

ENGAGING TBR FACULTY IN ONLINE RESEARCH COMMUNITIES AND EMERGING TECHNOLOGIES

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ABSTRACT

The growing impact of online research communities and emerging technologies is creating a significant paradigm shift and consequently changing the current research landscape of higher education. The rise of online research communities exemplifies a shift from traditional research engagements, to online research communities using “Web 2.0,” in which communities of researchers are the basic unit of research engagement. As institutional practices become increasingly digitized, the role of faculty, scholars, and professionals are constantly reshaped and re-negotiated. The rise and use of emerging technologies in the field of research, has the potential to significantly impact the individual researcher, their institutions and ultimately the State. The project Critical Conversations Research Network is a part of a broader initiative undertaken by the Tennessee Board of Regents Office of Academic Affairs. TBR’s Critical Conversations for Jobs and the Economy is designed to complement Gov. Bill Haslam’s “Drive to 55” initiative, which aims to bring the percentage of Tennesseans with college degrees to 55 percent by the year 2025. (Haslam, 2013). The initiative undertaken by TBR’S office of Academic Affairs consists of: (a) Conversational interviewing of selected scholars and researchers across TBR institutions through video recordings of important and critical research topics that affect policy implications in the state of Tennessee, (b) an interdisciplinary journal called Critical Conversations Interdisciplinary Journal (CCIJ) dedicated to promoting dialogue on topics of importance among scholars across disciplines at TBR institutions. The journal provides a platform for critical conversations through which all disciplines can inform practice and practice can inform all disciplines, providing guidance for future public policy decisions and (c) the proposed Critical Conversations Research Network which is the focus of this paper. The goal of the Tennessee Board of Regents Critical Conversations Research Network (“TBR’s-CCRN”) is to connect TBR’s faculty, researchers and scholars in collaboration, dialogue and engagement, about pertinent research initiatives undertaken by individuals and institutions across the state. A secondary purpose is to highlight the practical implications of research for economic and workforce development and to assist policymakers to engage in data-driven and informed decision-making.

Introduction

Online research communities (ORC) and emerging technologies (ET) have become a growing phenomenon with many and varied implications for academic use in higher education. Online research communities are a part of an emerging and developing area in research, that employs the use of cutting-edge technologies and engagement tools. The idea of an online community is not a new one. On mobile devices and in the fast paced digitized world, social interactions no longer have to be based on proximity; instead social interactions can literally occur with anyone anywhere. (Harmon, 2005). Online research communities have become a part of that dynamic network of

access by anyone at any time. Online research communities can be defined as groups of individuals with common interests who engage in a variety of meaningful research interactions, network and engagement in an online or virtual environment. These interactions can have a major impact on strategy and operations on an individual, institutional, state and in some instances on a global level.

According to Wenger, an online community consists of three basic elements: i) first, the notion of joint enterprise, that participants shared and identify as common goals; ii) second, participants mutually engage, co-create, learn and undertake significant activities together; and iii) third, participants have a shared repertoire, a set of communal

resources that have developed as part of their engagements. (Wenger, 1998).

Online research communities (ORCs) can be either private or public depending on the overall mission and goals and are typically closed password-protected communities whose members are selected based on specified profiles. (Comley, 2008). The profiles of members of an online research community are individuals with common interests, goals and a set agenda, for example frequent flyers. However, there are also instances when participation in the network are specialized experts from outside of the niche or network. Online research communities may vary in size but generally, it has been reported that the response rates of participation in an online research community (ORC) are usually higher than the open “naturally occurring” online communities. (NOOCs). (Dwyer & Hiltz, 2004). These communities tend to attract a collective group of individuals who are passionate about a given subject area of particular significance in a geographic location or of international or global dimensions. Recruitment to the community is targeted and strictly controlled and the agenda is clearly communicated at the recruitment stage. Those who wish to become a part of an online research community have to become a member via a specific site.

Online research communities can also act as an information system where members can post, comment on discussions, provide expert advice and or collaborate with each other on given topic or issue of interest. Online communities have become popular means for researchers and scholars to interact, collaborate and network with each other in a virtual platform. The most common forms of communication in an online setting are chat rooms, forums, e-mail lists or discussion boards. (Brandtzæg & Heim, 2008). Individuals also join online communities through video games, blogs and virtual worlds. In sum, online research communities are virtual communities whose members engage in meaningful and significant research and scholarly interaction and engagement via the Internet or virtual spaces. (Paragas, & Dela Cruz, 2014).

Baym (2007) suggests that online groups are taking new forms as participants spread themselves amongst multiple Internet and offline platforms distributing themselves throughout a variety of sites in a quasi-coherent networked fashion. (Baym, 2007). She notes that this new form of distributed community poses particular problems for its members, developers, and analysts and identifies several implications for theorists, researchers, developers, industry and independent professionals. (Baym, 2007). There are inevitably issues that can be addressed such as the validity of research findings generated by participants in the community (Stafford and Gonier, 2007) and issues

related with the consequential maintenance of such communities (Comley, 2008).

Emerging technologies (ET) as distinguished from conventional technologies (CT) is a field of technology that broaches new territory in some significant way, with new technological developments. (Soares, 1997). Some examples of current emerging technologies include educational technology, information technology, nanotechnology, biotechnology, cognitive science, robotics, and artificial intelligence (Soares, 1997). Emerging technologies are those technical innovations which represent progressive developments within a field for competitive advantage. (Soares, 1997).

The use of emerging technologies in higher educational institutions is providing unique opportunities for students, administrators and faculty to use local strengths and specializations on a broader scale. For example, the use of social media interfaces through computer and mobile devices has become widespread among universities and colleges with, the two most prominent cited interfaces; Facebook and Twitter. (Siefert, 2013).

Facebook allows users to create profiles and consequently allows those user-operated profiles to interact with each other. It also allows the expression of interests and the discovery of commonalities between users and allows users to build and maintain connections and invite others to join a community. In contrast, Twitter is a social media interface that enables users to share a limited amount of user-generated content, quickly and easily, to an extensive number of other users. (Gesser, 2013).

Several research have investigated how scholars and researchers are using emerging technologies such as social media tools to further research activities giving insight into the kinds of activities that emerging technologies might reflect. (Nolan, 2013, Siefert, 2013, Seaman & Tinti-Cane, 2013, Gesser, 2013).

Nolan (2013) for example noted that academics can no longer afford to ignore social media as it is an increasingly important vehicle for institutions to continuously build relationships and constituencies. Seifert (2013) describes how the School of Advanced Study at the University of London is using social media channels to increase awareness and engagement about the impact of individual research projects.

The New Media Consortium (NMC) *Horizon Report:2014 Higher Education Edition* is part of a comprehensive research venture established in 2002 that identifies and describes for educational leaders, policy makers, and faculty, emerging technologies likely to have a large impact on teaching, learning, creative inquiry and re-

search around the globe in the upcoming five years. (NMC *Horizon Report*, 2014). In 2014, the NMC project team identified six emerging technologies or trends that will impact higher education institutions (HEIs) over the next five years. According to the NMC *Horizon Report 2014*, social media is among the top emerging technologies that will influence teaching, learning, creative inquiry and research in the next twelve months and is one of the top two trends that stand out as unique opportunities for vision and leadership. (NMC *Horizon Report*, 2014 p.6). Furthermore, according to the report, social media, already very well established in the consumer and entertainment sectors, is rapidly integrating into every aspect of university life; with its maximum impact expected to manifest within the next year. (NMC *Horizon Report*, 2014 p.6). The report mentioned that for example, in the Faculty Thought Leadership Series, developed by the University of Hawaii Professional Assembly, faculty across several campuses convened to re-envision the future of the higher education teaching profession, with social media as a major component. (NMC *Horizon Report*, 2014 p.6). Recordings of the meetings were broadcast on YouTube and anyone could join the real-time discussions through Twitter. Other examples abound in which social media is being used by decision-makers to engage with stakeholders in new and highly cost effective ways. (NMC *Horizon Report*, 2014 p.7).

Social network sites have become, for most of us, part of our daily routines. Consequently, individuals find themselves in a network of friends that bypasses offline contexts, mixing contacts from different realms of life (Stutzman & Hartzog, 2012). Social Networking Sites (SNSs) are characterized by three distinctive features. First, they allow individuals to create a profile within a web-based system to define their visual presence. Second, members can add connections with other members, creating a list of meaningful associations. Finally, users are able to navigate through such associations to access a wider network (Boyd & Ellison, 2007). Offering a full range of features, SNSs incorporate aspects of the social, leisure, and informational services that Hamburger and Ben-Artzi (2000) once used to define the Internet, and have revolutionized the manner in which individuals communicate and maintain social networks.

The Project

Higher education institutions in the Tennessee Board of Regents system have a unique window of opportunity to integrate and leverage the current tide of emerging technologies and online communities in profound ways. Emerging technologies and online communities can be integrated effectively into the core and fabric of current

instructional practices, research, creative inquiries and innovation that occurs at TBR institutions in the State of Tennessee. Currently, there are no online research networks that connect TBR's scholars, faculty and researchers in broad scale research initiatives state-wide. The creation of TBR's Critical Conversations Network (TBR-CCRN) responds to that need. The creation of TBR's Critical Conversations Network (TBR-CCRN) is a part of the broader initiative on Critical Conversations for Jobs and the Economy undertaken by TBR's office of Academic affairs. It is also a strategic response to the need to connect faculty and students from all TBR institutions to share, engage, network and collaborate in critical conversations regarding research across the state. A goal of TBR's- CCRN is to advance research throughout TBR institutions and the State, on specific scholarly topics. TBR's CCN will consist of several thematic and sub-research collaborative groups that focus on macro-majors in the TBR system as designed by Vice Chancellor, Tristen Denley. Thematic or macro-major research networks would consist of temporary collaborative groups of scholars, researchers and faculty networking, sharing and disseminating pertinent research information in their respective fields and working on a specific research topic primarily through virtual communications at TBR's-CCRN. TBR's-CCRN participants will comprise of faculty researchers, administrative staff who are also active researchers and scholars from across TBR institutions in the State of Tennessee. TBR's-CCRN participants will synthesize knowledge, examine the state of research, and stimulate collaborations or otherwise identify promising directions in research areas of significance research for economic and workforce development in Tennessee. Priority products for the research network include substantive reports that integrate the state of the knowledge in Tennessee and set forth promising research directions.

Goals of the Tennessee Board of Regents Critical Conversations Research Network

The goals of TBR's-CCRN are to:

1. Connect TBR's research Faculty, scholars across the state of Tennessee and encourage them to engage, network and collaborate in critical conversations regarding pertinent research and findings.
2. Maintain a proactive and sustainable research network that connects talented scholars and researchers across TBR institutions utilizing virtual communication tools and social networking platforms
3. Connect and engage researchers, legislators and decision makers to engage, network and collaborate in critical conversations that inform decision-making across the state

4. Demonstrate the practical implications of research for economic and workforce development and to help policymakers make decisions.
5. Address empirical questions that will increase the understanding of fundamental educational, scientific, technological and social issues that will yield significant improvements in policy and practice.
6. Showcase the practical implications of research for economic and workforce development and to help policymakers make decisions
7. Supports interdisciplinary research approaches and initiatives on topics related primarily to Health sciences, Education, STEM, Social sciences, Humanities, Business, and the Arts.

tools allows us to make new filters. These altmetrics reflect the broad, rapid impact of scholarship in this burgeoning ecosystem. We call for more tools and research based on altmetrics.” (Thelwall, 2014). Traditional research is at crossroads for institutions of higher education and educational boards statewide and nationally. Figure 1 below vividly demonstrates and outlines some aspects of transition and change that is occurring in the field of research .

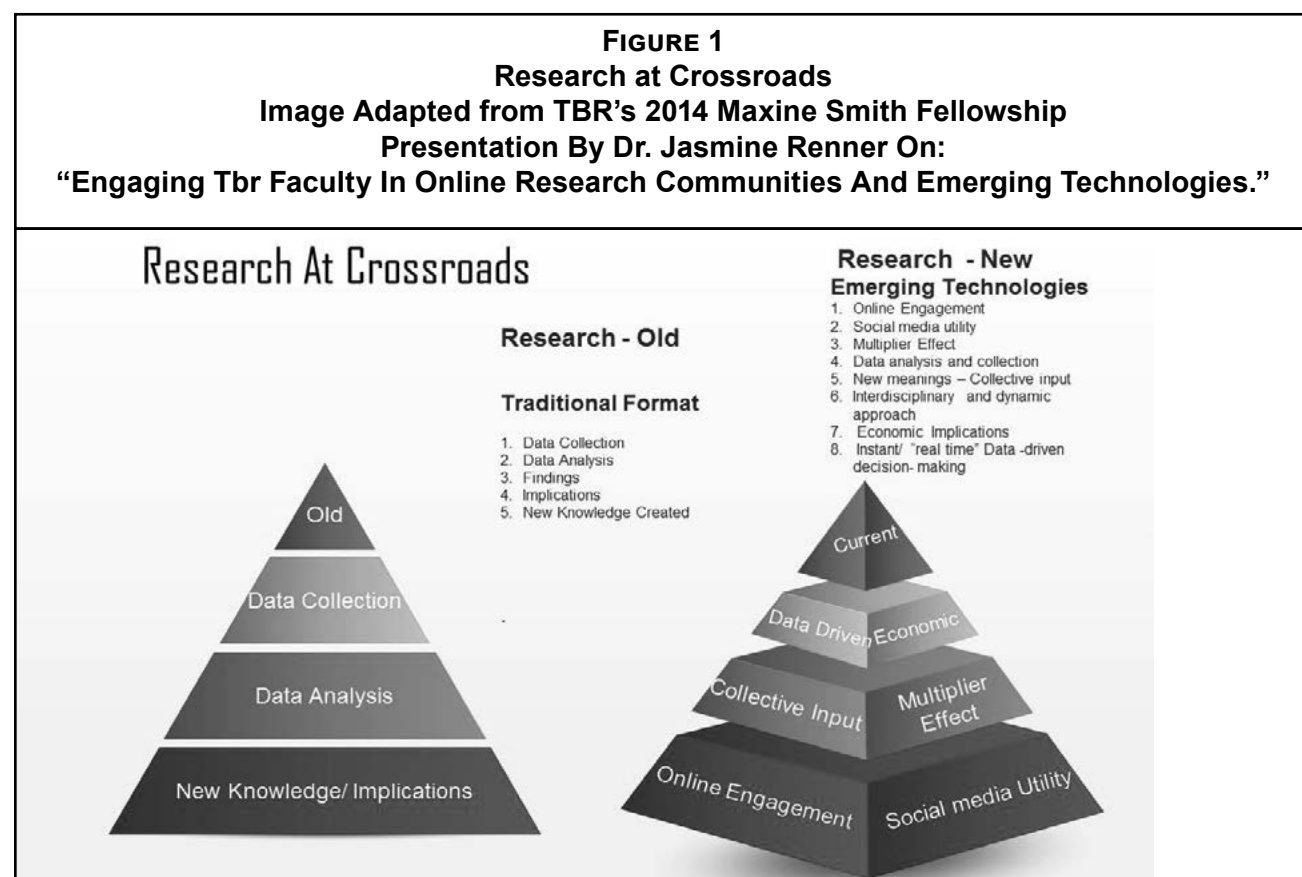
Market research companies have used online polls for several years to collect quantitative data but the development of online research community tools such as discussion forums, blogs or social networks to collect data are a more recent but rapidly expanding phenomena (Harmon, 2005). With the introduction of online research communities and the infusion and integration of emerging technologies, opportunities abound to move the current state of research across TBR institutions to a more dynamic synergistic and inclusiveness making adequate and effective use of emerging technologies.

TBR’s prototype CCRN design concept focuses on the development, utilization and diffusion of emerging technologies into new application areas such as online research networks. TBR’s prototype CCRN concept is based on the opportunity model that facilitates the tran-

Project Concept

Professor Mike Thelwall in his contribution to the Research Trends Newsletter 2014 on “A Brief History of Altmetrics” noted:

“No one can read everything. We rely on filters to make sense of scholarly literature, but the most traditional filters are being swamped. The growth of new online scholarly



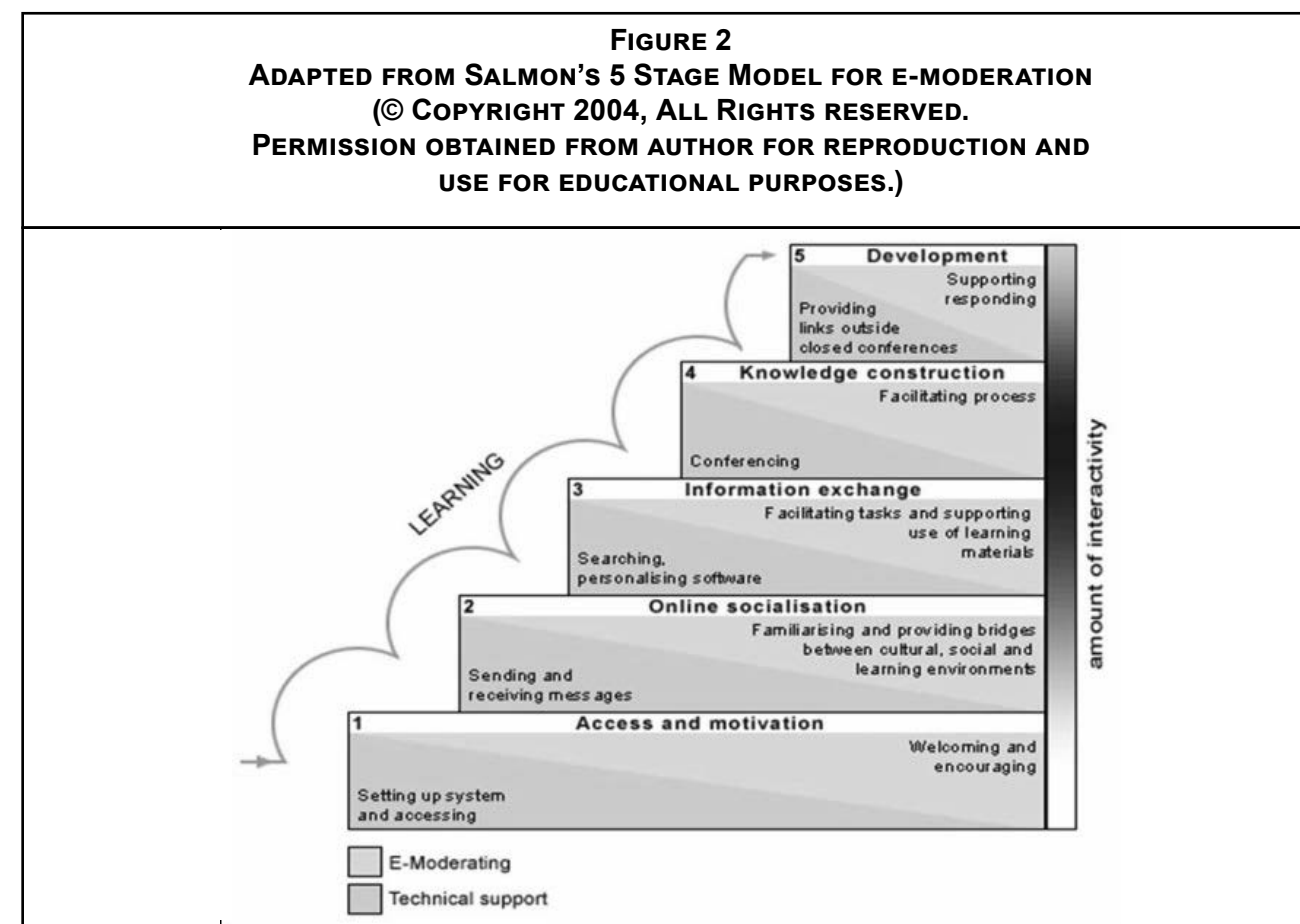
sition from the current status quo of traditional research methods to a new dynamic platform of engagement and collective *research capital*. TBR’s prototype CCRN was developed utilizing the NING software and a concept map adopted from the Fulbright Minds Social Entrepreneurship online research community. With over 2 million communities created to date, Ning is the world’s largest SaaS platform for deploying vibrant social communities and web sites. Founded by Marc Andreessen and Gina Bianchini in 2004, Ning was acquired by Mode Media Corporation (formerly Glam Media, Inc.) in December 2011 to bring together Ning’s world-class social-native technology to help consumers and brands create and engage with passionate social communities across all digital mediums. (Ning, 2014). Ning’s unique online communities features and tools includes publishing tools, community features, social integration, smartphone and tablet-ready platforms, custom design and URL and privacy moderation controls. (Ning, 2014).

In the concept development phase, I chose to use Salmon’s 5 Stage Model for e-moderation as a mechanism for conceptualizing the process of the design as it allows me to consider the role of participants and moderators in the

proposed prototype research network (Salmon, 2004). Whilst this model was developed with learning communities in mind, it has since been used in a number of other ways to structure online communication processes (Lynch, Heinze, and Scott, 2009) and offers practical advice on the use of online communication (Chowcat, 2005; Moule, 2007). Figure 2 below, illustrates Salmon’s (2004) 5-Stage Model for e-moderation.

This model of online community building and facilitation describes a five-stage process mapping the different stages of engaging participants using online communication technology. In the figure demonstrating the model, the level of engagement is indicated by the interactivity column (far right hand side) and the darkness of the color. Engagement starts from stage 1 “Access and motivation” and progresses up to stage 5 “Development.” Each of the stages is subdivided into two triangles representing the roles of the e-moderator and the technical support staff. These roles vary at each stage.

The first stage of the 5 Stage Model is concerned with accessing the system, when participants are issued with access information by the technical support and welcomed



by the e-moderator. The second stage focuses on online socialization of the participants in the community; they are encouraged to familiarize themselves with the environment and socialize with others. The information exchange stage puts more emphasis on interaction and engages participants with the materials. The final two stages are where the participants should already be familiar with their environment and thus are able to proceed with knowledge construction and development.

TBR's Critical Conversation Research Network–Nodes

Organization–The prototype CCRN will utilize and mirror Vice Chancellor Tristen Denley designation and categorization of macro-majors utilized across TBR's institutions. This allows for effective management of research capital and information and provides a deliberate strategic and systematic filter for organizing research information across fields for TBR institutions in the State of Tennessee. The list below provides a cursory categorization of macro-majors as designated by Vice Chancellor Tristen Denley.

Arts
Business
Education
Health Sciences
Humanities
Social Sciences
STEM
Applied Science and Technology
General Education Core

Macro-major categories as outlined in by Vice Chancellor Tristen Denley.

The prototype nodes in the research network mirror the macro-majors categorization above and will serve as an organizational and practical tool for channeling the various kinds of research and scholarly activities that will be generated in the network. Scholars, researcher and faculty will be encouraged to participate, network and engage in the various sub- thematic collaborative groups to harness, leverage and disseminate important and pertinent re-

search that informs policy – and data informed decision-making.

Project Focus

The proposed TBR-CCRN will be the first within the Tennessee Board of Regents system. TBR's -CCRN participants will comprise of scholars, faculty, researchers from across TBR institutions in the State of Tennessee. The project focused on designing a “prototype research network” that connects researchers and scholars across TBR institutions in meaningful research engagements.

Activities that will be undertaken by the proposed TBR's CCRN are:

Online Research Engagement

Relationships are the life blood of meaningful online communities and interaction. Participants of online communities often share information about themselves, find out what their peers are doing, think about topics of exchange, disseminate vital information and exchanges resources and messages. TBR's prototype CCRN will facilitate the engagement of TBR researchers, scholars and faculty in online research communities and virtual groups and circles to collaborate, network, disseminate and co-create new information from an inter and multi-disciplinary perspectives. This online research experience will augment already established relationships, while providing spaces for individuals who are separated by physical distance or other barriers to connect with each other. A study conducted by the University of Massachusetts Dartmouth found that 100 % of surveyed universities and colleges use social media for some purpose. Faculty cited the inclusion of videos and blogs as among the most common applications of social media for instruction. Another survey by the Bobson research group and Pearson revealed that 70.3% of faculty use social media in their personal lives and 55% use these networks specifically in professional contexts. (NMC *Horizon Report*, 2014 p.9).

Dissemination of Pertinent Research Products and Findings– Broader Platform in “real-time”

Research paradigms are shifting to include more online communities and emerging technological tools. Scholars, researchers and faculty spend some of their professional development time on the internet, exchanging new information, networking with peers and colleagues, learning new facts and most importantly disseminating information of their research through submission to peer reviewed journals and publishers. TBR's prototype CCRN will inject a “game changer” into this model by promoting the

art of dissemination of pertinent research findings in “real time.” In addition the opportunity for 24/7 access to important information, data and findings is revolutionary. Online research communities amplify the potential for rich collaboration and instant access and dissemination of important and pertinent research findings.

Informing Data- Driven Decision-Making

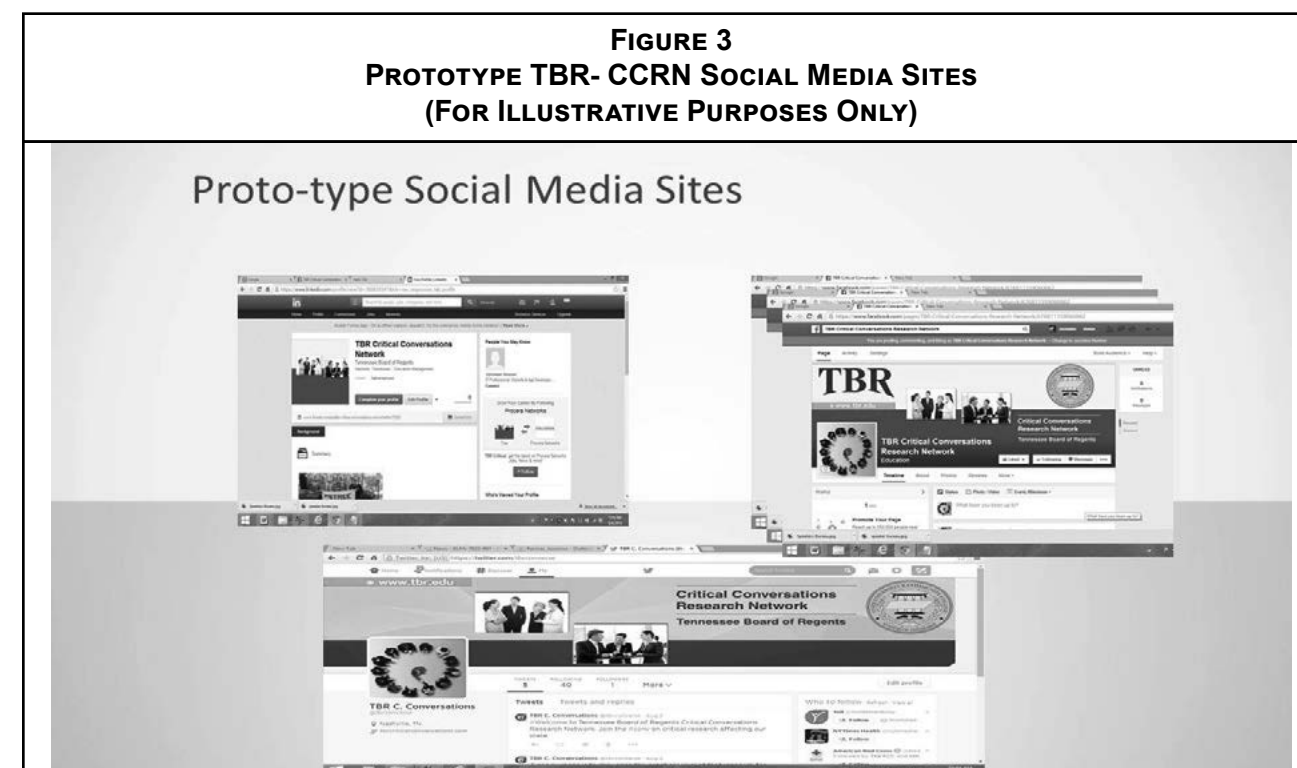
Data has been measured, collected and analyzed in the consumer sector since the early 1990s to inform companies about customer behaviors and preferences. There is a growing interest in using new sources of data for personalizing the research experience and for performance measurement. As scholars and researchers participate in online activities, they leave an increasingly clear trail of analytics data that can be mined for insights. Learning analytics experiments and demonstration projects are currently examining ways to use data to modify learning strategies and processes. A recent trend in research has sought to employ analytics to improve teaching and learning. As students and faculty generate more data, there is a growing interest in developing tools and algorithms for revealing patterns inherent in those data and then applying them to the improvement of instructional systems. This in turn will have the practical effect of informing data-driven decision making on pertinent issues of practical, policy and political implications in the State of Tennessee.

Emerging Technologies–The Multiplier Effect

Today's web users are prolific creators of content. For educational institutions, social media enables two-way dialogues between students, prospective students, educators and the institution that are less formal than with other media. As social networks continue to flourish, educators are using them to as professional communities of practice as learning communities and as a platform to share interesting topics and research findings. Social media is changing the way people interact, present ideas and information and judge the quality of content and contributions. Educators, student, alumni and the general public routinely use social media to share news about scientific and other developments. The impact of these changes in scholarly communication is significant. TBR's prototype CCRN seeks to effectively utilize emerging technologies such as social media tools to harness collective research information gathering, and dissemination and facilitate accessibility to that information in “real time.” Understanding how social media can be leveraged for pertinent research findings is a skill increasingly expected of our researchers and scholars.

Social Media Tools and TBR's-CCRN

Figure 3 below provides a visual screen shot of a pro-type o proposed social media tools and groups that can be utilized in the network. Please note the images depicted are purely for academic demonstration purposes with final



images to be determined and approved by the required TB authority during the actual development phase of the network.

Project Impact

The anticipated impact of TBR's CCRN is categorized into three domains namely; the Individual, Institutional and State Level. I utilized a Funnel Analysis to depict the various potential impact the proposed CCRN may have on three distinct levels namely the Individual, Institutional and State Level.

What is a Funnel Analysis?

Funnel analysis involves using a series of events that lead towards a defined goal-from for example from user engagement in a mobile app to a sale in an eCommerce platform. A funnel is a well-defined flow on your website such as (the checkout process, registration, and lead generation) where users take a series of actions before reaching some sort of goal. The funnel analyses are an effective way to calculate conversion rates on specific user behaviors." (cite)

The first step in a funnel analysis is to find where these funnels occur. To analyze where funnels occur, there is a need to analyze two components. 1) the current conversion rates of a particular page. The conversion rate is what percentage of users who hit the registration page are registering. 2) the current drop-off rates. At every stage in the funnel, there is an inherent potential to lose some people. But the funnels gauge and record impact of the proposed site. For example if your front page is entirely focused on getting people to try the demo, research has shown that you will likely lose at least half of your visitors before they make it to the next step.. Funnel analysis therefore helps designers to envisage impact of the proposed site (quantitatively) and to approach potential problems or challenges from the point of view of a user.

Figuring out funnels from a proposed online research network is one of the most important things that can be done to increase a quantitative understanding of the proposed network and website.

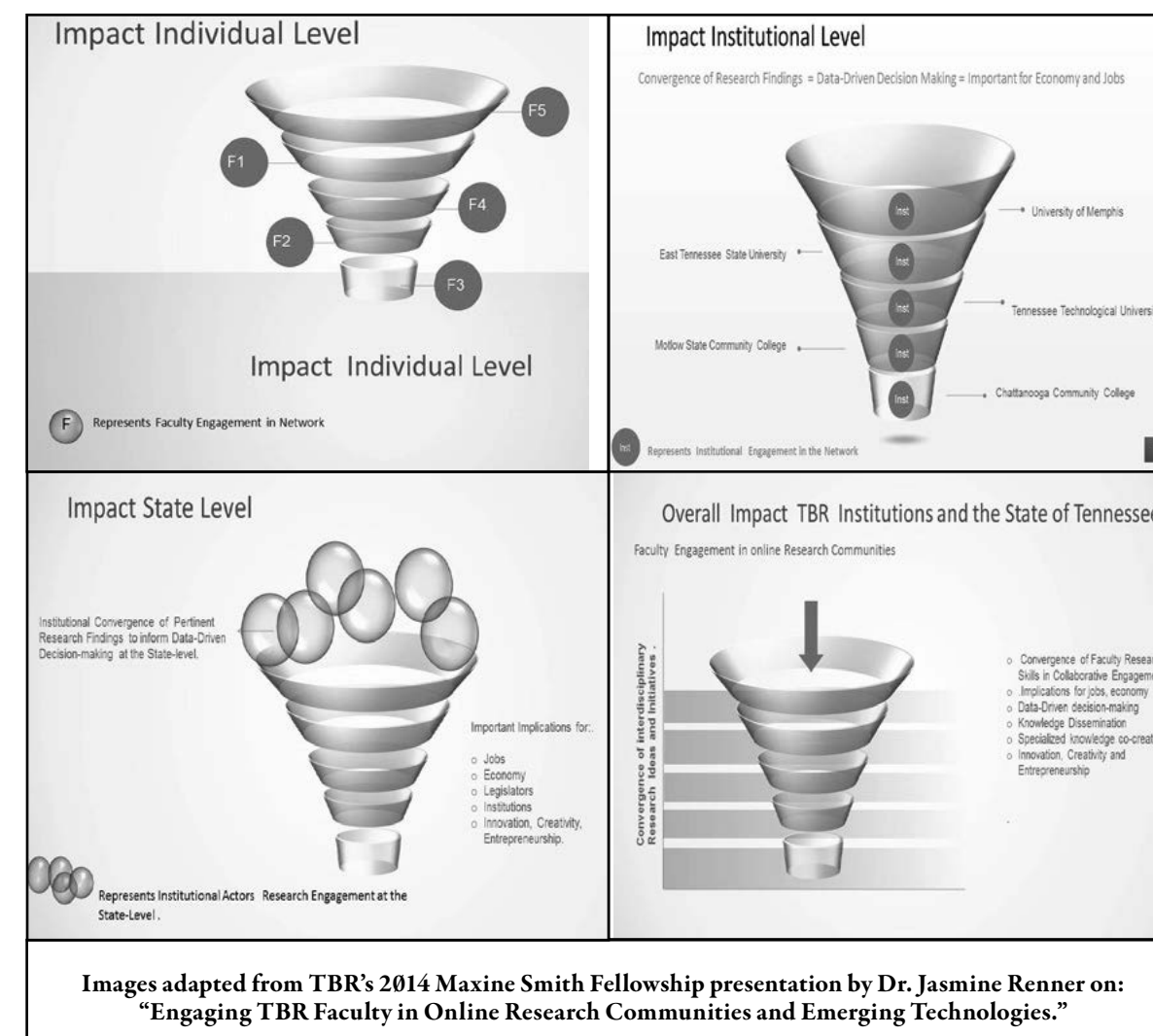
Find on the facing page, a visualization of how the funnel analysis process will impact TBR's -CCRN in four different dimensions

Conclusion

Success in the field of "research" requires an understanding that a number of significant principles of engagement have changed. In a hyper connected world, information flows much faster and more freely. Institutions of learning

as a result are subjected to a growing level of collective intelligence and value creation from outside the university's walls brought about by the increased collaboration of faculty, administrators and students in what is now a much larger ecosystem of data. This has led to current research models that replace traditional models where individual production of research capital is giving way to more on-line and in certain respects, collective peer production. Community based networks are becoming more prevalent than management hierarchies; where free real time global data flows are replacing traditional data collection. Therefore the generation of valuable research capital will be made possible by the generation of scholarly works created through the collaboration of researchers and scholars in the networked economy.

Online research communities are a part and parcel of this growing and potent networked economy. Online communities are powered by social power structures such as open source, crowdsourcing, specialized and thematic communities, that are proving to be more effective and efficient. William Gibson in his key note address at the O'Reilly Emerging Technology Conference; *The Shape of Things to Come* said: "The future is here, it's just not widely distributed. The shape of things to come is already implicit in a thousand small clues. Then, in a sudden shift of mindset, it becomes obvious to everyone." (Gibson, 2008).



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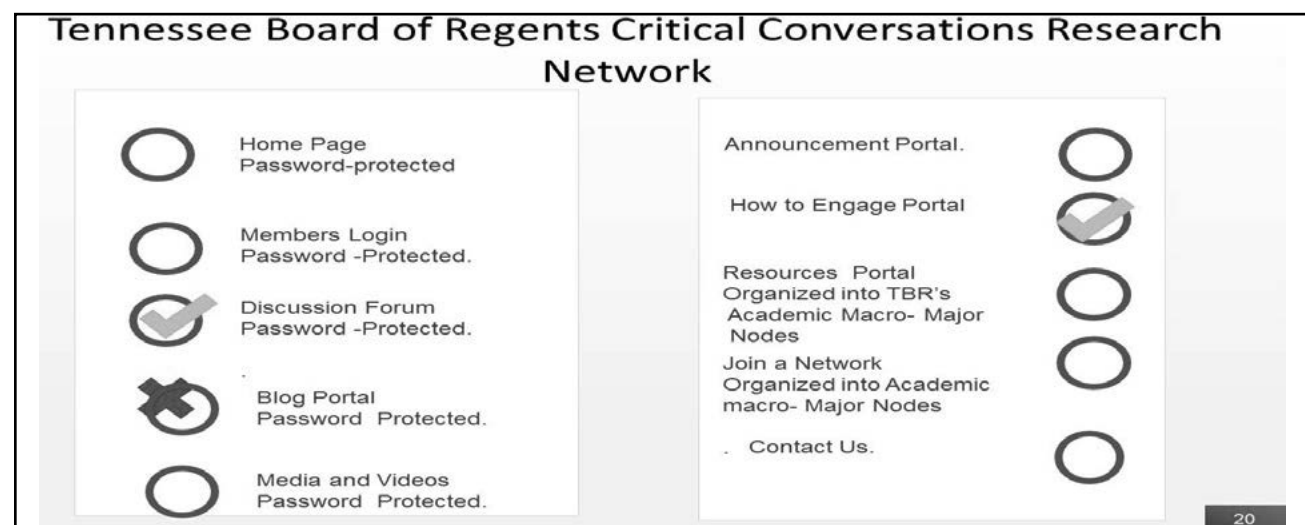
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**APPENDIX 1
TBR- CCR N's ORGANIZATION AND CATEGORIZATION**



**APPENDIX 2
TBR's- CCRN- LANDING PAGE. PASSWORD PROTECTED**



**APPENDIX 3
TBR's- CCRN- LOGIN PAGE. PASSWORD PROTECTED**



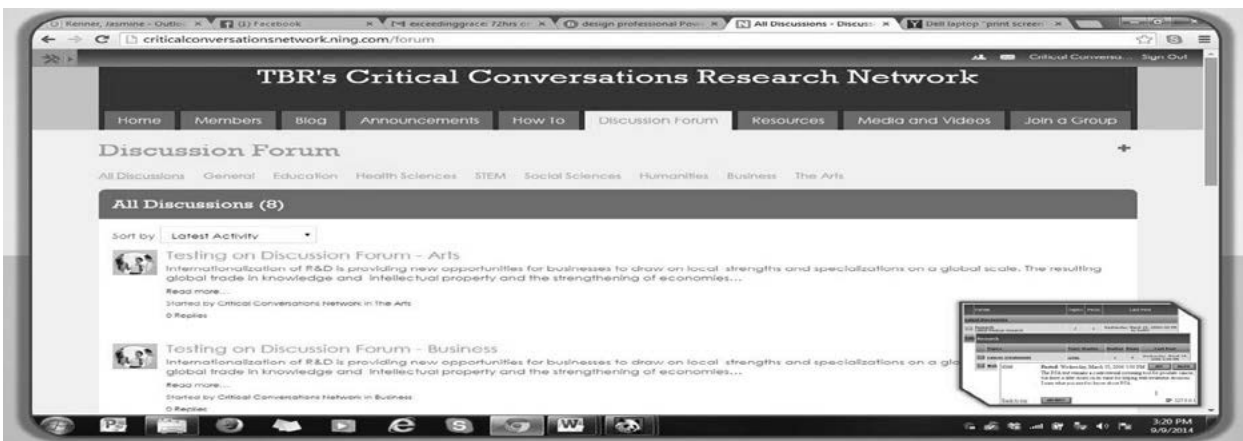
**APPENDIX 4
TBR's- CCRN- ANNOUNCEMENT PAGE**



APPENDIX 5 TBR's- CCRN- FAQ PAGE



APPENDIX 6 TBR's- CCRN- DISCUSSION PAGE



APPENDIX 7 TBR's- CCRN- RESOURCES PAGE

