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■ *Research Paper*

Making Local Knowledge Visible: The Case of the University for Business and Technology in Kosovo

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A vision to further national development through higher education now informs planning for the University for Business and Technology Knowledge Center. At its essence, the Center aims to make local knowledge visible through furthering discovery of and access to research content produced by academic students and university professors on institutional, local and international levels. This paper reports on conceptual exploration of this institutional idea during spring semester 2017 in a graduate course on systems thinking and methodology. Using active learning pedagogy to improve local situations, an international teaching team facilitated student and stakeholder engagement in participatory design activities using soft systems methodology tools and techniques. Course evaluation outcomes revealed students' improved levels of knowledge and development of insights. In addition, their course work demonstrated their advanced understanding of systems thinking and its application. Furthermore, students expressed high motivation to learn more about other human-centred theories and participatory design tools. In considering the value of the University's knowledge vision, they were especially enthusiastic about its implications for furthering national democratic development in Kosovo and regional economic growth in south-eastern Europe. © 2018 The Authors Systems Research and Behavioral Science published by International Federation for Systems Research and John Wiley & Sons Ltd

Keywords design thinking; higher education; Kosovo; local knowledge; soft systems methodology

INTRODUCTION

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The University for Business and Technology (UBT), Pristina, Kosovo, was established in 2001 with the

aspiration of the founder, and now Rektor, to educate Kosovo students to become active contributors to the society and to the developing nation. For historical reasons, success initially depended on inviting lecturers and scholars from abroad, as reflected in the university's brand statement, 'American European Education'. Now, after more than a decade of successfully educating Kosovo graduates and developing Kosovo instructors, the University plans to further awareness and promote usage of university-produced knowledge, within the institution and throughout the country, in a Knowledge Center.

The UBT Knowledge Center initiative extends the founding vision of national development through higher education. Reflective of its institutional maturity, the University now produces considerable local knowledge, including, but not limited to, faculty publications and presentations, student papers and projects, and commissioned studies and reports. In the first phase of this initiative to enhance visibility and accessibility of local knowledge, computer science students developed the architecture and the software for a repository of references to UBT faculty publication and presentations, which now also serves as the platform for the Kosovo national faculty bibliography.

In this second phase of making local knowledge visible, the University will create a repository system and associated workflows for acquisition, organization and dissemination of student research projects, faculty research papers and community research reports. This initiative thereby acknowledges the responsibility of a university in a transition country to foster democratic civil society and regional economic growth, as well as further smart business practices and higher education efficiencies. In addition, the pedagogical process—which constitutes the emphasis of this paper—illustrates the efficacy of engaging stakeholders in participatory design of educational systems. Finally, because local knowledge, identity and learning are necessarily situated, Kosovo students, faculty, staff and administrators serve as domain experts and international educators from Sweden and the United States serve as system design facilitators. This paper describes

systems thinking education¹ practiced by collaborative design to contribute to robust educational systems. In this instance, the UBT Knowledge Center initiative was used as a case to practice systems thinking methodology and simultaneously contribute to furthering the knowledge vision of a university in a developing country and a nation in transition.

DESIGN THINKING

'Design thinking is essentially a human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping, and concurrent business analysis to involve consumers, designers, and businesspeople in an integrative process ... for innovation and enablement' (Lockwood, 2010, p. xi). Implementation within the UBT context recognizes that 'The most significant innovation enables the realization of far greater human potential. The catalyst of such creativity in higher education is the acquisition of new knowledge and the living of new experiences. Then, within innovation and incubation environments, new thinking enriches knowledge handed down from previous generations, enlivens contemporary lives and informs future growth' (Hajrizi *et al.*, 2017).

In response, as stated in the defining vision document, 'the University for Business and Technology intends to build collaboration environments to enable discovery and access, interpretation and analysis, creation and sharing of knowledge' (Hajrizi *et al.*, 2017). These aspirations recognize the synergies possible when individual discovery is reinforced by collective inquiry. With a shared purpose of using information to learn, people can design ways to create knowledge together. Stated differently, educational systems can be designed to encourage and enable participants to learn from each other to co-create relevant and useful knowledge. Further, the UBT 'initiative acknowledges that

¹ Course documents, including syllabus, instructions and assignments, are available at <http://urn.kb.se/resolve?urn=urn:nbn:se:lnu:diva-77671>

societal progress, whether local or global, ultimately depends on catalyzing, fortifying, and affirming human inquiry ... working in a global marketplace and living in a global society' (Hajrizi *et al.*, 2017).

In the belief that enabling educational environments foster 'learning to learn together', course pedagogy and learning outcomes necessarily supported participants' learning 'to share what they have learned, learn what others want to share, and imagine how they might combine their talents to discover and do even more meaningful work ... for the greater good of humanity' (Hajrizi *et al.*, 2017). Teaching strategies also intentionally catalysed the synergistic potential of international higher education collaborators (Somerville, 2015d) 'working together' (Somerville, 2009) to design curriculum activities for envisioning virtual spaces and physical places *for and with* Kosovo students, professors and staff.

This intentional process, of engaging system users early on, aligns well with the advice of Thomas Lockwood, former president of the Design Management Institute, Boston, MA. Based on his experience leading this highly regarded association of design practitioners working in business, he has described design thinking as follows:

There are several key tenets of design thinking ... The first is to develop a deep understanding of the consumer ... The best way to do so is by getting out in the real world with consumers, with open-minded collaboration, even with codesign concepts ... by watching, listening, discussing, and seeking to understand. The key is to start from a seeking understanding point of view ... Having the users involved early on makes it possible to get user evaluations of a concept. Therefore, a second important aspect of design thinking is collaboration, both with the users and through forming multidisciplinary teams. ... The third part is to accelerate learning through visualization, ... which are made as simple as possible in order to get usable feedback. (Lockwood, 2010, p. xi)

Lockwood continues,

Visualization of concepts ... is the fourth criterion. The objective is to make the intangible become tangible, and visualization is the best way to do that. The power of visual communications is undeniable Using visual explanation also provides context, which is greatly helpful when the consumer is a partner in your concept development The fifth and last aspect ... is concurrent business analysis integrated during the process ... anticipating what new business activities may be required by a conceptual new product, service, or experience offering, as well as the resources it may require and the ... landscape in which it will appear. (Lockwood, 2010, p. xii)

Design thinking, then, aims to activate innovation to reveal opportunities and inspire possibilities. At later stages, realization is grounded in environmental scan, workflow analysis and resource allocation.

In this spirit, visioning activities for the UBT Knowledge Center incorporated higher education learning principles, because learning has long been highlighted as central to the purpose of design activities (Senge, 1990; Beckman and Barry, 2007). Furthermore, co-design activities recognized the efficacy of 'using information to learn' (Bruce, 2008), employing human-centred and user-driven antecedent thought and practice for systems design and information experience (Somerville, 2015b, 2015c). Moreover, the course activities highlighted the synergistic potential of integrating systems thinking and co-design activities to activate entrepreneurial processes for creativity and innovation within an educational institution and beyond.

RELATED WORK

Applied research over more than a decade has demonstrated that complementary learning-intensive and information-intensive theories and methods catalyse collaborative design of workplace systems, relationships and practices to accelerate synergies between people and ideas (Somerville, 2014, 2015b). It thereby follows that everyone, who creates courses of action aimed

at changing existing situations into preferred ones, performs design (Simon, 1969). Within systems sciences, the expression ‘[a] systems approach begins when first you see the world through the eyes of another’ (Churchman, 1968, p. 231) implies an inspirational source for envisioning new courses of action. In this case, in order to inclusively explore complex sets of relevant interactions among people, purposes, processes, practices, technology and professions to thereby systemically improve local situations, the visioning activities for the UBT Knowledge Center employed participatory systems design processes. Enabled by technology, using information, and focused on learning, course design activities fostered ideation and invention outcomes using sense-making processes and data visualization tools.

The UBT Knowledge Center design initiative has its roots in Checkland’s soft systems methodology (SSM) (Checkland, 1981; Checkland and Holwell, 1998; Checkland and Poulter, 2006) and Bruce’s informed learning theories (Bruce, 2008; Bruce *et al.*, 2014). In combination, this antecedent scholarship from England and Australia, amplified in Sweden and the United States, now furthers systems design and knowledge management in the UBT Knowledge Center in Kosovo, through furthering information exchange, reflective dialogue, knowledge creation and conceptual change.

Although building upon longitudinal North American studies that demonstrated the efficacy of information-centred (Bruce *et al.*, 2017) and systems-focused (Checkland, 2011) design activities in the workplace (e.g. Mirijamdotter and Somerville, 2009; Somerville, 2009, 2015c; Somerville and Mirijamdotter, 2014), this UBT initiative commenced at a graduate level systems analysis, design and modelling course² that aimed to ultimately redesign university educational experience. Graduate students served as co-design practitioners, researchers and consultants. Thus, the traditional power relationships in academia were reversed through empowering students as

local co-designers, that is, advancing their independence and encourage their ability to form their future (Somerville *et al.*, 2018).

COURSE PEDAGOGY

Following a 4-month planning process, initiation of human-centred design for the UBT Knowledge Center commenced in late March 2017 in a six-credit graduate level Information Systems Analysis, Design and Modelling course at the Pristina, Kosovo campus. A ‘flipped classroom’ (e.g. Bergman and Sams, 2012) pedagogy guided the course design. Therefore, course participants were given an assignment 3 weeks before the start of classes. The assignment included questions related to course literature to which they were required to respond in advance of the class. The literature included seminal texts on Systems Thinking and SSM (Checkland and Poulter, 2010; Reynolds and Holwell, 2010; Checkland, 2011), Informed Systems and Learning Theory (Somerville, 2015a, 2015b) and participatory action research (Somerville, 2014). This ‘flipped’ approach, which required significant work before class sessions, ensured that the 4 days of in-person class time could be productively spent on active learning. Then, within this shared context, students were assigned in three groups and SSM techniques were employed to address the case assignment on the Knowledge Center concept, from multiple perspectives and world-views. Finally, each course participant was asked to write a reflection paper about their learning experiences, in relation to the course learning outcomes. Some highlights of the course activities, learning outcomes and reflection insights are presented in this paper.

Throughout, SSM tools and techniques guided course participants’ exploration of essential questions related to the why, what and how of realizing the institution’s aspiration to make university knowledge visible. Through a co-design process facilitated by guest professors from Sweden and the United States, students explored aspects of ‘the problematical situation’. Inspired and informed through course presentations and conversations with UBT academic and

² Course documents, including syllabus, instructions and assignments, are available at <http://lnu.diva-portal.org/smash/record.jsf?pid=diva2%3A1247058&dswid=1375>

technology leaders, including the Rektor, students collaboratively applied tools and created reports on various dimensions of the Knowledge Center case. Reflective of the design thinking process, grounded in soft systems design practices and informed learning principles, they pursued these learning outcomes related to the UBT Knowledge Center case study:

- Design a process that engages a broad campus community in shaping the future of libraries' space utilization on its four campuses.

and

- Develop library use scenarios that inform the university's Knowledge Center concept.

The course's pedagogical approach facilitated student learning about systems thinking ideas, such as SSM principles and process, and its techniques, for example, Rich Pictures, PQR, CATWOE and Measures of Performance (Checkland and Poulter, 2010). SSM was selected for this purpose because it acknowledges the social context of learning—that knowledge is acquired and understood through action, interaction and sharing with others. As the students' projects illustrate, soft systems models and processes therefore explore the social relationships necessary for informed learning (Bruce, 2008), which acknowledges the larger landscape of information exchange and knowledge creation, oftentimes enabled by technology.

PROJECT HIGHLIGHTS

To frame the context for human-centred UBT Knowledge Center design, Rektor Hajrizi delivered the introductory case lecture. He expressed the aspirational aim of the Knowledge Center as capturing data to produce information and create knowledge. Also, senior academic affairs and information technology administrators and professional academic library staff contributed to collective creation of the knowledge centre vision. Although the Center will ultimately collect, organize and preserve all UBT-generated knowledge—and make it discoverable, visible and accessible—the Rektor suggested that the students focus on faculty, staff and student

produced research results in this course. He framed the problematical situation as 'lost opportunities' for building on earlier knowledge, whether in the classroom, in the laboratory or in the literature. In keeping with the university's brand as a 'Top Education for Top Students',³ Rektor Hajrizi spoke eloquently about the potential of university generated scholarship to catalyse and sustain teaching and learning. In recalling the university's mission to advance Kosovo, a transition nation, he spoke passionately about the importance of having 'knowledge of knowledge' with an underpinning 'system of systems'. On the last night of class, the Rektor returned to critique (and complement) student reports.

Student projects illustrate application of the SSM process and its techniques, within the case scope of creating a prototype UBT Knowledge Center environment. The students' work further focused on using information, as depicted in faculty, staff and student research results, to advance local knowledge visibility.

Project #1 chose to focus on the technological part of the problematical situation. Through their Rich Picture, group members identified six perspectives based on students, UBT staff and UBT leader viewpoints, which they further explored using SSM. One viewpoint related to students' wishes for access to free and credible data and, relatedly, a second perspective acknowledged students' desire to collaborate in research projects and thereby contribute to production of freely available credible content. From the position of librarians, another perspective prioritized the organization of content. Two other perspectives, reflective of UBT information technology staff members' worldview, emphasized data centre infrastructure concerns, including information security for protecting intellectual property. The sixth perspective, previously presented by the Rektor, envisioned making local knowledge visible through furthering discovery of and access to research content produced by academic students and university professors on institutional, local and international levels. The group acknowledged that this necessarily required policies and procedures to collect and curate relevant

³ <https://www.ubt-uni.net/en/home/>

Figure 1 depicts an early rendering reflecting institutional vision, potential design and value added. Starting at the top right corner of the figure, UBT—with its four campuses—is illustrated. UBT is located in Kosovo but has international collaboration as symbolized with a globe. An arrow to the left illustrates the various disciplines and educational programmes offered by UBT. In the bottom right corner, the current physical library is drawn with its stacks of 200,000 print books, as well as its e-books and publisher databases. The librarians' work with physical books and digital material, including cataloguing and circulation, are illustrated at the left of the sphere named 'core knowledge'. To the left of the UBT symbol, the Rektor and his visions are illustrated. The Rektor's future Knowledge Center vision includes physical 'places and spaces' for collaboration (depicted in the centre of the figure) and repositories for students' and professors' academic work. The students' ideas about collaborative digital solutions supporting their studies and enhancing their knowledge development are also represented.

To realize these initial design ideas, Figure 1 further acknowledges the need for flexibility, to accommodate changing circumstances. For instance, the interior design of the library facility needs to be re-thought in terms of opening up the places and spaces as well as enabling mobility and flexibility to refurbish easily, as needs change. The drawing for a repository for UBT created knowledge recognizes a need for developing agile and sustainable architecture and software. In addition, there is need for policies and guidelines (illustrated below the 'digital technological solutions' at the middle left) on how technologies should be used to support integrity, accessibility and storage. Further, Figure 1 recognizes that the library can act as a node, supporting professors' and students' research workflow (illustrated as a wavy arrow at the centre bottom). This will necessarily require development of library staff members' competence as well as establishment of a new professional position of knowledge manager.

In its fullest expression, the UBT Knowledge Center adds considerable value to a reimagined academic library, with open spaces and collaboration places, amplified by a UBT created

knowledge repository. This enriched research ecosystem and educational environment has the potential to build local knowledge, encourage transdisciplinary work and foster societal development.

COURSE REFLECTIONS

In their reflection papers for the course, its pedagogy and their learning, students presented positive impressions and offered encouraging comments. In particular, they appreciated the active learning pedagogy applied to a local case statement. They also expressed appreciation of systems thinking ideas and methodologies, as indicated in the succeeding text.

About the course design and its action pedagogy:

- 'It was an honor to be part of your class'.
- 'It made me be more active, focused, and open minded'.
- 'I'm certain the whole group felt joy'.
- [The course design experience made us] 'be proud of our achievements'.
- 'Together we have completed the project ... [as well as] helping [each other] and sharing ideas from the lessons that we covered from SSM'.
- 'The whole experience was unforgettable, especially presenting in front of non-native professors. It was our pleasure'.

Many comments reflected that flipped classroom pedagogy, with active learning classroom activities, was novel experience.

About SSM as pedagogy, students wrote:

- 'As my background comes from exact sciences (BSc in Chemistry), I always based my decisions/solutions/problems on exact information and function. If we take as an example painting the fence then the reasoning would be because fence is getting rusted and to protect the fence—I need to paint. But then I was introduced to Soft System Methodology. In this course, I learned that it is not so simple to paint the fence only for functionality but we need to consider many other factors and variables so

that we do not repeat the same mistakes but rather think in long run and with social, environment, etc. wide approach’.

- ‘What I can say as general feedback [is that] it was a real pleasure of mine being part of this course and I have gained more knowledge on how to see [that] the most unreasonable problems can [be] solved by having different world-views’.
- ‘And finally, after analyzing ... different worldviews, we could easily define the situation based on different worldviews by drawing the rich picture of the situation or a problem’.
- ‘With this rich picture, we tried to represent structure, processes and issues of the organization, which could be relevant to the problem UBT knowledge center’.

About the case, students added:

- ‘Professor Edmond [the Rektor] opened a broader point of interest for us in regard of advancing a knowledge center’.
- The ‘director of UBT participated in the lecture with a vision [for] UBT to have a Knowledge Center, [including] how we can categorize, store and share information. It was a step for our group work aiming UBT to have a unified platform that students, other universities, communities, governments ... [will] have free access to [the] knowledge center’.
- ‘To understand how ... [the] library at UBT [works], Professors ... invited UBT staff members’.

A final remark about the whole—pedagogical approach, course design, systems thinking and relevant case—declared:

- ‘And I can say that my life will have two eras, before SSM and after SSM’.

The latter testimonial suggests the transformative impact of university course design for educational system design. In this instance, students’ motivation to learn new theories and apply new models was heightened by the practical value of advancing the University founder’s vision for developing both the UBT and the national Kosovo society. The active learning processes

used in the course enabled students to experience new approaches for exploring complex, ill-defined situations. The evaluation of the students’ submitted assignments, both individual and team based, revealed high level of knowledge acquisition and advanced understanding. Also, there were no dropouts for the course; all students who started also finished the course, suggestive of their high level of engagement.

CONCLUDING REFLECTIONS

‘There has been no greater time of need for social, economic, and environmental improvement than today, and no better people to make a difference than “design thinkers”: those who venture outside the box, who are open-minded, who enjoy collaborative ideation, who have an eye on design and an eye on the future, who have a passion for change, who tell visual stories, and who do all of these things with a spirit of goodness. We can make the world a much better place, by design, in every moment’ (Lockwood, 2010, p. iii).

In this spirit, the UBT Knowledge Center initiative illustrates some rich opportunities for advancing design of educational systems through systems co-design, purposefully using information to learn. First, the course employed a ‘real world’ case study approach in which students served as co-design practitioners, researchers and consultants. The remarkable collaboration between UBT students and UBT leaders during the early design processes anticipates sustained engagement during later design phases.

Secondly, through exploration of complex sets of interactions between and among people, purposes, processes, practices, technology and professions, the students offered valuable advice for a phased approach to enacting a bold University knowledge vision to enhance institutional ways for working with people, information and technology. As the collective SSM data visualization model illustrates, the boundaries of the Knowledge Center ecosystem extend well beyond interrelationships within the university to encompass the society of which the university is a part. Further, as students’ reflection

assignments illustrate, ‘making local knowledge visible’ requires active curation, interpretation and usage of information and knowledge to create more knowledge, which builds upon and preserves intellectual, cultural, national and regional resources for future generations, through iterative design thinking processes that supports transformative and integrative learning.

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