

CONTEMPORARY ISSUES IN E-LEARNING IN THE UNITED STATES¹

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ABSTRACT: This paper identifies three recent concerns in American higher education: (1) Student Authentication and Verification; (2) Student Privacy; and (3) Students with Disabilities, and identifies several promising resolution techniques that incorporate several national and international educational trends.

INTRODUCTION

Online learning embraces many forms, including web-enhanced, partial «hybrid» or «blended,» and 100% online courses. Such type of learning is gradually expanding on a global scale. Pappas (2015) indicates that 4 out of the top 10 countries experiencing an expansion of the e-learning trend are located in Eastern Europe: #4 Romania, 38%; #5 Poland, 28%; #6 Czech Republic, 27%; and #10 Ukraine, 20%. Fermin (2014) states that 12.5% of college students in the United States, or a total of 2.5 million, take all of their courses online, while an additional 3 million took at least 1 online course in 2013.

Nevertheless, challenges also exist. This paper identifies three types of problems commonly encountered in the U.S.: (1) Student Authentication and Verification; (2) Student Privacy; and (3) Students with Disabilities, along with their legal foundations, and suggests promising resolution techniques that incorporate several national and international educational trends.

STUDENT AUTHENTICATION AND VERIFICATION (SA&V)

The 2008 Higher Education Opportunity Act (HEOA), a mandate for U.S. educational institutions, states that a student who is enrolled in a course must be the same student who participates and finishes the same credit-bearing course (Virginia Highlands Community College, 2013).

Problems. Previous SA&V methods include student login ID and passwords, identification numbers or pass codes, and proctoring (US Department of Education; Worona, 2015). Passwords can be forgotten, particularly with the implementation of more recent measures that require the inclusion of capital letters, numbers, or characters. Furthermore, they also require continuous updates. Cuthbertson [2015] claims that passwords as a security measure are an outdated method. A second problem is constituted by the dissemination of student information for illegal online course participation. A third problem is based on the fact that ID readers invalidate «100%» of the online courses claims if students are required to physically report to campus for graded components in an ID-reader equipped room. Finally, online proctoring services such as ProctoringU, which is used by over 500 American institutions including the Columbus State University, require the use of student webcams (PROCTORINGU, 2015). Singer [2015] reports that some students feel that the method is «excessive,» and that they may

1

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experience heightened anxiety as a result of constant monitoring. Furthermore, vendors may use proctored data for business and marketing purposes.

Promising Techniques. A standard pedagogical approach typically involves «scaffolding,» or the gradual «build up» of knowledge over the course of an academic term. Updating the approach to include «scaffolding» *technology* would increase the compliance with the HEOA «same person» mandate. In addition, final examinations could require «scaffolded» technology questions that only participating students would be able to answer.

A current pedagogical trend, according to the Sacred Heart University, is constituted by *project-based learning*. This method allows demonstrated student mastery «of academic concepts through the creation of a product,» as claimed by the Southern New Hampshire University [«DISCOVERING EMERGING TRENDS...» 2015]. The «trend» is represented by the technological usage in order to facilitate individual and group-based projects, such as web conferencing, creation methods such as editable online «Google Documents,» and virtual storage applications such as «Dropbox,» which are ushering in new face-to-face [F2F] collaboration interpretations.

Sacred Heart also identifies *synchronous* online learning as an additional trend [«DISCOVERING EMERGING TRENDS...» 2015]. Departing from *asynchronous* learning, these live learning courses via web-conferencing could constitute an effective SA&V method, particularly if the faculty has access to student photo ID card integration records from class rosters in order to compare registered students with the participating ones.

A third trend is represented by *biometrics*. Dawson [2015] states that biometrics will have a strong future consumer presence. At present, several smartphones use fingerprint recognition, while others are introducing retinal and iris scanning technologies [KIM, 2015]. Samsung is expected to introduce a new iris-scanning technology in their tablets, as they regard fingerprints as vulnerable and insecure [REED, 2015]. Vascular vein identification, which Fujitsu has been pursuing [COUNTER, 2014], is not deemed as reliable either [REED, 2015], but finger vein authentication shows promise once prototypes migrate to the production and practical application phases [PERALA, 2015]. Dawson [2015] also states that the new Windows 10 operating system includes «Windows Hello,» which allows logins based on a user's face, eyes, or fingerprints. Shahnewaz [2015] states that «Biometrics, while having its limitations, offers substantial security benefits to the average consumer — including greater protection from identity theft, data theft, and possibly even financial fraud.» Gartner [2014] predicts that the use of biometrics will increase from 5% in 2014 to 30% in 2016.

Summary. Current SA&V methods are sometimes effective, yet still exhibit a certain number of problems. Scaffolding technology, project-based learning, synchronous online education, and biometrics appear to be viable methods to enhance SA&V efforts.

STUDENT PRIVACY (SP)

The Family Educational Rights and Privacy Act (FERPA) requires educational institutions to protect student privacy, including personal information, participation, grades, and graded work (U.S. Department of Education).

Problems. Universities utilise software programmes in order to record and store student data. Krueger [2015] points out that the new «*cloud technology*» has «clouded» SP due to recent break-ins [19, 21]. In 2014, Indiana University and Auburn University were two of the several universities that saw their student data *hacked* [TEICHER KHADAROO, 2014] or *accidentally released due to human error* [PAGLIERY, 2015]. Cloud migration creates new challenges, and has become a paramount issue due to the loss of student data and passwords, and personally identifiable data collection [KEULER, 2015; CONSORTIUM FOR SCHOOL NETWORKING, 2013]. In addition, staff members are instructed to communicate with the student only when given written student

permission to converse with others. Furthermore, they are required to communicate with students only via official means endorsed by the university, such as email addresses and course management systems (CMSs). A second problem is represented by the student use of non-authorised technology for communication purposes. Students prefer to use unsecured means, such as SMS or Skype, which compromises their SP.

3rd-party software such as blogs or wikis pose additional SP challenges, as do publisher-created websites and CMS «course cartridges» that facilitate vendor data collection and subsequent sales. In addition, online software applications pose problems not only to the project-based learning trend, but also to an additional educational trend: *3D interactive products*, such as the #D interactive video products and apps [applications] Microsoft recently introduced in Saudi Arabia [SAUDI GAZETTE, 2015]. Third-party software is thus generating new SP issues.

Wearable technology constitutes another trend. The *Chicago Daily Herald* points out that «higher education has worked to find ways to not only use new information technology, but also help our students gain proficiency in it,» and cites the new Apple Watch as an example [2015]. The K to 12 NMC Horizon Report [2014] highlights other forms of wearable technology, such as Google's «Project Glass» (wearable glasses), and Fitbit and Jawbone UP (wearable bracelets). Their subsequent integration is also expected to introduce new SP concerns.

Promising Techniques. A «*flipped classroom*» is a more recent pedagogical approach that inverts the traditional classroom model. Students read chapters, study videos, and complete activities at home, whereas class time is reserved for collaboration, discussions, and tactile activities [QATAR TRIBUNE, 2015]. This method could resolve SP issues by utilising the aforementioned synchronous learning trend and F2F time for graded activities. On May 13, 2015, *Plus Media Solutions* stated that a global online education trend constitutes the creation of «*learning hubs*,» where students view lectures produced by others (e.g. other universities, MOOCs such as *Coursera*, etc.) and then attend classes that consolidate the lectures. The article also points out that «*creative commons*,» or collections of free information available online, can also be utilised for the same purpose [«AN EXPERT INTERVIEW...» 2015]. This approach would be particularly effective in the case of hybrid and online courses [QATAR TRIBUNE, 2015].

Synchronous learning and a «*flipped classroom*» could incorporate another educational trend: *gamification* [«NEW ENGLAND COLLEGE...» 2015; «DISCOVERING EMERGING TRENDS...» 2015]. Gamification is «the idea that uses game design techniques and mechanics in the real world to solve problems» [BAHIRWANI, 2015]. *Businesswire* [2015] states that business has embraced this approach «as a way of digitally motivating people and overcoming barriers of scale, time, distance, connectedness and cost.» Professors, such as Shaun Isles, agree with «the concept that creating rewards or challenges will encourage students to keep learning» [REILLY, 2015]. Gamification is considered part of «*adaptive learning*,» considering the fact that its modularity is based on content and user experience, and thus «*personalizing*» education [«AN EXPERT INTERVIEW...» 2015].

A second promising technique is constituted by *the consortium examination of software and hardware*. The Consortium of School Networking [2013] suggests thorough examination of cloud technology. In addition, Shear [2015] indicates that educators need to be «educated» themselves about the technologies they acquire/use and the privacy provisions thereof. A multi-institutional consortium approach would involve several stakeholders in the decision-making process since all of them are confronted with similar SP problems.

Summary. Current SP methods remain problematic. A radical variation of the «flipped classroom» incorporates the synchronous learning and gamification trends if the required coursework is done using F2F, thus minimising the SP concerns, despite the fact that cloud storage raises new SP problems. In addition, multi-institutional consortiums should be created in order to review and resolve mutual SP issues.

STUDENTS WITH DISABILITIES (SD)

U.S. colleges and universities are required to comply with the «Americans with Disabilities Act»(ADA) in conjunction with the laws deriving from other governmental areas. These laws pose challenges for those who utilise technology in the classroom due to the presence of SDs.

Problems. SDs have been provided with limited alternative educational materials such as Braille paper materials and audio CD/MP3s. In addition, institutions are required to provide «reasonable accommodations» to SDs who register with their university's Accessibility Office, including note takers, extended examination time, quiet areas, assistive personnel such as readers and scribes, SD classroom and laboratory furniture, and SD-accessible paths to campus spaces. Recently, U.S. institutions and online course providers have faced lawsuits for not providing ADA-compliant materials in order to make courses «accessible to people with hearing, vision and manual dexterity disabilities» [BERMAN ET AL., 2015]. Since institutions utilise various forms of technology, «accessibility» includes areas such as websites, multimedia presentations, and student registration and data systems in addition to traditional classroom materials. As Berman et al. [2015] indicate, accessible online materials entail different strategies, including course videos and closed captioning and rolling transcripts, as well as electronic book readers and «text to speech» functions for visually-impaired students.

Krevor-Weisbaum [2015], in her presentation at the «Accessible Instructional Materials and Technology in Higher Education Summit,» presents several legal agreements adopted since 2011 that have cumulatively illuminated accessibility issues. Some of the institutions involved include the Penn State University [«SETTLEMENT BETWEEN PENN STATE UNIVERSITY AND NATIONAL FEDERATION OF THE BLIND,» 2011], Florida State University [«FINAL SETTLEMENT, AGREEMENT,» 2012], Louisiana Tech University [«SETTLEMENT AGREEMENT BETWEEN THE UNITED STATES OF AMERICA, LOUISIANA TECH UNIVERSITY, AND THE BOARD OF SUPERVISORS FOR THE UNIVERSITY OF LOUISIANA SYSTEM UNDER THE AMERICANS WITH DISABILITIES ACT,» 2013], the South Carolina Technical College System [«RESOLUTION AGREEMENT SOUTH CAROLINA TECHNICAL COLLEGE SYSTEM OCR COMPLIANCE REVIEW NO. 11-11-6002,» 2013], University of Montana [«RESOLUTION AGREEMENT, 2014], Youngstown State University [«YOUNGSTOWN STATE UNIVERSITY RESOLUTION AGREEMENT OCR COMPLIANCE REVIEW #15-13-6002,» 2014], and Atlantic Cape Community College [«NATIONAL FEDERATION OF THE BLIND AND TWO BLIND STUDENTS RESOLVE COMPLAINT AGAINST ATLANTIC CAPE COMMUNITY COLLEGE,» 2015].

These lawsuits, according to Krevor-Weisbaum [2015], collectively require institutions to: (1) Plan to revise existing policies and develop extensive policy statements [«NOTICE OF NONDISCRIMINATION»]; (2) Conduct self-reviews; (3) Create campus-wide purchasing policies that include accessible educational and instructional technology (EITs); (4) Train SDs about their rights and establish grievance policies; (5) Train relevant personnel about existing policies and procedures; (6) Ensure WCAG 2.0 Level AA website compliance; (7) Make all instructional materials and online courses fully accessible to SDs; (8) Create an EIT Accessibility Policy and employ an EIT Accessibility Coordinator with sufficient resources and authority, and direct access to funding; and (9) Implement technology evaluation standards.

Promising Techniques. Sadly, one technique is constituted by *continual lawsuit usage* in order to force compliance. Krevor-Weisbaum [2015] aptly demonstrates that various

American nongovernmental organisations, as well as governmental bodies will continue their efforts until SD equality and parity has been achieved.

A second promising technique comes from Hill [2015], a Deputy Assistant Attorney General in the U.S. Department of Justice, who delivered her presentation after Krevor-Weisbaum. She introduces several *institutional pre-emptive ideas*, including: (1) Training all stakeholders on ADA compliance and making content available; (2) Creating a central department to review developers' materials (e.g. faculty, vendors, etc.) in order to ensure law compliance and developing review methods; (3) Monetarily increasing lawsuit settlement payouts; (4) Engaging consultants, conducting audits, evaluating technology, particularly in the case of actual users, and posting the results online; (5) Ensuring all new web pages/materials as well as procured vendor items are WCAG 2.0 Level AA compliant, and asking vendors for their compliance tests and results; (6) Acknowledging the fact that since 2010, the U.S. Department of Justice has required universities to remediate existing websites/materials; (7) Marking infrequently used online materials with «legacy» or «archival» labels and making them accessible upon request; (8) Nominating a highly influential individual equipped with the power to purchase new items that are already accessible or could be made accessible, as well as to report compliance issues to the highest levels; (9) Creating a separate EIT office that strives for 100% compliance, and builds institutional policies in order to test, monitor, and remediate EIT materials; (10) Creating «conscientious customers» who ask about compliance; (11) Including accessibility questions on evaluation forms; and (12) Fixing problems on account of permanency and not temporality.

The speakers argue that making EIT materials accessible transcends SDs and will ultimately benefit all students academically. EIT-aware institutions will develop positive external reputation and attract more SDs, which in turn will enhance their financial revenues. Furthermore, embracing business and industry trends will produce graduates who, in theory, could make a seamless transition to the world of work, thus increasing the institutional reputation for preparing future employees.

Marrakesh VIP Treaty. «The Marrakesh Treaty to Facilitate Access to Published Works for Persons who are Blind, Visually-Impaired, or Otherwise Print Disabled,» known as the «Marrakesh VIP Treaty,» is an international agreement for improving textual materials for the global blind and visually-impaired community. Brokered on June 28, 2013 by the UN's World Intellectual Property Rights Organization (WIPO) [INCUBE, 2015], it is «designed to expand opportunities to import and export books in accessible formats and help to reduce production costs for accessible versions of books. Authorized entities within treaty signatories will be able to share an accessible version of a book internationally without having to produce multiple versions due to copyright restrictions» [ANSARI, 2015]. To date, eight countries have adopted it: ratification by India, El Salvador, Uruguay, Mali, Paraguay, and Argentina, and accession by the UAE and Singapore [«WIPO-ADMINISTERED TREATIES», 2015]. A minimum of twenty countries are required for the treaty to become enacted three months after the 20th country commits [THE 1709 BLOG, 2015].

We need to *encourage our respective countries to support this treaty*, as we all have SDs in our institutions. Technology has significantly reduced the distance between our nations and is capable of creating single standard formats that all nations can adopt, such as USB 2.0 ports. Creating one electronic shared file format of a book is wise for multiple, incompatible formats are no longer necessary. In addition, we need to urge the creation of additional SD treaties. We are not revealing trade secrets or harming national security: we are working for the betterment of a global society that is all-inclusive.

Summary. SDs are gradually benefitting from improved EIT accessibility. Lawsuits should continue until EITs become a norm. Institutions can benefit from the recommenda-

tions made by the Department of Justice, and all should encourage their nations to support the Marrakesh VIP Treaty.

CONCLUSION

Higher education, business, and technology need to continue their concurrent evolution and integration. New technologies can embrace current trends, but some create new issues. This paper represents only a particular set of ideas and thoughts that may not be feasible for my colleagues. More voices are needed in order to start an international dialogue; we need to share problems, experiences, and potential solutions. Although we are an eclectic body utilising eclectic means, we also share a common love of helping those around us. That love should be our guiding global light.

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