an impact in ways robots cannot (Belsky, 2020, para. 7)." While its commercial value is often mentioned, the cultural value should not be discounted.

Creativity increases equity

Teaching our students specific creative strategies in problem-solving can change their approaches to design, communication, and collaboration. The creative economy thrives on diverse individuals and cultural expressions (Verkerke & Callanan, 2018). It builds equitable opportunities by giving voice to groups previously muted economically. Studies by Richmond (2014) show that openness to new experiences is not only part of a creative mindset they are also key to developing equitable thinking. "Additionally, creativity research suggests that creative individuals are shown to be less likely to participate in stereotyping and bias (Tadmor, et al., 2013, p.3)." As a society we need to overcome pervasive inequities and teaching creativity is a vital component.

Creativity improves wellbeing

Creative practice also has personal impacts. Creative thinking and activity are associated with higher mood and sense of self-actualization, as found in a meta-analysis by Acar et al. (2020). In a cross-cultural study, Tang et al. (2021) found that identifying a problem, producing ideas to solve it, and developing solutions increased well-being during the COVID-19 pandemic. "The results of the study add evidence to the positive hidden potential of creativity, thus having profound implications for crisis

management, personal development, and positive functioning of individuals and society" (Tang et al., 2021, p. 13).

Creativity enhances learning

Greater cognitive flexibility, which is enhanced by creativity training, has more impact on student success in school, entrepreneurial success in business, or worker ability to collaborate than intelligence (World Economic Forum, 2021). Many studies have pointed to student's improved content memory, decrease in absenteeism, personal engagement, improved math and reading scores, and increased social emotional skills when lessons are presented in creative ways (MINDPOP, 2017).

Creativity can change the world

Our VUCA world requires us to adjust to an elevated level of change while faced with global problems (Puccio & Lohiser, 2020). Given that history can no longer provide solutions to all our pressing challenges, we must rely on our innate creative abilities to adapt and develop new and effective solutions. "Ultimately too, the creative economy has influential power to inspire present and future generations, to protect our planet, people, cultures and natural resources and therefore contribute to a more sustainable development path" (UNCTAD Creative Economy Program, p. 11).

Creativity is good for us personally and our communities. Empowering the innate creative potential of every student, providing them a creative edge, can change our world.

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APPENDIX G

Buffalo New Course Proposal Adaption

New Course Proposal

Course Information

Name of Course

Creativity Basics

Prerequisites

None

Frequency of Offering

Fall and Spring

Catalog Information

Course Description

This course inspects and applies creativity through personal and group experiences. Ties to flow, innovation, creative environments, and curiosity are explored. Developing facilitation skills in creative problem solving, integrating creative thinking habits, and building creative tools kits for the future are introduced. Students demonstrate understanding through interactive, collaborative, and personally relevant projects.

Reasons for Addition

Creativity has been a buzz word for several years and for good reason. Creativity is a driving economic force, increases equity, improves wellbeing, enhances learning, and can change our world. As educators, we need to provide our students a creative edge. Creativity is a teachable and learnable set of skills that have economic value, improve equity, well-being, and learning changing our world. The skills gained in this course can be applied to multiple domains. Improved personal problem solving has shown to increase well-being. Openness to experience, a key component of creativity, increases equitable thinking. Our creative economy continues to grow and has a high need for workers with creative skills.

The addition of a lower division creativity course will introduce students to basic creative concepts, theories, and methods. Students will increase their innate creative capabilities through class discussions, personal reflection, experiential activities, and real-world application. Leaving the course students will have developed personally relevant definitions of creativity that can be applied to challenges and engaged in both personal a group problem solving experiences utilizing multiple creative tools and tactics.

Creativity is good for us personally, our communities, and our world. Empowering the innate creative potential of every student will provide them a creative edge in work and life.

Course Outcomes, Content, Assessment

Student Learning Outcomes	Course Content References	Assessment
Students will:		
Examine creativity	I, II	Written responses, Group discussion,
Identify creative solutions in their own lives and world.	I, II, V	Journal, written responses, Blog post
Reflect on their personal creative process.	I, II, III	Personal reflection, Journal, illustrated diagram, written responses
Detect factors that lead up to, support or enhance, and inhibit creativity.	I, V	Group discussion, written response, Info graphic
Apply the creative process to personal challenges.	II, IV	Journal, Group discussion
Select creativity tools	II, IV	Group activity, Group discussion, Written analysis, Tool trading card, Build a personal tool kit
Facilitate creativity tools	II, IV	Group activity, Personal reflection, “Sell your tool” exercise
Exemplify greater comfort with risk taking and failure.	I, II, III, IV, V	Personal reflection, Journal

Course Content

I. Creativity explained
   a. Myths
   b. Definitions
   c. Characteristics
II. Creativity Models & Methods
   a. Models
   b. Methods
III. Creativity assessments
   a. Remote Association Test
   b. FourSight
IV. Creative Problem-Solving Techniques
   a. Divergent
   b. Convergent
   c. Question starters
V. Creative Environments
   a. Supporters
   b. Inhibitors

Resources

Scholarship:

This may include both classic and recent ((within the last five years) articles and books. Include at least ONE page of references (in total). List at least 5 resources from the past 5 years.

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Electronic and/or Audiovisual Resources:

List resources and/or internet addresses for materials that can be accessed through Butler Library or other available student resource support services. Remove hyperlinks

Spencer, J. (2016, March 6). We need a bigger definition of creativity. https://www.youtube.com/watch?v=MTCOExd0hDk

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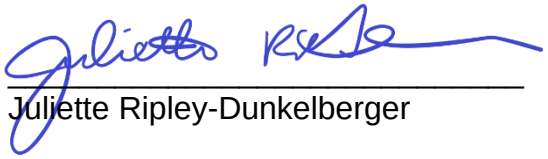
I hereby grant permission to the International Center for Studies in Creativity at Buffalo State college permission to place a digital copy of this master's Project Developing a Bachelor's Level Creativity Course Outline Through an Understanding of Neuroscience as an online resource.



Juliette Ripley-Dunkelberger

May 10, 2022

Date