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Fostering Integrative Knowledge through ePortfolios

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This paper presents results from a study which tested the validity of a conceptual model which proposes six dimensions of integrative knowledge and learning that result from students engaging in the core activities associated with the Integrative Knowledge Portfolio Process and Generative Knowledge Interviewing. These methods facilitate learning experiences that help students to identify, connect, synthesize and demonstrate knowledge and skills they are gaining from all areas of life. Six hundred and twenty students (both traditional and non-traditional) from 14 different learning environments across two campuses responded to pre/post surveys before and after they engaged with these methods. Results showed that students made significant gains on all six dimensions of integrative knowledge and learning which resulted in their increased capacity to: 1. identify, demonstrate and adapt knowledge gained within/across different contexts; 2. adapt to differences (i.e. in people and situations) in order to create solutions; 3. understand and direct oneself as a learner; 4. become a reflexive, accountable, and relational learner; 5. identify and discern one's own and others' perspectives; and 6. develop a professional digital identity. Students' gains on these dimensions were significant regardless of their academic discipline, race/ethnicity, gender, year in school or the type of learning environment in which they engaged with the Integrative Knowledge Portfolio Process.

Student Learning Needs for the 21st Century

According to leading educational scholars, in order to be successful in the 21st century workplace, today's college students must be taught how to be highly flexible, integrative and adaptive life-long learners (Newell, 1999). They need to be people who are capable of keeping pace with the rapidly changing demands of new knowledge, emerging work roles, and changing work environments (Stuart & Dahm, 2006). To meet these demands, today's college students must develop an array of capacities to integrate what they learn in many situations and across time (Huber & Hutchings, 2004; Newell, 1999).

The push for integrative and lifelong learning is accompanied by calls for greater accountability throughout higher education. The American Association of Colleges and Universities has defined 14 Essential Learning Outcomes for undergraduate education focused on preparing more integrative, reflective, creative, and civically engaged lifelong learners (American Association of Colleges & Universities, 2008). Similarly, organizations and accrediting institutions in numerous professional fields (e.g. Engineering, Medicine, Dentistry, Nursing, and Social Work) have defined learning outcomes for educating lifelong learners capable of reflective, integrative and evidence-based practices (Seeley-Brown & Adler, 2008).

In response to these challenges, higher education institutions across the world are expending considerable resources developing new curricula and technologies to foster integrative learning (Huber & Hutchings, 2004). Some U.S. schools now have "Integrative Studies" programs that encourage students to build a unique interdisciplinary major or area of study based in their interests in solving "real-world" problems. Technologically, ePortfolios are increasingly seen as an ideal tool for helping students connect disparate experiences, create meaning from their learning, and develop intentional digital identities (Barrett, 2007; Cambridge, 2008; Clark & Eynon, 2009). According to a Campus Computing survey, there are ten times more institutions adopting ePortfolios in the US now than ten years ago (Batson, 2010).

Yet despite the growing emphasis globally on using ePortfolios to foster and demonstrate integrative and lifelong learning, the terms *integrative* and *lifelong learning* have yet to be defined. Currently, there is very little theory, established best-practices and/or research to support these endeavors.. It is not yet clear, for example, what kinds of integrative learning experiences lead students to connect, integrate, and synthesize their learning, or how ePortfolios can be used to facilitate that process. This paper begins to address these gaps by first describing a conceptual model and pedagogy for portfolio-based integrative and lifelong learning that is now being used by a number of institutions, and then presenting results from a survey-based construct validation process that tested the efficacy of this model on 620 students from fourteen different academic and co-curricular units on two University of Michigan campuses.

The research reported here contrasts with previous studies in a number of important ways.

First, it offers a conceptual model that articulates and operationalizes six dimensions of integrative knowledge and learning. Second, it clearly articulates an integrative portfolio-based pedagogy, the Integrative Knowledge Portfolio Process that is now being used to facilitate integrative learning through ePortfolios within a number of institutions, disciplines, and learning environments. Third, it tests the efficacy of a pre/post survey instrument that was specifically designed to measure the conceptual dimensions of integrative knowledge and learning proposed here. The six dimensions of integrative knowledge and learning that are the focus of this study include students' learning to:

1. Identify, demonstrate and adapt knowledge gained within/across different contexts (i.e., the ability to recognize the tacit and explicit knowledge gained in specific learning experiences and the capacity to adapt that knowledge to new situations);
2. Adapt to differences in order to create solutions (i.e., the ability to identify and adapt to different people, situations, etc., while working with others to create positive change);
3. Understand and direct oneself as a learner (i.e., the ability to identify one's prior knowledge, recognize one's strengths and gaps as a learner, and know how one is motivated to learn);
4. Become a reflexive, accountable and relational learner (i.e., the ability to reflect on one's practices and clarify expectations within oneself while also seeking feedback from others);
5. Identify and discern one's own and others' perspectives (i.e., the ability to recognize the limitations of one's perspective and seek out and value the perspectives of others); and
6. Develop a professional digital identity (i.e., the ability to imagine how one will use current knowledge and skills in future roles and how one will create an intentional digital identity).

The theoretical and research basis of these dimensions, as well as a description of the pedagogy that fosters these dimensions, is the focus of this study. This study presents an analysis of 620 students' responses to pre/post surveys before and after they engaged in the core activities associated with the Integrative Knowledge Portfolio Process, a series of structured learning experiences that help students to identify, connect, synthesize and demonstrate the knowledge and skills they are gaining from all areas of life. Data analysis was guided by three research questions:

Do students' responses to pre/post surveys that measure various aspects of integrative learning actually reflect the six dimensions described in the authors' model?

Do students' perceptions of these six dimensions vary according to their year in school, academic discipline, gender or race/ethnicity?

Do features of the learning environment influence gains on these dimensions?

Context and Background of the Study

In 2008, the University of Michigan (UM) Mportfolio Project was formally established as a joint effort of the Division of Student Affairs and the Office of the Provost in order to create a pedagogy and technology to help students know and articulate what they have learned at UM. Research conducted with UM student leaders in 2005-2006 showed that even though most of these leaders reported having "extraordinary" learning experiences at UM, the vast majority of them could not describe what they had learned, why or how it was valuable to them, or how they might apply their knowledge and skills they had gained at UM once they left the university (Pathways Report, 2006).

The MPortfolio Project takes place in a number of diverse learning environments on two campuses. UM Ann Arbor is a highly selective research institution that serves traditional four-year residential undergraduate students. UM Dearborn is a metropolitan institution serving primarily non-traditional and commuter students from the greater Detroit area. Together, the two campuses serve over 45,000 students a year. Thus, the context of the MPortfolio Project involves schools, departments, and co-curricular programs that serve diverse undergraduate, professional, and graduate students with a wide-range of learning and professional goals (e.g., to be future social workers, health care providers, and educators, as well as leaders in business, research, and non-profit arenas).

Relevant Literature

The literature focuses on understanding how the term *integrative learning* is used in higher education contexts, including the factors involved in educators becoming more integrative and the impact integrative learning has on students.

Perhaps the biggest challenge to understanding integrative learning is that the term itself is yet to be clearly defined or operationalized. As Huber and others note (2007), the concept is still evolving as educators reinvent its meaning within specific contexts. That

said, the most widely cited article is Huber and Hutchings' 2004 work, *Integrative Learning: Mapping the Terrain*. This work articulates a rather complex view of the term:

> One of the great challenges in higher education is to foster students' abilities to integrate their learning across contexts and over time. […] The capacity to connect is central...whether focused on discovery and creativity, integrating and interpreting knowledge from disciplines, applying knowledge through real-world engagements, [integrative learning] builds intentional learners...and the habits of mind that prepare students to make informed judgments in the conduct of personal, professional, and civic life...[leading to] personal liberation and social empowerment. (2004, p.1)

Several authors have pointed out that the concept of integrative learning includes multiple dimensions and draws from a number of learning theories. For instance, Huber's and Hutchings' (2004) definition emphasizes constructivism (Schamber & Mahoney, 2008), action and experiential learning (Dewey, 1938; Kolb, 1984), as well as the development of reflective-practitioners (Schön, 1983). Booth, McLean, & Walker (2009) and Melendez, Bowman, Erickson, & Swim (2009) emphasize that integrative learning efforts must also develop students' capacities for self-directed learning (Youatt & Wilcox, 2008), self-authorship (Baxter Magolda, 1998), adaptive expertise (Bransford, Mosborg, Copland, Honig, Nelson, Gawel, Phillips, & Vye, 2009), and democratic citizenship (Nussbaum, 2006).

These diverse theoretical underpinnings inform several different approaches to integrative learning. These approaches generally fall into one or more of the following domains: 1) becoming an intentional and reflective learner (Mentkoski & Associates, 2000; Booth et al., 2009); 2) having a process orientation toward knowledge and learning (Melendez et al., 2009); and, 3) working with others to address social issues (Huber & Hutchings, 2004; Mentkoski & Associates, 2000). The prevalence of these domains in the literature is explained more fully below.

The *becoming an intentional and reflective learner* domain refers to the development of self-directed learners who take responsibility for their learning, reflect on their experiences and intentionally develop self-authorship; that is, the ability to consciously create meaning and identity from their learning and life experiences (Baxter Magolda,1998). According to Huber & Hutchings (2004), an integrative learner possesses "a sense of purpose that serves as a kind of 'through line'... connecting the sometimes far-flung and fragmentary learning experiences they encounter..." (p. 6). Students need to develop meta-reflective capacities, abilities that allow them to reflect upon, understand, and value their strengths, gaps, and development as learners over time and across contexts (Freshwater & Rolfe, 2001).

The *process orientation toward knowledge* domain is informed by action and experience-based learning theories (see Dewey, 1938; Kolb, 1984). It is premised on the assumption that learners need to apply academic knowledge to real-world problems in order to understand what they know and how to use their knowledge in the future. Through application, learners develop the knowledge, skills and habits of mind they need to face the ambiguous challenges of life. Ideally, integrative experiences should teach students how to identify, synthesize, and apply knowledge from different areas (e.g., from courses, co-curricular experiences, paid work, internships, and community service) and adapt the insights and skills learned in one place to new situations. This requires learning how to reflect on and connect seemingly disparate learning experiences (Reynolds & Patton, 2011). The Alverno College faculty are generally considered the pioneers of this type of integrative learning (see Mentkowski & Associates, 2000).

Lastly, the *working with others to address social problems* domain refers to preparing students to contribute to the larger society, learning to engage with the "other" in order to expand their own knowledge, and work effectively in diverse environments (see Booth et al., 2009). In this domain (which is the least prevalent in the literature), students learn how to seek out and synthesize the perspectives and approaches of others in order to expand their own world-view. Ideally, integrative learning develops students' capacity for "reflection-in-action" the ability to revise their perceptions or approach based upon understanding additional perspectives, and by incorporating feedback from others and the environment (Schön, 1984 cited in Huber & Hutchings, 2004).

With regards to the development of integrative learning experiences, one of the most prevalent themes throughout the literature is that the process of creating integrative learning environments is difficult and time-consuming. In order to re-design programs to foster integrative learning, educators must cross disciplinary boundaries and engage in ways that challenge their own areas of expertise (Mach, Burke, & Ball, 2008). This requires institutional leadership, and at times, considerable resources (Huber & Hutchings, 2004). There is general agreement as to the barriers to integrative learning. Many faculty have been trained within narrow disciplines and are challenged by the interdisciplinary nature of integrative learning; most do not know what "integrative learning" means, let alone

how to teach or evaluate it (Booth et al., 2009; Mach et al., 2008; Melendez et al., 2008). Traditional course-credit systems reinforce academic silos (Graff, 1992). Many institutions underestimate the important role that co-curricular and informal learning experiences have on students' learning. This knowledge is often unrecognized and/or misunderstood (Huber & Hutchings, 2004). Moreover, the work involved in planning integrative learning experiences is often invisible and unlikely to be recognized during promotion processes (Huber, Hutchings, Gale, Miller, & Breen, 2007). Integrative efforts can be seen as competing with traditional programs for scarce resources and faculty time (Mach et al., 2008). Given these barriers, it is not surprising that much of the literature focuses on the challenges educators face in trying to reconfigure their programs to be more integrative. Far less attention has been paid to understanding how students learn across these integrative learning domains.

In addressing students' learning, all three domains described above can be found in the literature (although not in the same place). However, most works that address both ePortfolios and integrative learning tend to emphasize identity development, reflection, autonomous learning and engagement (Cambridge, 2008; Chen, 2009; Kirkpatrick, Renner, Kanac, & Goya, 2009; Light, Sproule, & Lithgow, 2009; Yancey 2009). The most well recognized example of this is LaGuardia Community College's ePortfolio approach, which supports students in expressing their identities while making connections across the curriculum (Eynon, 2009). Similarly, the values-driven ePortfolio environment of Kapiolani Community College helps students integrate traditional Hawaiian values in an effort to strengthen their indigenous identities and become more autonomous and engaged learners (Kirkpatrick et al., 2009).

Evidence regarding the impact of integrative courses and programs on students' learning is quite limited. Some schools have created institution-wide learning outcomes and rubrics to assess integrative learning (see Mentkowski & Associates, 2000). The challenge is that much of this work is unpublished assessment research conducted for institutional accountability purposes. The American Association of Colleges and Universities has created an integrative learning "meta-rubric" that is now being adapted by institutions as part of the AAC&U VALUE initiative (AAC&U, 2009). This rubric was also used in part by the authors to create the survey instrument that is now used on the UM campus (Rhodes, 2010).

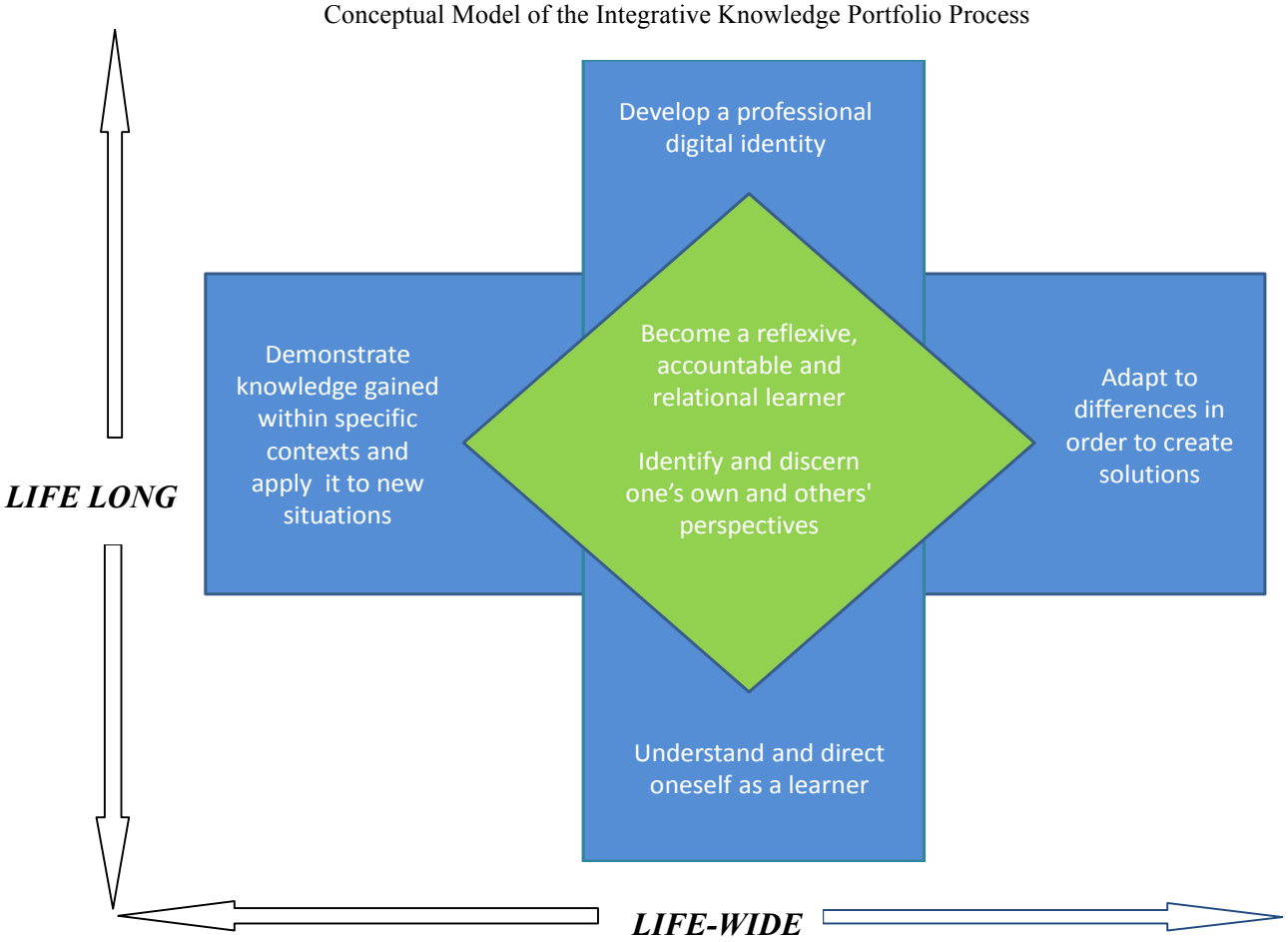
The few systematic studies of students' learning to date have primarily used indirect measures to evaluate the effectiveness of integrative learning efforts, and such studies rarely connect specific pedagogies with student learning outcomes. For instance, in describing the impact of a week-long integrative calculus experience, Melendez et al., (2009) compared two years of student satisfaction scores (from students who did and did not have an integrative experience). Since students who experienced the integrative curriculum reported greater satisfaction, the authors concluded that the integrative experience was a success. In another example, this one at an institutional level, Eynon (2009) used student retention and engagement data to demonstrate the positive impact of LaGuardia's integrative approach to ePortfolios. Results showed significant gains in retention for high-risk students due to increased capacities to engage in learning and creatively express their identities (Eynon, 2009). Similarly, Kapiolani Community College also found that students who engaged with values-based ePortfolios showed significant gains in measures of engagement (Kirkpatrick et al., 2009).

Although these studies show that an integrative approach to ePortfolios can have a positive impact on students' learning, considerable gaps still exist. Terms such as "reflection" and "integrative learning" are used to refer to a wide range of approaches to learning, and yet these terms are rarely conceptualized or operationalized along multiple dimensions, as we do in this study. Moreover, the link between different approaches to integrative learning and ePortfolios, and how those approaches actually impact students, is still largely unknown. In this study, the six dimensions of integrative learning are examined as a consequence of students' participation in an integrative ePortfolio process in which educators from fourteen different academic and co-curricular settings customized the same core activities associated with the Integrative Knowledge Portfolio Process.

The Integrative Knowledge Portfolio Process Model

The purpose of the Integrative Knowledge Portfolio Process Model (IKPP) is to facilitate learners' in identifying, integrating, and synthesizing their emergent knowledge, skills and identities over time, across contexts and in relation to others. In doing this integrative process, students develop a sense of personal agency and the capacity to respond to complex social issues. The process evolved through a multi-year action research project conducted at UM between 2002-2006. This initial research sought to identify the types of pedagogy and learning experiences that are needed to educate effective leaders and change agents (Peet, 2006; 2010; 2011). Over time, IKPP evolved into a series of core activities that have since informed the development of curriculum change guidelines, training modules, meta-reflection prompts, exercises and assessment instruments that are now being adopted by

Figure 1
Conceptual Model of the Integrative Knowledge Portfolio Process



number of colleges and universities and within diverse learning environments both at UM and at other institutions (e.g., Chemistry, English, Education, Social Work, Dentistry and Physical Therapy, as well as student organizations and service learning experiences). Note: As of May 2011, institutions that are in the process of adopting IKPP include: Boston University*, Clemson University*, DePaul University*, Norwalk Community College, Long Island University, and Mercy College, NYC*, Oberlin College* and Portland State University*. Institutions with an * are collaborating with the University of Michigan on a 3-year FIPSE grant (Fund for Improvement in Post-Secondary Education) from the U.S. Department of Education.

Underlying Assumptions and Research

The IKPP model is based upon several critical assumptions and research on learning and leadership development conducted at UM since 2002 (see Peet, 2006; Fitch, Reed, Peet, & Tolman, 2008). It begins with the notion that learning is both a lifelong and life-wide activity that occurs within people both consciously and unconsciously throughout their lives. Previous research related to IKPP (Peet, 2006) showed that in order to truly integrate their learning, students must first learn how to identify and demonstrate the tacit knowledge (the unconscious and informal ways of knowing people develop from informal learning experiences) they've gained from previous experiences, and connect it to the explicit knowledge (the formal concepts, ideas and methods learned through formal education) they develop in their academic courses. The literature on tacit knowledge emphasizes the socially embedded nature of knowing – that a person's knowledge of how to apply a particular skill, method, etc., is a tacit and unconscious process that recedes and/or emerges as they move in and out of different contexts (Nonaka & Takeuchi, 1995). Thus, in the IKPP model, each new context and relationship a learner encounters *is seen as a distinct knowing location.* Therefore, the unconscious knowledge, skills and capacities embedded within a particular context or

relationship can be retrieved and documented through meta-reflection (the ability to think about the process of learning) through dialogue with others.

Additionally, the IKPP model draws from a constructivist framework, which posits that learning and knowledge production are entirely relational and social processes that are inextricably linked to the development of learners' identities, experiences and positions within society (Garrison, 1995).

The conceptual model of the Integrative Knowledge Portfolio Process proposed here (see Figure 1) reflects an emphasis on tacit knowledge, meta-reflection, and the relational nature of knowledge and identity development (Nonaka & Takeuchi, 1995). The six dimensions of integrative learning introduced earlier in this paper are situated in the model as a set of capacities that foster critically reflexive lifelong and life-wide learning:

- The *lifelong learning capacities* (the vertical axis) represent the need for learners to meta-reflect on their identities and experiences in order to synthesize and demonstrate their learning. The dimensions of integrative learning include the ability to understand and direct oneself as a learner and develop a professional digital identity; this includes being able to identify and demonstrate one's prior learning and sources of inspiration as well as one's growth and learning over time.
- The *life-wide learning capacities* (horizontal axis) represent learners developing and applying practical "how-to" knowledge within and across different contexts. Integrative learning dimensions include the ability to demonstrate and apply tacit and explicit knowledge gained within and across specific contexts and adapt to differences in order to create solutions.
- The *critically reflexive capacities* (the center) refer to learners developing the capacity to continually reflect on and adapt to changes within themselves, others, and the environment in order to work effectively with others. Integrative learning dimensions include the ability to become an accountable and relational learner and identify and discern ones' own and others' perspectives.

Core Activities Associated with the Integrative Knowledge Portfolio Process

The six dimensions of the Integrative Knowledge Portfolio Process model are achieved through a series of core activities that have evolved from more than seven years of action research. The activities are based upon the adoption of IKPP in many different learning environments and feedback from dozens of educators and hundreds of students (see Peet, 2006; 2010). Educators who implement IKPP (e.g., in the context of a courses, co-curricular program, and/or living-learning community) are required to participate in a 2-3 day training in which they are introduced to the core activities outlined below and are taught how to integrate these activities into the existing courses, assignments, and co-currucualr programs (for a more complete description of the core activities see Peet, 2010).

Core Activity A - Identification and Organization of Key Learning Experiences: Students identify and reflect upon 7-12 important learning experiences from academic, co-curricular and other life contexts. (educators can also narrow this exercise to focus on key experiences from a particular course/program). Students then sort each experience into one of 40 over-arching knowledge/skill categories (e.g. "Research," "Leadership," "Global Engagement," etc.). Through this activity, students learn how their prior key learning and life experiences can actually translate to "real world" knowledge and skills. Each experience then becomes a potential Example of Work page for the Work Showcase section of students' ePortfolios (see Appendix A).

Core Activity B - Generative Knowledge Interviewing and Listening (GKIL): This is a process of storytelling, listening, dialogue, and documentation that helps students identify and document the tacit knowledge embedded within their key learning experiences. By having students generatively listen to one another, they learn how to surface, identify, and document their own and each others' tacit capacities, strengths, and skills (i.e., the specific types of adaptive behaviors needed to interact with people from backgrounds different from their own).

Core Activity C - Structured Meta-reflection: Students are guided to reflect upon what they have learned from each key learning experience and how it impacts their overall development. In these meta-reflections, students are prompted to describe the context of the experience, why it was important to them, "a-ha" moments, the types of knowledge/skills they gained, and how they imagine applying that knowledge in the future. They are also prompted to think about how the experience connects to larger personal, civic, or social change goals and the impact their efforts may have had on others. Through these meta-reflections, students develop individual Example of Work pages for their Integrative Knowledge Portfolio, typically one to two page single-spaced narratives that are combined with visual elements (pictures or graphics). A completed integrative eportfolio has between five and fifteen Example of Work pages in the Work Showcase section of the portfolio.

Core Activity D - Identification of Values and Beliefs: A series of exercises that help students identify their values and beliefs as well as the sources of curiosity and engagement that underlie their decisions and actions. This includes uncovering the passions, interests, and concerns that most engage and inspire them. They are then guided to organize their beliefs thematically and write a Philosophy Statement page (using text and visuals) for their portfolio. These statements illustrate what students believe, why it is important to them, and how it informs their decisions and actions.

Core Activity E - Creation of an Integrative Knowledge Portfolio: Students look back on their Examples of Work pages and Philosophy statements to identify overarching themes to be represented in the Welcome and Goals pages of their Integrative Knowledge Portfolios. Students also create a coherent design and layout of text and visuals across portfolio pages and seek feedback on the completed product from a variety of people.

Core Activity F - Reflection on Institutional Learning Outcomes: After students have integrated their experiences and synthesized their knowledge in their Example of Work pages, they are then prompted to connect the Example of Work page to specific institutional learning outcomes. Students are then prompted to write a brief reflection about why the learning outcome(s) are relevant to that Example of Work page.

Example Integrative Knowledge Portfolios can be seen at http://tinyurl.com/integrate2, https://umich.digication.com/portfolio/directory.digi or http://mportfolio.umich.edu/showcase.html

Example of Core Activities in Practice: University Course 421

The main goal of the course is to help students as future residence hall staff members learn how to build, develop, and nurture a supportive and stimulating multicultural community. To accomplish that, the course covers readings and active learning exercises on identity development, power, privilege, and conflict in intergroup relations and the work of being an ally. The goal of the Integrative Knowledge Portfolio Process in this course is to help students connect the theory and principles of the course with the role expectations, values, and professional skills they will need in order to become successful student residence hall staff members. The faculty integrated the core activities of IKPP into existing course materials, assignments and exercises so that by the end of the eleven-week course, students had experienced five of the six core activities listed above and had created their own Integrative Knowledge Portfolios. A description of how students experienced the core activities is offered below.

In an effort to have students draw upon their prior knowledge related to their potential roles of residence hall staff members, students were instructed to identify and reflect on 3 previous key learning experiences that involved facilitation and/or helping other students (Core Activity A). After reflecting on and writing about the 3 experiences individually, students were then guided to share the three experiences with a partner using the principles and steps of generative knowledge interviewing and listening (Core Activity B). This process allowed students to identify the tacit and explicit values, principles and capacities that they would like to embody in their role as staff members. Finally, this process resulted in students creating a Philosophy Statement Page for their Integrative Knowledge Portfolios (Core Activity D).

Two prior assignments in the course, one related to power and privilege and another related to identity development, were modified to prompt students to integrate, synthesize, and demonstrate what they had learned from readings, in-class exercises, and discussion about these topics. Students were guided by a series of structured meta-reflection questions (Core Activity C) that prompted students to think about the knowledge, skills, and/or insights they gained from the power/privilege and identity development materials, how these related to their own identities, and the implications of what they had learned with regards to their future roles as residence hall staff members. After writing their responses to the meta-reflection prompts, students then discussed what they had learned with a partner using the generative interviewing and listening method (Core Activity B). Students then refined their initial meta-reflections based upon the insights gained from the generative interview. This process then led to the creation of two Example of Work pages in their Integrative Knowledge Portfolios (Core Activity E). Toward the end of the semester, students were required to create a Integrative Knowledge Portfolio (Core Activity E) by pulling together and refining their Philosophy Statement, the two Example of Work pages, and a Welcome Page. These portfolios served as the final product in the course, substituting for what had previously been a final ten to twelve-page paper. These portfolios were also forwarded to the residence hall supervisors the students will be working for in the upcoming academic year. It is expected that the supervisors will find the portfolios more useful as a way to

Table 1
Demographic Overview of Participants in Pre/Post Quantitative Survey

Demographic	Percentage
Campus	
Ann Arbor	63%
Dearborn	37%
Academic Unit	
Liberal Arts	49%
Education	32%
Engineering	7%
Business	4%
Other	8%
Academic Level	
Junior	30%
Senior	25%
Freshman	19%
Sophomore	16%
Grad Masters	10%
Gender	
Female	71%
Male	29%
Ethnicity	
White	65%
Asian	14%
African American	8%
Hispanic	4%
Other	9%
Age	
18	19%
19-20	40%
21-29	31%
30- plus	10%

know their staff members than the final papers had been in previous years, thus enhancing the effectiveness of supervision of student staff members' work with new residents.

Research Methods

Participants

Educators affiliated with fourteen MPortfolio sites (e.g., Chemistry, Social Work, Education, English, Michigan Research Community, Program on Intergroup Relations, Public Health, Arts at Michigan, Women in Science and Engineering, Writing Programs, Resident Advisor Training Programs) agreed to use the pre/post survey with their students. For each of these sites, educators had previously gone through the training for IKPP and were committed to having students engage with at least five of the six core activities of the Integrative Knowledge Portfolio Process (since UM does not have a set of common institutional learning outcomes for undergraduate education, most educators did not engage in Core Activity F, "reflection on institutional outcomes"). Educator and student participation was voluntary.

A total of 620 students experiencing the Integrative Knowledge Portfolio Process within at least one academic course or co-curricular setting during two academic years (2009-2010 and 2010-2011) responded to both the pre and post survey. Since many more students were involved in Mportfolio projects where the pre and post surveys were not administered, it is important to note that these 620 respondents were found to be representative of all MPortfolio participants with respect to enrollment at the two U of M campuses (Ann Arbor and Dearborn), and with regards to gender and race/ethnicity. Table 1 describes these 620 students.

Measures

A pre/post survey instrument was developed and pilot tested during the 2009-2010 and 2010-2011 academic years (usually at the beginning and end of a term in courses/programs). The pre/post instrument combined UM's unique definition of integrative knowledge and learning (which emphasizes critical reflexivity, tacit knowledge sharing and working for social change) with select language from the AAC&U VALUE rubrics (see Rhodes, 2010) and dimensions similar to those outlined in the review of the literature. This resulted in a 37-item pre/post survey (see Appendix B). The items addressed students' recognition of their strengths and challenges as learners, identification of their values and beliefs, an understanding of their social identities and perspectives, skills in working across social/cultural differences, awareness of how one gains different types of knowledge, adaption of knowledge/skills to new contexts, evaluation of their work, the ability to listen and seek feedback, recognition of one's own passions and sources of curiosity, the development of a professional identity, working with others to make a difference, and understanding how one's actions/decisions affect others. Participants were asked to rank their degree of agreement (5 point Likert-type scale from strongly disagree to strongly agree) for each of the 37 statements. The surveys also included demographic questions.

Analyses

Three sets of analyses were conducted: 1) a factor analysis of the students' responses to the 37 statements on the pre-survey and post-survey; 2) statistical significance of gains students exhibited on the summary measures of integrative learning generated by the factor analysis; and 3) analyses of variance to assess if student

Table 2
Descriptive Statistics for Six Integrative Knowledge Portfolio Factors (Post-Survey) (N=620)

	No. of items	*M (SD)*	Skewness	Kurtosis	Alpha
Demonstrate knowledge gained within and across specific contexts	11	4.26 (.56)	-.72	1.70	.93
Recognize and adapt to differences	6	4.49 (.49)	-1.23	3.88	.88
Understand and direct oneself as a learner	7	4.42 (.47)	-.87	3.60	.87
Become a reflexive, accountable and relational learner	6	4.31 (.52)	-.61	1.86	.84
Identify and discern my own and others' ethics and perspectives	4	4.45 (.53)	-1.24	3.61	.82
Develop a professional digital identity	3	4.09 (.78)	-.77	-.03	.85

gains differed by the number of IKPP activities the students completed, if they had participated in MPortfolio in more than one class/program, and by race, gender, and academic division (natural science, social science, and humanities).

Survey Results

Factor analysis: Six dimensions of integrative learning. A factor analysis of the 37 items was conducted using varimax rotation with Kaiser normalization. A total of six factors were extracted, explaining 65.49% of the variance. These factors seemed to measure the theoretical constructs of integrative learning in the model articulated for this article. The six factors included all 37 items, with factor loadings unique to each of the six factors (see Appendix C).

The first factor, "Demonstrate knowledge gained within and across specific contexts" (Eigen value 16.83), measured students' ability to identify the knowledge they are gaining within a particular learning experience, demonstrate that knowledge to others, and then apply that knowledge to new situations and contexts. For example, *"I can demonstrate the knowledge/skills I've gained from pursuing an area of study, or engaging in a series of actions that reflected my passions and interests."*

The second factor, "Recognize and adapt to differences in order to create solutions" (Eigen value 2.05), measured students' ability to recognize and adapt to different types of people and contexts in order to work effectively with others to create positive change. For example, *"I can work with others to identify a problem or need within a specific field, group, organization, or community."*

The third factor, "Understand and direct oneself as a learner" (Eigen value 1.65), measured students' comprehension of how their own identities, values, personal interests and passions influence their learning and related decisions and actions. For example, *"I can clearly identify the passions, interests, and sources of curiosity that influence my learning, work and social life."*

The fourth factor, "Become a reflexive, accountable and relational learner" (Eigen value 1.42), measured students' ability to continually seek feedback and input from others in order to understand the impact of their decisions and actions on others and the environment: *"I seek feedback on a regular basis in order to understand if and how my work meets the needs, standards, and/or expectations of others."*

The fifth factor, "Identify and discern my own and others' ethics and perspectives" (Eigen value 1.24), measured students' understanding how their own and others' perspectives and values influenced interactions and decisions For example: *"I can identify specific moments or experiences where I have developed or practiced ethical principles in my decision-making and actions."*

The sixth factor, "Develop a professional digital identity" (Eigen value 1.04), measured the capacity to imagine what they will need in the future, how they are representing the knowledge, skills and capacities they are gaining thus far. For example, *"I am continually updating and expanding my on-line professional identity in order to demonstrate my knowledge, skills, values, goals and to others."*

Composite scores were created for each of these six factors, based on the mean of the items that had their primary loadings on each factor. Descriptive statistics are presented in Table 2. The skewness and kurtosis indicated that all factors had a negatively skewed distribution. Also, the Cronbach's alpha statistics indicated that all factors had a relatively high internal consistency.

Student gains on these measures. For each factor, the pre-survey composite scores were compared with the post-survey composite scores using paired-sample t-tests in order to evaluate changes in students' perceptions within each of the six dimensions. Change is represented by difference scores from pre to post.

Table 3 shows that students who engaged in the core activities associated with the Integrative Knowledge Portfolio Process showed significant gains on all six of these measures of integrated learning. The three largest gains from pre to post survey were on the

Table 3
Differences in Pre & Post Composite for Measures of Six Factors for Integrative Learning

		Pre- Survey		Post-Survey				
Measure	**N**	**Mean**	**SD**	**Mean**	**SD**	**T-Statistic**	**Change**	**SD**
Demonstrate knowledge gained within and across specific contexts	620	3.88	.67	4.26	.56	14.91	.38*	.63
Recognize and adapt to differences	620	4.42	.45	4.49	.49	3.61	.07*	.48
Understand and direct oneself as a learner	620	4.25	.48	4.42	.47	8.94	.17*	.47
Become a reflexive, accountable and relational learner	607	4.10	.53	4.31	.52	8.97	.21*	.56
Identify and discern my own and others' ethics and perspectives	620	4.30	.50	4.45	.53	6.78	.15*	.56
Develop a professional digital identity	609	3.49	.86	4.09	.78	16.35	.60*	.91

Note: * = $p < .001$

measures of demonstrate knowledge gained within and across specific contexts, become a reflexive, accountable and relational learner, and develop a professional digital identity. In addition, participants also became somewhat more modestly able to recognize and adapt to differences, understand and direct oneself as a learner, and identify and discern their own and others' ethics and perspectives.

Variations in the amount of change. Results from analysis of variance show that gains from before to after completing the Integrative Knowledge Portfolio Process were especially pronounced among students who participated (n=46) in more than one MPortfolio course or program. Such students showed significantly greater gains in demonstrating knowledge gained within and across specific contexts [F (1, 618) = 11.96, p = .001] and understanding and directing oneself as a learner [F (1, 618) = 4.77, p = .029] as compared to the much larger number of students (n=574) who participated in only one course or program.

Some MPortfolio learning environments also produced larger student gains than others. Classifying the environments according to the three major academic divisions (natural science, social science, and humanities) (Biglan, 1973), the results show that participants from the natural sciences consistently gained the most in demonstrating knowledge gained within and across specific contexts [F (2, 475) = 5.39, p = .005], recognizing and adapting to differences [F (2, 475) = 3.26, p = .039], understanding and directing oneself as a learner [F (2, 475) = 12.16, $p < .001$], and identifying and discerning their own and others' ethics and perspectives [F (2, 475) = 3.06, p = .048]. Participants from the humanities gained the most in becoming a reflexive, accountable and relational learner [F (2, 475) = 6.84, p = .001]. It is important to note that natural science and humanities students had significantly lower pre-test scores on these five dimensions than social science students and thus had somewhat more room to change. At the same time, it is important to note that there were no significant differences between academic divisions on the post-survey scores, indicating that all students arrived at similar high-levels of agreement in their responses along the different factors.

Finally, analyses showed that there were no significant differences of participant gains based upon on race/ethnicity, gender, class level (e.g., freshman, sophomore, etc.), or survey year (e.g., 2009-2010 vs. 2010-2011) indicating that IKPP seems to be effective for students from multiple backgrounds regardless of the year in which they engaged in the process.

Discussion

The purpose of this study was to test the validity of six dimensions of integrative learning that provide the conceptual foundation for the Integrative Knowledge Portfolio Process (IKPP) using data gathered from 620 students' who participated in the core activities associated with IKPP. The initial research questions addressed the following questions: Do students' responses to pre/post surveys that measure various aspects of integrative learning actually reflect the six dimensions proposed in the Integrative Knowledge Portfolio Process model? Do students' responses to these six dimensions vary according to their year in school, academic major/discipline, gender and race? Do important features of the learning environment influence students' gains on these dimensions?

The first major finding is that students who experienced the core activities associated with IKPP showed increases on the 37 items that measured various aspects of integrative learning. Moreover, the factor analysis showed that students' self-assessed gains on measures of integrative learning did reflect the six conceptual dimensions proposed by the authors.

The second major finding is that students showed significant gains on these six dimensions regardless of their academic major/discipline, race/ethnicity, gender, year in school, or the type of learning environment in which they engaged with the core activities of IKPP. This demonstrates that the Integrative Knowledge Portfolio Process shows significant promise for learners from a wide range of disciplines and backgrounds and that it can be used successfully across a range of disciplines as well as academic and co-curricular learning environments.

The third major finding is that students' gains on these six dimensions could be influenced by the larger learning environment. Increases on all six dimensions were more pronounced for those students who engaged more deeply with IKPP core activities (e.g., creating three or more Example of Work pages, engaging in Generative Knowledge Interviews, and creating Welcome and Goals pages) and participated in IKPP activities across multiple learning environments over time. These results demonstrate the students' gains on the six dimensions of integrative learning can most likely be enhanced by the creation of multiple course or learning environments that engage students with the Integrative Knowledge Portfolio Process.

The results also showed that overall, natural science and humanities students showed greater gains than the social science students on the six dimensions of integrative learning, and that these gains occurred in different dimensions (i.e., humanities students showed the greatest gains on the "become a more reflexive and relational learner" dimensions). Although it is not yet possible to draw conclusions with regards to how students from various major/disciplines may benefit differently from IKPP, these findings do provide a clear direction for future research.

These findings have implications for theory, practice, assessment, and research with regards to fostering integrative learning through the use of ePortfolios. Theoretically, these results offer educators and academic leaders a conceptual model that encompasses and expands upon the multiple dimensions of integrative learning the authors summarized from relevant literature (but previously had not been operationalized or empirically tested). At the very least, this conceptual model can serve as a starting point for groups of educators and faculty who are thinking about how integrative learning should be defined, implemented, and assessed within their own learning environments.

This work also has implications for integrative teaching, pedagogy, and curriculum design. The fact that gains on each of the six dimensions can be linked to students' engagement with the core activities of the Integrative Knowledge Portfolio Process represents a significant step forward in terms of understanding how specific integrative approaches can lead to different types of integrative outcomes. This is particularly true for the six dimensions of integrative learning in the IKPP Model. Furthermore, since the IKPP core activities have been validated with diverse learners across a variety of learning environments (including both traditional and non-traditional college students), the strength of these core activities seems to be quite promising. Given the fact that there is not yet any literature that explicitly connects how different types of integrative pedagogies lead to the development of particular types of integrative capacities in students, the authors believe that this study will be highly useful to those who are re-designing programs and curriculum.

Implications and Next Steps for Research

This study represents the first step within a much larger research effort that is focused on developing theory, identifying best practices, and creating effective assessment instruments for fostering integrative knowledge and lifelong learning across a wide range schools, disciplines and institutions. Although the sample size of this study was sufficient to validate the conceptual model that underlies the Integrative Knowledge Portfolio Process, we are cautious in terms of attempting to generalize about differences in students' learning based upon their major/discipline, or drawing conclusions about how different types of learning environments engaged with IKPP. For instance, even though the analyses of variance showed students having greater gains in some learning environments more than in others, emphasizing these differences can cloud the fact that even where the gains were the smallest, students still showed statistically significant increases on all six dimensions of integrative learning. Future research will focus on triangulating the results of this study with a qualitative analysis of students' portfolio content in order to understand more fully how students from various learning environments and majors/disciplines may benefit differently from IKPP.

Conclusion

In order to better prepare flexible, adaptive and creative people who can address the challenges of the 21st century, higher education institutions must become more integrative. Programs and curriculum must be re-designed so that students have more opportunities to reflect on, synthesize, and demonstrate the knowledge and skills they are gaining both within and outside of the classroom. Many educators believe that integrative ePortfolio-based learning is one way to address this need. However, as the literature demonstrates, creating integrative learning environments is not easy. One of the

most formidable barriers faculty and educators face is that very little is actually known about what "integrative learning" actually means, the best ways to facilitate it, the methods by which it should be evaluated, or the types of integrative capacities students can be expected to gain in response to integrative experiences. By providing an empirically validated conceptual model of integrative knowledge and learning through the use of ePortfolios, this work has begun to address these gaps.

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Appendix A
Excerpt from an Example of Work Page

The page below, "Inspiring Involvement in Community Projects" is one of nine Example of Work pages in the Work Showcase section of this student's Integrative Knowledge Portfolio.

The headings to the left circled in red are the four overarching Knowledge/Skill categories this student used to organize her 9 individual Example of Work pages (shown in blue under their respective knowledge/skill category). These Examples of Work pages are contained within the Work Showcase section of the portfolio (which is one of several major sections of the portfolio that are circled in green at the top of the page).

Appendix B
UM Integrative Learning Pre/Post Self-Assessment Survey Statements

Recognize personal strengths and challenges

1. I can identify my strengths and types of challenges (i.e. gaps in my knowledge) I encounter in specific learning or work situations (e.g. in writing a paper or doing a research project).
2. I make choices to enhance my strengths and address my gaps/challenges in specific work or learning situations (e.g. going to office hours when I am struggling to understand something).
3. I can provide evidence (i.e. in an essay, story, ppt., or ePortfolio) of how I have expressed my strengths and/or taken action to address my challenges in specific situations.

Identify personal values and beliefs

4. I can articulate specific examples of my personal values and beliefs (e.g. believing in values such as "self-motivation" or "contributing to the well-being other others).
5. I can identify examples of how my persona l values and beliefs influence my learning, decisions, and actions (e.g. in the subjects I have chosen to study, or the groups I chosen to join).
6. I can provide evidence (i.e. in a reflective essay, video, or an ePortfolio page) of how my personal values and beliefs have informed my decisions and actions.

Explore personal background, social identities, and perspective

7. I am aware that my background and social identities (e.g. my race, gender, nationality, social class, religion, sexual orientation, etc...) influence my perspective – how I see the world and make sense of things.
8. I can identify specific experiences (e.g. moments in my classes or in social situations) where I have learned about the strengths, limitations, and/or biases inherent in my own perspective.
9. I can provide evidence (i.e. within a reflection essay, ppt. or an ePortfolio page) of the knowledge3 and insights I've gained with regards to the strengths, limitations, and biases within my own perspective.

Work across social and cultural differences

10. I recognize how interacting with people from backgrounds and cultures different from my own enhances my work and learning.
11. I actively seek to understand the views of people with backgrounds and perspectives different from my own.
12. I can demonstrate (i.e. through stories, reflective, video, ppt. or an ePortfolio page) the specific ways I have sought out and learned from people with backgrounds, cultures, and/or perspectives different from my own.

Recognize knowledge and skills gained from different types of learning experiences

13. I understand that different types of knowledge and skills are gained from different kinds of experiences (e.g. in general, the knowledge/skills gained from taking an English class are

different from the knowledge/skills gained from work in an internship, or participating in a student organization, or sports team).
14. I can clearly identify the specific types of knowledge and skills I've gained from different learning and life experiences (from academic classes, paid work, personal challenges, leadership opportunities, etc.).
15. I can clearly demonstrate (i.e. through a reflective essay, video, ppt. or ePortfolio page) the specific types of knowledge and skills I've gained from a wide range of learning and life experiences.

Transfer and apply knowledge and skills to new contexts

16. I understand the need to connect knowledge I've gained from one place (e.g. the skills gained from participating on a sports team), to other situations (e.g. working with a group to solve a math or chemistry problem).
17. I can identify several different examples of how I have applied the knowledge or skills I've gained from one experience (e.g. learning to convey the essence of complex information for a science presentation), to other situations (e.g. creating an interesting web-site for a student organization).
18. I can provide evidence (i.e. though an essay, video, ppt. or an ePortfolio page) of the specific ways in which I have applied the knowledge/skills I've gained in one experience to other situations or contexts.

Work within my passion, interests, and sources of curiosity

19. I can clearly identify the passions, interests, and sources of curiosity that influence my learning, work and social life.
20. I have the habit of creating learning and/or professional goals that are informed by my passions, interests, sense of purpose, or sources of curiosity.
21. I can demonstrate (i.e. through a ppt. presentation, paper, video, or an ePortfolio page) the knowledge/skills I've gained from pursuing an area of study, or engaging in a series of actions, that reflect my passions and interests.

Develop an on-line professional identity

22. I understand the need to develop an on-line professional identity that is different from a typical Facebook, Linked-in, or MySpace identity (e.g. through the development of a professional web-page or an integrative ePortfolio).
23. I am taking steps to develop a professional on-line identity that demonstrates my knowledge, skills, values, goals and contributions to others (e.g. through a professional web-page or an integrative ePortfolio).
24. I am continually updating and expanding my on-line professional identity (i.e. through a personal web-page, or an integrative ePortfolio) in order to demonstrate my knowledge, skills, values, goals and contributions to others.

Work effectively in groups or teams

25. In a group or team situation, I pay attention to who is, and who is not, participating fully in the discussion and the activities of the group.

26. I ask questions and listen to others in order to understand if and how the needs, goals, perspectives, interests, etc.. of all group members are being addressed in the group's decision-making and activities.
27. I can provide evidence (i.e. through a story, video, ppt., letter of recommendation or an ePortfolio page) of the ways in which I have learned how to positively contribute to the functioning of a group or team.

Evaluate and modify my work

28. I can identify the standards that both myself and others will use to evaluate my learning and/or work (e.g. the criteria a professor or supervisor will use to assess my work as "excellent" "good" or "needs improvement").
29. I often reflect on if and how my work (academic and otherwise) is meeting my own standards and expectations.
30. I seek feedback on a regular basis in order to understand if and how my work (academic and otherwise) meets the needs, standards, and/or expectations of others.
31. I can demonstrate (i.e. through a reflective essay, feedback from supervisors, or as an ePortfolio page) how I have changed my perspective, decisions, or actions as a result of my own reflections or feedback from others.

Work with others to make a difference

32. I can work with others to identify a problem or need within a specific field, group, organization, or community (e.g. a school or non-profit organizations needing additional funds or resources in order to fulfill their mission).
33. I can work with others to develop a plan and take action in order to address the needs of a group, organization, or community (e.g. creating a stable funding stream to support a non-profit organization in an on-going basis).
34. I can provide evidence (through a ppt., video, letters from others, or ePortfolio page) of how I have worked with others to identify and address a problem, need, or challenge within a group, organization, or community.

Engage in ethical decision-making and actions

35. I recognize the need to reflect on how my decisions and actions affect others (i.e. asking myself, "Do my decisions contribute to the overall care, well-being, or positive functioning of individuals, groups, organizations and communities that are a part of my life?").
36. I can identify specific moments or experiences where I have developed or practiced ethical principles (e.g. the principles of equity, justice, fairness, compassion, care, etc..) in my decision-making and actions.
37. I can provide evidence of decisions and actions where I have either developed, or expressed, one or more ethical principles (e.g. equity, justice, fairness, compassion, care, etc..) in the context of working with individuals, groups, organizations or communities that are a part of my life.

Appendix C

Factor Loadings Based on a Principle Components Analysis with Varimax Rotation with Kaiser Normalization for 37 Items from the Pre-Post Survey (N=620)

Factor 1: Demonstrate knowledge gained within and across specific context	
I can provide evidence of the specific ways in which I have applied the knowledge/skills I've gained in one experience to other situations or contexts	.724
I can provide evidence of the knowledge and insights I've gained regarding the strengths, limitations and biases within my own perspective	.713
I can provide evidence of how I have worked with others to identify and address a problem, need, or challenge within a group, organization, or community	.667
I can clearly demonstrate the specific types of knowledge and skills I've gained from a wide range of learning and life experiences	.628
I can provide evidence of how I have expressed my strengths and/or taken action to address my challenges in specific situations	.625
I can provide evidence of decisions and actions where I have either developed, or expressed, one or more ethical principles in the context of working with	.615
I can provide evidence of how my personal values and beliefs have informed my decisions and actions	.611
I can demonstrate the specific ways in which I have learned from people with backgrounds, cultures and perspectives different from my own	.601
I can provide evidence of the ways in which I have learned how to positively contribute to the functioning of a group or team	.530
I can demonstrate the knowledge/skills I've gained from pursuing an area of study, or engaging in a series of actions, that reflected my passions and interests	.513
I can identify several different examples of how I have applied the knowledge or skills I've gained from one experience, to other situations	.504

Factor 2: Recognize and adapt to differences	
I recognize how interacting with people from backgrounds and cultures different from my own enhances my work and learning	.753
I actively seek to understand the views of people with backgrounds and perspectives different from my own	.637
I can work with others to identify a problem or need within a specific field, group, organization, or community	.570
I understand the need to connect knowledge I've gained from one place to other situations	.556
I understand that different types of knowledge/skills are gained from different kinds of experiences	.525
I can work with others to develop a plan and take action in order to address the needs of a group	.507
Factor 3: Understand and direct oneself as a learner	
I can clearly identify the passions, interests, and sources of curiosity that influence my learning, work and social life	.671
I can identify my strengths and challenges I encounter in specific learning or work situations	.605
I have the habit of creating learning and/or professional goals that are informed by my passions, interests, sense of purpose, and/or sources of curiosity	.576
I make choices to enhance my strengths and address my gaps/challenges in specific work or learning situations	.527
I can see how my personal values and beliefs influence my learning, decisions, and actions	.513
I can articulate specific examples of my personal values and beliefs	.424
I can clearly identify the specific types of knowledge and skills I've gained from a different learning and life experiences	.400

Factor 4: Become a reflexive and relational learner	
I ask questions and listen to others in order to understand if and how the needs, goals, perspectives, interests, etc. of all group members are being addressed in	.611
I often reflect on if and how my work is meeting my own standards and expectations	.602
I seek feedback on a regular basis in order to understand if and how my work meets the needs, standards, and/or expectations of others	.599
I can demonstrate how I have changed my perspective, decisions or actions as a result of my own reflections or feedback from others	.500
In a group or team situation, I pay attention to who is, and who is not, participating fully in the discussion or the activities of the group	.494
I can identify the standards that both myself and others will use to evaluate my learning and/or work	.427
Factor 5: Identify and discern my own and other' ethics and perspectives.	
I am aware that my background and social identities influence my perspective-how I see thing world and make sense of things.	.670
I recognize the need to reflect on how my decisions and actions affect others	.571
I can identify specific moments or experiences where I have developed or practiced ethical principles in my decision-making and actions.	.545
I can identify specific experiences where I have learned about the strengths, limitations, and/or biases inherent in my own perspective.	.466
Factor 6: Developing a professional digital identity	
I am taking steps to develop a professional on-line identity that reflects my knowledge, skills, values, goals and contributions to others	.832
I am continually updating and expanding my on-line professional identity in order to demonstrate my knowledge, skills, values, goals and to others	.809
I understand the need to develop an on-line professional identity that is different from a typical Facebook or MySpace identity	.802