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Cognitive-Behavioral Workforce Conditioning through Online Adaptive-Learning Technetronics

Virtual School in a Computerized Box (Part 1)

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Seven years before he was appointed as US National Security Advisor to President Jimmy Carter, Zbigniew Brzezinski published Between Two Ages: America's Role in the Technetronic Era. In this 1970 futurist treatise on American political science, Brzezinski forecasts how "[t]he post-industrial society is becoming a 'technetronic' society: a society that is shaped culturally, psychologically, socially, and economically by the impact of technology and electronics—particularly in the area of computers and communications" (9).Almost fifty years later in 2018, President Donald Trump is ushering in Brzezinski's technetronic new age by accelerating President Barack Obama's 2009 Educate to Innovate initiative[1].

According to the Obama White House archives, the technetronic Educate to Innovate program financed "science, technology, engineering, and mathematics (STEM)" education programs that were bankrolled with "over $700 million in public-private partnerships" between the federal government and "leading companies, foundations, non-profits, and science and engineering societies." During Obama's presidency, which was counseled by Brzezinski[2], the corporate-fascist Educate to Innovate project orchestrated public-private political-economic planning with "leaders such as Ursula Burns (Xerox), Sally Ride, Craig Barrett (formerly of Intel), and Glenn Britt (Time Warner Cable) to leverage the business community interest in improving STEM education. Together, they recruited over a 100 other CEOs."Additionally, Obama's neoliberal regimepushed Brzezinski's technetronic agenda even further by "help[ing] [to] launch *Change the Equation*, a new [2010] non-profit with full-time staff dedicated to mobilizing the business community to improve the quality of STEM education in the United States."

On September 25th of 2017, the technetronic policies underlying Obama's Educate to Innovate were ramped up by Trump's signature of a $200 million Presidential Memorandum on Creating Pathways to Jobs by Increasing Access to Jobs by Increasing Access to High-Quality Science, Technology, Engineering, and Mathematics (STEM) Education. According to a report from the White House Office of Science and Technology Policy, "[t]his Presidential Memorandum (PM) directs the U.S. Secretary of Education to make promoting high-quality STEM and computer science education one of the Department of Education's top priorities, and beginning in fiscal year 2018, to take this priority into account when awarding competitive grant funds." The Trump Administration also launched other STEM education initiatives such as Executive Order 13801 "Expanding Apprenticeships in America," which allocates federal resources for public-private "career-pathways" partnerships between schools and corporations that train students in hi-tech skills needed "to prepare workers for the jobs of the future."

To condition students for these computerized jobs of the technetronic future, Secretary Betsy DeVos (image on the right) is advocating "virtual education" through public-private partnerships between public schools and for-profit ed-tech corporations that implement "adaptive-learning" computer modules in online courses or "blended-learning" classes that hybridize computerized instruction mixed with traditional human teaching. Moreover, to fascistically plan the technocratic economy of the future, these technetronic edu-corporations will data-mine each student's cognitive-behavioral learning algorithm(s) in order to predetermine his or her "career pathway" into a future-tech job under the "competency-based education" (CBE) stipulations of the new Every Student Succeeds Act (ESSA).

In retrospect, Brzezinski, who was a prominent member of the Council on Foreign Relations, presciently forecasted this future in which the schooling system is managed by private corporations that utilize computerized technologies to psycho-behaviorally condition students for workforce placement in a technocratically planned economy[3]. Of course, hi-tech cognitive-behavioral conditioning of the student body through stimulus-response learning algorithms for the purposes of techno-fascist workforce planning is exploitative enough. Yet there is a more sinister ulterior motive behind technetronic workforce conditioning through adaptive-learning CBE software: the replacement of human instructors with automated teaching bots to perfect the scientific management of hi-tech psychosocial engineering through public-private techno-fascism.

"Individualized"/"Personalized" Education = Computerized Edu-Conditioning:

If you think that these dystopic predictions sound far-fetched, then consider the following statement given in 1984 by Dustin Heustin, a member of Utah's World Institute for Computer-Assisted Teaching:

> "[w]e've been absolutely staggered by realizing that the computer has the capability to act as if it were ten of the top psychologists working with one student . . . Won't it be wonderful when the child in the smallest county in the most distant area or in the most confused urban setting can have the equivalent of the finest school in the world on that terminal and no one can get between that child and that curriculum?" (qtd. in Iserbyt 8).

Note how Heustin is medicalizing ed-tech by comparing teaching software with psychologists, not with educators or academicians; Heustin's analogy clearly implicates that teaching computers are the hi-tech perfection of the stimulus-response method of psychological conditioning for the purposes of workforce schooling[4]. Furthermore, notice how Heustin is glorifying instructional technologies that can supersede a human teacher or

tutor from “get[ting] between” the student and the preprogrammed curriculum, thereby exalting educational technology above human teachers as the highest authority over the student’s learning process. Lastly, observe how Heustin is implying that, by supplanting human instructors with computerized teaching technetronics, the traditional ratio of one teacher per several students is ostensibly inverted so that each student receives “individualized” attention from ten expert psychologists simultaneously.

This quote from Heustin is perhaps dated. Nonetheless, up-to-date adaptive-learning CBE technetronics currently deliver the same types of computerized learning that facilitate Heustin’s dream of preventing human teachers from “get[ing] between” the student and the career-pathways conditioning software.

- Affective-Behavioral Data-Mining for CBE Workforce Behaviorism: Indeed, these adaptive-learning CBE technetronics are currently used to not only substitute human educators under the pretense of “individualized” instruction; they are also used to replace human psychologists as the digital stimulus-response algorithms are programmed to rewire a student’s cognitive-behavioral conditioning. In fact, it is admitted that CBE adaptive-learning algorithms are derived from the stimulus-response psychological method of behaviorist conditioning.

A 2011 issue of the peer-reviewed journal, *Computers in Human Behavior*, explains how CBE-style adaptive-learning algorithms data-mine not only a student’s academic content knowledge, but also his or her behavioral and affective responses to the computerized curriculum stimuli. This article, entitled “The Contribution of Learner Characteristics in the Development of Computer-Based Adaptive Learning Environments,” reports that “[t]he development of learner models takes an active part in upcoming [computer-based] adaptive learning environments. The purpose of learner models is to drive personalization based on learner and learning characteristics . . . such as cognitive, affective and behavioral variables” (Vandewaetere, Desmet, and Clarebout 118). In other words, a student’s adaptive-learning career-pathways algorithms are “model[ed]” from the “personaliz[ed]” data-mining of his or her behavioral reflex responses as well as his or her emotional and attitudinal responses to computerized lesson-plan stimuli.

This behavioral-affective adaptive-learning method of computerized workforce conditioning is guided by competency-based pedagogy, which is likewise rooted in the stimulus-response method of behaviorist psychology [5]. In 2005,the *British Journal of Educational Technology* published an article that historicizes how computerized CBE can be traced back to the manipulation of behaviorist psychological sciences for workforce edu-conditioning: “[c]ompetency-based training (CBT) has its origins in the behaviourist movement which sought to focus attention on intended outcomes of learning and observable student behaviours (Bowden & Masters, 1993; Velde, 1999). This focus represented a shift from establishing an individual’s ‘knowledge’ to an emphasis on ability to competently perform specific workplace tasks and roles and, as argued by Velde (1999) and Mulcahy (2000), the adoption of CBT has been driven by economic and social forces, rather than educational ones” (Phelps, Stewart, and Allan 69).Entitled “Competency, Capability, Complexity and Computers: Exploring a New Model for Conceptualising End-User Computer Education,” this academic article examines how CBE pedagogy is integral to computerized adaptive-conditioning curriculums for STEM education: “[n]otions of competency have dominated the computer education literature, and have underpinned Competency-Based Training (CBT) in

information technology at all levels of education and training" (Phelps, Stewart, and Allan 67).

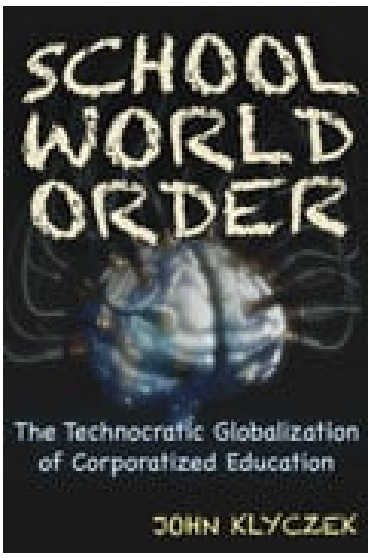
In sum, these scholarly publications reveal how students' career pathways curriculums are programmed by CBE adaptive-learning software that data-mine the students' cognitive, behavioral, and affective stimulus-response algorithms to "individualize" hi-tech workforce conditioning in a technocratic planned economy.

- How Stimulus-Response UII "Personalizes" Workforce Conditioning: Under competency-based education statutes, a student can learn at his or her own pace as he or she works through computerized teaching modules that "individualize" psycho-behavioral conditioning based on his or her performance. As the student generates responses to the computerized teaching stimuli, the software in turn generates "user interaction information" (UII), which the software then processes into "personalized" algorithms that determine the academic or career "pathway" a student must follow. If a student responds more or less proficiently to a computer stimulus, then the digitalized curriculum will be set for more or less challenging "academic" pathways (potentially at an accelerated pace); if a student responds more or less incompetently to a computer stimulus, then the digitalized curriculum will be set for more or less remediated "career" pathways (potentially at a slower pace). Thus, rather than all students receiving the same general curriculum delivered by a single human teacher, each student receives an "individualized" curriculum that is "personalized" according to his or her stimulus-response-based algorithms calculated by his or her UII generated on his or her separate computer-conditioning modules. The student's career or academic pathway may be further "personalized" according to the student's behavioral-affective responses associated with his or her cognitive-behavioral responses.

A 2015 issue of the peer-reviewed *Journal of Learning Analytics* breaks down this "personalized" stimulus-response process of data-mining psycho-behavioral UII for CBE workforce conditioning. The scholarly article, entitled "A Competence-based Service for Supporting Self-Regulated Learning in Virtual Environments," analyzes the "psychological mathematical framework" for data-mining UII with CBE adaptive-conditioning algorithms: "Competence-based Knowledge Space Theory (CbKST) incorporates psychological assumptions on underlying skills and competences required for solving specific problems (Korossy, 1997; Heller Steiner, Hockemeyer, & Albert, 2006). In this approach, competences are assigned to both learning objects (taught competences) and assessment items (tested competences). . . . CbKST provides adaptive assessment algorithms for efficiently determining the learner's current knowledge and competence state, which builds the basis for personalization purposes. Based on this learner information, personalized learning paths can be created.Goal setting can be done by defining skills to be achieved (competence goal) or problems to be capable of solving. The competence gap to be closed during learning is represented by the skills that are part of the goal, but not part of the competence state of a learner" (Nussbaumer, Hillemann, Gütl, and Albert 106).

To simplify this passage, a student's CBE career-path "goal[s]" are "personalized" by "psychological mathematical" adaptive-learning "algorithms" that are data-mined from the student's UII responses on computerized "assessment items (tested competencies)" as his or her UII responses are recursively conditioned with digital lesson stimuli programmed with

“learning objects (taught competencies).”



Such CBE adaptive-conditioning software are commercialized for “personalized” edu-consumption through corporate-trademarked “courseware” programs, including Alta (engineered by the Knewton Corporation), Intelligent Adaptive Learning™ (designed by the Dreambox Learning Corporation), Brightspace LeaP™ (purchased from Knowillage Systems by the D2L Corporation), and the Adaptive eLearning Platforms owned by the Smart Sparrow Corporation[6]. These and other for-profit courseware products are integrated into blended-learning classrooms at numerous KIPP charter schools; and they are also mainlined into online virtual schools such as Khan Academy and Capella University.

In 2015, the American Enterprise Institute’s (AEI) Center on Higher Education Reform published an article titled “The Student Experience: How Competency-Based Education Providers Serve Students,” which reviews the“computer adaptive education” software programmed into the “FlexPath model at Capella” (Baker 10). According to the AEI, Capella’s FlexPath courseware “individualize[s]” workforce edu-conditioning through “course-based instruction [that] is maintained by bundling competencies within courses. Students register for particular courses and can work at their own pace and in any order to demonstrate mastery of each competency. Capella states that the assessments ‘simulate work you’ll be expected to do on the job.’ 39 Students at Capella have personalized competency maps (figure 3) for each course that summarize how many competencies they have mastered and how many assessments they have completed” (Baker 10). In a nutshell, Capella’s online FlexPath platform conditions workforce competences through non-linear learning modules that allow the student to opt between various stimulus-response lesson paths that are sequenced throughout “personalized competency maps” for job-specific career-pathway curriculums.

Nevertheless, this “individualization” is not student centered. Instead, it is computer centered because a student’s conditioning through a career-pathway curriculum is predetermined by the preprogrammed parameters of the adaptive-learning courseware algorithm(s). The CBE software algorithm cannot be fundamentally altered by student UII responses; for it is impossible to create a new career-pathway curriculum regardless of how ingeniously a student generates UII responses to the adaptive-learning stimulus data. It is only possible to vary the competence-lesson paths within a prescribed career-pathway curriculum.

The AEI concurs:

> "the components of traditional higher education programs that are typically the most flexible and able to be personalized (like choice of major, choice of classes within majors, and learning objectives within individual courses) are often fixed in CBE programs" (ii).

Obviously, if the "major, . . . classes . . . , and learning objectives" are all "fixed" in CBE computer-learning modules, then the only thing that could possibly be personalized are the competence paths which the student chooses to take through the fixed major, courses, and lessons that are required for certification in his or her prescribed career-pathway curriculum.

Ultimately, UII only enables the software algorithms to sort students "individually" into pre-planned career pathways because cognitive-behavioral stimulus-response algorithms cannot be scripted for jobs that have not yet been planned. As P. Wildman points out, "competencies tend to be prescriptive and are designed for a more stable environment with familiar problems" (qtd. in Phelps, Hase, and Ellis 69). In other words, competence-conditioning modules can only be preprogrammed with stimulus-response algorithms if those job competences have already been standardized in a "stable" career-pathway "environment" in which the particulars of workforce competences have been "familiar[ized]" and regimented in a planned economy.

Therefore, since workforce-competence algorithms are programmed in accordance with the market prospects and labor demands of a corporate-fascist planned economy, such workforce-competence algorithms must be fixed within the parameters of industry-specific career-pathway quotas that have been pre-planned by a public-private corporate-fascist elite [7]. As a result,

> "[t]he problem with competency training," notes C. Price,"is that it is always in danger of equipping the young for the performance of yesterday's jobs" because corporate-government planning cannot account for the jobs of tomorrow which have not yet been planned (qtd. in Phelps, Hase, and Ellis 69).

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(This article is excerpted from Klyczek's soon-to-be-released book, School World Order: The Technocratic Corporatization of Education, which can be pre-ordered from Trine Day Press).

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Notes

[1] The continuity of federal educational governance from the Democratic Obama Administration to the Republican Trump Administration at the White House parallels the continuity of state-level educational governance from Democrat Arne Duncan to Republican Bruce Rauner in Illinois. In my article titled "The Corporatization of Education," I expose how both Governor Rauner and former Secretary of Ed Duncan, who was previously CEO of Chicago Public Schools, manipulated the Hegelian dialectic of America's false leftwing-rightwing political paradigm to perpetuate corporate-fascist charter schooling across liberal and conservative party lines in Illinois. Like the Duncan-Rauner dialectic, the Obama-Trump dialectic exemplifies how the US educational system is stage-managed by the Hegelian "full-spectrum dominance" of bipartisan corporatism colluding to fascistically privatize public schooling for the purposes of "cradle-to-career" workforce planning.

[2] On March 24th, 2010, a professional photographer who was employed by Obama's Executive Office of the President of the United States, Pete Souza, snapped an "Official White House Photo" (P032410PS-0305) of Brzezinski seated directly beside President Obama during a national security meeting. Prior to this advisory meeting, Brzezinski's endorsement of candidate Obama was instrumental to Barack's election to Commander in Chief, and on September 12, 2007, candidate Obama gave a campaign speech in which here ferred to Brzezinski as "one of our most outstanding thinkers."Obama's love affair with Brzezinski is highlighted by historian Webster Griffin Tarpley, who wrote the following: "Any lingering doubts about Obama's status as an abject puppet of Zbigniew Brzezinski and the Rockefeller Trilateral Commission ended this morning when the withered mummy of imperialism himself appeared on MSNBC's Morning Joe to campaign for Obama, urged on by his own moronic daughter, Mika Brzezinski, an Obama groupie and sycophant. Zbigniew, a low-level Polish aristocrat whose life has been devoted to hatred for Russia, lauded Obama for his 2002 speech opposing the Iraq war, saying that he himself was the source of Obama's arguments back then – thus confirming Obama's long-term status as his puppet, which probably began in 1981-1983, when Obama was a student at Columbia University, and Zbig was directing the anti-Russian institute." After Zbig's death last year, former President Obama made the following statement: "Zbigniew Brzezinski was an

accomplished public servant, a powerful intellect, and a passionate advocate for American leadership. His influence spanned several decades, and I was one of several Presidents who benefited from his wisdom and counsel."

[3] Brzezinski, who co-founded the Trilateral Commission with David Rockefeller Sr., foresaw the following predictions for technetronic education in the twenty-first century:

- Virtual Schooling through Computerized Teaching Technetronics: "The formal educational system has been relatively slow in exploiting the new opportunities for supplementary home-based education through television consoles and other electronic devices" (268). However, "[a] good case can be made for ending initial education (more of which could be obtained in the home through electronic devices) somewhere around the age of eighteen" (267).

- For-Profit Ed-Tech and Corporate-Fascist Charter School Privatization: "[B]usiness[es] are becoming more involved in education, for psychological as well as for professional reasons. Greater multiplicity in educational training will make for a more pluralistic national community, and the increasing involvement of business companies in education may lead to a more rapid adaptation of the latest techniques and scientific knowledge to the educational process. American business and, to a lesser extent, government have already undertaken extensive programs of managerial 'retooling' and retraining, thereby moving toward the intermittent educational pattern" (268-269).

- Workforce Training for "Career Pathways": "[I]t [education] could be more generally pursued within a work-study framework, and it should be supplemented by periodic additional training throughout most of one's active life. . . . Th[e] formal initial period could be followed by two years of service in a socially desirable cause; then by direct involvement in some professional activity and by advanced, systematic training within that area; and finally by regular periods of one and eventually even two years of broadening 'integrative' study at the beginning of every decade of one's life, somewhere up to the age of sixty. . . . Regular and formally required retraining—as well as broadening—could ensue at regular intervals throughout most of one's professional career" (266-267).

- Lifelong P-20/Cradle-to-Career Learning: "The unprecedented spread of mass education in America raises the more general question whether mechanically extending the duration of education will suffice to meet both the psychological and technical needs of the emerging society. . . . By extending education on an *intermittent* basis throughout the lifetime of the citizen, society would go a long way" (266).

Nearly fifty years after the publication of *Between Two Ages*, the accuracy of Brzezinski's foresights above can be seen in the contemporary research that I have documented in the following articles: "The Corporatization of Education,""Corporate-Fascist Workforce Training for the Hegelian State,""National Charter School Fascism,""Betsy DeVos, Big Data, and the Public-Private Planned Economy," and "Secretary DeVos, Neurocore, and Competency-Based Workforce Training."

[4] In"Secretary DeVos, Neurocore, and Competency-Based Workforce Training," I expound the long and continuing history of psychological conditioning methods used in the classroom for workforce education. In "National Charter School Fascism," I document how the burgeoning public-private P-20 merger of public schooling and corporate medicine is clinically pathologizing the learning process to expand the institutionalization of such psychological-medical approaches to conditioning cognitive-

behavioral learning in the classroom.

[5] In my article titled "Secretary DeVos, Neurocore, and Competency-Based Workforce Training," I historicize how competency-based education is actually a rendition of outcomes-based education, which emphasizes the use of psycho-behavioral conditioning methods to train students to perform prescriptive workforce-learning outcomes. In "Schooling and the Myth of Objectivity: Stalking the Politics of the Hidden Curriculum," Dr. Henry Giroux provides a similar historical analysis of OBE-CBE techno-conditioning. Giroux, who is Professor of English and Cultural Studies at McMaster University, reveals how "the technological and behaviorist models that have long exercised a powerful influence on the curriculum field were, in part, adapted from the scientific management movement of the 1920's, just as the roots of the competency-based education movement were developed in earlier research work adapted 'from the systems engineering procedures of the defense industry' (Franklin, March 1976, pp.304-305)" (283).

[6] Other Knewton courseware products are contracted with some of the biggest ed-tech corporations in the educational-industrial complex: Pearson Education, Houghton Mifflin Harcourt, and Cengage Learning. Dreambox is the beneficiary of millions of dollars in investments from Netflix CEO, Reed Hastings, who is also a corporate philanthropist who lobbies heavily for the overthrow of publicly elected school boards to be replaced with private charter councils that autocratically manage public-private charter-school corporations. D2L's Brightspace LeaP™ has even expanded its reaches internationally into Latin America through twenty-seven AliatUniversidades campuses across Mexico. Smart Sparrow is funded by ACT Inc., the corporation that designs, owns, and distributes the "American College Testing®" standardized test used for college admissions applications.

[7] According to former Senior Policy Advisor in the Office of Educational Research and Improvement for the US Department of Education,Charlotte Thomson Iserbyt, this de-individuated computerization of workforce conditioning is not only the corporate-fascist method of edu-conditioning; it is likewise the Soviet-communist method of collectivist-Statist edu-conditioning. In her article titled, "Heritage Foundation, NAFTA, School Choice and the Destruction of Traditional Education," Iserbyt quotes "Professor Eugene Boyce, University of Georgia . . . : 'They [communists] do not educate for jobs that don't exist.'" Iserbyt elaborates:"[n]o matter what your child wants to be/do in the future (welder or ballet dancer) his freedom to pursue his dreams will be limited by whether he is included in the school/business partnership's 'quota' for training. Example: If he wants to be a welder at the shipbuilding company in your town, he will only be able to get training if he is fortunate enough to be included in the training quota. If the company only needs ten welders, and your son/daughter is No. 11 on the list, he/she will NOT receive training." These parallels between communist and fascist workforce schooling through computer conditioning further demonstrate the Hegelian-dialectical full-spectrum dominance of both "leftwing" and "rightwing" educational politics that are dished out in semantically different flavors of the same pabulum of corporate-government collusion.

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