EME 16 (1) pp. 91–100 Intellect Limited 2017

Explorations in Media Ecology
Volume 16 Number 1
 doi: 10.1386/eme.16.1.91_1

PEDAGOGY

BRETT LUNCEFORD
Independent Scholar

STEVEN C. ROCKWELL
Department of Communication, University of South Alabama

Reconsidering the Net Generation: Putting the focus back on the technological landscape

ABSTRACT

Scholars and pundits alike have devoted considerable attention to the so-called 'Net Generation', arguing that their status as 'digital natives' requires a complete reconception of how educators use technology. Although the explosion of educational technologies warrants closer examination, we argue that the need for this change comes not from some generational Zeitgeist, but rather the change in the technological landscape. Thus, a more fruitful approach is to examine educational technologies from a media ecology standpoint, considering what these technologies enhance, retrieve, reverse into and obsolesce.

KEYWORDS

course management systems
digital natives
education technology
Net Generation
pedagogy
tetrads

Scholars and pundits have long claimed that the rising generation is inherently technologically savvy because they have always been surrounded by technology. Whether this generation is called the 'Net Generation' (Oblinger and Oblinger 2005; Tapscott 1998), 'Generation Y' (Kim et al. 2009; McCleneghan 2005; Noble et al. 2009), 'Digital Natives' (Palfrey and Gasser 2008; Prensky 2001a, 2001b, 2010) 'Millennials' (Howe and Strauss 2000; Moore and Wells 2009) or the 'iGeneration' (Rosen 2010), it is clear that many consider them to be a distinct cohort. Although there is considerable research that questions the assumptions surrounding this demographic (which we will simply refer to as the Net Generation) (see Jones et al. 2010; Margaryan et al. 2011; Noble and Schewe 2003; Thinyane 2010; Waycott et al. 2010), not least of which is the existence of a digital divide, even in well-connected countries like the United States (see Hilbert 2016; Rubinstein-Avila and Sartori 2016), this essay is concerned with a more fundamental error: the assumption that any generation can be distilled to a particular essence. Because technological change enhances, reverses into, retrieves and obsolesces already existing technologies (McLuhan and McLuhan 1988), digital natives are not necessarily any more likely to adopt or become proficient in some new technology than those who are not digital natives.

Bennett et al. note that 'much of the current debate about digital natives represents an academic form of moral panic. Arguments are often couched in dramatic language, proclaim a profound change in the world, and pronounce stark generational differences' (2008: 782). Yet they suggest that the empirical evidence backing up these arguments is often lacking or anecdotal. Part of the issue lies in the inherent desire to place people, objects or ideas into particular categories. This taxonomical urge allows us to find patterns where perhaps there are none and, once the object is classified, conceals the root causes for those patterns. Proponents of the Net Generation hypothesis have argued that because of their immersion in a technological landscape, the students themselves have changed. This allows researchers and teachers to place the students into a cohort without considering how technology has affected the lives of not only the students but *everyone*. We suggest that placing the focus on the technology rather than on the students is a more profitable means of assessing the use of technology in the classroom, illustrating this approach with a brief tetradic analysis of course management systems.

We have chosen to examine course management systems for two reasons. The first reason is their ubiquity. Kvavik notes that over 83 per cent of students have used a course management system (2005: 7.14). The second reason is that these learning systems are one area where the digital native narrative breaks down. Jones et al. found that 'over a third reported they were "not confident/minimal skills" (not known or not confident) using virtual learning environments' (2010: 349). Course management systems are not limited to online courses only; these systems are also used in hybrid online/face-to-face courses and even in traditional face-to-face courses. However, for the purposes of this essay, we will mainly consider how they are used in an online/hybrid setting.

THE PROBLEM OF INDIVIDUAL DIFFERENCES IN COHORTS

Much of the literature surrounding the rising generation frames the interaction between students and teachers as a kind of 'us versus them' dynamic. For example, Tapscott writes, 'School officials are grappling with the reality of students often being far smarter on cyber issues and new ways of learning

than the teachers' (1998: 2). Such assertions depict a chasm between the two generations, one which calls into question the knowledge of the adults. Yet this assumes that students really *are* smarter on cyber issues and new ways of learning. The host of literature concerning teen sexting (Leary 2007; Lunceford 2010, 2011; Smith 2008; National Campaign and CosmoGirl.com 2008), cyberbullying (Calvete et al. 2010; David-Ferdon and Hertz 2007; Li 2007; Tokunaga 2010) and media literacy issues, especially related to body image and health choices (Brown 2000; Durkin and Paxton 2002; Edens and McCormick 2000), suggests that perhaps the students may not be as wise as some attest. Knowing how to use technology does not make one a skilled user of that technology any more than knowing how to drive makes one a safe driver.

By placing individuals into cohorts, one can more easily set up false binaries. Although this may be comforting, it is mentally lazy. McGee (1975) notes that although there is considerable rhetorical force in making appeals to 'the people', such an aggregate exists only as a rhetorical fiction; there are only individuals. As far back as 1924, social scientists cautioned researchers and laypersons to avoid ascribing actions or traits to groups that really belong to aggregates of individuals. Allport (1924: 60) writes, 'This error is the attempt to explain social phenomena in terms of the group as a whole, whereas the true explanation is to be found only in its component parts, the individuals'. It seems that even now many scholars engage in the fallacy Allport defined as 'the error of substituting the group as a whole as a principle of explanation in place of the individuals in the group' (1924: 62). Therefore, it is much more intellectually honest to speak in terms of trends than to attempt to generalize to entire age groups with sweeping claims. Indeed, media effects scholars have long noted the role of individual differences in media uses (e.g., Johnson 2011; Lunceford 2009; Sherry 2001; Thatcher and Perrewé 2002; Zhang 2007), so the use of new technologies would be likely to follow a similar trend. Indeed, even studies examining educational technologies are beginning to recognize the importance of individual differences in the effectiveness of these technologies on learning outcomes (see Chen and Macredle 2004; Graff 2003; Lu and Chiou 2010; Saeed et al. 2009; Scott and Rockwell 1997).

RECONSIDERING TECHNOLOGY IN THE CLASSROOMS: A MEDIA ECOLOGY FRAMEWORK

McLuhan (1994: 7) famously remarked that 'the medium is the message', explaining that

> this is merely to say that the personal and social consequences of any medium – that is, of any extension of ourselves – result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology.

In other words, changes to the media environment allow us to extend ourselves in new and different ways, which in turn allows for different possibilities in the configurations of our relationships and identities. This in no way means that the changes engendered by these technological shifts will be easily understood or forecasted, and despite the fact that these changes affect everyone, this has not stopped us from profiling generations by these technological shifts. It seems, however, that the desire to map particular desires onto an

entire generation as a result of changes in the media landscape have more to do with a belief in technological determinism than in whether the changes have truly taken place within that group. Introducing a technology does not mean that everyone will adopt it or even that they will adopt it in the ways the designer intended. As White put it, 'A new device merely opens a door; it does not compel one to enter' (1962: 28).

Arguments concerning the Net Generation centre on the advent of widely available, ubiquitous computer technology. Yet one must consider what has actually changed in the 'information age'. After all, Postman argues that 'nothing could be more misleading than the claim that computer technology introduced the age of information. The printing press began that age in the early sixteenth century' (1993: 61). Although in-person instruction in a classroom remains the dominant form of education, new technologies enable one to access and share information at an accelerated rate, and cell phones, e-mail and online course management systems have shifted some educational practices towards the digital realm. But let us consider more completely exactly what is happening in the changing educational environment.

McLuhan and McLuhan (1988: 129) suggest that as a new technology enters the scene, one can assess the effects of the change in the media environment by considering what the technology enhances, reverses into, retrieves and obsolesces. To illustrate this idea, we will consider one specific technology as it relates to teaching practice: Sakai, a course management system. We are assuming the full functionality of the course management system, with online readings, assignment drop box, chat and threaded discussion features, even though some instructors may not use all these features.

When people log on to a course management system like Sakai, they will encounter an interface that is simple and easy to navigate. There are generally links to the syllabus, assignments, forums, tests, messages, grades and other content. In short, if one can navigate a website, he or she can easily navigate a typical content management site. Although the functionality of the course management system may be the same across courses, the way it is actually implemented can be quite different. Palloff and Pratt note that

> distance learning takes several forms, including fully online courses, hybrid or blended courses that contain some face-to-face contact time in combination with online delivery, and technology-enhanced courses, which meet predominantly face-to-face but incorporate elements of technology into the course.
>
> (2007: 3)

Some of these methods are less effective than others. For example, Palloff and Pratt (2007: 6) discuss one case in which the faculty did not use the full functionality of the course management system, concluding that 'all they had been doing was using this potentially powerful software package as an e-mail system rather than for creating a distance learning environment'. Kuskis (2006) lays out a range of online learning environments with increasingly complex learner-to-learner interactions, beginning at independent study through the formation of online learning communities. These different approaches will likely retrieve, obsolesce, enhance and reverse into different elements. This being so, we would like to begin with an initial tetrad where the course management system is weakly implemented, with the students largely managing themselves.

Enhances: solitude, privacy
Reverses into: opinion, solipsism, entertainment
Retrieves: journaling, tutorial system of learning, self-discipline
Obsolesces: textbooks, time/place-based classrooms.

Contrast this with a tetrad using the online learning community approach:

Enhances: learner-to-learner and learner-to-instructor interaction
Reverses into: flipped classroom model
Retrieves: seminar system of learning, collaboration, participation, self-discipline
Obsolesces: textbooks, time/place-based classrooms.

The tetradic framework demonstrates that whether a technology is implemented well or not, there are echoes of previous technologies that may be outside of the experience of the current generation and reversals that may be unexpected for all generations. As Postman observed, 'a new technology does not add or subtract something. It changes everything' (1993: 18). In other words, in the face of a new technology, no particular group of people will be on completely familiar ground. Students are all in the same boat when it comes to technological change, regardless of whether they are members of the Net Generation or not. Rather than simply serving as a cohort effect, a media ecological framework illustrates how some of the shifts are familiar (that which is 'retrieved') while some may be alien even to members of the Net Generation. For example, as online course management systems become integrated with library online course reserves and online content, there is the potential for textbooks to become obsolete. Indeed, some courses are designed entirely around online content. However, this shift has also retrieved the need for higher order reading skills.

Here we see the clash between what is possible with educational technologies and what is expected of the Net Generation. Far from moving towards the bite-sized, shorter, media-rich modules, one author instead utilized the technology's capacity in order to assign higher quality, up-to-date, in-depth research articles. Here, there was more reading, rather than less; the reading was more intense, rather than dumbed down, as in the case of a textbook. There was more writing, and the writing required more sophisticated arguments. As this example demonstrates, students require significant self-discipline in online courses (Xu and Jaggars 2014), which is interesting in light of assertions that the Net Generation is also the 'me' generation (Twenge 2006). Likewise, the enhancement of solitude would be preferable mainly to those who value solitude; this does not seem to be a facet of cohort identity, but rather a case of individual differences. This is borne out in the extant literature; Harrington and Loffredo (2010) found that students' desire for online courses could be predicted by their Myers-Briggs Type Indicator (MBTI). Not surprisingly, extroverts exhibited a preference for face-to-face instruction, while introverts expressed a preference for online instruction (for more on the connection between introversion and extraversion and educational technologies, see Topi et al. 2002; Wang et al. 2012). But this is only the case when online instruction is implemented poorly. When using a learning community model, a course management system can actually enhance student-to-student communication – to the degree that the system allows for participation to be quantified and required of all rather than merely carried by a vocal minority, as

is often the case in face-to-face classrooms. Indeed, Zacharis found that 'reading and posting messages on forum board, email and chat was found to be significantly correlated with course success, explaining 37.6% of the variation in the final student grade' (2015: 51).

Maintaining a focus on the influences of the technology allows one to consider how that technology allows for new possibilities without ascribing these changes to a cohort effect. For example, Harris and Gibson found that women and those who worked full time were more likely to take distance education courses (removing the barrier of access is the main reason often ascribed to the need for online education) and that 'none of the variables related to comfort or use of computer technology was significantly associated with distance education enrollment and preferences' (2006: 762). Along these lines, Lin et al., in their study of learning values in Massive Open Online Courses, found that 'the paths constructed by subjects of different gender, age, level of education, occupation, average duration of learning per day and geographical location showed no significant differences' (2015: 413). In short, the practical elements of gaining a degree may be more important than whether one is a digital native, and students who desire online courses may hope for what it obsolesces (time/place-based classes) as much as what it enhances. This is especially the case as more students are working longer hours while also attending college full time (see Darolia 2014).

Education is moving towards a greater reliance on technology, and this shift will likely have positive and negative implications for teaching practice, but the core, underlying assumptions that drive this shift may be misguided. Educators must consider new technologies both within and beyond the classroom because these technologies are the available means of reaching underserved populations, new ways to connect with students, and catalysts that encourage a reconfiguration of the time/space-based classroom (see Biddix et al. 2015). But just because the technological landscape has changed does not mean that the students themselves are somehow inherently different. To consider cohorts as if they were homogeneous groups is to elide important differences that may occur within that demographic. For example, Xu and Jaggars found an 'online performance gap' that spanned all students, but 'males, Black students, and students with lower levels of academic preparation had significantly stronger online performance gaps compared with their counterparts' (2014: 651). Therefore, it seems more useful to consider how particular educational technologies alter the media landscape itself. Taking this technology-centred approach allows scholars and practitioners to more fully account for the shifts in pedagogical practice for all students – regardless of what generation they belong to.

REFERENCES

Allport, F. H. (1924), 'The group fallacy in relation to social science', *Journal of Abnormal Psychology and Social Psychology*, 19:1, pp. 60–73.

Bennett, S., Maton, K. and Kervin, L. (2008), 'The "digital natives" debate: A critical review of the evidence', *British Journal of Educational Technology*, 39:5, pp. 775–86.

Biddix, J. P., Chung, C. J. and Park, H. W. (2015), 'The hybrid shift: Evidencing a student-driven restructuring of the college classroom', *Computers & Education*, 80, pp. 162–75.

Brown, J. D. (2000), 'Adolescents' sexual media diets', *Journal of Adolescent Health*, 27:2, supplement 1, pp. 35–40.
Calvete, E., Orue, I., Estévez, A., Villardón, L. and Padilla, P. (2010), 'Cyberbullying in adolescents: Modalities and aggressors' profile', *Computers in Human Behavior*, 26:5, pp. 1128–35.
Chen, S. V. and Macredle, R. D. (2004), 'Cognitive modeling of student learning in web-based instructional programs', *International Journal of Human-Computer Interaction*, 17:3, pp. 375–402.
Darolia, R. (2014), 'Working (and studying) day and night: Heterogeneous effects of working on the academic performance of full-time and part-time students', *Economics of Education Review*, 38, pp. 38–50.
David-Ferdon, C. and Hertz, M. F. (2007), 'Electronic media, violence, and adolescents: An emerging public health problem', *Journal of Adolescent Health*, 41:6, supplement 1, pp. S1–S5.
Durkin, S. J. and Paxton, S. J. (2002), 'Predictors of vulnerability to reduced body image satisfaction and psychological wellbeing in response to exposure to idealized female media images in adolescent girls', *Journal of Psychosomatic Research*, 53:5, pp. 995–1005.
Edens, K. M. and McCormick, C. B. (2000), 'How do adolescents process advertisements? The influence of ad characteristics, processing objective, and gender', *Contemporary Educational Psychology*, 25:4, pp. 450–63.
Graff, M. (2003), 'Individual differences in sense of classroom community in a blended learning environment', *Journal of Educational Media*, 28:2/3, pp. 203–10.
Harrington, R. and Loffredo, D. A. (2010), 'MBTI personality type and other factors that relate to preference for online versus face-to-face instruction', *The Internet and Higher Education*, 13:1–2, pp. 89–95.
Harris, M. L. and Gibson, S. G. (2006), 'Distance education vs. face-to-face classes: Individual differences, course preferences and enrollment', *Psychological Reports*, 98:3, pp. 756–64.
Hilbert, M. (2016), 'The bad news is that the digital access divide is here to stay: Domestically installed bandwidths among 172 countries for 1986-2014', *Telecommunications Policy*, 40:6, pp. 567–81.
Howe, N. and Strauss, W. (2000), *Millennials Rising: The Next Great Generation*, New York: Vintage Books.
Johnson, G. M. (2011), 'Self-esteem and use of the internet among young school-age children', *International Journal of Psychological Studies*, 3:2, pp. 48–53.
Jones, C., Ramanau, R., Cross, S. and Healing, G. (2010), 'Net generation or digital natives: Is there a distinct new generation entering university?', *Computers & Education*, 54:3, pp. 722–32.
Kim, H., Knight, D. K. and Crutsinger, C. (2009), 'Generation Y employees' retail work experience: The mediating effect of job characteristics', *Journal of Business Research*, 62:5, pp. 548–56.
Kuskis, O. A. (2006), 'Facilitation and community in asynchronous online courses: Views and practices of expert practitioners', Ph.D. dissertation, Toronto: University of Toronto.
Kvavik, R. B. (2005), 'Convenience, communications, and control: How students use technology', in D. G. Oblinger and J. L. Oblinger (eds), *Educating the Net Generation*, Boulder, CO: EDUCAUSE, pp. 7.1–.20.

Leary, M. G. (2007), 'Self-produced child pornography: The appropriate societal response to juvenile self-sexual exploitation', *Virginia Journal of Social Policy & Law*, 15:1, pp. 1–50.

Li, Q. (2007), 'New bottle but old wine: A research of cyberbullying in schools', *Computers in Human Behavior*, 23:4, pp. 1777–91.

Lin, Y.-L., Lin, H.-W. and Hung, T.-T. (2015), 'Value hierarchy for massive open online courses', *Computers in Human Behavior*, 53, pp. 408–18.

Lu, H.-P. and Chiou, M.-J. (2010), 'The impact of individual differences on e-learning system satisfaction: A contingency approach', *British Journal of Educational Technology*, 41:2, pp. 307–23.

Lunceford, B. (2009), 'Reconsidering technology adoption and resistance: Observations of a semi-luddite', *Explorations in Media Ecology*, 8:1, pp. 29–48.

——— (2010), 'Sex in the digital age: Media ecology and Megan's Law', *Explorations in Media Ecology*, 9:4, pp. 239–44.

——— (2011), 'The new pornographers: New media, sexual expression, and the law', in B. Drushel and K. M. German (eds), *The Ethics of Emerging Media: Information, Social Norms, and New Media Technology*, New York: Continuum, pp. 99–118.

Margaryan, A., Littlejohn, A. and Vojt, G. (2011), 'Are digital natives a myth or reality? University students' use of digital technologies', *Computers & Education*, 56:2, pp. 429–40.

McCleneghan, J. S. (2005), 'Interactivity with "generation Y" and small southwestern community newspapers', *Social Science Journal*, 42:1, pp. 141–48.

McGee, M. C. (1975), 'In search of "the people": A rhetorical alternative', *Quarterly Journal of Speech*, 61:3, pp. 235–49.

McLuhan, M. (1994), *Understanding Media: The Extensions of Man*, Cambridge, MA: MIT Press.

McLuhan, M. and McLuhan, E. (1988), *Laws of Media: The New Science*, Toronto: University of Toronto Press.

Moore, A. C. and Wells, K. A. (2009), 'Connecting 24/5 to millennials: Providing academic support services from a learning commons', *Journal of Academic Librarianship*, 35:1, pp. 75–85.

Noble, S. M., Haytko, D. L. and Phillips, J. (2009), 'What drives college-age generation Y consumers?', *Journal of Business Research*, 62:6, pp. 617–28.

Noble, S. M. and Schewe, C. D. (2003), 'Cohort segmentation: An exploration of its validity', *Journal of Business Research*, 56:12, pp. 979–87.

Oblinger, D. G. and Oblinger, J. L. (2005), *Educating the Net Generation*, Boulder, CO: EDUCAUSE.

Palfrey, J. G. and Gasser, U. (2008), *Born Digital: Understanding the First Generation of Digital Natives*, rev. ed., New York: Basic Books.

Palloff, R. M. and Pratt, K. (2007), *Building Online Learning Communities: Effective Strategies for the Virtual Classroom*, 2nd ed., San Francisco, CA: Jossey-Bass.

Postman, N. (1993), *Technopoly: The Surrender of Culture to Technology*, New York: Vintage Books.

Prensky, M. (2001a), 'Digital natives, digital immigrants part 1', *On the Horizon*, 9:5, pp. 1–6.

——— (2001b), 'Digital natives, digital immigrants part 2: Do they really think differently?', *On the Horizon*, 9:6, pp. 1–6.

——— (2010), *Teaching Digital Natives: Partnering for Real Learning*, Thousand Oaks, CA: Corwin.
Rosen, L. D. (2010), *Rewired: Understanding the iGeneration and the Way They Learn*, New York: Palgrave Macmillan.
Rubinstein-Avila, E. and Sartori, A. (2016), 'Diversification and nuanced inequities in digital media use in the United States', in B. Guzzetti and M. Lesley (eds), *Handbook of Research on the Societal Impact of Digital Media*, Hershey, PA: IGI Global, pp. 560–80.
Saeed, N., Yun, Y. and Sinnappan, S. (2009), 'Emerging web technologies in higher education: A case of incorporating blogs, podcasts and social bookmarks in a web programming course based on students' learning styles and technology preferences', *Journal of Educational Technology & Society*, 12:4, pp. 98–109.
Scott, C. R. and Rockwell, S. C. (1997), 'The effect of communication, writing, and technology apprehension on likelihood to use new communication technologies', *Communication Education*, 46:1, pp. 44–62.
Sherry, J. L. (2001), 'Toward an etiology of media use motivations: The role of temperament in media use', *Communication Monographs*, 68:3, pp. 274–88.
Smith, S. F. (2008), 'Jail for juvenile child pornographers? A reply to professor Leary', *Virginia Journal of Social Policy & Law*, 15:3, pp. 505–44.
Tapscott, D. (1998), *Growing Up Digital: The Rise of the Net Generation*, New York: McGraw-Hill.
Thatcher, J. B. and Perrewé, P. L. (2002), 'An empirical examination of individual traits as antecedents to computer anxiety and computer self-efficacy', *MIS Quarterly*, 26:4, pp. 381–96.
The National Campaign to Prevent Teen Pregnancy and CosmoGirl.com (2008), *Sex and Tech: Results from a Survey of Teens and Young Adults*, Washington, DC: Author.
Thinyane, H. (2010), 'Are digital natives a world-wide phenomenon? An investigation into South African first year students' use and experience with technology', *Computers & Education*, 55:1, pp. 406–14.
Tokunaga, R. S. (2010), 'Following you home from school: A critical review and synthesis of research on cyberbullying victimization', *Computers in Human Behavior*, 26:3, pp. 277–87.
Topi, H., Valacich, J. S. and Rao, M. T. (2002), 'The effects of personality and media differences on the performance of dyads addressing a cognitive conflict task', *Small Group Research*, 33:6, pp. 667–701.
Twenge, J. M. (2006), *Generation Me: Why Today's Young Americans Are More Confident, Assertive, Entitled – And More Miserable Than Ever Before*, New York: Free Press.
Wang, Y.-S., Lin, H.-H. and Liao, Y.-W. (2012), 'Investigating the individual difference antecedents of perceived enjoyment in students' use of blogging', *British Journal of Educational Technology*, 43:1, pp. 139–52.
Waycott, J., Bennett, S., Kennedy, G., Dalgarno, B. and Gray, K. (2010), 'Digital divides? Student and staff perceptions of information and communication technologies', *Computers & Education*, 54:4, pp. 1202–11.
White, L., Jr (1962), *Medieval Technology and Social Change*, Oxford: Clarendon Press.
Xu, D. and Jaggars, S. S. (2014), 'Performance gaps between online and face-to-face courses: Differences across types of students and academic subject areas', *The Journal of Higher Education*, 85:5, pp. 633–59.

Zacharis, N. Z. (2015), 'A multivariate approach to predicting student outcomes in web-enabled blended learning courses', *The Internet and Higher Education*, 27, pp. 44–53.
Zhang, L.-F. (2007), 'Revisiting thinking styles' contributions to the knowledge and use of and attitudes towards computing and information technology', *Learning and Individual Differences*, 17:1, pp. 17–24.

SUGGESTED CITATION

Lunceford, B. and Rockwell, S. (2017), 'Reconsidering the Net Generation: Putting the focus back on the technological landscape', *Explorations in Media Ecology*, 16:1, pp. 91–100, doi: 10.1386/eme.16.1.91_1

CONTRIBUTOR DETAILS

Brett Lunceford currently serves as the president of the Media Ecology Association. He is the author of *Naked Politics: Nudity, Political Action, and the Rhetoric of the Body*, as well as over three dozen articles and book chapters.

Contact: 3629 Copperfield Dr. #252, San Jose, CA 95136, USA.
E-mail: brettlunceford@gmail.com

Steven C. Rockwell is currently an Associate Professor of Communication at the University of South Alabama. Prior to this appointment, he served as the director of the Center for Telecommunications Technology, a centre established to increase the effective utilization and integration of telecommunications technology.

Contact: 6021 USA Drive South, Mobile, AL 36688, USA.
E-mail: srockwel@southalabama.edu