

Implementing a Non-placement Work-Integrated-Learning Experience in a Micro-credentialed Curriculum

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ABSTRACT

COVID has continued to adversely impact the *raison d'être* of a University's value proposition - to prepare, develop and equip students with transferable critical thinking skills, improved collaboration opportunities, and useful contact capital, to enhance employment opportunities. As part of a collaborative strategy to address the multiple issues related to "universal career shock", the implementation of an andragogical response is required to assist students with limited or no employment experience. A non-placement initiative is currently being piloted to assist student completion of internship-like projects. Created as a direct response to the Federal Workforce Development Strategy announced in November 2020, this Pilot Course was designed to include and assess the success factors of adding a non-placement Work-Integrated-Learning (WIL) opportunity within a particular curriculum employing a Differentiated Instruction design andragogy. This Pilot Course leveraged the efficacies of experiential learning, within a constructivist paradigm, promoting micro-credentialing and persistent progressive profiling. Over a two-semester trial, student acquisition of credential and student placement results were impressive: of a 24-person total cohort: 100% received an OSHA 10 certificate (minimum infrastructure site employment requirement); 22 earned an industry-sponsored, continuing education accredited *Introduction to IT & Cyber Security* certificate; all students earned their FEMA *Work Safety* certificate; 14 students were offered external internship opportunities, while all 4 students jointly enrolled in the Practicum class earned an in-class internship experience with our corporate collaborators.

Keywords: Differentiated instruction, Micro-credentials, Constructivist andragogy, Experiential learning, Non-placement Work-Integrated-Learning (WIL)

1 Implementing a Non-placement Work-Integrated-Learning Experience in a Micro-Credentialed Curriculum

Academic and scientific research has consistently documented the direct impact of the COVID-19 virus (COVID) on Higher Education. Beyond the direct and deleterious effects of the pandemic, COVID restrictions continue to indirectly and adversely impact how students engage in career readiness programs. Moreover, COVID restrictions act as a "career shock" to student job seekers. Career shocks are extremely disruptive events that often cause individuals to rethink career choices and reflect on the next steps.

The implementation of COVID restrictions has arguably created a "universal" disruptive shock beyond the theory's foci (Adams & Mazza, 2022). Expanding the career shock analysis to include universal disruption permits a rethinking of job search methods for similarly situated students. The change in internship availability will impact external



interview placement. This Pilot Course is a response to the “call to action” espoused in a recently “submitted for publication review” article¹: *The Impact of COVID-19 Restrictions on Internship Processes* (Adams & Mazza, 2022), which advocated for the implementation of pedagogical innovation in course designs to address pandemic disruptions.

A non-placement initiative was piloted to assist student completion of internship-like projects. Created as a direct response to the Federal Workforce Development Strategy announced in November 2020, this Pilot Course attempted to design and assess the success factors of adding a non-placement Work-Integrated- Learning (WIL) opportunity within a curriculum employing Differentiated *Instruction* design andragogy. This Pilot Course leveraged the efficacies of experiential learning, within a constructivist paradigm, promoting micro-credentialing and persistent progressive profiling.

1.1 Background

The vision of the Crime, Justice & Security Studies (CJSS) Program at the University of the District of Columbia (UDC) is to prepare students for employment in careers related to justice, emergency management, and security disciplines. The Program's mission is to offer an interdisciplinary curriculum that includes research, software application, and professional practice. The CJSS Program includes two program degree options: an M.S. in *Homeland Security Studies*, and a B.A. in the *Administration of Justice*. This Pilot Course has been introduced at the Undergraduate level.

COVID restrictions hampered efforts to provide students with fundamental experiential learning experiences by limiting internships and Practicum opportunities. A strategy was developed by the CJSS professors to include a non-placement initiative to assist students to complete an internship-like project to satisfy the Practicum class requirement. Somewhat fortuitously, the CJSS Program had begun planning to respond to dual imperatives of a CAS mandate and the Biden Administration's workforce development initiative: *Build it Back Better*². This Pilot Course represented an inter-departmental approach to create an interdisciplinary experience through differentiated instruction tailored to the specific lens through which a student may approach the subject matter.

1.2 CAS Mandate

An internal mandate prescribed by the Dean of the College of Arts and Sciences (CAS) is for educators to design strategies that introduce holistic and interdisciplinary experiences. The available literature correlates the positive impact of an interdisciplinary approach in higher education with student outcomes, though the bureaucratic landscape of a college invites multiple complications such as faculty tenure and promotion, student integration resourcing areas of knowledge from multiple disciplines and professors (Fam et al., 2018; Holley, 2009). To address these potential issues, CJSS faculty created a differentiated instruction curriculum in a course introducing multiple frameworks for

¹ Faculty Senate, University of the District of Columbia, 2021.

² <https://joebiden.com/build-back-better/> 

instruction based on student interest.

1.3 Biden Administration Initiative

Fundamental to developing constructs in educational innovation as educators, Universities must be nimble enough to respond to public policy initiatives. One such opportunity presented itself in the form of the Biden Administration's labor mandate. Informing this Workforce Development initiative is the Administration's reliance on the Obama-era Federal legislation referencing work-based learning strategies:

- Strengthening Career & Technical Education for the 21st Century Act (Perkins V).
- Every Student Succeeds Act of 2015 (ESSA).
- Workforce Innovation and Opportunity Act of 2014 (WIOA).

The Biden Administration has specifically targeted investment in education and training programs that will support the labor force necessary to address issues in the nation's critical infrastructure, particularly in emergency planning, cyber security, and physical structures. In this context, UDC was challenged to develop a curriculum to support these efforts and create experiential learning opportunities. CJSS created the Pilot Course known as *Introduction to Critical Infrastructure (ICI)*. The course specifically aligns with the Biden Administration's chief economic incentive to roll out a Workforce Development plan to address critical infrastructure address issues.

The overall pilot design of ICI leveraged the Department's expertise in the social and behavioral science research areas to increase the pool of culturally, geographically, and ethnically diverse multidisciplinary job applicants who possess highly desired skills. UDC is a designated HBCU with an undergraduate student population that is 61% female and approximately 77% Black, 7% Hispanic, 3% Asian, 0.1% American Indian and 7% White. Approximately 11% of the student body receives services from the UDC student disability office. These characteristics make UDC particularly suited for the development and implementation of a program designed to increase underrepresented communities in the workforce. The curriculum prioritizes and models the instruction, andragogical approaches, and pathways necessary to fulfill the mission of any University - to platform students to sustainable employment opportunities. The class strategy integrated the opportunity to obtain free, entry-level certifications while enabling students to demonstrate minimal proficiency and accelerating access to job opportunities. The course applied innovative multimedia approaches to instruction, including Virtual Reality experiences.

2 Literature Review

WIL is a generic education model that attempts to integrate into a curriculum both the theoretical and practical aspects of a particular career (Patrick et al., 2008). As a methodology embedded in coursework, it must factor in traditional educational considerations: location, duration, and participation requirements. WIL models are executed as "in-placement" exercises (via internships and practicums) or "non-placement" experiences (i.e., simulated industrial scenarios (Jackson et al., 2016). The advent of COVID has compelled educators to explore more compelling approaches to non-placement WILs to augment student employability skills and training.

The existing literature – interestingly, most of which emanates from Australia -

overwhelmingly asserts that the usefulness of a non-placement WIL is in direct relation to its degree of “authenticity” (Jackson et al., 2016; Patrick et al., 2008; Rook & McManus, 2020; Smith et al., 2014; Whelan, 2017; Young et al., 2017; Zegwaard & Rowe, 2019). To be deemed “effective”, the experiences provided to the students should involve responsibilities that closely reflect real-world tasks (Kaider et al., 2017). Exercises that mimic the work of professionals are preferable, particularly ensconced in responsible and ethical leadership dynamics. Assessment functions must evaluate a student’s ability to apply knowledge and skills acquired to solve real-world problems or challenges (Wiggins, 1990).

Despite the success of differentiated instruction at the elementary and high school levels, “there is a paucity of research exploring parallel implementation in higher education” (Santangelo & Tomlinson, 2009). Research supporting the adoption of andragogy techniques that are predicated upon a differentiated instruction design often cites cognitive, cultural, and social challenges that exist as scholars seek to achieve an integrative synthesis within the structured environment in a University (Holley, 2009). The trend in higher education appears to manifest in “blended learning” usually to provide offer a diverse student population flexibility in time and place of instruction (Boelens et al., 2018). This Pilot Course represented an inter-departmental approach to create an interdisciplinary experience through differentiated instruction tailored to the specific lens through which a student may approach the subject matter.

Differentiated Instruction refers to the andragogical approach to address differences in student interests by offering unique learning experiences within a single course (Tomlinson, 1999). Differentiated instruction differs from individualized instruction, in that the learning experience may vary, but the course content, focus, activities, or outcomes are related to the course objective.

Among the methodologies employed to integrate a differentiated instruction paradigm is the implementation of active learning and experiential learning strategies. Active learning is defined as “educational methods in which students are involved in higher order thinking exercises like analysis, synthesis, or evaluation (Samsa et al., 2012). The objective of this approach is to improve the learning experience of students by “deconstructing” discipline elements relative to student characteristics. Concept mapping, problem-solving, and role-playing are all examples of active learning (Felder & Brent, 2016).

Experiential learning (EXL) advocates the process of learning via applied experiences. It provides a holistic approach to the learning process, in a multi-linear application consistent with adult learning styles (Kolb et al., 2001). Defined as “learning through reflection on doing” (Felicia, 2011), EXL techniques provide superior training opportunities in a professional environment. EXL encourages the process of learning and developing applicable skills through a “shared experience” dynamic. The dimensions of experiential learning are analysis, initiative, and immersion; thus, EXL finds a receptive audience among all learning styles (Kolb & Fry, 1975).

Fundamental in the pilot design is a Workforce Development effort intended to address the contemplated workforce needs in the area of addressing issues related to critical infrastructure. The current literature supports two key findings: (1) the failure of

workforce projects can be directly linked to issues of workforce equity; and (2) the most promising approaches are those that linked employers with workers.

A meaningful workforce development strategy must address persistent inequities in the US labor market. To create a more equitable workforce, policies must pivot from established presumptions and instantiate fundamental approaches that “distinguish between equality in the work achievements of the job seeker and equality in the distribution of workforce development resources” (Lam, 2019). Elemental to any workforce development design is the recognition of income and wealth inequality as structural biases that reinforce institutional barriers to employment. The design needs to address “the historical and inter-generational way in which multiple systems, including not only workforce but also education, housing, criminal justice, and others, have created an inherent set of disadvantages for people of color” (“Race-Explicit Strategies for Workforce Equity in Healthcare and IT,” 2017). Compounding these sets of issues is the fact that women and people of color are often tracked for particular occupations, regardless of suitability or earning potential, resulting in an over-representation in lower-paying jobs (Equitable Growth, 2017).

Research has consistently shown that an education-only strategy would fail to address economic inequity (Hanks & Madland, 2018). In a National Academy of Sciences (NAS) survey of effective policies and programs aimed to prepare workers for skilled technical jobs, several promising models were identified. The study found that the integration of academic education, technical training, and hands-on work experience improves outcomes and return on investment for students and workers in all career stages (National Academies of Sciences, 2017). For youth, comprehensive and integrated models that included career preparation and career education, along with work experience or industry-based education were found to be most effective.

Credentials are an important factor and provide currency in the labor market (Conners, 2018). Embedding micro-credentialing and digital badging processes within coursework are gaining traction in academia (Hall-Ellis, 2016; Hickey et al., 2020). Micro-credentials are particularly helpful when they are demonstrative of experiential learning (Perna, 2021).

However, the available research on certifications indicates that outcomes are highly dependent on context. Certifications have more labor market value in some sectors, especially when evidenced by a degree of quality control exercised through industrial accreditation (National Academies of Sciences, 2017). Two job sectors disproportionately valuing certifications are IT and Emergency Management. Supply-side skills development is especially valuable in IT and Emergency Management. In a recent survey, over 90% of IT decision-makers believed a certification brings added value (Day, 2019). Similarly, certifications are essential for professional advancement in emergency management, as they establish specific and recognizable benchmarks for the profession (Hahn, 2016). And while the Bureau of Labor and Statistics estimates that employment of *emergency management* directors is projected to grow 4 percent from 2019 to 2029, (about the average for all occupations), the number of unfilled cyber security jobs has grown by more than 50 percent since 2015 (Setalvad, 2015). By 2022, the global cyber security workforce shortage has been projected to reach upwards of 1.8 million unfilled positions (Frost &

Sullivan, 2017).

The intersection between emergency management and cyber security has never been more acute. Without the connecting interoperability between cyber security and emergency management, leadership is operating in dysfunctional awareness, putting many lives in danger. Cyber security awareness helps emergency management disrupt two important operational threats: vulnerabilities associated with the lack of preparedness; and threats associated with the vulnerabilities of critical infrastructures (Faltas, 2016). The role of cyber security in emergency management should focus on the building of proactive and resilient collaborative and communicative strategies to mitigate and model threats, ascertain vulnerabilities, and build resilience strategies to recover from natural and man-made disasters.

Perhaps the most exciting approach coopted by the Pilot Course is the employment of a multi-stakeholder partnership. By bringing government officials, employers, and prospective workers to the decision-making table, the development of formal agreements to promote social and occupational integration will be a powerful step to address assisting groups that face persistent discrimination in the workplace. Moreover, by incorporating multi-stakeholder partnerships, this new workforce system could standardize a decision criterion that leverages “equity-enhancing levers in support of equitable economic growth” (Madland, 2021).

3 Method: Design Philosophy & Implementation

There are many accounts of action research projects that address curriculum development. Action research projects have been used to investigate university education knowledge that reflects real-life (Oksiutycz & Azionya, 2017), understand the practical effectiveness of integrating university social responsibility into the curriculum (Hsieh, 2019), and redesigning the curriculum in an English department (Yamamoto et al., 2019). Action research has proved to be a well-adopted approach to the improvement of practice.

For this study, action research methodology was used to critically address needed changes to the career development curriculum for graduating seniors. The action research process consisted of professors engaging in five cycles of problem identification, active planning, implementation, evaluation, and reflection to hypothesize and test options to improve course experiences and outcomes.

An action research methodology was used to critically address needed changes to the career development curriculum for graduating seniors. The action research process consists of four cycles, and each cycle includes steps of problem identification, active planning, implementation, evaluation, and reflection. (Oksiutycz & Azionya, 2017). For this project, the first cycle consisted of researching and incorporating additional awareness of methods/impacts and developing new interviewing competencies into the Problems of Practice course. The second cycle included developing a pilot program for students to participate in and evaluate the micro-credentialing process as a substitute for internships that have been unavailable during the pandemic. The evaluation conducted at each cycle identifies areas for improvement and provides suggestions for “best practices” (Adams & Mazza, 2022).

3.1 Philosophy

The Pilot Course is predicated on constructivist andragogy that encourages students to develop their frameworks of conceptual understanding. Constructivist andragogy is an approach to education espousing the principle that the most effective outcome involves students engaged in active inquiry (Attewell & Jang, 2013). The course content encourages pragmatic and personal applications of theory to simulated scenarios, fostering a constructivist problem-based approach to learning.

The US critical infrastructure mission requires a focused national strategy appropriately balancing resilience, risk-based prevention, and preparedness strategies. This hybrid-level course introduces the policy, strategy, and practical application of critical infrastructure security and resilience from an “all-hazards” perspective. The White House Labor Task Force has articulated an initiative that will “*maximize mission success by hiring a skilled, diverse, and inclusive workforce, retaining world-class personnel, and empowering frontline operators and enabling personnel*” (Mitchell, 2021). The Pilot Course will leverage the CJSS Department’s expertise in the social and behavioral science research areas to increase the pool of culturally, geographically, and ethnically diverse multidisciplinary job applicants who possess highly desired skills and competencies in social sciences, technology, infrastructure protection, and emergency planning.

The Pilot Course instructor is a devotee of the “practitioner-scholar” model within an experiential learning platform. This approach provides the dynamic benefit of *reciprocal synergistic contribution*: research and scholarly works serve as the practical application supporting a teaching philosophy, and the service activities are directly informed by and support the teaching-related functions and scholarly work. In this paradigm, the instructors are learning resources to the students that endeavor to promote confidence, competence, and compassion that ideally encourages and develops scholar-citizens that are desired candidates in the workforce of their choice.

The Pilot Development framework is designed to address the gaps in the workforce needs involves these core strategies:

- Coordination of existing resources at the University
- Establishing a stakeholder relationship with relevant policy and hiring agents
- Develop an accreditation/certification process.

Instrumental to gaining perspective, this course includes practical applications of fundamental health and safety lessons in construction, cyber, and emergency management. These mini-modules will be delivered through a blend of traditional, multimedia content and virtual reality experiences and will confer industry-recognized certifications in Construction (OSHA 10), Cyber (ISACA/IBM Cyber Fundamentals) & Emergency Management (FEMA Logistics).

Strategies for curriculum enhancement included experiential learning activities that enabled student access to subject matter experts. The use of virtual reality (VR) technologies afforded students opportunities to work with the technology vendor. The Pilot also leveraged involvement with the Labor Task Force and the expertise of professionals in this field. These industry experts provided training for the practical and

“Green” and Resiliency-focused solutions that will be emphasized in this class and provide additional opportunities to obtain accreditations in those areas.

3.2 Implementation

The Pilot adopted an experiential model combining education, research, and career experiences via “non-placement internships”. The Pilot Course was organized into three modules (Emergency Management, Cyber Security, and Physical Infrastructure), each culminating in a certification exercise. Deployed in a multi-stakeholder partnership, the Pilot was conducted with active support from the White House Labor Task Force and external subject matter expert instructors. All students had an opportunity to work directly with industry professionals volunteering to share their expertise. The course constructs provided learning opportunities in technology, andragogy, apprenticeships, and access to mentors (Hahn, 2016).

Seniors in the Administration of Justice Program, who simultaneously enrolled in the Practicum and ICI courses, were required to join the subcommittee germane to their particular interest - in a non-placement internship. This allowed them to select an internship experience with the VR vendor, FEMA-sponsored research, or direct services to the Educational Partners providing the content. This additional assignment allows these select students to interface with Public Policy influencers on behalf of the Pilot affording them a differentiated instruction experience. This facet ensured that students assigned to the project complete the 90 internship hours required for the Practicum.

The academic program emphasized the development and utilization of computer-based models and simulations as an instructional methodology. Included in this program will be the introduction of Virtual Reality simulation exercises for several interdisciplinary exercises such as “hazards Identification” (Emergency Management), “resilience evaluation” (Critical Infrastructures), and “catastrophic cascading events” (Cyber Risk Management).

Active learning activities are incorporated by design. The functional paradigm is that students should “operate” as if they were supervisory employees shaping policy and procedures. Among the more important course requirements is a “Knowledge Contribution” obligation of each student, whereby a small, independent research assignment is directly incorporated within an exam or assignment.

Students are challenged with reading assignments before each class session and periodically are assigned an open book pre-class task to reinforce the material. This task was followed up in an active review session, where questions were posed and the students were individually asked to demonstrate solutions to the class, actively noting the differences among the solutions proposed. Other active learning strategies employed are:

- Segmenting the class into cooperative groups to resolve an issue or articulate a strategy.
- Concept mapping exercises to illustrate the connections that exist between course terms or concepts.
- Creating visual lists in a comparative thinking exercise
- Contributory assignments whereby each member of a group is asked to complete some discrete part of an assignment.

The success metrics of this pilot were measured in various ways. To create a student profile baseline³, each of the students was asked to take and submit the results of a generic, online Leadership Assessment profile⁴; a Myers - Briggs Personality Profile Assessment⁵; and a Qualtrics Survey designed by the Course Instructor⁶. The course participants were asked to retake these surveys at the conclusion of the Pilot, and the results and variances will be “anonymized” and tabulated. A “course assessment” was also required of the students, wherein they provided “feedback” regarding their experience in the Pilot.

All students were required to schedule a “mock interview” with the Course Instructor within the first 21 days of the semester, and again within the last 21 days of completing the course. The focus of the exercise will be on “creating a good first impression”. Students were evaluated in eight categories: appearance; promptness; preparedness; candidness; interpersonal skills; time management; emotional intelligence; and responding to an ethical dilemma. The Course Instructor employed a non-weighted Likert Scale (1-5 rating range from “unsatisfactory” to “exemplary”) and the results will be shared and communicated with the student. All students showed improvement in their interviewing skills by the course conclusion.

Metrics were employed to gauge the “level of engagement”. Attendance and participation levels were monitored throughout the course. The actual number and “degree” of certifications attained by the students in the Pilot Course were the primary metrics defining success. The attainment of entry-level “qualifications” is often the minimally required credential for attaining employment. Additionally, each student was required to successfully complete at least one certification per module; Practicum students were required to take and successfully complete an additional certification process per module. Practicum students were also responsible for submitting committee meeting notes and were afforded an informal peer review from their committee mates.

The Virtual Reality Learning Experiences recorded the observational metrics used to ascertain retention levels. The multimedia delivery of the various teaching methodologies increased awareness, readiness, and performance in the field - and the stakeholders intended to facilitate field placements of students for this corroboration.

A key metric was the number of external internships afforded the Pilot students following their course engagement. The actual number and quality of workforce assignments attained by the students in the Pilot Course over time was the second, longitudinal success metric to be tracked as part of a continuation of this study.

³ The surveys will be administered so as to comply with UDC IRB guidelines, including a notice of “informed consent” that specifies the voluntary nature of participation and provides an option to withdraw from survey.
Disable

⁴ https://www.mindtools.com/pages/article/newLDR_50.htm

⁵ <http://www.humanmetric.com/cgi-win/types2.asp>

⁶ https://XXX.iad1.qualtrics.com/jfe/form/SV_6Kb93ZILbtkgJ3D (IP address tracking will be disabled to ensure the surveys remain anonymous.)

4 Results

By every measure, the Pilot Course successfully demonstrated the value of WIL and embedded credentialing strategies in a college course. All 24 students earned an OSHA 10 certificate (minimum infrastructure site employment requirement); 22 earned an industry-sponsored, continuing education accredited *Introduction to IT & Cyber Security* certificate; all students earned their FEMA *Work Safety* certificate; and every student was allowed to earn additional professional certificates - an opportunity every student sought to accomplish (Figure 1).

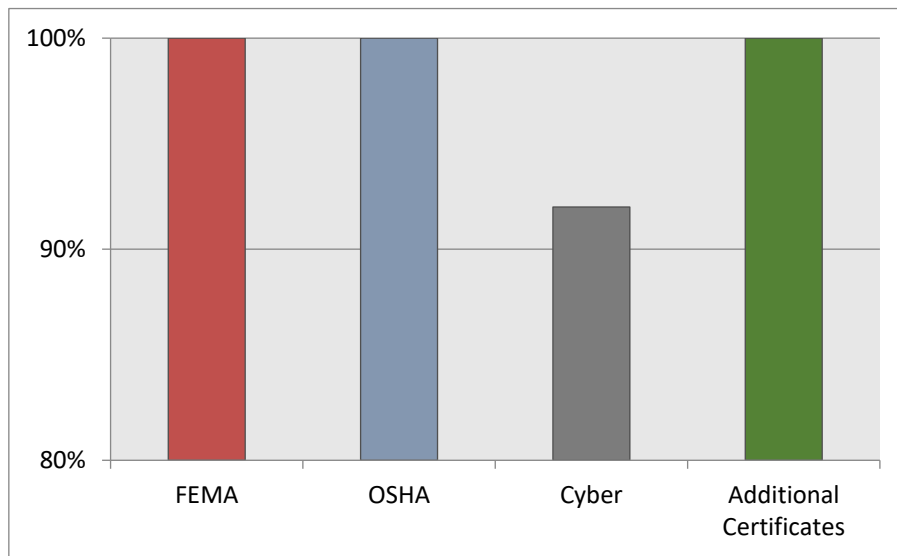


Figure 1: *Certificates Earned by Percentage of Students in Cohort*

14 students were offered external internship opportunities, while all 4 students jointly enrolled in the Practicum class earned an in-class internship experience with our corporate collaborators (Figure 2).

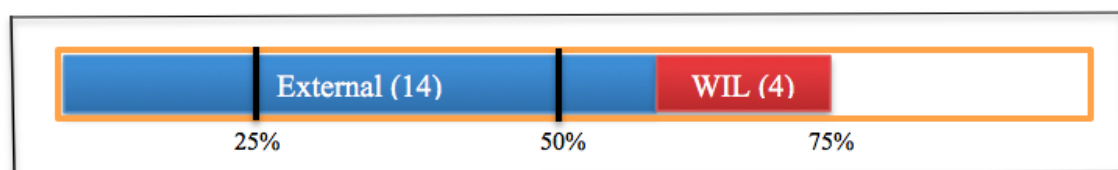


Figure 2: *Internships Earned (% of Cohort)*

Personality-type quizzes, Leadership Assessment exercises, and mock Interviews (Initiation and Exit) were conducted with all cohort members. In addition to discussing the qualitative extracts from the Myers-Briggs and Leadership Skills Assessments, students were assigned grades after mutual deliberation (i.e., rubric, definitions, etc. were agreed upon) in seven areas (non-weighted): Professional Appearance, Promptness, Candidness, Interpersonal Skills, Time Management, Emotional Literacy, and Ethics Awareness. Calibrations were collected on the redacted form illustrated in Table 3.

Table 3: Candidate Assessment Forms (redacted)

Dynamic	Appearance	Promptness	Candidness	Interpersonal Skill	Time Management	Emotional Quotient	Ethics
██████████	5	5	4	4	3	4	3
<p>Comments:</p> <p>Overall, a good interview-likely to "move application along" the hire process. When communicating, be aware of answering the question asked, and move seamlessly on to next discussion point.</p>	Lovely; very professional	Prompt; diligent about establishing time and addressing issues that may arise prior to time	Attempted to express candor	Poised, but observed a tendency to communicate "lack of confidence". Emphasize strengths; minimize weaknesses.	Solid trouble articulating an organizational strategy, but got the impression that organizational skills are a possible strength; should explore ways to integrate creative approaches.	Maturity and inexperience were clearly evident- not a critique, as much as an observation.	Expressions of empathy, but would have liked to see more of a process-oriented approach to solution.

Quantitatively, the Exit Interview reflected a 22.5% overall improvement in assessments (Figure 4) conducted during the Initiation Review, with the most significant advances (Figure 5) represented in the areas of Time Management (50% increase) and Ethical Awareness (40% increase).

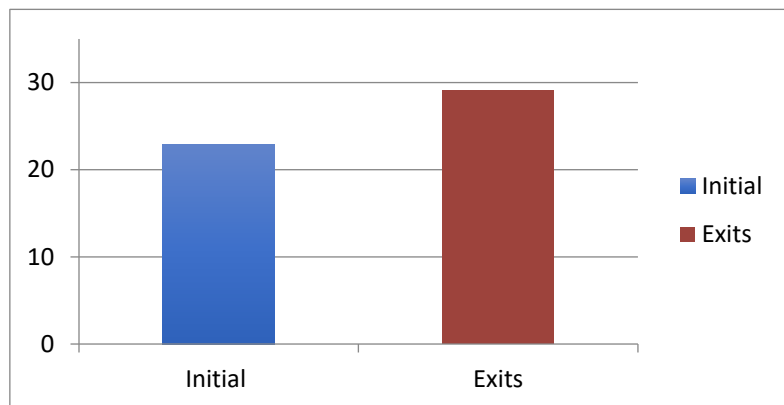


Figure 4: Cumulative Average Scores (out of 35) Initiation and Exit Interviews

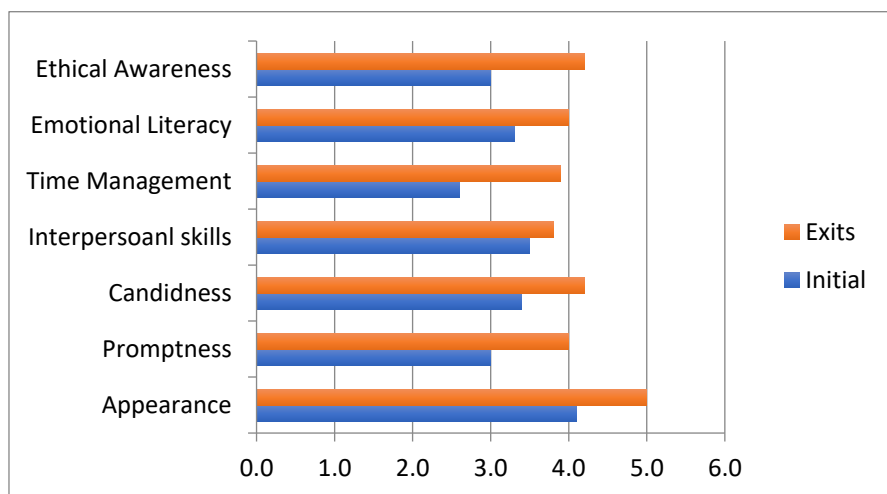


Figure 5: Initial Interview v. Exit Interview (by category)

5 Issues of Inquiry

The overall course goal was to develop an effective educational design of a course that prepares the students in accordance with the principles and objectives of the University and adequately addresses the demands of the workforce, by providing the experiential and credentialing exercises preferred by employers. As an advocate of experiential learning, the Pilot Course design was intended to provide the opportunity to evaluate students from the perspective of their potential “employability”. This affords the Course Instructor the latitude to address intervening influences (or variables that may impact a student's learning outcomes when assessing student progress in the course (including but not limited to (1) differences in learning, (2) prior educational experiences, (3) experiential learning, including study abroad, co-ops, internships, and service learning).

A significant limitation of the Pilot involves the time lag between course completion and the authentic assessment of the students in a real-world application. Authentic assessments require students to be effective performers with acquired knowledge (Wiggins, 1990). Attempts to evaluate a student’s mastery of the knowledge and skills necessary may not be possible until post-Pilot and will involve considerable “follow-up” in terms of their ability to solve real-world problems or challenges.

A potential solution may be provided through Persistent Progressive Profiling. This Pilot hopes to incorporate strategies to create an online, secure, and dynamic online record of all a student’s academic and nonacademic accomplishments and proficiencies. This will provide students with a comprehensive catalog of their training, education, and experience that can be easily quantified by potential employers.

6 Conclusion

This pilot provided students with multiple opportunities to engage in a non-placement Work-Integrated- Learning (WIL) opportunity and Practicum option through coursework, committee participation, and independent study. The conceptual basis of the interdisciplinary activities offered by this Pilot is manifest in the inclusion of public policy considerations, cyber security instruction, emergency management training, and basic construction principles organized to address the human/demographic, technical/logistic, and geographic/topology concerns involved with responding to an informed critical infrastructure response. The unifying aspect of the interdisciplinary research and educational activities supported by the Pilot rests on the following premise: the foundation for all critical infrastructure is the communities that are served by and who support those operations. As the nation’s only urban land grant institution, as well as an HBCU, UDC brings a commitment to serving underserved populations. Community-based research from both a theoretical and an applied perspective is the thematic constant across many disparate academic disciplines at UDC.

Effective teaching is motivated by a purpose: this Pilot course ensures that the information and toolkits communicated translate directly into employable skills. As an experiential learning exercise, the course integrates heuristic and pragmatic application opportunities. Each student was afforded realistic practice and introduction to the contact

capital recruited for the Pilot.

The aims of this Pilot were twofold. First, to build a foundation for an integrated learning experience by “deconstructing” elements of a course relative to the characteristics of students’ interests, perspectives, and possible contributions. Second, to motivate further exploration of active learning strategies instantiated in differentiated learning andragogy in other courses and other disciplines. The results yielded by this Pilot suggest that adding a non-placement Work-Integrated-Learning (WIL) opportunity within a course offering micro-credentials and employing Differentiated Instruction design andragogy is beneficial to the student and equips them with “badging” desired in the workforce.

7 Publisher’s Note

AIJR remains neutral with regard to jurisdiction claims in institutional affiliations.

How to Cite

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