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▲ Embracing Engagement Through Technology in Online Legal Education
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A Drone Named Lightning

—by Michael Simonson
Purpose
Distance Learning, an official publication of the United States Distance Learning Association (USDLA), is sponsored by the USDLA, by the Fischler College of Education at Nova Southeastern University, and by Information Age Publishing. Distance Learning is published four times a year for leaders, practitioners, and decision makers in the fields of distance learning, e-learning, telecommunications, and related areas. It is a professional magazine with information for those who provide instruction to all types of learners, of all ages, using telecommunications technologies of all types. Articles are written by practitioners for practitioners with the intent of providing usable information and ideas for readers. Articles are accepted from authors with interesting and important information about the effective practice of distance teaching and learning.

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Online Learning at the University of Central Florida

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INTRODUCTION

Since its inception in 1995, online teaching and learning at the University of Central Florida (UCF) has continued to expand and become more sophisticated in the use of tools, technologies, and best practices. Its impact is reflected in the growth of the institution, success of students and faculty, and information-sharing on national and international levels. What began as a Board of Regents project and an attempt to save a UCF program became a major turning point for the university, eventually distinguishing UCF as a world-class model for distributed learning.

BEGINNING YEARS: 1995–2000

Steve Sorg, teaching in the College of Education’s Vocational Education and Industry Training program, was also involved with a Board of Regents Distance Learning Project grant and was looking at instructional models that would demonstrate both time and place independence. Looking to
breathe new life into his program, he decided to take a leap of faith and put a course online, meeting the instructional model parameters of the Board of Regents Distance Learning Project. Barbara Truman, a graduate student in instructional systems technology at UCF, was invited to complete her internship design plan in this venture.

Since topical research was scarce in this time period, the team looked to the British Open University System, the only active web-enhanced distance learning program in 1995. Up against a lack of technology and computer service knowledge, Sorg and Truman developed the very first online course at UCF, Special Methods in Teaching Vocational Education (EVT3312, EVT3371 and BTE4410). Sorg realized that by reaching out to nontraditional, full-time working students wanting to find more convenient and accessible ways of obtaining teacher certifications, that online education could be a successful venture. Realizing the need for support to make this course work, he and Barbara approached Joel Hartman, Vice Provost of Information Technologies and Resources, and asked for assistance with background computer programming technology. At the time, Hartman happened to be working with a presidential task force that was looking for ways to guide the university into the unexplored world of “world wide web” teaching and learning. He asked the team to speak at an upcoming dean’s retreat, where their ideas could be advanced. Kathryn L. Seidel, Dean of the College of Arts & Sciences, realized the value of the presentation, and helped to champion the cause for online learning at UCF by requesting that Sorg and Truman be “the” online learning department.

Shortly after the retreat, the first online course debuted in May 1996, anticipating 30 students. A successful surprise came when 70 students statewide registered and attended the course taught by Sorg. The Vice Provost of Academic Programs then hired Truman, who had graduated during the summer, and paired her with Sorg to begin a series of faculty development workshops. Since these workshops needed to take place all over campus, the two set up these early courses with “one laptop computer and a TV tray for a desk” (CDL Video Team, 2013).

Requests for online course setups after the workshop flooded Truman’s desk. Quickly realizing that the demand would only continue to increase, more staff were hired during the summer of 1996. In fall 1996, Truman hired one part-time instructional designer to work with faculty in the development of their online courses, and one full-time coder for the web pages. Col-

![Figure 1. Growth of the Center for Distributed Learning at UCF, 1995–2000.](image-url)
College enrollment was peaking at almost 12,000 students, and 645 students had now enrolled in 34 online course sections. Within a year, this was now an official department named “Distributed Learning Course Development,” under the direction of Hartman and the Information Technologies and Resources unit. The client base was growing due to this move, and a full-time instructional designer and a software engineer were now added to the department. The creation of a main database, processes for scalability, and a programmer made it easier to serve the growing faculty needs.

By the end of 1997, Sorg was appointed director, and the department was renamed “Course Development and Web Services” or CDWS. The next year saw an evolution in online course development and web services as campus-wide Web support and new leadership was added. This year marks the selection of the faculty-selected online learning management system: WebCT. This allowed an even wider access to developing online courses by the beginning of 1998, and the faculty development workshops provided the basis for a unique compact disc full of information for the faculty completers. Named The Pegasus Connections, this disc was:

According to Linda Futch, Department Head for Course Design and Delivery, who joined the team full-time in 1998, there was excitement that something different was happening. Barbara’s team was almost flying under the radar by encouraging faculty to adopt features of WebCT, even if not teaching a fully online or mixed mode course. Futch explained that instead of mandating faculty to go online, people would come onboard with the idea once they were less intimidated by the learning management system (LMS) and the technology in general (L. Futch, personal communication, May 10, 2017). The year 1999 brought focus to the fast-growing, award-winning department, and CDWS was awarded a prestigious grant to develop statewide train-the-trainer curriculum. The team of four soon grew to seven, officially naming the blended faculty development program IDL6543- Interactive Distributed Learning. Upgrading from a rolling cart and TV table, the CDWS team were packing up cars to travel the state to teach best practices for online course adoption. At a time when distance learning was mostly comprised of video recordings or mail-in workbook packets, CDWS was sharing a new climate change for this arena. Recognizing this trendsetting department, the United States Distance Learning Association awarded UCF the Excellence in Distance Learning Program Award. The award lauded UCF’s comprehensive approach to supporting faculty and students engaged in distance learning, leading a transition into the new millennia for CDWS.

**TRANSITIONAL YEARS: 2001–2008**

Kelvin Thompson, Director of CDL’s Online Design and Development Strategies, is often found commenting that the early years felt like “laying the tracks with the train steaming behind” (K. Thompson, personal communication, May 9, 2017). Technology that is now taken for granted
was new and changing monthly, and CDWS was excitedly moving distributed learning from the old-school correspondence courses into a brand new vista. Acceptance was now coming from the UCF President and Provost, the State’s Department of Education, and national associations of distance learning. The growth of a team of a few people with new ideas was now morphing into a large-scale, far-reaching planning agency with varied responsibilities.

Thompson said those transitional years felt as if the “decentralized thoughts and views now had to be made into one centralized mission” (K. Thompson, personal communication, May 9, 2017). The team doubled in size by hiring additional designers, then assistant designers. Leadership activities and roles were divided between Truman’s original team, with some roles focusing on faculty programs, others on college outreach as interest in CDWS continued to grow. Policy and structure began to create even further outreach for the department. UCF-CDWS instructional designers were invited to several universities to teach IDL6543 workshops; and in 2001 a partnership agreement was signed to deliver IDL6543 at Naval Postgraduate schools.

Now regarded as a successful program to “engage faculty with real-world course development experiences, offer all participants flexibility as adult learners with busy work schedules, and nurture a sense of connectedness and collegiality among faculty participants” (Chen, Sugar, & Bauer, 2012), this original faculty development course was no longer serving the needs of the faculty participants, based on curriculum reviews and faculty feedback. In 1995, the course was developed by two people and delivered to a handful of participants. By 2001, the course needed to incorporate a full-team of instructional designers; eight weekly face-to-face sessions; all day lecture workshops; mandatory technology labs; one-on-one instructional design consultations; and, completion of weekly online assignments to model strong course design strategy. Between program outreach and the ongoing need to develop and maintain online courses through faculty support, CDWS expanded once again.
Instructional designers were teaching, training, traveling, designing, coaching on and revising course curriculum. The one-stop shop approach no longer could do it all. Assistants to the instructional designers were hired to focus on the technical support of the faculty who had completed IDL6543, and work on special projects. Two graphic designers were added to help create standardized and copyright-compliant images. Videographers were hired to replace the instructional designers’ tripod camera. Three part-time students were hired to develop in-house educational games. “Techrangers” also worked part-time to solve the coding and database needs, along with one full-time LMS manager. With all these services, administrative support was hired to handle the front office, and paperwork. CDWS now was almost 18 strong and serving approximately 75% of all UCF faculty members—those engaged in teaching online courses—developing nearly 2,000 online courses, including 9 online degree programs and 6 online graduate certificates with an annual growth rate of 35% by 2003 (CDL Archive History, personal communication collective, 2010).

With all this growth, however, the need to spend time teaching technology, such as Dreamweaver, was quickly overshadowing course pedagogy and universal design principles. The inclusion of course accessibility needs could now be addressed, including professional video captioning, integrated icons and games, and an even more rigorous and continued assessment of the faculty development process as instructional designers turned their skills to a more faculty-centered needs approach. Always with a systematic, sustainable approach to faculty support and development in mind, CDWS began planning sessions with the deans of all UCF colleges to review current and future online activities. The Essentials of WebCT course was created, providing a self-paced guide to mastering the LMS. The need for instructors to facilitate a previously developed, IDL6543 faculty-certified course was the driving force behind the development of ADL5000-Advanced Distributed Learning. This fully online abbreviated model focused on the knowledge of how to use and apply the LMS technology and principles of course design, allowing only small changes to be made in the already developed content.

Online teaching and learning at UCF was also outgrowing the LMS. UCF adopted Blackboard Vista after a full pilot of Blackboard Vista 4 in fall of 2006 with a select group of faculties. This allowed a much needed operationalized learning object system (later dubbed Obojobo) to meet the needs of the information fluency initiative (QEP for SACS-COC requirements). After being awarded the Sloan-C inaugural Ralph E. Gomory Award for Quality Online Education (based on the Sloan-C pillars of quality online education), UCF announced that fully 17% of all students were taking an online course, 15 programs were online, and there were 12 online graduate certificates. According to Director Barbara Truman (2004), CDWS was now:

a full-service, multimedia production house employing graphic artists who make up the Digital Media Team, flash and multimedia programmers who make up the New Media Team, video producers who make up the Video Convergence Team and student web programmers call the Techrangers. These experts combined with the authority of the Instructional Design Team, and the systems of support create considerable capacity for institutional transformation through online learning. (p. 92)

GROWTH YEARS: 2009–PRESENT

In February 2009, Thomas Cavanagh began his journey as the department’s new Associate Vice President of Distributed Learning to bring oversight and clarity to
the various sectors now supporting online learning at UCF. Through the efforts of Cavanagh, distributed learning at UCF was coming full circle to the original ideals of Steve Sorg—connecting with students who want to learn, yet need the flexibility and interaction that online learning could bring by “better serv(ing) existing students or reaching out to potential new students” with emphasis on courses for students who were not just geographically distant, but those that needed flexibility due to other life demands (Cavanagh, 2016). To meet the burgeoning demand for IT and faculty support, CDWS was split into two distinct sections, per its name—Course Design and Web Services. The Center for Distributed Learning (CDL) became the new official name of the Course Design department. The Research Institute for Teaching Effectiveness (RITE) also became a part of CDL to conduct ongoing research into course modality success rates and other related topics (“The New Is Now the Norm,” 2013). Cavanagh is often quoted as saying, “Students don’t care about modality. They want what they want when they want it” (para. 2). The number of online enrollments certainly proved him correct; at the onset of fall 2009, the number of online students (across W, M, RV, or V modality) had grown to 25,039.

The new Center for Distributed Learning began to develop its own identity and culture of strategic innovations in online learning. Teams were more integrated for project work and understanding of the technology and usage needs of faculty. Three illustrious awards accorded UCF in 2011 illustrated that by uniting and advancing ideas, breakthroughs will happen:

- Davis Productivity Award: Developed and Implemented Digital Banner Search Tool. University of Central Florida staff developed a first-in-Florida graphical banner search tool for online courses that reduced the time spent by faculty, instructional and graphic designers on creating banners by 50%, saving more than $17,000 in 8 months.
- Davis Productivity Award: Techrangers and Advanced Systems Team developed

Figure 3. Growth of the Center for Distributed Learning at UCF, 2009–present.

<table>
<thead>
<tr>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<tbody>
<tr>
<td>Dr. Tom Cavanagh Hired as Director</td>
<td>CDL, CDWS, &amp; RITE Joined</td>
<td>IUVE600 Essentials Offered</td>
<td>UCF Mobile Created</td>
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<tr>
<td>CDL Mobile Created</td>
<td>Faculty Seminars in Online Teaching Created</td>
<td>Online Faculty Readiness Assessment Created</td>
<td>AV Online Registrations: 32%</td>
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<tr>
<td>AV Online Course Sections: 20%</td>
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<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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<tr>
<td>Personalized Adaptive Learning Pilot</td>
<td>IUVE6000 Created</td>
<td>AV Online Registrations: 40%</td>
</tr>
<tr>
<td>AV Online Course Sections: 29%</td>
<td>AV Online Course Sections: 29%</td>
<td>Annual SCH Growth Rate for W, M: 29%</td>
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<tr>
<th>2017</th>
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<tr>
<td>UCF Online Launched</td>
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<tr>
<td>Spr/Sum Online Course Sections: 30%</td>
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<tr>
<td>3,863 W, M Unique Courses Sections</td>
</tr>
<tr>
<td>29 Online Graduate Certificates</td>
</tr>
<tr>
<td>955 AB/BS5000 Faculty Completions</td>
</tr>
</tbody>
</table>

SCH = Student Credit Hours  AV = Academic Year  - = Estimations due to incomplete data
a client and course management, workflow, and reporting system to support 96,000 students, faculty, and staff and content for 10,000 online course sections at the third largest public university in the United States. More than $100,000 in development costs was saved.

• SLOAN-C Effective Practices Award Winner—UCF’s Online Faculty Readiness Assessment: A web-based form and corresponding rubric that assess a faculty member’s prior online teaching experience. This instrument is competency-based and determines if the candidate’s experience, practices, and teaching philosophy meet university standards and conventions, and potentially, exempt them from the faculty development training that is required for all online instructors. (CDL Archive History, personal communication collective, 2010)

Cavanagh’s thought process in his first years was twofold: To aid the online learning community at UCF by asking, “How can online learning help you accomplish what you wish to do?” (K. Thompson, personal communication, May 9, 2017).

Over the past five years, the online learning initiative at the University of Central Florida (UCF) has grown exponentially. Compared with the previous academic year, for example, the increase of online learning in 2011–2012 accounted for 94.15% of the growth in UCF’s student credit hours, including 32.27% of the overall hours, 43.03% of the graduate hours, and 73.62% of the regional student hours. This growth trend created a need for an expanded faculty development program to prepare UCF faculty to teach online. Thus, in 2010 the university’s Center for Distributed Learning (CDL) redesigned our flagship faculty development course in interactive distributed learning (IDL6543) to provide more effective and efficient training to accommodate the increasing demands for online learning. (Chen, Sugar, & Bauer, 2012, para. 1)

This vision of the expansion of online teaching and learning to reach existing and new students is shared by Cavanagh (“The New is Now the Norm,” 2013):

The growth in online offerings clearly enables UCF to educate more students without having to invest in new buildings, parking and other factors that traditionally limit university attendance. But even more important, is that the expansion of online learning makes education available to people who face significant obstacles to attending traditional classes—whether for medical, geographic or scheduling reason. (para. 13)

Growth also means change, and this growing University once again needed a new LMS to incorporate CDL’s inventive successes with an easier integration of technology. After a lengthy selection process, Canvas was selected as the new LMS in 2012, ushering in a meaningful and necessary partnership with an LMS provider that was receptive to being on the cutting edge of change management. As stated by Linda Futch, Department Head of CDL Course Design and Delivery (L. Futch, personal communication, May 10, 2017):

We’ve always had people who are really into technology, with great ideas, that always weren’t sustainable. Now we see more who are interested in integrating technology that already exists, like Twitter, and are open to meaningfully adding that to their course. People watch their industry, so if there is a lot of blogging, they would add that to the course immediately.

Cavanagh (2017) contends that “online learning is in the process of turning a corner” (para. 7). No longer is just having an online program innovative. It is what CDL is doing with the online programs here at UCF that defines innovation. “We hear language along the lines of … ‘We need this, how can you help us accomplish that?’” (L. Futch, personal communication, May 10,
This pushes the process of innovation. Benchmark projects continue to be the norm at CDL in both online faculty professional development and technology:

- **Online Faculty Readiness Assessment (OFRA)**, designed for incoming faculty with previous online training and experience, who may now be certified to design and develop online courses for UCF in lieu of required online faculty professional development;
- **Faculty Seminars in Online Teaching**, faculty professional development offerings that take place each semester highlighting new trends;
- **Personalized Adaptive Learning (PAL)**, designed to offer an accelerated learning path for students, implemented in 2014 launching three courses;
- **Interactive Distributed Learning 7000 (IDL7000)**, a faculty professional development course created in 2015 for those who completed IDL6543 at least 5 years earlier and desire to remain current with course design and technologies at UCF; and,
- **UDOIT**, a proactive, automated accessibility course checker that can fix minor issues and alert faculty to others.

While this list is not exhaustive, it demonstrates the innovative spirit that is alive and well at UCF. As CDL continues to expand, Cavanagh (2017) knows that “Investing in and supporting such an environment of innovation and experimentation, will likely yield the next game changer in higher education” (para. 12).

**UPCOMING ARTICLE SERIES**

Future articles in this series focus on key topics related to the growth of online learning at UCF including professional faculty development programs for online and blended teaching, evaluating quality issues related to online learning and the use of evaluative rubrics, facilitating professors in their online course design, open educational resources and eTextbooks, and exploring alternative models for online instruction.

Denise Lowe and Tina Calandrino explore “Faculty Development and UCF” by reviewing each of the professional faculty development programs offered for online teaching at UCF. Their article focuses on the award-winning flagship program, IDL6543, and offers insights into the program design and faculty relationships with instructional designers.

UCF is addressing issues of quality in course designs and the use of evaluative rubrics. In “Quality Issues and Online Learning: How Rubrics Help,” authors Denise Lowe, Amanda Major, Aimee deNoyelles, and Tina Calandrino present the foundation of a new quality initiative at UCF that is positioned to work in tandem with new, upcoming statewide quality standards. Approaches taken to create a UCF-specific quality rubric, and communication approaches for implementation, are discussed.

Strategies for multiple course designs are showcased in the article entitled “Online Course Design: Helping Professors Make the Switch.” Based on their work representing faculty in varied collegial disciplines, Denise Lowe and Tina Calandrino share their ideas to increase faculty satisfaction with the world of hybrid and online teaching.

Evidence of the acceptance and adoption rates of open educational resources and eTextbooks at UCF is provided in the article titled “eTextbooks and Open Educational Resources: Pros and Cons.” Aimee deNoyelles and Denise Lowe explore the investigation, adoption, and research into this emerging focus area, as well as advantages and disadvantages for both students and faculty.

Case use methods are examined by authors Denise Lowe and Tina Calandrino in the article entitled “Exploration of Alternative Models for Online Instruction.” Per-
personalized adaptive learning, competency-based education, and virtual reality are some of the models discussed as they are currently utilized at UCF, or are under review for possible future implementation.

Additional articles related to the growth of online learning at UCF—especially those that focus on current and emerging trends, tools, and technologies—are under consideration. Look for other upcoming articles in this series as we share this continuing journey for UCF!

**CONCLUSION**
The growth of CDL continues unabated. While IDL6543 remains the flagship online faculty development program at UCF, numerous alternative programs have been created to meet the various faculty development and course delivery needs of such a large university; many of these options will be explored in future articles. Expansion of the unit occurs as required by institutional need and in accordance with budget limitations. The support of online teaching and learning is fostered by the highest levels of the university administration, has become an integral part of the institutional culture, and is reflected in quality by UCF students, faculty, and CDL employees.

**Author Note:** Tommi Barrett-Greenly, a former instructional designer in the Center for Distributed Learning at the University of Central Florida, contributed to this article.

**REFERENCES**
APPENDIX A: TIMELINE OF UCF’S DIGITAL LEARNING DEVELOPMENT

APPENDIX B: COMPARISON OF STUDENT CREDIT HOURS

UCF Today: 64,000+ Students

Modality SCH Growth

- Video
- Blended
- Web
- Classroom
APPENDIX C: FALL 2016 PRELIMINARY STUDENT HEADCOUNT IN ALL COURSE MODALITIES

*Live* = any course not delivered online

Online = WW, RV, and V modalities

Counts not included in diagram:

Main, Regional, & Rosen: 0

Online, Regional, & Rosen: 0

Main, Online, Regional, & Rosen: 0

Regional & Rosen: 1

Self add to less than 0.00% of total

Note: Medical students (470) are not included in this diagram.

Total Student Headcount is 64,315 (including medical)

Note: Circle size is proportional but the overlapping regions are not and are for demonstration purposes only. Totals may differ slightly due to rounding.
## Appendix D: History of Online Learning Awards at the University of Central Florida

### Beginning Years: 1995 - 2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1995</td>
<td>Florida Distance Learning Grant</td>
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<tr>
<td>1996</td>
<td>First Online Course Offered</td>
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<td>1997</td>
<td>Official Distance Learning Unit Begins</td>
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<td>1998</td>
<td>Named Best Practice Institution</td>
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<tr>
<td>1999</td>
<td>Statewide Grant: &quot;WebCT Zone&quot;</td>
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<tr>
<td>2000</td>
<td>&quot;Excellence in Distance Learning&quot; by USDLA</td>
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### Transitional Years: 2001 - 2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tr>
<td>2001</td>
<td>IDLG543 Franchised to United States Navy</td>
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<tr>
<td>2002</td>
<td>IDLG543 Delivered to Community College</td>
</tr>
<tr>
<td>2003</td>
<td>UCF recognized as &quot;WebCT Institute&quot;</td>
</tr>
<tr>
<td>2004</td>
<td>Campus Tours 4-Star Award</td>
</tr>
<tr>
<td>2005</td>
<td>WebCT Exemplary Course Award</td>
</tr>
<tr>
<td>2006</td>
<td>Excellence in Online Teaching &amp; Learning Award</td>
</tr>
</tbody>
</table>

### Growth Years: 2009 - Present

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Telly: Excellence in Video Production</td>
</tr>
<tr>
<td>2010</td>
<td>Excellence in Online Teaching &amp; Learning Award</td>
</tr>
<tr>
<td>2011</td>
<td>Telly: Student Achievement Award</td>
</tr>
<tr>
<td>2012</td>
<td>Telly: Excellence in Online Teaching &amp; Learning Award</td>
</tr>
<tr>
<td>2013</td>
<td>Telly: Student Achievement Award</td>
</tr>
<tr>
<td>2014</td>
<td>Telly: Excellence in Video Production</td>
</tr>
<tr>
<td>2015</td>
<td>Gold Communicator Award (3)</td>
</tr>
<tr>
<td>2016</td>
<td>Silver Communicator Award (2)</td>
</tr>
</tbody>
</table>

### Appendices

- **Appendix A**: Distance Learning Awards at the University of Central Florida
- **Appendix B**: Online Learning Programs at the University of Central Florida
- **Appendix C**: Distance Learning Faculty at the University of Central Florida
- **Appendix D**: History of Online Learning Awards at the University of Central Florida
- **Appendix E**: Online Learning Resources at the University of Central Florida
A New Revision of the [Revised] Bloom’s Taxonomy

Afnan Nathir Darwazeh

INTRODUCTION

Information processing emerged in the early 1940s as a focal point for cognitive research. Based on psychology, current learning theories, and research studies conducted over time, it can be said with confidence that a human being’s mind applies different mental processes while she or he manipulates, interprets, stores, and retrieves information (Gagne, 1977; Guilford, 1959; Lindsay & Norman, 1977; Piaget, 1952; Rothkopf, 1966; Rumelhart, 1980; Wittrock, 1974a, 1974b). These mental processes differ in terms of type, such as memorization, comprehension, discrimination, analysis, and so forth. Further, these same mental processes differ in terms of level of difficulty, such as simple, medium and complex levels. Therefore, type and level of difficulty should be considered as part of any classification scheme involving cognition.

Accordingly, a number of instructional psychologists have utilized the results of cognitive research and applied their principles into fields of education (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956; Guilford, 1959; Gagne, 1977; Gagne, Briggs, & Wager, 1992; Gagne & Driscoll, 1988; Merrill, 1983; West, Farmer, & Wolff, 1991). Instructional psychologists have aimed to help teachers, trainers, and curriculum developers to design instruction that induces students’ memories to store, retrieve, and use the intended material properly and effectively. The aforementioned educators believed that presenting knowledge in a particular sequence, which is consistent with the human memory’s function, will help students to store, retrieve, recall, and use information in a beneficial way; otherwise, the whole learning process will be hindered. Therefore, it becomes essential that students acquire prerequisite knowledge and skills prior to attempting to process new information as they construct new knowledge in meaningful ways so that the entire teaching and learning process is enhanced.
learning process is enhanced (Ausubel, 1968; Bruner, 1966; Gagne, 1977).

One of the most prominent instructional psychologists who applied the cognitive principles in the field of education and instruction was Benjamin Bloom. In 1956, Bloom and his associates published a taxonomy of educational objectives for the cognitive domain. Bloom et al. (1956) classified different forms and levels of learning based on mental processes in which students engage as they learn. Most educators and instructors welcomed Bloom et al.’s (1956) taxonomy and started to use it in their work. However, after almost 5 decades of using Bloom’s original taxonomy, some educators began to wonder whether the taxonomy is still valid. One of those educators was Lorin Anderson, a former student of Benjamin Bloom. During the 1990s, Anderson led a new assembly of scholars, accompanied by David Krathwohl, which met for the purpose of updating the taxonomy. Anderson and Krathwohl (2001) revised Bloom’s taxonomy to be more adaptive to our current age by proposing another taxonomy that will meet the needs of curriculum designers, teachers, and students. However, after almost 2 decades of a thorough assessment of Anderson and Krathwohl’s revised Bloom et al.’s taxonomy, and after an extensive review of studies on cognition, metacognition, information processing theory, Merrill’s (1993) component display theory, and Gagne’s (1977) hierarchical approach to learning.

This article is organized into four parts. Part I presents Bloom et al.’s (1956) original educational taxonomy. Part II presents Anderson and Krathwohl’s (2001) revised Bloom’s et al.’s taxonomy. Part II provides an analysis of Anderson and Krathwohl’s revision of Bloom et al.’s taxonomy with rationales. Part IV offers a new depiction of the revised Bloom et al.’s taxonomy.

**PART I. BLOOM ET AL.’S (1956) ORIGINAL EDUCATIONAL TAXONOMY**

The original Taxonomy of Educational Objectives was published by Bloom et al. (1956) as a way to improve communication between educators and instructional designers. Bloom et al. classified forms and levels of learning based on cognitive processes undertaken by learners during their construction of knowledge. These forms and levels are:

1. Knowledge: Exhibits memory of previously learned materials by recalling facts, terms, basic concepts, abstractions, generalities, and so forth.
2. Comprehension: Demonstrates understanding of facts and ideas by giving the meaning, translating, interpreting, explaining, describing of main ideas, and so forth.
3. Application: Uses acquired knowledge in new or novel situations to solve problems.
4. Analysis: Examines and breaks information and materials into parts to see the details and relationships.
5. Synthesis: Compiles information together in different ways, builds a structure or pattern from diverse elements, and puts parts together to form a whole.


Bloom and his associates (1956) claimed that the learner can address a higher level of learning only after she or he has mastered the one below, the reason being that the lower level is a prerequisite for the higher level. Bloom et al. also said that the higher level includes the lower one automatically, thus suggesting that the levels of learning should be sequenced hierarchically and cumulatively from the simplest level, which lies in the bottom of the triangle, to the most complex level at the top. Bloom et al. created this taxonomy of education for the purpose of helping teachers and other educators to state, deliver, and assess learning objectives comprehensively, thus to develop learners’ intellectual processes in a way that helps them become good thinkers. Bloom et al. believed that each major field should have its own taxonomy in its own language. Since then, only Lorin Anderson has evaluated Bloom et al.’s taxonomy, which led to Anderson and Krathwohl’s (2001) revised Bloom et al.’s taxonomy.

**PART II. ANDERSON AND KRATHWOHL’S (2001) REVISED BLOOM’S ET AL.’S (1956) TAXONOMY**

Anderson, a former student of Bloom, updated and revised the taxonomy, claiming its relevance to 21st century work for both students and teachers (Anderson & Krathwohl, 2001). Anderson changed the taxonomy in three broad ways: terminology, structure, and emphasis (Forehand, 2005; Krathwohl, 2002). Anderson modified the original terminology by changing Bloom’s categories from nouns to verbs. Anderson also renamed three categories: knowledge into “remember,” comprehension into “understanding,” and synthesis into “create.” Anderson also changed the order of the synthesis category (renamed “create”) by placing it at the top of the triangle. Thus, Anderson and Krathwohl’s (2001) revised Bloom’s taxonomy became: Remember, Understand, Apply, Analyze, Evaluate, and Create (Figure 2).
Anderson and Krathwohl (2001) also made structural changes to Bloom et al.’s (1956) original taxonomy. Anderson and Krathwohl considered two dimensions in their revised taxonomy instead of one. The two new dimensions posited by Anderson and Krathwohl are: (1) knowledge (or the kind of knowledge to be learned), and (2) cognitive process (or the cognitive processes to be used in acquiring knowledge). As one can see from the Oregon State University chart in Figure 3 (Fisher, 2005, www.oregonstate.edu), the intersection of the knowledge and cognitive categories forms 24 separate cells. From Anderson’s point of view, the knowledge dimension on the left side is composed of four kinds of knowledge ranging from concrete to abstract: factual, conceptual, procedural, and metacognitive knowledge (Fisher, 2005, www.oregonstate.edu). The cognitive process dimension across the top of the grid consists of six levels of cognitive processes sequenced from simple to complex: remember, understand, apply, analyze, evaluate, and create (Figure 3).

PART II. AN ANALYSIS OF
ANDERSON’S REVISION OF BLOOM’S
TAXONOMY WITH RATIONALES

Based on an analysis of the Anderson and Krathwohl’s (2001) revision of Bloom et al.’s (1956) original taxonomy and based on extensive review of the literature on cognitive and metacognitive psychology studies and research, I recommend further revisions supported by a plethora of research studies on intellectual skills, human thinking and learning, and human information processing since 1956 (e.g., Draper, 2016; Gagne, 1977; Gagne, Briggs, & Wager, 1992; Gagne & Driscoll, 1988; Lindsay & Norman, 1977; Merrill, 1983; O’Neill & Murphy, 2010). A review of literature directly related to the application of Bloom’s et al.’s taxonomy can be summarized by the following nine conclusions:
Conclusion 1: Anderson and Krathwohl’s (2001) revised Bloom et al.’s (1956) taxonomy is a good taxonomy, but still has some missing points and limitations either in the cognitive process dimension or in the knowledge dimension. A review of the literature on metacognitive processes (Baker & Brown, 1984; Bondy, 1984; Boulware-Gooden, Carreker, Thornhill, & Joshi 2007; Brown, 1980; Burley, Brown, & Saunders, 1985; Darwazeh, 1995, 2004, 2007, 2011, 2013; Dermody, 1988; Eggen & Kauchak, 1992; Flavell, 1985; Gagne, 1977; Gagne & Driscoll, 1988; Gilbert, 1986; Haller, Child, & Walberg, 1988; Huff & Nietfeld, 2009; Kaufman & Randlett, 1983; Kistner et al., 2010; Lindsay & Norman, 1977; Paris & Winograd, 1990; Pressley & Levin, 1978; Palinscar, 1986; Scarr & Zanden, 1984; Tregaskes, 1989; Wham, 1987; Wade & Reynolds, 1989); and a review of research and studies on instructional design (Darwazeh, 2001, 2004; Gagne, Briggs, & Wager, 1992; Gagne & Driscoll, 1988; Merrill, 1983; Reigulth, 1983; West, Farmer, & Wolff, 1991), suggest that the metacognitive process is a process of thinking rather than a type of knowledge, primarily because one definition of the metacognitive process is thinking about thinking (Gagne & Driscoll, 1988). Further, this cognitive process consists of three major procedures: (1) Awareness of the mental process that the learner uses before learning; (2) Monitoring of the mental process that the learner uses during learning; and (3) Regulating the cognitive process that the learner uses after learning as she or he faces difficulties in learning (Beyer, 1987; Eggen & Kauchak, 1992; Gall, Gall, Jacobsen, & Bullock, 1990; Gagne & Driscoll, 1988; Haller, Child, & Walberg, 1988; Li, 1992; Peirce, 2003; Scarr & Zanden, 1984; Wham, 1987).

Therefore, the metacognitive process is considered as one type of cognitive process.
that the learner uses in his or her learning rather than the one type of knowledge to be learned, as claimed by Anderson and Krathwohl (2001). Further, the metacognitive process is the most complex cognitive process that the learner applies in his or her learning because it needs enough maturation, intelligence, and training in order to be used effectively by the learner as stated by Burley et al. (1985). This process is growing and developing by years and training (Burley et al., 1985; Darwazeh, 2013). Robert Gagne also considered the metacognitive process as cognitive strategies in which learners guide their attending, learning, remembering, and thinking. “It is our abilities to engage in these self-monitoring, self-guiding activities that makes possible executive control” he said (Gagne & Driscoll, 1988, p. 55). It is also a way of managing the processes of learning, remembering, and thinking (Gagne, 1977; Gagne & Driscoll, 1988).

Conclusion 2: Another observation about Anderson and Krathwohl’s (2001) revised taxonomy is related to the levels of cognitive processes. I contend the cognitive dimension is missing a major process that the human mind used from the beginning of life; it is the organizing process, named by Bloom as a synthesis process. Therefore, this process cannot be integrated under the analyzing process and put the two of them in one category as Anderson did in her revision, nor under the synthesis process as Bloom did in his taxonomy (see Figure 2, adapted from Anderson & Krathwohl, 2001, pp. 67–68). Guilford (1959) also differentiated between divergent thinking, which is equivalent to analysis mental process in Bloom’s taxonomy (1956) and in Darwazeh’s proposed taxonomy (2015, 2016), and convergent thinking, which is equivalent to organizing mental process in Darwazeh (2015, 2016), and synthesis in Bloom’s taxonomy (1956). This means that analysis and organizing are two different mental processes, which have different meanings and definitions.

The analyzing, organizing and the synthesizing processes have different meanings and definitions; thus, they should be separated into different categories.

Conclusion 3: Anderson and Krathwohl (2001; Krathwohl, 2002) viewed the synthesis process as a creative process (see Figure 2), which I dispute, because the synthesis process has a different meaning than the creative. Synthesizing is also easier to perform by the learner than is creating. Creation requires the person to generate something new and original, whereas the synthesis only requires the person to see the relationships among the ideas that have been taught in the intended text either horizontally (i.e., among the ideas which have coordinate relationships), or vertically (i.e., among the ideas which have super ordinate-subordinate relationships) in order to see the whole picture through comparison and contrast (Gropper, 1974; Reigeluth & Darwazeh, 1982). For example, assembling pieces of Japanese equipment in Singapore (synthesis) does mean Singaporeans create them. The authors also differentiated between the two types of synthesis: (a) an internal synthesis in which the learner figures out the relationships between and among the individual ideas that have been taught in the text, and interrelate and integrate them together, (b) the external syntheses in which the learner figures out the relationships among the learned ideas in the text and relates them with other ideas in other texts, subjects, or situations (i.e., beyond the subject-matter that have been learned). The external synthesis is more difficult to perform than the internal one because it needs to see the relationship between the learned idea and other external related ideas outside the learned text. The external synthesis is the one that helps students to apply the learned information in new, novel, and strange situations and, therefore, be considered as a prerequisite of the application process.
Conclusion 4: Cognitive psychologists typically differentiate between organizing processes and synthesizing processes. Organizing as a mental process requires the learner to chunk, categorize, classify, tabulate, group, put together, and order information according to a certain principle (Lindsay & Norman, 1977; West, Farmer, & Wolff, 1991). Synthesizing is defined as a mental process that requires the learner to figure out the relationships among the learned ideas in the passage in order to see the whole picture, then to integrate them with other related ideas in external topics, (Gropper, 1974; Reigeluth & Darwazeh, 1982). Cognitive psychologists also differentiate between the organizing processes and synthesizing processes in terms of human memory’s function (Lindsay & Norman, 1977; West, Farmer, & Wolff, 1991). Lindsay and Norman (1977), and West et al. (1991) consider the organizing or chunking process as a one function of the short term memory beside the rehearsal, whereas the Synthesizing process is one function of the long term memory beside explaining, interpreting, concluding, connecting, and so forth. Organizing processes, which require the learner to chunk or classify items, are also easier to perform than the synthesizing, which needs to see the relationship among the items, so it should come before the synthesizing process. Therefore, rather than combine the Organizing process and the synthesizing process into a single category as Bloom did in his 1956 taxonomy, and rather than combine the organizing process and the analyzing process into a single category as Anderson did in her 2001 taxonomy, I advocate separating analyzing, organizing, and synthesizing into three different categories because they are different mental processes, which have different meanings and definition.

Conclusion 5: With respect to the remembering level, neither Anderson and Krathwohl’s (2001) revised taxonomy nor Bloom et al.’s (1956) original taxonomy differentiated between the two levels of remembrance based on content type. Merrill (1983) clearly differentiated, in his component display theory, between the two levels of remembrance based on the content type: (a) remember specific information and (b) remember general information. Merrill defined the specific information as a kind of knowledge or data that cannot be generalized or transferred to another situation, because it is valid within itself, such as dates or events, names, symbols, terms, labels, examples, lists, instances, whereas the general information is a kind of knowledge that can be generalized and applied to more than one situation, such as concepts, principles and procedures. Merrill also claimed that remembering specific information is easier to recognize or recall than remembering general information, and so it should come before remembering general information. According to the above differentiation between specific information and general information, the specific information can be learned on a remember level only, whereas the general information can be learned on remember, use, and find levels of learning as Merrill stated in his component display theory (Merrill, 1983). Thus, the remember level should be divided into two levels: (1) remember specific information (facts and instances), and (2) remember general information (generalities).

Conclusion 6: With respect to the ordering of cognitive processes, I believe the application process is more difficult to perform than the analysis, organizing, and synthesizing processes, so the application process should come after those processes. The reason is that the application process is interpreted as the use of previous acquired knowledge (generalities) in new, novel, or strange situations (Bloom et al.’s, 1956; Merrill, 1983). I do not think that the learner can use or apply or implement the acquired knowledge in a new, novel, or strange situation unless she or he inspects, examines, analyzes, organizes, reorganizes
its components, and sees the relationships between its components and the generalities to be applied. These processes of analyzing, organizing, and synthesizing will help him/her to see where the previous learned knowledge will fit in a new situation in order to use and apply it. For example, when a carpenter wants to make a new closet (use or apply a learned procedure), he or she can't make a new closet unless he or she knows how to measure wood, cut the pieces, arrange them together in a certain fashion, see the relationships among its parts, and so forth. These skills will need to undergo analysis, organizing, and synthesizing processes before becoming a closet. Another example is when the teacher asks students to classify new pictures of animals into mammals or not mammals (use or apply the learned concept), students need to inspect, analyze, figure out the relationships between the given new pictures and what they learned about mammals in order to see if these pictures have the critical attributes of mammals or not, then to classify them into mammals or not mammals. Yet another example is when the teacher asks students to solve a new math problem outside their curriculum (use or apply the learned principle or law), the learner needs to analyze the new problem and reorganize its elements, see the relationships between its different parts, and the principle he or she learned in order to use the learned principle or law in solving the new problem. All three examples illustrate that analyzing, organizing, and synthesizing should come before applying; thus, they should be prerequisites of the application processes, especially the external synthesizing, which requires the learner to perceive relationships between the learned ideas and the external ones in other text or situation.

Conclusion 7: With respect to the knowledge dimension, Anderson’s revised Bloom’s taxonomy specified four kinds of knowledge: facts, concepts, procedures, and metacognitive knowledge ranging from concrete to abstract. In this case, the knowledge dimension is missing a major type of knowledge—the principle type or relationships knowledge (Gagne, 1977; Merrill, 1983; West, Farmer, & Wolff, 1991). Anderson (Anderson & Krathwohl, 2001, p. 46) put the principle under the conceptual type of knowledge (Figure 4), which is inconsistent with Gagne’s (1977) hierarchical learning theory, Merrill’s (1983) component display theory, and West et al. (1991).

Merrill’s (1983) component display theory identified four types of knowledge or content: facts, concepts, principles, and procedures. Facts are defined as arbitrarily associated pieces of information, such as a proper name, a date or an event, a symbol, an example, or an instance of generalities, etc. In order to identify factual content, these questions should be answered: what and when? Concepts are defined as a group of objects, events, or symbols that all share some common characteristics and that are identified by the same name, such as mammals, trees, fruits, chairs, etc. In order to identify conceptual content, this question should be answered: what is this?

<table>
<thead>
<tr>
<th>Concrete knowledge</th>
<th>Abstract knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factual</strong></td>
<td><strong>Conceptual</strong></td>
</tr>
<tr>
<td>Knowledge of terminology, Knowledge of specific details and elements,</td>
<td>Knowledge of classifications and categories, Knowledge of principles and generalization, Knowledge of theories, models, and structures,</td>
</tr>
</tbody>
</table>

Figure 4. The knowledge dimension adapted from Anderson and Krathwohl (2001, p. 46).
Principles are defined as an explanation or prediction of why things happen in the world, such as to explain what will happen to the intensity of the light when electrons flow in the circuit, explain the first law of motion, thunderstorm, and so forth. The principle is a kind of cause-effect relationship, according to Merrill. In order to identify principles content, this question should be answered: why? Procedures are defined as an ordered sequence of steps necessary to accomplish or reach a certain goal, or produce some product such as how to conduct experiment in the lab, how to use a smartphone, how to send a letter by e-mail, how to plant a tree, how to cock a certain food, and so forth. In order to identify procedural content, this question should be answered: how? (Figure 5).

Gagne (1977) also differentiated between conceptual and principles knowledge. He looked at principles as different types of content. Gagne also considered the concepts as prerequisites for learning principles.

The contention here is that Anderson’s revised Bloom’s taxonomy (Anderson & Krathwohl, 2001; Krathwohl, 2002) should include the principle or relationship type of knowledge, because it is a different type relative to facts, concepts, and procedures. It also should move metacognitive knowledge to the cognitive dimension, because metacognition is a kind of mental process rather than a kind of knowledge.

Conclusion 8: Another limitation to Anderson and Krathwohl’s (2001) revised taxonomy was ranging the knowledge dimension from concrete to abstract starting from factual knowledge, forward to the concepts, then procedures, ending with metacognitive knowledge to be the most abstract knowledge the student can learn (Figure 4).

According to Gagne (1977) and Merrill (1983), factual knowledge is not more abstract than the procedural, conceptual, or principles knowledge. The contention here is that any type of knowledge could be presented on concrete and abstract levels depending on how the teacher presents the information first. If the teacher starts with a tangible specific example (factual knowledge) either for the concept, principle, or procedure (generalities), then the knowledge that the learner is expected to acquire will be easier to acquire than to acquire the generalities. However, if the teacher starts with presenting a definition of the concept, principle, or procedure (gen-

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**The Knowledge Dimension**

<table>
<thead>
<tr>
<th>Specific information</th>
<th>General information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facts</td>
<td>Concepts</td>
</tr>
<tr>
<td>- Names</td>
<td>- Any group of objects that all share some common characteristics and that are identified by the same name, such as:</td>
</tr>
<tr>
<td>- Dates</td>
<td>- mammals</td>
</tr>
<tr>
<td>- Labels</td>
<td>- trees</td>
</tr>
<tr>
<td>- Symbols</td>
<td>- fruit</td>
</tr>
<tr>
<td>- Terms</td>
<td>- vegetables</td>
</tr>
<tr>
<td>- Titles</td>
<td>- flowers</td>
</tr>
<tr>
<td>- Lists Events etc.</td>
<td>- chairs etc.</td>
</tr>
<tr>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5. Content types of knowledge from Merrill’s (1983) perspective.
eralities) first, then the knowledge that the learner is expected to acquire will be more difficult to acquire than to acquire the examples of the generalities. Gagne, in his hierarchical learning theory, considered concepts as being less difficult to acquire than the principles, but not less abstract. For example, the definition of tree (as a concept) is not less abstract than the definition of Archimedes’ law (as a principle) but rather is less difficult to learn. Another example, H₂O as factual information, is not less abstract than the concept of the tree but rather is less difficult to remember than remembering the definition of the tree, and so forth. The issue here is related to a difficulty level of the acquired knowledge, rather than the concreteness or abstraction itself (Figure 4).

Conclusion 9: Anderson and Bloom named their taxonomies “educational taxonomies.” I contend that the name “educational taxonomy” does not reflect what is going on in students’ minds and their learning. So, I prefers to rename the educational taxonomy into “learning taxonomy” in order to fit what is going on in students’ mind rather than reflecting their education.

PART IV. A NEW DEPICTION OF THE [REVISED] BLOOM’S TAXONOMY

Based on the aforementioned nine conclusions, I proposed a revision to Anderson and Krathwohl’s (2001) revised Bloom’s et al.’s (1956) taxonomy (Darwazeh, 2016; Darwazeh & Branch, 2015). The new proposed taxonomy has two substantive modifications. One is related to the cognitive dimension, and the other is related to the knowledge dimension.

With respect to the cognitive process dimension, I have reorganized the order of cognitive processes of Anderson and Krathwohl’s (2001) revised Bloom’s et al.’s (1956) taxonomy and added to them based on the review of literature on cognitive research and studies as I mentioned above. I recommend 10 cognitive processes that the students experience during learning. These processes range hierarchically and cumulatively from the simplest level which lies at the bottom of the triangle to the most complex level at the top, as follows:

1. Facts’ Remembrance: It is related to recognizing, recalling, retrieving the previous learned specific information and details, such as dates, names, symbols, events, terms, labels, titles, lists, elements, parts, examples, instances, specific details, and so forth (Merrill, 1983).

2. Generalities’ Remembrance: It is related to recognizing, recalling, retrieving, defining previous learned general information and ideas, such as recalling definitions of concepts, principles, and procedures (Merrill, 1983).

3. Comprehension: It is related to constructing meaning from oral, written, and graphic messages through understanding, interpreting, explaining, paraphrasing, summarizing, discussing, clarifying, and so forth (Anderson & Krathwohl, 2001; Bloom et al., 1956; Darwazeh, 2007, 2011).

4. Analysis: It is related to breaking down the whole into its components and parts to see the details or components such as dividing, analyzing, separating, identifying, comparing, distinguishing, differentiating, discriminating, deconstructing, following up step-by-step, et cetera (Anderson & Krathwohl, 2001; Bloom et al., 1956; Darwazeh, 2011).

5. Organizing: It is related to putting parts together or ordering according to a certain structure, fashion, pattern, theme, model, or principle such as grouping, categorizing, tabulating, classifying, chunking, ordering, listing, outlining, sum up, and so forth (Lindsay & Norman, 1977; Tuckman, 1992; West et al., 1991).
6. Synthesis: It is related to figure out the relationships between and among the learned ideas in the text (internal synthesis) and the relationships between them with other external ideas in other texts, subjects or situations (external synthesis) such as integrating, connecting, correlating, structuring, compiling, composing, inferring, concluding, drawing, mapping, building, assembling, constructing, and so forth (Gropper, 1974; Lindsay & Norman, 1977; Reigeluth & Darwazeh, 1982; West et al., 1991).

7. Application: It is related to using the learned generalities (concepts, principles, or procedures) in a new novel, or strange, situation, such as transferring, translating, applying, implementing, solving, making, using, give new examples of learned generalities, execute, carrying out, planting, reasoning new phenomena, and so forth (Anderson & Krathwohl, 2001; Bloom et al., 1956; Darwazeh, 2004, 2011; Merrill, 1983).

8. Evaluation: It is related to making judgment based on criteria and standards through critiquing, balancing, appreciating, giving the merit, making decisions, presenting opinions, evaluating, estimating, stating advantages disadvantages, selecting, preferring, critique, choosing, grading, ranking, suggesting, deciding, correcting, and so forth (Anderson & Krathwohl, 2001; Bloom et al., 1965; Darwazeh, 2011).

9. Creation: It is related to overcoming new instances and manipulating new situations to come up with new products, and laws, such as producing a new product, discovering, composing new things, generating, finding, inventing, predicting, creating, deriving, hypothesizing, writing new story, poem, drama, novels, articles, planning, designing, and so forth (Anderson & Krathwohl, 2001; Merrill, 1983).

10. Metacognition: This level is related to the kind of cognitive strategy related to thinking about thinking through promoting awareness, planning, monitoring, evaluating, and regulating mental processes that the learner used in his or her learning, such as proving, justifying, regulating, correcting, directing, steering, controlling, (e.g., Beyer, 1987; Bondy, 1984; Darwazeh, 1995, 2013; Gagne & Driscoll, 1988; Haller, Child, & Walberg, 1988; Huff & Nietfeld, 2009; Kistner et al., 2010; Palinscar, 1986; Paris & Winograd, 1990; Peirce, 2003; Tuckman, 1992; Wham, 1987).

I contend that each mental process ranges from simple to complex according to the number of items, factors, and components in which the learner engages during the construction of knowledge. So, as long as the information is getting bigger and larger, the difficulty level of the mental process will be harder and more complex to recall; for example, asking students to remember or process one item is easier for them to remember or process more than two or three items. The same thing is valid for the rest of the mental processes of the taxonomy. These mental processes also are sequenced hierarchal and cumulatively from simple to complex (Figure 6).

The intersection of the 10 cognitive processes (facts’ remembrance, generalities’ remembrance, comprehension, analysis, organizing, syntheses, application, evaluation, creation, and metacognition) with the four knowledge types (facts, concepts, principles, and procedures) forms a grid with 32 separate cells (Figure 7). Check marks represent that students can exhibit this kind of behavior related to this certain type of knowledge, and X marks represent that students can’t exhibit. The rationale is that once the facts are a kind of specific information or knowledge that cannot be generalized to more than one new situations; thus, the student cannot comprehend, apply, evaluate, or create them (Merrill, 1983). A learner can
remember them on specific level of learning only, but not on a general level. The student also can discover the facts but cannot create them, because they exist in the world already. The student can also recognize, analyze, organize, reorganize, and synthesize the elements of facts, either names, symbols, dates, labels based on a certain principle. For example, the student can reorder the list of names alphabetically, once recognized and analyzed. He or she can also make connections and see relations between their elements. For example, the student can connect between titles of the books and their authors. She or he can see the relationships among the apparatus parts and how they fit together coherently. Finally, the student can accept the fact either he or she likes it or dislikes it. In other words, the student cannot evaluate or modify facts, but can accept or reject it as it is (Figure 7). The metacognition as a cognitive strategy accompanied all mental processes in different degree. We can look at metacognitive process as a hat which learners can wear and put on the top of their heads but in a different size depending on their maturation, age, training, and intelligence.

**CONCLUSION**

Based on an extensive review of studies, theories, and research related to cognitions, metacognitions, information processing, and instructional design, I made major modifications to Anderson and Krathwohl’s (2001) revision of Bloom’s et al. (1956) taxonomy. They were summarized as the following:

1. Moving the metacognitive process from the knowledge dimension to the cognitive dimension.
2. Considering the metacognitive process as the most complex level of the cognition dimension not of the knowledge dimension like what Anderson claimed.
3. Dividing remember level into two levels based on the content type: facts’ remembrance, and generalities’ remembrance.
4. Retaining the analyzing mental level posed by Anderson and Krathwohl (2001) but in a different order.
5. Adding the organizing mental level to the cognitive dimension and put it after the analysis level.
6. Keeping the synthesizing mental level like it was in the original Bloom’s tax-
ontology but in different meaning and order.
7. Keeping the creation level like it was in the Anderson’s taxonomy after the evaluation ones
8. Reorder the cognitive processes of application, synthesis, and organize by putting:
   • the application level after the synthesizing level,
   • the synthesizing level after the organizing level, and
   • the organizing level after the analysis level.
9. Arranging each level of cognitive process from simple to complex according to the number of its items, factors, or components that the learner gets involved in while she or he learns.
10. Adding the principle type of knowledge to knowledge dimension.
11. Renaming the educational taxonomy as a learning taxonomy to fit with what happens in students’ mind and reflect their learning not their education.

APPLICATION
Because presenting knowledge to students in an appropriate sequence will help them to store and retrieve information properly, enhancing the whole learning and instructional process (Gagne, 1977), I proposed a new revision of Anderson and Krathwohl (2001) [revised] Bloom’s taxonomy with more mental processes and in different sequence. The new proposed learning taxonomy is intended to be used in a broader and comprehensive frames by teachers, supervisors, educators, instructors, professional trainers, curriculum planners, and evaluators either at traditional or nontraditional (distance) learning system, who intend to promote students’ thinking and skills and enhance their performance levels, in order to be good thinkers, creators, discoverers, builders, and critical thinkers, so they can live productively and comfortably in the information technology age.

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Changing Faculty Perspective of Distance Learning Through Support

Victoria Brown and Rangasamy Ramasamy

INTRODUCTION

Two technical disruptors are changing course delivery at postsecondary institutions. The first disruptor is the interconnectibility of the Internet. Understanding how to leverage that interconnectibility for educational purposes has taken time. With the Internet, faculty have the power to connect communicating instantly with students in a more personal manner and to share content in a variety of formats. Cell phones and web conferencing tools have enhanced the ability of students to communicate with each other and their instructors. The second disruptor was the improvement of creation software that allows faculty and students to create and to share content without the support of web designer and video experts. Because of these disruptors, faculty are experiencing chang-
ing expectations in how they perform one of their responsibilities: instructing students.

With the emerging demand upon faculty to teach distance learning courses, the team at the Center for eLearning (CeL) developed a model to support the faculty in transferring their knowledge of teaching in a face-to-face environment to online. The team wanted to respect the faculty’s knowledge base in how they taught their traditional classes, while guiding them as their professional identity changed to becoming an online instructor. At that point, the decision was made to use a change model rather than a training model to determine the type of services offered by the CeL. This decision allowed the team to create a collection of services to support faculty by placing the faculty members at the center of professional development and giving them control in how they interacted with our services. Below is a description of the model, the services developed, and a faculty member’s interactions with those services.

**Faculty-Centered Professional Development Model**

The team selected Hall and Hord’s (2014) concerns-based adoption model (CBAM) to provide the framework for this new suite of services. Using CBAM gave the team a good framework based upon extensive research that proved effective in promoting change within organizations. The training and services offered became interventions, allowing the team to think beyond the one-stop training models. Because the model was based upon concerns, multiple entry points into the professional development could be developed. Faculty with or without background could enter the support service model and obtain support on their exact needs. The model also allowed faculty to engage in a reflective process and to return to the center to refine communication, assessments, and strategies used in the courses.

The CBAM identified six stages of concern individuals progress through in the acceptance of change. The stages address the developing awareness about the change, how change impacts the individual, evaluating the impact upon the students, and how to create new knowledge in the use of the technology to support students. By pairing concerns expressed by faculty to each stage, faculty enter the services offered in multiple ways based upon their unique background experiences and needs. Faculty’s prior knowledge extended across a range from no background or interest in teaching online classes to teaching online for 10 years.

For CBAM to work, the team assessed faculty concerns about the adoption of online instruction. This assessment involved listening sessions at faculty assembly meetings within the colleges and the college executive team meetings. Conversations took place with the deans of the colleges and the leadership at the Provost’s Office. Prior training and postevaluations were analyzed for concerns and suggestions. The final assessment came from conversations with individual faculty from the different colleges at social gatherings on campus. The culmination of concerns was placed within the different stages identified in CBAM (see Table 1).

The next step was to create opportunities for professional development based upon the concerns faculty expressed. The idea was to meet the faculty where they were along the continuum of concerns: at the same time moving them forward based upon their knowledge and background. Within this model, assistance with developing a course as a partner with the instructional designer was considered intervention. As the instructional designer worked with the faculty member, training in how to use the technology also occurred. The faculty member learned about the instructional design process and
how to use the design tools. Table 1 represents the interventions matched to the concerns. Using this model, faculty moved through the stages of concern to teaching online.

The key to this support model is flexibility. Due to the variability of the teaching schedules, the professional development opportunities and interventions needed to be accessible from different locations through web conferencing or recorded sessions. A website also provided just-in-time helpful quick tips for faculty working from home or after hours. The other flexible component was the multiple entry points into the services based upon the faculty members' schedules and needs. Faculty do not necessarily start with training. Sometimes the assistance is needed quickly to put a course online to meet a group of students' specific needs. While others can take a more thoughtful approach developing courses the semester before they are offered.

### FACULTY DESCRIPTION OF ENGAGEMENT IN THE SYSTEM OF PROFESSIONAL DEVELOPMENT

To understand how faculty members interacted with the professional development model, the center asked a professor (Rangasamy Ramasamy, the second author of this article) to describe his experience. His description clearly shows how he moved through the different levels described in

### Table 1. Mapping of Concerns to Opportunities

<table>
<thead>
<tr>
<th>Level of Concerns</th>
<th>Description of the Concerns Expressed by FAU Faculty and Staff</th>
<th>Interventions for Concerns</th>
</tr>
</thead>
</table>
| 1. Awareness      | Faculty heard about distance learning but thought there was no need to learn about teaching in distance learning because they were not teaching in that delivery mode. | • Open door for assistance  
• Training course to learn more  
• Information on the website |
| 2. Informational  | Began to develop a curiosity about distance learning when there was a need to teach in that modality. | • Training course  
• Talking with instructional designer  
• Information on the website |
| 3. Personal       | Faculty member accepted teaching a distance learning course and began to think about how distance learning influenced daily work. | • Open lab  
• Training course  
• Design a course with the instructional designer |
| 4. Management     | Faculty member understood the expectations for teaching distance learning and focused on how to accomplish the tasks in teaching. | • Open lab  
• Community of practice |
| 5. Consequence    | As the course was taught or after teaching it, the faculty member realized the impact the strategies had on student understanding leading to further inquiry and changes to the course. | • Open lab  
• Community of practice  
• Talking with an instructional designer |
| 6. Collaboration  | Faculty member experienced success in the course and was interested in sharing with others. | • Community of practice  
• Sharing at the technology showcase  
• Writing about the experience |
| 7. Refocusing     | Understanding of the process and activities was now a part of the faculty member's workday, leading to creating new ideas and strategies. | • Building a new course  
• Trying a new strategy and conducting research |

**Source:** Adapted from Golden and Brown (2016).
After 20 years as a professor in the College of Education, the department chair asked me to teach an online course because a faculty member in the department left the university (awareness). I agreed and went to the center and expressed my desire to build an online course with the assistant director (informational). I had zero knowledge about online/distance learning courses and only 2 months to understand, learn, and to build a course. She gladly accepted me and explained about the center’s different professional development models and Quality Matters Rubric Standards. Realizing my anxiety and limited time to build the course (personal), the assistant director took me to an instructional designer and asked him to work with me in developing an online course.

The instructional designer shared his commitment to teach me how to build an online course, about the open lab facilities available for the faculty members at the center, and about what it took to design a course using the required textbook and the instructor resources. Then the instructional designer walked me through the phases in building an online course. As he explained the project plan phases involved in building an online course, I began to gain some confidence and felt I might be able to do it. Since I had the content expertise, the instructional designer asked me to provide a list of materials for the first phase of the project plan. He asked me to organize all the materials for each chapter (i.e., lecture notes, PowerPoint slides, videos and the like) and meet with him a week later.

As I walked out of the instructional designer’s office, I became inspired by the center’s process in developing an online course. I asked the assistant director to enroll me in the eCertification Faculty Training Course to learn to apply pedagogy and technology in the online environment (management). A week later, I went back to the instructional designer with all the materials for Unit/Module 1 along with a completed course syllabus. The instructional designer opened an alignment matrix on his computer and explained about the organization of course materials under the module’s objectives, assessments, lesson content, and technology. The instructional designer emphasized the importance of the alignment matrix in the eCertification course and the rich content I should add to each module to ensure that the course met the highest online quality standards. He explained to me, in detail, how to align course objectives, course content, activities, assignments, and technology into the matrix to make up the core foundation for the course. The instructional designer recommended that I apply components from the center’s syllabus template to my own course syllabus. After about 3 hours, the instructional designer asked me to complete the alignment matrix and to bring it back to him in 2 weeks. When I walked out of his office, for the first time I was not nervous and anxious, and said to myself, “I can develop an online course.” The instructional designer made it simple and encouraged me not to worry but to be excited about what I was learning.

The next day I called the textbook publisher’s local representative and explained my desire to develop an online course using his company’s textbook. The representative made me aware of the online resources available for instructors to download course materials, their application activities, and the support. When I saw the instructors’ guidelines and the resources available online, it inspired me to create multiple assignments for the course and to organize the alignment matrix for all 15 units in about 2 weeks. This time I felt confident that I had all the course elements ready to build my online course.

The instructional designer and I met again. We went through the course, into the alignment matrix, and made all the
necessary changes. At that time, the instructional designer said, “I was ready for phase 2.” For this phase, he created a DEVelopment Course Shell (Dev-Shell) in the learning management system using the center’s template. The instructional designer and I worked together to manage a weekly unit and posted course materials and content online. Although it took me awhile to learn the Blackboard learning management system (LMS), the instructor was very patient, cleared up all my doubts, and made me comfortable in applying my educational expertise into technology. The next step into my project plan was to create assignments, activities, extra reading materials, discussion questions, and the like.

I started building the course in the DEV-Shell for the whole semester. As I did, I needed assistance in several areas, including following little steps in Blackboard. This experience made me think differently from my face-to-face class. Every time I had a question, the instructional designer worked with me by sending suggestions, different options, and clear directions to accomplish my goals. Once I completed all the units and the online course, I went back to the instructional designer. After he glanced through the course, he said I did a good job and that the course design looked very friendly and student-centered. As I watched, the instructional designer completed the final quality control for technical components following the Quality Matters Rubric. The instructional designer looked for broken links, unclear or missing information, and fixed everything. I walked back to my office relieved that I had completed everything needed to build an online course. Finally, the course was ready. Within a few days, the instructional designer helped me copy the Dev-Shell into my online live course.

When I thought the work in building the course was finished, the instructional designer called me for Phase III. As per the instructional designer, Phase III was to advise me that the CeL team would help me with any questions and concerns throughout my first semester teaching online. Also, if needed, he advised me to visit the CeL’s Open Labs for faculty support twice a week.

As the fall semester was about to start, I made this course available to students. I began logging into the course every day for the remainder of the semester. This way I was available to my students and available to answer every one of their questions. At times, I contacted the instructional designer for assistance and to answer some of the learning system-related questions so that I better help my students (consequence). The semester went well, and I felt very fortunate for the opportunity to teach a course online for the first time in my teaching career.

After the semester ended, I received my students’ Student Perception of Teaching (SPOT) course evaluation report. The report had three questions for which the students could respond. For the first question “What did you like most about this course?” I had some positive comments. For the second question, “How could this course be improved?” one student responded, “I think the instructors should take a MANDATORY Blackboard class to learn how to access everything and know how to use it thoroughly. This professor had many assignments that did not pertain to the class listed as well as had trouble putting on due dates for assignments. This made it confusing for students.” Another student suggested, “Syllabus can be organized better. It can be overwhelming trying to find assignments, due dates, and critical information. Make due dates clearer and highlight them. Eventually, it was understood that materials were due on Saturdays but it would be helpful to have the actual dates on the syllabus.” Although an additional comment said, “Great class overall,” the student comments validated my fear of navigating
through Blackboard quickly, and I needed to learn more.

I made an appointment with the instructional designer again to revise/revisit the course based on the students’ comments. The instructional designer and the center’s staff went above and beyond to help me revise the course. I revised the assignments, made the due dates clearer for each unit, highlighted them in red, and wrote instructions explaining each assignment in detail. Additionally, I decided to attend Blackboard training classes to learn more about the system, and to improve my use of it. I had an entire semester to work on this course to make it even better. This time around I knew exactly how to improve my online course to make it user-friendly for the students.

I offered this course again in the fall 2015 semester. Right from the beginning, I kept the communication flowing with my students. I clearly informed them about learning expectations and the objectives for all chapters, course materials, activities, assignments, and reminders of due dates. I learned to use Blackboard well and became very comfortable with it. I had no more anxiety or fear about the online course. The semester went very well. When I received the SPOT this time, I felt very good about myself as an online instructor. This time, for the first question, responses included “very thorough, valuable feedback and care seemed to be taken when looking at assignments, the organization, the ease and effectiveness, self-sustained course, and I liked the discussion boards best because they really required me to think deeply about the course material.” For the second question, there were several comments; however, they were not about my lack of online or Blackboard experience. They were mostly about the assignments and how to make them easier for them to complete. When asked for additional comments about the course, one stood out, “One of the most enjoyable online classes. Dr. Ramasamy should give other professors lessons on how to teach and to organize an online class. Great professor! Nothing more!” Now I am very comfortable in teaching an online course (refocusing). Thus, I am planning to build another course to offer online for spring 2018 semester.

I will be pleased to work with an instructional designer from the center once again. I feel that the opportunity I get to work with an instructional designer on a one-on-one basis creates confidence, alleviates fear, and gives me different instructional perspectives and experience. I am glad that I prepared myself for the ever-changing tech world to instruct my students online for years to come. The tech world is an aspect of professional development that has become essential for the way students learn (collaboration is the sharing of this story with you).

**Connecting the Experience to the Model**

This faculty member needed to move quickly through the various stages because of the short notice he received in preparation for the launch of his online course. With the interventions in place, the center’s team was ready to address his concerns in the adoption of distance learning for the delivery of his course. He selected what he needed as he required the information and skills. The assistant director put him in contact with the instructional designer to assist with his immediate personal concern about the development of the course. With the scaffolding tools, alignment matrix, and course template, the professor visualized how to create the overall course and moved into the management stage. After teaching the course, the professor received the feedback from his students, moving him into the next stage, consequence. He then returned to the center to redesign elements of the course and addressed management concerns by enrolling into the Blackboard training
course. As the professor improved the course, he became interested in sharing his experience with colleagues in the collaboration stage by cowriting this article. He entered the last stage, refocusing, when he decided to develop the next course, again improving upon the strategies and techniques he learned through the process and continued to access the services once again through the instructional designer. Throughout the process, notice how the professor gained confidence in what he was doing. At first, he was a little uncertain; however, his confidence grew with each additional interaction.

**LESSONS LEARNED THROUGH THE PROCESS**

The team at CeL realized that, as faculty progressed through the system of interventions, several advantages emerged. Faculty felt empowered to experiment and to try new approaches within their courses. Often faculty will develop a course using a technology with which they feel most comfortable, such as a PowerPoint. They teach the course and begin to reflect upon the student’s experiences. This leads to faculty revisiting the center to discuss new strategies for engaging the students in the courses and in the use of different technologies to present their information, such as multimedia presentations, voiceovers, and video with green screen backdrops. Gradual acceptance of their new role as online instructors emerge. Because professional development is viewed as stages of adoption of change within the center, the faculty continue to return, receiving the required support to continue their growth as professionals and embracing of new technologies.

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Embracing Engagement Through Technology in Online Legal Education

Susan H. Stephan

INTRODUCTION

Pedagogy in online graduate education needs to support and be supported by technology tools that can enhance authenticity, community, and overall engagement. An examination of graduate-level legal education, as an example, reveals the importance of technology integration and engagement in a field that has been resistant to pedagogical change. According to the faculty and other law school professionals who make up the Working Group on Distance Learning in Legal Education (2015), best practice development for online teaching in law has been slow to advance, due in part to the restrictive rules in place for distance education imposed by the American Bar Association (ABA) as the principal national accreditor of juris doctor (JD) programs. However, information and communication technology (ICT) is driving changes in academic and professional environments and necessitating the evolution of all graduate education. According to Maharg and Paliwala (2002), ICT fosters change in legal education and “provides the pressures promoting changes as well as pathways, tools, and techniques for implementing them” (p. 78). It follows that distance education in the legal space must also evolve to incorporate the most appropriate tools and techniques for its online community.

EXPLORING A NEW TEACHING TRADITION

In legal education in the United States, an “interrogational Socratic” method of lecture is the tradition (Paliwala, 2002, p. 185). The Socratic method in law school involves a faculty member leading a conversation with the goal of arriving at the main principles of case law through a question and answer session, drilling down until the faculty member is satisfied that the student responding to the questions either (1) arrived at and understands the princi-
ple, or (2) is hopelessly lost and needs the assistance of a different student in the class. This method generally is part of a tradition of “authoritarian teaching,” made up of an unwillingness on the part of faculty to be flexible about the curriculum, the teaching and learning process, and the concern with the student learning experience. Paliwala (2002) indicated that this authoritarian teaching style might be accompanied by a status-based personal and intellectual arrogance on the part of law faculty.

By contrast, developing philosophies regarding distance education support a different model. For example, Garrison, Anderson, and Archer (2000) advanced the widely cited community of inquiry model that comprises the overlapping elements of cognitive presence, social presence and teaching presence, the intersection of which is where the authors proposed that meaningful learning occurs (as cited in Cui, Lockee, & Meng, 2013). This model focuses on concepts including open communication, the connection of ideas, group cohesion and encouragement, and teacher management of content and learning outcomes. Although the teacher is considered to be a key component of the Community of Inquiry, the desired teaching style is collaborative as opposed to authoritarian. Similarly, Paliwala (2002) suggested that rather than the traditional authoritarian model, a more effective learning process in legal education is problem-based, where the teacher facilitates student learning in a more democratic fashion, involving increased transparency in the student-teacher dialogue.

**COMMUNITY IN ONLINE EDUCATION**

Yang and Cornelious (2005) pointed out that for students to be successful learners online, instructors must pay more attention to developing a sense of community in the virtual classroom. Conrad (2002) agreed, citing community-building through engaging learners in their learning tasks is a key step toward successful learning online. Conrad also defined a constructivist view of an instructor’s role in online education as providing a “facilitative and collaborative presence that invites peer interaction among learners and a more democratic sharing of responsibility than what may have occurred in some traditional classrooms” (p. 212). Yang and Cornelious (2005) indicated that a distance education community needs to be learner-centered, incorporating active learning and strong participation by all students.

In addition to a focus on community and interaction, Dede (2008) proposed that, “learning involves mastering authentic tasks in meaningful, realistic situations” (p. 51). Young (2006) added that high-quality materials and feedback are very important to students, as is having professionally meaningful assignments. Conrad (2002) stated that adults need to see relevance in their learning to remain engaged. As adult learners, law students find value in practical, relevant coursework that builds skills that they will need as they move forward with their education and after they graduate. As Maharg and Padiwala (2002) indicated, “[l]aw is a terrain of contested meanings and negotiated solutions” (p. 86). Since negotiation is a crucial skill for lawyers, the ability of law students to be involved in their learning to the extent that they “interpret, negotiate, and reflect upon the structure of the law as they learn it” allows students to become more engaged with the knowledge base when they are immersed in resource-based learning (Maharg & Padiwala, 2002, p. 87). Among their keys to student-centered online learning, Alley and Jansak (2001) reported that experiential, active learning will augment the distance learning environment (as cited in Yang & Cornelious, 2005). Similarly, Herrington, Oliver, and Reeves (2002) list real-world relevance and the opportunity to collaborate as among the most...
important characteristics of authentic activities that support engagement.

**ICT Integration in the Classroom**

Considering the importance of student engagement with relevant, authentic coursework in the context of online legal education, there are several ICT tools that support a sense of community and overall student engagement with the learning environment. Initially, in terms of instructor facilitative presence in an online course, the effective use of the school’s learning management system (LMS) is a key consideration. Generally, institution-licensed platforms such as Blackboard or legal education’s Thomson West Education Network (TWEN) are supported by available training on the collaborative features of the platform. It is crucial to ensure online faculty are fully trained on the opportunities to connect and communicate with students through the LMS platform. Making sure faculty members understand the importance of frequently logging into the course’s site, responding to questions and comments in a timely manner, and generally showing a presence are necessary starting points for student engagement.

Of course, writing is a technology that once was new and continues to be an important—and evolving—communication tool. LMS discussion boards are a valuable collaborative tool when students are required to reflect, interact, and engage with course materials and their classmates. The opportunity for written, measured, and thoughtful communication can allow all students to have a voice in class. Face-to-face law school courses, as with any classroom, frequently feature a few students who dominate conversation to the exclusion of others. Either in a Socratic discussion involving a faculty member and one or two students or an open-ended question that calls for voluntary response, it is difficult for all students to be heard. An online discussion board likely will provide more engagement for more students. Students also can work in smaller groups through an LMS, uploading written drafts of assignments for peer review, collaborating on assignments, or holding small-group discussion board sessions. LMS platforms also feature many avenues for formative and summative assessment, including faculty feedback on assignments, summative quizzes and exams, and general discussion board comments.

Audiovisual tools are important supplements to written assignments and feedback. The creative use of video technologies, including recorded videos as well as web conferencing, is another way that ICT can support student engagement, community-building, and opportunities for active and collaborative learning. Teachers can build their presence in an online environment by posting brief, regular video announcements that give detailed instructions about an assignment, make a key point about available materials, or just check in with a relevant comment. Students can use video to practice presentation skills and post them for peer or instructor review. And the use of synchronous web-based interaction using a web conferencing platform like GoToTraining, Skype, or Google Hangouts can provide collaborative interaction from questions about an assignment or assessment opportunities to active learning exercises involving real-time oral arguments, negotiation sessions, or mock client interviews. As virtual reality (VR) tools become more sophisticated and accessible, simulated legal skills-based learning that currently is accomplished through synchronous and asynchronous video tools will be able to evolve into the even more realistic experiences that VR can provide. The idea of a VR courtroom appearance, client interview, or practice deposition is potentially the type of authentic, meaningful learning.
opportunity that would foster true engagement.

Addressing education generally, Dede (2008) proposed that ICT assists in the representation of content, learner engagement, and student assessment in ways analogous to a carpenter’s use of various tools to successfully complete a construction project. Similarly, Harris and Hofer (2009) highlighted the importance of instructors’ ownership of the technology they use, as well as the importance of planning strategically for the use of digital tools and resources so that ICT integration is effective. Mishra and Koehler (2009) reminded us that there is no one perfect approach to ICT integration in classroom contexts. But as we focus on the advancement of student learning, a thoughtful approach to leveraging technology in support of pedagogical affordances is crucial (Mishra & Koehler, 2009).

CONCLUSION

Paliwala (2002) proposed that classrooms “are merely theaters with props and actors, which are constituted by and yet also provide the spaces and times for the interplay of power relationships between students and lecturers involved in the process of learning and teaching” (p. 179). Paliwala added that although, on the surface, most legal academics teach in the same way they always have, classroom “props” are changing, as we have the opportunity to integrate multimedia tools to supplant the “chalk and talk” or “sage on the stage” method of imparting knowledge. In a face-to-face law school environment, a learner’s thought process is often drawn out and explored through a Socratic dialogue, with a faculty member ultimately mediating “right” from “wrong.” More recently, however, there has been a recognized gap in a traditional legal education based on the need to hone content-based critical thinking skills and the practical lawyering skills that a more experiential learning environment would provide. As we try to find the right blend of content knowledge and actual competency to practice law, it seems that a more learner-centric, experiential process where law students can experience the content in context while sharing knowledge and learning from each other would result in a far more engaging and valuable education. ICT tools can facilitate experiential opportunities in an online environment.

Dixson (2010) found that the path to student engagement is not a particular activity or assignment; rather it is about creating significant communication among students and their instructor in multiple ways; in other words, “it’s all about connections” (p. 8). A successful online environment and effective integration of ICT can foster those connections. The ability for a law student to focus on collaborative, meaningful, context-based learning in a virtual community can provide the path to engagement for adult learners that is key to successful student learning.

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Exercise and Sport Science (B.S.), Fort Lauderdale/Davie Campus
Health Science (B.H.Sc.)**, Fort Lauderdale/Davie Campus
Medical Sonography (B.S.), Fort Lauderdale/Davie Campus
Respiratory Therapy (B.S.), Palm Beach Campus
Respiratory Therapy (B.S.)**, Fort Lauderdale/Davie Campus
Speech Language and Communication Disorders (B.S.), Fort Lauderdale/Davie Campus

GRADUATE
MASTER’S DEGREES
Anesthesia (M.S.), Fort Lauderdale/Davie Campus
Anesthesia (M.S.), Tampa Campus
Health Science (M.H.Sc.)**, Fort Lauderdale/Davie Campus
Occupational Therapy (M.O.T.), Fort Lauderdale/Davie Campus
Physician Assistant (M.M.S.), Fort Lauderdale/Davie Campus
Physician Assistant (M.M.S.), Fort Myers Campus
Physician Assistant (M.M.S.), Jacksonville Campus
Physician Assistant (M.M.S.), Orlando Campus
Speech-Language Pathology (M.S.)*, Fort Lauderdale/Davie Campus

DOCTORAL DEGREES
Audiology (Au.D.), Fort Lauderdale/Davie Campus
Audiology (Au.D.), United Kingdom
Health Science (D.H.Sc.)**, Fort Lauderdale/Davie Campus
Health Science (Ph.D.)*, Fort Lauderdale/Davie Campus
Occupational Therapy (O.T.D.)*, Tampa Campus
Occupational Therapy (Dr.O.T.)**, Fort Lauderdale/Davie Campus
Occupational Therapy (Ph.D.)*, Fort Lauderdale/Davie Campus
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Distance Education Under Neoliberal Globalization

The Political Economy of an Emerging Trend in Education

Ugur Demiray

INTRODUCTION

Distance education is a longstanding concept in adult education. Since the correspondence education practices as the first implementation, the forms of distance education have been changing due to prominent technological developments, such as radio, television, and Internet. However, one can argue that not only the technological developments but also the social and economic transformations that bring new educational needs and arrangements forward, make new forms of distance education emerge as a major topic.

The prevailing notion to explain the social and economic transformation for almost the last 3 decades is neoliberalism. Neoliberalism, as a concept suggesting its own definition, is the new form or the revival of liberalism (Thorsen & Lie, 2009), which is rooted in the laissez-faire economy that refers to the idea that unregulated free markets would enhance the wealth of the nations.

Considering the triangular interrelations between the market, the society and the state, liberalism asserts that if the state does not intervene in the relationship between the market and the society, the invisible hand of the market would lead the society to a better welfare level. In brief, the difference provided by the prefix “neo” implies that the role of the state intervention in the society on behalf of the market is needed, since the attempts to form unregulated free markets resulted in worldwide economic and social crises (Harvey, 2005).

To be elaborated later in the article, one can argue at this very starting point that the neoliberal state intervention aims to disable the objections against the inequalities and unfairness caused by the free market dynamics by taking economic, social, legal, and political measures. Here in this article, neoliberalism is assumed to be necessarily accompanied by globalization, namely the concept that is commonly used as a shorthand way of describing the spread and connectedness of production, communication and technologies across the world (Smith & Doyle, 2002). These two overlapping concepts, neoliberalism and globalization, are analyzed here under the term “neoliberal globalization,” since they associatively form the basis of the increasing significance of distance education since the last 3 decades.

Under neoliberal globalization in this period, there has been a dramatic shift in the conception of all forms of learning and distance education. The shift is so dramatic
that nearly all the previous educational concepts, institutions, and arrangements have been discredited compared to the emerging ones, mainly the ones derived from “learning society” and “lifelong learning.”

In brief again, there have been two main determinants to make distance education more significant recently: The first one is the technological boom in information and communication technologies (ICT) that enables learning through several kinds of devices irrespective of time and space. The second one is the economic and social transformation, so-called neoliberalism accompanied by globalization that places learning at the very heart of rapidly changing societies.

**NEOLIBERALISM AND GLOBALIZATION**

Neoliberalism is the answer of capitalism to the economic crises that was brought to light with the oil shock in 1970s. The welfare state was an active social and economic agent between the Second World War and that oil shock, providing with circumstances that enable mass consumption related with mass production and high rates profit by the state’s market intervention on behalf of society (Bulut, 2003; Ersöz, 2003; Sönmez, 2007).

Capitalism used to work on full employment policies to increase market demand: economic and social policies used to provide large masses of people with guaranteed employment opportunities. Social security, education, and health services were financed by public resources and thus, people were expected to consume more since they do not have to pay for these kinds of services.

Education for all was a necessity for full employment and the welfare state used to undertake this task (Günlü, 2003). After the oil shock in the 1970s, capitalism needed new fields of profit and set an eye on the consumption potentials under education, health, and social security services, and therefore the welfare state started to be portrayed as a target that causes economic crises (Ersöz, 2003). Policies to restrict the state and public expenditures in order to stipulate the shrinking of the economic functions of the state on behalf of global trade and capital movements (Boratav, 1997, 1999, as cited in Yeldan, 2000) were placed at the top of the agenda.

These policies, which radically changed the regulatory role of the state in meeting social needs, have brought about the redefinition of social interests and aimed at the privatization of education, health, and social security, the main components of organized modernity. Besides, the capitalist economies began to be reconstructed against low growth rates, high rates of unemployment, and inflation. Companies reacted low profit rates caused by shrinking market demand by technological innovation (computerization), reorganization of production and marketing techniques (stockless production etc.), and changing their financial structures. From then on, they started to prefer flexible production systems directly targeted to actual demand (Harvey, 1993). Thereby, post-Fordist production took the place of Fordist system, while neoliberal regulations liquidated welfare state. In parallel with the aforementioned transformations in economy and production, there happened the boom in ICT, changing every aspect of social, cultural, political, and economic life. Smith and Doyle (2002) indicate that developments in digital technologies, especially the Internet, have opened vast new possibilities for production and exchange making it possible to access information and resources across the world—and to coordinate activities in real time. This was the revolutionary dynamic lying under globalization providing more appropriate conditions for global trade and rapid capital movements that were vital for neoliberalism for it to spread the fields of profit throughout the world.
So, over the past 3 decades, neoliberalism has reshaped the value and practice of everything, including education. In this context, economic imperatives become the organizing logic of the relationships between individuals, governments, private enterprise, and society, and the market becomes the key site for distributing goods and services (Connell, 2013).

Educational institutions previously valued as essential public goods have been transformed as part of the market. Education is reconceptualized as no different from any other good or service, to be provided and delivered through market mechanisms (Peters & McDonough, 2008) by creating consumer-provider relationships (Naidoo & Williams, 2014). This has been the new world of learning that stands on learning societies, knowledge-based societies, and lifelong learning.

**Learning and Society Under Neoliberal Globalization**

Conceptions such as learning society, knowledge-based society, lifelong learning, and the like refer to an old idea of looking beyond formal education environments, recognizing that learning is an inseparable part of everyday life occurring every time and everywhere throughout the whole lifespan, irrespective of age and space limitations set for school types of learning (Bağcı, 2015) and locating learning as a qualification not just of individuals but also of the social systems and countries (Smith, 2000). Implied that learning continues from cradle to grave and that all societies need to be characterized by learning, these concepts have been very commonly used in educational debates and taken for granted, but they should, of course, be questioned (Jarvis, 2009).

The underlying idea of learning society is so old that it could be traced back to ancient times to the obligation of every citizen to learn for the ultimate good of the city and the community, namely *dia vivipedia* in Plato’s *Republic* (Quane, 2009). The modern meaning of the idea has a history of approximately 100 years, since it appeared to be a concept in educational sciences, especially in adult education, in the studies of thinkers such as Dewey, Lindeman, and Yeaxlee (Bağcı, 2010). However, one can definitely claim that it has never been as popular as today. Education has been placed at the very heart of modern societies; thus, the most affected social, economic, and cultural shifts in these societies result in similar shifts in the field of education and educational institutions. Therefore, educational institutions have been undergoing a multidimensional transformation throughout neoliberal globalization. Educational needs that were mentioned assertively by the world of education in 1950s and 1960s started to change in 1970s. The belief that the rapid expansion of formal education would necessarily be a catalyst for social reconstruction and development in both the industrialized and the newly emerging developing countries, led these societies to expand school systems (Fordham, 2014). By expanding the formal education systems, it was expected that when the number of educated people increased, the rate of economic growth would increase and the whole society would develop as well.

When the 1970s brought economic, social, cultural, and political problems, ideas on the relationship between the formal education systems and the societies came to be questioned. The curricula were found to be unsuited to the rapidly changing needs of the society. The low correlation between educational and economic growth was realized, and the expectation for more educational input to create more and better jobs collapsed (Fordham, 2014).

When these disappointing results of formal educational expansion were recognized, many criticisms came up, one of which was to make a distinction between formal, non-formal and informal educa-
tional settings to drive the new and more flexible forms of education forward, other than the formal ones.

After the boom in ICT that shortened the time required to access information resulted in a rapid change in social and economic life, a learning society with strong emphasis on the increasing significance of knowledge in economic production caused lifelong learning to be considered as a redeemer of any country that should survive under brutal competition circumstances in the new knowledge-based world (Bağcı, 2010; Smith & Doyle, 2002).

When neoliberalism is the case, one can argue that the harmony between the premise of lifelong learning and the post-Fordist accumulation regime places the concept at the very heart of educational debates. Flexible and precarious working plays an important role in the new regime and that requires—to be more precise, obligates—the labor force to update occupational skills and knowledge continuously due to permanently changing working conditions.

Since lifelong learning includes informal types of learning beside formal ones, mentions the continuity of everyday learning, and removes the limitations of age and space in formal settings of learning, it plays along with the shift from Fordist production models to the Post-Fordist ones—that is to say, the liquidation of welfare state and full-employment policies (Bağcı, 2014a).

The learning society provides a congruence between the learning perspective of the concept and the capital accumulation regime: lifelong learning offers a flexible and continuing educational model that could be adjusted and focused only on the requirements of labor markets to meet the emerging needs of a neoliberal precarious (un)employment regime (Bağcı, 2014a).

When the needs of the labor markets are considered as the only target to be met by education and those needs are changing very rapidly, formal learning, namely school education as an inflexible form at the beginning of lifetime, appears to be insufficient. So nonformal learning as structured courses and informal learning as more free and self-directed types (Duman, 2000) have come forward. Under neoliberalism, formal learning procedures are intended to get limited to the acquisition of very basic knowledge and skills, leaving more room for nonformal and informal contexts mainly targeting skills training activities for the needs of capital accumulation regime.

Globalization has brought more opportunities to access several types of self-directed learning settings on one hand, but on the other, it also brought new financial approaches, in that costs are shifted from government to individuals, in keeping with the belief that education is an investment by individuals in their own economic future (Connell, 2013).

According to this logic, education has become a commodity rather than a public function with a contribution to common social and economic goods. Thus, public expenditures on education were cut down. While the rhetoric on knowledge-based society to bless learning and the increasing number of self-directed learning opportunities were boosting the demand for education, governments were decreasing educational expenditures. Thus, large fields of investment were left for private enterprises, and by introducing the necessary legislative regulations, including fiscal incentives, the neoliberal governments began to commercialize education.

This process continues today, significantly in the higher education sector, by reducing public spending, expanding higher education into new markets of vocational education, reintroducing student fees, deregulating and privatizing the sector, increasing competition between students, imposing an audit culture, and deunionizing the workforce (Gamble, 2001; Hay, 1999; Watson, Buchanan, Camp-
As a consequence, heated debates have underlined that commercializing education helps affluent social groups get wealthier while keeping down others in the social hierarchy (Bağcı, 2014b).

As a result, the idea of making a distinction between different types of educational settings prepared the way for the growing significance of nonformal and informal types of learning, helping to focus more on the learning opportunities outside school. Considering the accompanying developments in ICT and the changing needs of the labor markets, new forms of learning began to gain importance. Although distance education is a form of education with quite a long history, it’s obvious that it became prominent at this moment of time, along with concepts such as lifelong learning, the learning society, and the like.

**DISTANCE EDUCATION**

Distance education is described as any form of educational activity in which teaching is not conducted through face-to-face contacts but mostly through a range of media. Thus, in distance education teachers and students are separated physically most of the time, making students responsible for their own progress, in the sense that they must make their own arrangements about where and when to study, work without direct supervision, and basically develop skills in self-pacing and self-evaluation.

Distance education is not an opposite form of face-to-face or conventional education. It is not synonymous with all learning-teaching arrangements that are not face-to-face nor to be defined as the opposite of face-to-face education. Face-to-face instructional methods can be used in distance education whenever possible and necessary and educationally appropriate (Moore, 1987). Communication technologies have a manipulative power an effect on the field of education in general. These technologies have been increasingly used in education and training for many years to meet different needs.

Distance education has proven particularly useful for training people into remote locations who cannot attend to the classes, especially at universities, and has been used by many corporations and organizations in both formal and nonformal educational settings all around the world. It has been realized by the corporations, institutions, colleges and universities that when used properly and timely, distance education is one of the most effective, economical, and productive ways of delivering instruction. Moore and Kearsley (2005) discusses the historical development process of distance education according to technological change as five fundamental eras, as shown in Figure 1.

**DISTANCE EDUCATION IN TURKEY**

In Turkey, distance education is the most widely used mode of delivering instruction in almost all areas (Akyürekoglu, 1995). Distance education in Turkey has been a matter of debate since the foundation of the Republic; however, the first implementation was in 1927, at the first National Education Summit in Izmir. The first application appeared and was realized on 1953 by a private company, FONO, about Foreign Language education, and carried on by Ankara University in its “Money and Banking department” in 1956 in Ankara (Curabay & Demiray, 2002). In the 1970s, distance education was implemented as correspondence education, but it wasn’t found successful at the desired level. The 1970s were years for Turkey to begin searching for new ways to develop its own educational strategy to expand opportunities for its citizens. It was believed, and enacted into law, that education should be the main responsibility of the government (McIsaac, Murphy, & Demiray, 1988). There was an increasing pressure on the Turkish government to
provide for the growing number of people who wanted higher education opportunities. Also, it was expected from the government to balance the educational opportunities between the Eastern and Western parts of Turkey, to create greater educational opportunities for the younger generation, and to provide training opportunities for persons who had missed those opportunities in the past.

Other reasons for establishing distance education programs were the necessity for establishing more open and more flexible educational and training structures. Many feel that the concept of educational equality became more meaningful in those years. Economically, advances in science and technology have had their impact on Turkish society. The development and applications of new technologies has put pressure on Turkey to provide up-to-date education to keep the work force competitive with that of other countries. The knowledge and skills of workers must be constantly updated with new technological information. Unfortunately, traditional educational institutions are not always able to change to meet these new educational needs using traditional teaching environments.

The history of the Open Education Faculty (OEF) at Anadolu University in Eskisehir, as the mainstream of distance education in Turkey, is closely tied to these developments of the 1970s, the reorganization of the Turkish universities and the development of higher education. Its first distance education programs were in business administration and economics. Distance and open education has been a core function of Anadolu University, with a wide range of educational programs (7 bachelor’s, 30 associates, and more than 30 certificates) to adults throughout the extensive territory of the Republic of Turkey, parts of which are extremely isolated, and to Turkish-speaking people of its dias-

![Figure 1. Historical development process of distance education according to technological change.](image-url)
poras in many countries, particularly in Western Europe.

Almost 2 million people—most in full-time employment, some who are disabled, and some who are in prison—are taking advantage of these low-cost services (Anadolu University, 2015). It also provides educational opportunities to learners with physical, hearing, and visual impairments (Demiray et al., 2016). The instructional approach in the University’s distance programs varies, but the majority use traditional distance methods: print-based mass education, requiring self-study. Students are expected to study their textbooks at their own pace and to take scheduled centralized exams. Self study is supported by several services, including TV broadcasts aired by a state channel throughout the country (TRT4); video and radio programs distributed on cassettes, CDs, or DVDs; academic counseling, administrative bureaus, e-learning, and mobile phone services. The rationale behind this sort of an instructional approach is to provide higher education opportunities to as many students as possible in cost-effective ways.

The reflection of constructivism and a post-Fordist approach to distance education practices in Turkey has been the emergence of learner-centered, interactive, and collaborative practices, in several universities. By the integration of the Internet into higher education practices, there has been a shift from traditional distance education practices to new Internet-based learning environments. Many online programs have been created in Turkey in the last decade. Started in 2000, Istanbul Bilgi University’s e-MBA has been the first online graduate degree program in business administration in Turkey. This is an interactive program that provides flexibility by eliminating the obstacles of time and place. It is designed specifically to meet the contemporary needs of the business world in the strategic arena. Middle East Technical University has been offering Informatics Online, which is an online master’s of science program, since 2000.

At Anadolu University, in addition to the traditional form of distance education practices, there are also many online programs. The Information Management Associated Degree Program of Anadolu University, for example, is a completely online program, which can be considered as an example of the shift from traditional distance education to Internet-based distance learning. It has been giving learners an opportunity to study in a collaborative learning environment since 2001. Anadolu University has also been offering an e-MBA since 2004 in collaboration with Empire State College, State University of New York.

In addition to these programs, many conventional universities have been opening distance education centers to support face-to-face courses by e-learning environments and carrying out pilot studies for higher distance education. A few examples of these are Bogazici University, Ankara University, and Istanbul Technical University.

**Future Trends and Opportunities**

Large open universities enrolling over two million students have been established in Asia, including the Chinese Radio and Television University, the Sukhothai Thammathirat Open University in Thailand, the Universitas Terbuka in Indonesia, and dozens of open universities in India. Korea continues to rely on correspondence schools to meet its goal of universalizing secondary education, as Japan did until very recently.

Online education is an increasingly important element of contemporary higher education, but many argue its potential has not been fully realized. Attempts to analyze the limits on educators’ uptake or effective implementation of online education emphasize individual and institutional adaptation to technology, at the expense of understanding the con-
text of its introduction and use. Online learning has become a central element of contemporary universities (Lindros & Zolkos, 2006).

There are also trends toward a convergence of distance education and the mainstream. This derives from the idea that the best learning methods may well be a mixture of face-to-face instruction and independent learning. At Deakin University in Australia, where both campus-based and distance education modes were implemented, students in the campus-based mode found the notes prepared for the distance education students more reliable than the notes they could take by themselves in lectures.

Faced with new training demands and new competitive challenges, many educational institutions need to undertake profound changes in terms of governance, organizational structure and modes of operation. More and more traditional universities are rapidly transforming themselves from single mode to dual mode universities, recognizing the importance of distance education in providing students with the best and most up-to-date educational resources available in addition to the traditional teaching methods that they receive. For instance, the adoption of e-learning in universities can bring about various degrees of change in the learning and teaching processes. It is the level of this change that determines the benefits from which higher educational institutions can glean from implementing e-learning tools. The prevailing situation in the implementation of e-learning is such that institutions are still experiencing failure in its implementation.

The terms “open learning” and “distance education” represent approaches that focus on opening access to education and training provision, freeing learners from the constraints of time and place and offering flexible learning opportunities to individuals and groups of learners. Open and distance learning is one of the most rapidly growing fields of education and its potential impact on all education delivery systems has been greatly accentuated through the development of Internet-based information technologies and, in particular, the World Wide Web.

The status and image of open and distance learning is rapidly changing with technological developments, such as computer-aided distance education, Internet-based distance education, mobile-based distance education, interactive IPTV-based distance education, and the like.

New communication technologies such as mobile-based distance education have provided creative and motivating ways of presenting information and providing opportunities for interaction (Leach & Moon, 2002). The increased mobility of these technologies is opening possibilities for learners in remote, often rural, locations that were previously impossible.

One of the most fascinating developments in the last few years has been the open content or open educational resource movement. Based on the same philosophy as the open source software initiatives (viz. Linux), open educational resources are freely available to anyone to use and adapt as they wish.

The globalization of distance education provides many opportunities for developing countries to realize their system-wide education goals. Two main factors have led to an explosion of interest in distance learning: the growing need for continual skills upgrading and retraining, and the technological advances that have made it possible to teach more and more subjects at a distance. Although policy systems are proving quite slow to respond to the new opportunities, interesting research and development projects are emerging that provide indicators for the direction of wider take-up.

Cost analyses also demonstrate that, for a developing country to realize the rapidly changing educational needs, distance education—specifically online education—
could be the best choice, since it is a flexible form of education, to meet flexible needs and targets. Distance education, when properly planned, designed, and supported by the appropriate mix of technology and pedagogy, is equivalent to or in certain scenarios more effective than traditional face-to-face classroom instruction (Titlestad, 2015). There are two dominant themes in the literature: online education is efficient, modern, and rational, and online education is dehumanizing or alienating. Neither, Selwyn argues, can lay the groundwork for an “enhanced, emancipatory and enlightening form of higher education provision” (Selwyn, 2007, p. 90).

It has been suggested that understanding online education requires a shift in focus away from the possibilities of technology per se in favor of centering the value and tenor of the relationship between educators and students, and what supports it. Rethinking the use and effectiveness of online education requires critically engaging with the neoliberal project in education.

**CONCLUSION**

Just like all forms of learning, distance education holds a contingent position in terms of social and political outcomes:

- It may serve as an equalitarian and emancipators implementation, for it may make knowledge accessible for everyone, or it may serve inequalities to increase, for it may provide dominant social classes and groups with more concentration of power.
- It depends on who makes the policies and implementations and how they are conducted. Developments in ICT, digital technologies, innovations derived from the Internet, and the like are potent to offer an emancipatory insight into education, but it depends.

Neoliberal policies and implementations of education have two dimensions. The first dimension is the commercialization of educational institutions and activities, which is taking the education systems out of public services run by the welfare state and integrating them into the free-market relations by privatization policies. And the second dimension is the adjustment of the content, methods, and the instruments of education to those free-market needs (Bağcı, 2015; Sayylan, 2015).

Because of these two, public expenditures in education, especially in adult education, decrease, whereas the demand for it increases (Bağcı, 2014b). This results in the rise of the share of private sector, nongovernmental organizations and local authorities in this field (Yıldız, 2012). On the other hand, educational objectives and activities under lifelong learning are strictly tied to market needs (Sayylan, 2015), calling on the market actors to take a larger role in educational activities. The neoliberal trends limit the emancipatory potentials of distance education because the market actors normally turn their faces to increase their profit.

In addition, as a result of linking the relationship between knowledge and learning to the fate of any society, solutions for social, economic, and cultural problems of those societies started to refer to their learning capacities by deriving concepts such as learning society, learning government, learning organization, learning firm and so on.

Increasing the role of ICT in economic production chains in central capitalist countries that qualify themselves as learning societies affected labor markets directly. While mass production approaches of previous times were giving way to stockless production methods, flexible working conditions were taking the place of full employment. Those flexible working conditions caused the number of employees to decrease, there became a gap in the production chain, and that was filled
with new technologies. In this way, the crisis of overproduction was expected to be solved (Bağcı, 2010).

In line with these changing conditions, demand for qualified labor in the service sector has started to grow, making lifelong learning more and more significant every day. Since costs of permanent qualified labor are high, companies were directed to flexible work. As a consequence, the type of labor force who start to work in a company and continues to work there, mastering till retirement, shift to another type who have to update knowledge and skills permanently in order to meet the rapidly changing needs of production, who have to work in several places throughout life under precarious conditions, and who could be dismissed if they do not keep up with new circumstances. And lifelong learning has emerged as the flexible type of learning to fit that new type of flexible labor force, not anything else (Bağcı, 2010).

However, another distance education is possible. In order to find out how, educators and policy makers should turn their attention to the humanist tradition in adult education in which they can find the ideas of social action for emancipation. Here in this tradition they will see how adults can become conscious of their democratic rights and how they can work collectively for a better future society. Distance education, as an opportunity to go beyond the limitations of school systems, can play a crucial role at this point.

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A Contemporary Look at Richard Clark’s “Mere Vehicles...”

Karin Steere

INTRODUCTION

Richard Clark’s 1983 paper stating that, “media are mere vehicles” sparked an impassioned debate about the impact of media on learning. Clark reiterated his position in 1994, but numerous researchers have attempted to refute his affirmation that specific media are irrelevant in the acquisition of knowledge. Media technology has impregnated nearly every aspect of our contemporary lives and as such, have become modes of communication outside and inside the learning environment. This white paper will explore the influence of media technology in education, including current evidence on each side of the debate. It is targeted to physical therapy clinicians and those involved in physical therapy academia.

RICHARD CLARK’S POSITION

Richard Clark posited that it is not media and technology that facilitate student learning but rather that these are merely tools through which content can be delivered, and that it was the substance of the learning that is paramount to the medium of delivery. After thorough review of the current literature at the time, including several meta-analyses, Clark suggests that there is not one specific medium or technology that is superior to another. This is not to say that he was averse to technology, but simply that student performance was not maximized through one form of media over another (Clark, 1983). Clark states that he is not the first to make this claim; Lumsdaine 2 decades earlier concluded that the benefits of media were purely economic (Clark, 1994). Clark goes on to contest nearly all aspects of the research on media of the time, including media attributes and effect sizes, finally declaring that research on media and learning be discontinued “unless a novel theory is suggested” (Clark, 1983).

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After Clark’s initial dissertation in 1983, Kozma attempted to refute his statement by declaring “if there is no relationship between media and learning it may be because we have not yet made one” (Kozma, 1994). This commenced the debate over the effects of media in education.

Clark cited several studies both in 1983 and again in 1994 that showed that media did not have an impact on learning outcomes. These studies (Kulik & Kulik, 1986; Kulik, Kulik, & Cohen, 1980) suggested little direct influence of media on learning, but Clark himself (and the study authors) state that there were many confounding factors that could not be controlled for. This appears to be the case for much of the research that existed at that time, leading Clark to suggest that unless all of these factors could be accounted for, research on media in education should be halted (Clark, 1983, 1994). Plagued with these issues, one can understand how Kozma would suggest a “reframing” of the research design (Kozma, 1994).

Kozma was one of the first to take direct aim at Clark’s position, citing research that showed that computers increased student motivation and the time they spent on learning activities (Kozma, 1991, 1994). He theorized that individual attributes may overlap several different types of media, making it more difficult to study. It was his suggestion that future research attempt to address the complexity of the learning experience, rather than abandon it altogether as Clark seems to advocate (Kozma, 1994).

If media are defined as a way to convey or express something, technology can be considered a specialized form of media (Hastings, 2005). What constitutes technology in the contemporary classroom differs greatly from decades past. However, the definition of instructional technology is critical to accurate appraisal of the literature surrounding media and learning (Shaffer & Resnick, 1999). Devoid of a clear definition of instructional technology, it would not seem that we can scientifically investigate whether instructional technology is beneficial in the learning process. Further, due to the enormous diversity in media and technology, the quality of systematic reviews or meta-analyses becomes clouded. For example, the comparison of an educational tool utilizing a high-speed Internet connection to one using a dial-up connection would not be equivalent.

It has been nearly 35 years since Clark’s paper, and technological advances in the 21st century can allow the creation of learning experiences that were unimaginable in the 1980s. Interactive software, virtual reality, Skype, and GoToMeeting are just a few of the contemporary options that enable educators to broaden learning experiences. Research has continued to study the effects of media on learning since that time. Indeed, in a second order meta-analysis that included 25 meta-analyses, Tamim et al. (2011) found a small positive effect in favor of technology. Bernard et al. (2014) also found that blended learning was superior to classroom instruction, but acknowledged the challenge in defining a blended/hybrid learning experience. These findings were echoed by Means, Toyama, Murphy, Bakia, and Jonesin (2009) a meta-analysis suggesting that blended instruction offered a modest advantage over traditional classrooms, but that “the online and [traditional] classroom conditions differed in terms of time spent, curriculum, and pedagogy” (Means, 2009, p. 19). Myriad other studies have come to similar conclusions, with the recognition that learning is a complex task (Hastings, 2004; Sung & Mayer, 2012).

This complexity of learning is influenced by the depth of capacity of human sensory perception. Traditional sensory stimulation such as visual and auditory can combine to improve learner retention, but social and emotional stimulation can also have a dramatic effect on learning.
capacity (Plass, Heidig, Hayward, Homer, & Um, 2012; Leutner, 2014; Park, Flowerday, & Brünken, 2015). In fact, the cognitive-affective theory of learning with media (CATLM) has suggested that students need to be motivated in order to fully explore their cognitive resources (Park et al., 2015). Therefore, regardless of the use of media or traditional classroom, there are innumerable other factors that may be shaping learning outcomes.

Clark (1994) stated that “media will never influence learning” (p. 21). In recognition of the intricacy of both the human brain and the progress of scientific research, this statement in and of itself would seem to violate the very tenets of the scientific method. At the foundation of scientific research is constant change, and to make such a sweeping conclusion simply because the research has not found a consistent answer seems overreaching. Clark uses the analogy of medication in his 1994 report, declaring that the shape of the pill matters not; it is “only if [it] contains the active ingredient required to help us.” Placebo research would suggest that this is not the case, and similarly it would seem to be the case with media and learning (Wan, Woods, Salgado-Montejo, Velasco, & Spence, 2015). Perhaps these are some of reasons that it has been difficult to find conclusive evidence in the literature with regard to technology. There is little redundancy across the literature, making it difficult to ascertain conclusions.

**RECOMMENDATIONS**

Both Clark and Kozma recognized that the content of the learning experience was important, and that reality has persisted into current times. Whether it is the provision of an academic learning experience or a home exercise program, educators and physical therapists should keep in mind a few tips. Content remains the foundation of the educational experience. What is being taught, including the appropriate-ness for the audience, is critical to achieving positive outcomes. The instruction of advanced skills or knowledge, for example, prior to the acquisition of the preliminary building blocks would likely result in negative outcomes despite the medium. The breadth of multimedia continues to expand, and despite lack of conclusive evidence of one form of media over another, media can be used as a tool to deliver content. Multimedia should be buttressed with rigorous pedagogical processes regardless of teaching environment. Of note is also the attitude of the instructor regarding the media he or she is presenting. With the exponential pace of growth in multimedia, educators may be obliged to keep up with the flow, resulting in the feeling of endless course or plan alterations. A resistance to this could certainly result in poorer outcomes (Rienties, Brouwer, & Lygo-Baker, 2013).

**CONCLUSION**

Technology should not be looked upon as a panacea for the learning experience. From primitive cave drawings to modern virtual reality, media have been used to enhance learning. Conceding that the current literature does not appear to endorse one “vehicle” over another for promotion of achievement in learning does not mean that we should give up our enthusiasm for finding the medium (or media) that do. The evidence on learning styles would suggest that the infusion of technology might facilitate enhanced learning in a specific cluster of the student population, or in a particular environment or state of mind. Perhaps this will be the focus of the literature as we move forward.

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Telemedicine, Telehealth, and Distance Learning

Eunice Luyegu

Technological innovations are changing how healthcare professionals deliver services and connect with patients, and how patients engage in their health care. Telehealth and telemedicine are shaping the future of healthcare. These two terms are often used interchangeably. What is the difference between the two? Telehealth includes the technologies and methodologies used to provide virtual medical, health, and education services. The Center for Connected Health Policy and other members of the National Consortium of Telehealth Resource Centers have created a framework for defining and applying telehealth:

- Live video conferencing: Live, synchronous, two-way interaction between a person and a provider using audiovisual technologies. For example, occupational therapists delivering therapy to patients remotely or physicians diagnosing and treating minor illnesses at a distance, outside of hospitals or clinics.
- Store-and-Forward (asynchronous): Using electronic communication technologies to transmit recorded health history to a practitioner who uses them to evaluate a case or render a service.
- Remote Patient Monitoring: Using electronic communication technologies to collect and transmit personal health and medical data to a practitioner in another location for use in care and related support.
- Mobile Health (mHealth): Using mobile communication devices such as smartphones and tablets to support health care and public health practice. Physicians, nurses, and other practitioners are using mobile devices to monitor vital
signs in real-time, provide care, communicate with patients, track chronic symptoms, and even collect data. For example, practitioners can monitor blood glucose levels in diabetics who provide measurements from their homes.

The National Institute of Medicine defines telemedicine as “the use of electronic information and communication technologies to provide and support health care when distance separates the participants” (Institute of Medicine, 1996, p. 16). That is, healthcare professionals, such as primary care physicians or specialists, remotely consult with, monitor, and/or treat patients.

Telehealth is broad and covers telemedicine and other nonphysician services that are provided by pharmacists, nurses, physical therapists, occupational therapists, and many other healthcare practitioners. The Center for Connected Health Policy (n.d.) explains that telehealth goes beyond telemedicine—the traditional diagnostic and monitoring—to include consumer and professional education. That telehealth includes a wide range of diagnosis and management, education, and other related healthcare fields.

Similar to distance learning, the field of healthcare has seized the opportunity to deliver and enhance the quality of healthcare with technology. Distance learning in healthcare and telehealth have a common goal of providing quality education and healthcare at anytime, anywhere, to anyone. Delivery of healthcare and learning in healthcare has been reshaped and redefined.

A final note: As College Editor of Distance Learning I will be soliciting manuscripts that deal with telehealth and telemedicine, including the use of instructional technology in the health professions. Please contact me if you have questions.

REFERENCES
Designing Asynchronous Online Discussions for Quality Interaction in Asynchronous Online Courses

Natalie B. Milman

Often I am asked by prospective students, “how do instructors interact with students in asynchronous online courses?” This is an excellent question. Simply put, “interaction is commonly understood as actions among individuals” (Abrami, Bernard, Bures, Borokhovski, & Tamim, 2011, p. 86). In online courses, interaction occurs in three primary ways: student-student, student-instructor, and/or student-content (Abrami et al., 2011; Bernard et al., 2009; Moore, 1989). In asynchronous courses, asynchronous online discussions (AODs), which are sometimes referred to as asynchronous online conferences or forums, play an important role in fostering interaction. Although some view online discussions or forums as “primitive,” as Pendry and Salvatore (2015) noted: “Dwarfed in recent years by more prominent social media giants such as Facebook and Twitter, [online discussions] appear anecdotally to have assumed an unfashionable status in many organizations’ eyes, being viewed as a primitive form of communication whose time has passed” (p. 218), AODs remain a significant medium where interaction happens, particularly in asynchronous online courses.

Cultivating interaction in online courses is very important—and not only because students want it. Bernard et al. (2009) found that interaction positively affects...
student learning. However, they cautioned that instructors should not focus on increasing the quantity of interactions, but rather on increasing the quality of interactions. So, how can instructors increase the quality of interactions in asynchronous online courses through AODs? Below are some suggestions.

**Provide Structure**

Gilbert and Dabbagh (2005) conducted a study examining how the established protocols for participating in and grading of AODs promoted meaningful learning. They found “three elements of structuring online discussions that significantly impacted meaningful discourse … [which] were, (a) facilitator guidelines, (b) evaluation rubrics; (c) posting protocol items” (p. 16). Similarly, Salter and Conneely (2015) discovered that structured forums were more engaging than nonstructured ones in a study of undergraduate students that compared participation in and student perceptions of structured and unstructured AODs. Therefore, it is important for instructors to be clear about the expectations for students’ and instructors’ own participation in AODs, as well to describe how students will be graded. Additionally, instructors should learn about how to craft good questions (Milman, 2009), as well as a variety of ways to structure discussions so they go beyond simple Q&A. For example, instructors can incorporate compare/contrast, debate, and cases, just to name a few different types of strategies instructors might use.

**Reflect on Types and Quality of Posts**

Clarke and Bartholomew (2015) conducted a study using an analytical tool to investigate participation in AODs by instructors. Instructor interactions in the AODs involved postings that were categorized as “cognitive,” “teaching,” and/or “social” (p. 6). In cognitive posts, instructors asked questions that required students to delve deeper into the topic. On the other hand, teaching posts involved instructor elaboration and clarification about the course content/topic studied in the AOD. In social posts, instructors shared their personal experiences and provided encouragement. Yet, it is important to emphasize that quality was more important than quantity of posts. For example, “instructors who posted less frequently but with more purpose had a higher level of critical thinking in their discussions” (p. 18). Therefore, instructors should think thoughtfully about the quality, as well as the type of posts (i.e., cognitive, teaching, or social) they make to promote interaction.

**Encourage Conversational Style**

Fear and Erickson-Brown (2014) conducted a literature review of AODs. In addition to substantiating the suggestions above, they also recommended using a conversational style in the AODs, which “means writing in conversational form and style; using personal anecdotes and affective verbal immediacy; the expression of appropriate emotion through the use of capitals, bold, italics; emoticons; and so on” (p. 25). This recommendation is in line with Clark and Mayer’s (2016) personalization and embodiment principles that suggests that “people learn better when e-learning environments use a conversational style of writing or speaking … polite wording for feedback and advice, and a friendly human voice” (p. 179).

**Incorporate Student Facilitation of Discussions**

Several researchers have touted the benefits of student-facilitated AODs (Milman, 2009; Milman, Hillarious, & Walker, 2012; Schindler & Burkholder, 2014). Student-facilitation of AODs involves students...
serving in the facilitator role for the discussion. It is important to ensure that student-facilitators are informed of the expectations and grading criteria, but also that they are set up for success by being provided content and discussion questions ahead of time. Also, it is critical for student-facilitators to know who to contact for support (even if to ask for advice about how to respond to a peer’s post).

AODs can be a positive medium for cultivating the three main types of interaction in online courses. Structure, type and quality of posts, as well as the style and roles that instructors and students take all play roles in the success of AOD in asynchronous online education.

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Putting the Round Peg Into the Square Hole of Online Learning
Inserting Creativity, Weirdness, and Unusualness—While Keeping a Sense of Consistency

You are excited: there are resources you have created that are creative, that are cutting edge, that have a huge “Wow!” factor ... and you can’t wait to insert them in your courses! Student engagement will go up, interest in the classes will increase, and there will be a better understanding of how the subject matter relates to that “real world” of employment—how cool is that?! But wait: if you just drop these in helter-skelter, outside of the class consistency from unit to unit to which students are accustomed—how successful will these dollops of ingenuity be? Will you be the only one benefiting from your brilliance? Ah, but all students can enjoy and benefit from your extra efforts by using the routine and structure of the classroom. It’s kind of like taking medicine hidden inside a meal of good ol’-fashioned meat and potatoes :) Here’s how:

- Know well the structure and school requirements of your course. A blueprint is crucial before a house, ship, train, or doghouse is built—and so should one have a blueprint of the
course structure before inserting interesting, creative, and helpful extra resources. Doing this gives an overall layout of each class, and thus a better sense as to what resource can be used where and how the resource will be placed. And certainly there is another pragmatic reason: it is imperative one stay within the guidelines your school expects to be followed. Going outside of one or more of these could jeopardize your teaching for the school—something you just do not want.

• **Understand why “crazies” and “weirds” fit nicely into consistency.** Students coming into a course at a school get a pretty quick sense of the weekly and overall layout of each course. Schools structure courses to have a uniformity that allows for ease of transitioning from one course to another, quick familiarity of a course layout (thus saving time and stress for the student), and an organic melding of class components for an ultimate learning experience. Any so-called “crazy,” “weird,” “unusual,” “interesting,” and “out-of-the-box” extra resource will each relate to one or more already in-place components of the course, and thus the course consistency remains the same, but with a bit more “color”!

• **Let students know what to expect—and what is expected of them.** In a sense, the online educator is the GPS unit—the MapQuest—for students in a course. For it is that educator who steers the class in this or that direction, who guides the students throughout the course, and who offers explanations and clarification of the course contents. Giving students a “heads-up” on where these extra resources can be found, why they have been included, and how they best can be applied by the student makes for better understanding of the creative pieces by the students. (Of course, as new ones are inserted into a class, again be sure to communicate the where, why, and how of each to the class.) Also: encourage students to use these extra resources in their assignments, to think about how they might be helpful in their long-term professional goals, and to take as many as they would like to help once the course is over.

• **Study your “weapons” of communications.** When deciding where and how to use your creative pieces in the classroom look over all methods you use of communicating: announcements, e-mails (class and individual), phone calls, chat sessions (such as those held in Adobe Connect), assignment feedback, instant messaging, texting, Twitter, and/or Facebook. Not all of what you want to include will work for each form of communication; you do not want over-saturation; and some of what you offer may not fit any methods of communication, rather communication is only used to inform students of the new material and where it can be found. It is important to map out how you will use these various communication tools—just “doing it” can end in an ineffective use of what is otherwise a great teaching tool.

• **Hone, sand, and polish creativity to fit the course components.** We get excited by what we have either created or located to include in the class that speaks of both creativity and extra help for the students in the course subject and/or navigating the course and assignments. But it is a must that each be edited and revised to have a smooth fit into whatever corner of the course they will be found, in whatever form of communication they will be distributed. Think out the end goal of each new resource: is a brief introduction needed to explain its purpose? Does the item overshadow more important and required parts of the course? If created by you does the piece reach the students at their level and is it easy to
understand? These and other such questions will assure your creativity fits snugly and effortlessly into the already-existing course structure.

• Target the weakest areas of student involvement. It might be easy to create or locate creative and "This-is-too-good-to-pass-up!" materials that speak to subject subtopics, course assignments, and other areas where students are doing a pretty good job. While it is always good to post these they should not be a priority; rather, start with areas where students are struggling—the more help they have here the better their results. Also: after you find the location where your resource will best work always look at the course as a whole, for you need be fully aware of all aspects of the course where this new support for the course subject can be helpful.

• Never let your likes take over student needs. It is easy, so easy, to get excited over a "This-is-crazy-good!" resource or to create one that emotes this enthusiasm from you. But a question must be asked of each piece of creativity you want injected into your course: "This excites me, but how will it impact the students?" Many a distance learning educator has had excellent intentions with adding new "stuff" to his or her courses, but the effectiveness of these items miss their mark of the students embracing and learning from them because it was more of an "I like this!" rather than an "I like this—but I also know the students will also like and benefit from it!" approach to this inventiveness.

• Don't forget mindsets of the students to create "engagement buddies." There is an opportunity to take the standard components of the course and extend them into the realm of creative by employing the aid of students. This can best be accomplished in online class discussions (example: ask students creative questions in your postings to students... have students discuss how the discussion thread might relate to their lives in the area of employment... encourage students to offer interesting, exciting, and/or helpful websites that contribute to their understanding of the course subject or their major) and assignment feedback (ask students for their suggestions on how your input on the assignments might prove useful outside of the course). This is a great way to build a huge "city" of creativity within the box of a course component that is very specific to the students—because they are doing it!

• Build an online warehouse of "Engagement Creativity." As you come across creative resources that you feel would prove helpful in your course save these in a file on your computer. You will quickly find yourself with many more "Outta’ sight!" pieces that can be used in your courses. That is okay, for several reasons: (1) Once a course ends, you may find that what you thought was a great extra resource turned out not to be so great, and you need replace it in future courses; (2) For the sake of variety you might want to switch out creative resources; (3) Courses do get rewritten/reconfigured, and what works well in your course today might not be suitable for next session's course; (4) What is timely when discovered and placed in a course might eventually prove to be dated—something you do not want; (5) You might teach a course you had not previously taught, and an unused resource might now be ideal for this course. Occasionally, look over the items in this file—including those you have created—to see if they will still work in your courses.

• Once consistent ... remain consistent. Students will get used to your creative approach within the structure of the course; once you introduce a few of these students will look for more—always good, as this helps with their
engagement and learning. So keep your “Wow!” items coming each week, but remember to pace them, to not overload students with them, and have each one serve a specific purpose. By the way: if unsure of whether a resource can be used or where it could best be added in your course—ask your supervisor: he/she is your umbrella of all things you can and cannot do in your course!

BONUS: EXAMPLES OF CREATIVE RESOURCES THAT CAN BE ADDED.
When looking to create or locate creative resources for your course considered what can help with learning the course subject, study skills, assignments feedback, and connection of the course material to the professional world. These can be as simple as the use of color, different fonts/different-sized fonts, and visuals to articles and essays, newspaper clippings, YouTube videos/self-created videos, external audio clips or self-created audio clips, library and website links, crossword puzzles, and cartoons—and there are many, many more. Additionally, you can write little pieces to augment course subject and components. One final suggestion: do not be afraid to use language that is conversational, exciting, and a bit creative at times—students will be more apt to read this.

Remember: Coloring outside the box is simple: but using color to brighten, heighten, underscore, impress, reinforce, extend, and excite the already-existing contents inside the box is far more challenging—but the end result is a “Wow!” reaction that can always be easily located.
The year goes on, my distance learning colleagues, and with it comes new challenges, old challenges with two twists, and the same old, same old challenges that just seem never to go away. We strive to be our best, of course, meeting each of these with enthusiasm, vigor, and interest, for we know our students expect nothing less from us. Depending on what you have encountered this edition’s column incorporates one, both, or all—and I continue to offer my insight, experience, and knowledge to help you meet these challenges. Here are this issue’s selections, and my responses …

WORKING WITH REPEATING STUDENTS

Thanks, Errol, for the great teaching tips over the years! My supervisor receives Distance Learning, and he always shares your columns with his faculty. We have learned much, and I know I’ve become a better online educator from many of your suggestions. And I hope to continue that with a challenge I’ve encountered on a fairly regular basis, but can’t find much info on how to deal with the problem: working with students in my course who are repeating the course. I’ve done what I think are the best approaches and what my supervisor suggested: contacting them, and doing so on a regular basis, making certain my e-mails are all positive and indicating I’m available to help them. But there must be something I’m missing—can you help me?

Wow—your beginning of this request almost had me blushing! I so appreciate your kind words, and all I can say is that I hope my many years’ experience of teaching online can help others become better online educators. Comments like yours are the motivation I need to keep it going! As for your question, teaching repeating students is a challenge, to be sure, and I can sum up my answer to you in one word:
OUTREACH! This is in caps for a good reason: these students need extra care and contact, and it takes much effort and time from the online educator. (Remember, you can’t simply call the student into your physical office for a chat!) The initial reaction of most distance educators to seeing they have repeating students on their roster is a negative one because they know there is a good possibility these students will not be active in class or will turn in subpar assignments.

What to do? Follow these steps (teaching these repeating students—I call them “R” students—is a specialty of mine), and I can assure you a larger portion of your repeating students (I quickly add: not all) will become more active in class, submit assignments (and in a more timely manner), and pass your class: (1) Outreach, as you indicated, but using a combination of individual e-mails and phone calls, with that positive approach you also mentioned. The phone call is extremely helpful, for it becomes an extremely personal interaction with the student. And you might also learn of a problem the student is having that will better help you understand and work with him or her. (2) When a repeating student does turn in an assignment or post to discussion be sure you not only give positive feedback but use something the student wrote or said as a positive example to the class; this helps boost the repeating student’s confidence. (3) Stay in touch with these students’ advisors; they might be able to give you insight to the students that will help and/or can be another party to help motivate the students.

HAVING ENGAGED STUDENTS HELP OTHER STUDENTS BECOME ENGAGED IN DISCUSSION

My question relates specifically to discussion, Errol, and each time I teach a class there are some students in my weekly discussion threads who are extremely active. Not only do they do a nice job in responding to the primary post but they also go out of their way to give nicely detailed responses to other students’ postings in discussion. What I’d like to do is harness the energy and enthusiasm of these “worker” students on a more formal basis so they can become, in essence, my student aides in discussion. Any ideas?

Ah—the students you mention are the stuff of discussion dreams, at least for the online educator! To have students who do exactly what we’d like them to do—nice main postings and good responses to classmates—is something for which we wish a formula existed that we could easily bestow on all students! Since that is not in the wind anytime soon, let’s do what is proven to get these students “working” for you in discussion: (1) Be sure you write these students—individually—to thank them for their efforts, and tell them how much you especially appreciate their activity with other students. Then go on to mention how much more effective and alive it makes discussion when they do this, and you hope they continue it—and how important it is to the class. (2) Do not go overboard in discussion praising these students—this might make other students feel you are shoring favoritism and/or intimidate other students from posting. (3) Have a comment in each posting you do to students in discussion on the value of being involved in discussion as it relates to the workplace (a general announcement to the class and/or e-mail on this is also helpful). This takes the importance of discussion posting outside the class and makes it far more than something only for a grade; it becomes training for their professional careers.

SHARING SELF-CREATED MATERIALS WITH OTHER FACULTY

Errol, you seem to be good at resolving other online educators’ teaching conundrums, and now I have one! I teach an American history
course, and over the years I’ve developed several fact and tip sheets that have proven quite helpful to my students for understanding various subjects in the course, as guidelines for assignments. Sometimes, my students have mentioned these to other online faculty in our school, and some have written to me, asking if I would mind sharing them. I am flattered, and I had no problem in sending them what they asked, and from the feedback I have received from them I believe these would be helpful to other faculty as well. Without sounding like a braggart, how do you suggest I approach my supervisor about telling her of my interest?

As you probably can guess, many college textbooks are outgrowths of what you mention: faculty members creating various “help sheets” for their students. You don’t specifically mention if yours are only related to American history or if they also include more general tip sheets, such as how to study, time management suggestions, etc. I mention this because, if yours are related only to American history, write to your supervisor, sending along a couple samples, indicating how they came to be, how other faculty requested them and their comments, and why you think they might be of use for another faculty in your department. If you also have created some general study guides include two of these as well to your supervisor, asking her is she believes they might be helpful to all faculty. Two important items: (1) Check your writing before sending them—you want no typos and only good English! (2) Never write something like, “These would be helpful”—that is not your decision to make. Rather, suggesting they might prove beneficial is much better—you always want to remember you are the online faculty member who does answer to someone who makes decisions for other faculty in your department (and has a better idea of what resources would be of use or could be distributed to school-wide faculty).

Remember: Batman could work okay by himself, and Sherlock Holmes would no doubt do a good job solo, but how much more effective with Robin and Watson!
health professionals are more interested in health than in “tele.”

In the fields of educational technology and distance education, there is a tendency to embrace new technological tools—even drones—as important, and in some cases even necessary. Learning about the hardware and software that make the machine function are the fun parts of being an instructional technologist and distant educator. Vendors can be crafty. They sometimes “manufacture” uses of their products. However, when new technologies are introduced, it is the role of the professional, not the vendor, to determine their appropriate educational application—and their importance to the field.

And finally, as Thoreau said “Beware of enterprises that require new clothes.” In the meantime, let’s all go fly our drones.

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A Drone Named Lightning

Michael Simonson

Two months ago—and somewhat surprisingly—the college purchased a drone. The drone system consists of the aircraft itself (quickly nicknamed Lightning), a controller that is connected to a smart phone or tablet, and a high definition camera. According to the manual, it will fly to an altitude of 500 yards in a radius of half a mile. The drone apparently has a very powerful computer system that automates almost everything, including obstacle avoidance (a very important function).

The college purchased the drone not because it is fun to fly (though it certainly is), but because the claim was made that it was a new type of educational technology. Let’s consider that claim.

Educational technology is “the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Januszewski & Molenda, 2008). Closely related to instructional technology is distance education, which is “institutionally based, formal education where the learning group is separated and where interactive telecommunications systems are used to connect learners, resources, and instructors” (Simonson, Smaldino, & Zvacek, 2015). Because neither definition says anything about drones, a reasonable question is, “how does drone technology ‘facilitate learning and improve performance?’” Further, is drone technology an “appropriate resource?”

Drone systems are in the news a lot today—most often in stories about the military. Other uses are increasing, also, such as videos of storm damage in Puerto Rico and houses being repaired on shows on the HGTV network. The educational applications of drones—if there are any—are less apparent.

Telehealth is another “new technology” that has been much discussed. What is interesting is that many in the health professions are “lukewarm” on their role in determining the appropriate applications of telehealth. Like many professionals,