

# Formalism in online education

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## Abstract

**Purpose** – With the rapid transition of education from the traditional, classroom- or campus-based to the online format, there grows a need for not only taking advantage of online technology but also assessing actual and potential effects it can make on the learners, learning, education, and society. One of the risks inherent in online learning is its growing formalization both in the organization of the learning and in its process, which may gravely affect students' learning, health, cognition, behavior and quality of the learning outcomes. It can also produce serious implications for the society. This article investigates the origins of formalization, its forms and stages, and discusses asynchronous, precision, and automated learning formats from this perspective. Among many issues, the impact of formalization on the learner's development and socialization is considered. The author offers a pragmatic solution for deformatization of online learning.

**Design/methodology/approach** – Qualitative analysis of contemporary research literature, educational trends and practices.

**Findings** – It was found that formalism permeates online education in many ways. It is present in asynchronous, precise and automated learning and may produce significant impact on students, their learning, and society.

**Research limitations/implications** – This is a qualitative research based on the analysis of current research literature and teaching practices.

**Practical implications** – While formalism in education is an unavoidable evil, its impact must be diminished. Critical analysis and practical recommendations offered may help improve online teaching and learning.

**Social implications** – Formalism affects both students' socialization in the online learning environment, and patterns of socialization in the society. It also impacts students' cognition and behaviors. So, counteracting formalism may benefit the society's well-being.

**Originality/value** – The authors could not find any publications on this topic. So this is an original material which may contribute to improving online teaching and learning.

**Keywords** Education, Online learning, Asynchronous learning, Formalization, Socialization

**Paper type** Conceptual paper

I believe that the abominable deterioration of ethical standards stems primarily from the mechanisation and depersonalisation of our lives — a disastrous byproduct of science and technology. Nostra culpa! (Albert Einstein)

Online learning (OL) is rapidly gaining momentum in front of our eyes, and it will undoubtedly continue to expand across all levels and forms of education. Yet, while it brings various benefits for the learners, especially working adults, it also carries quite a few risks which can affect the quality of the learning outcomes and produce serious social and cultural consequences (Loendorf, 2010; Maurer *et al.*, 2013; Sousa, 2014; Halupa, 2016; Gerardi, 2017). One of them is a growing formalization trend that permeates the whole education system but even more so the OL and may adversely affect the learners, learning, and society in many ways. This phenomenon has passed unnoticed by educators so far.



### Origins of formalism

Formalism is an excessive adherence to prescribed forms (Oxford Dictionary). It can be found in every educational institution and in various shapes. OL which operates on machine algorithms is a prominent example of a formalized education. Though formalization is an inevitable evil, we must be concerned about its unwarranted impact on the process and results of the learning.

Formalization is driven primarily by the need for optimizing institutional management, but also by a bureaucratic yearning for control and accountability, business considerations, and convenience. “Education has evolved toward rationalization since the Enlightenment, favoring quantitative measures. Now, a paradigm shift toward stricter control by governing bodies through formalization can be observed in education whose structures and processes are subject to increasing standardization” (Organ and Greene, 1981, p. 237). Formalization in OL develops in line with the concepts of Transhumanism that advocates for the transformation of the human condition by developing and making widely available sophisticated technologies so human beings may eventually be able to transform themselves into different beings (More, 2013). It is conspicuously evident there today in many ways. Technology demands formalization of any processes and OL which is fully technology-based appears as an illustration of this trend. Some authors, though, caution against completely succumbing to technological innovations and machine servitude (Postman, 1993; Arnall, 2003; Fukuyama, 2004).

“Formalism means the enactment of determinate. . . rules and their application. . .” (Pildes, 1999, p. 612). Following the rules brings about “formal coordination of behavior, reduction of decision costs, and reduction of error costs” (Pildes, 1999, p. 613). Make a note of the phrase “coordination of behavior”. Standardization is one of the tools of formalization; it is the process of establishing policies and guidelines of various kinds intended to improve the efficiency of teaching and learning. They include standards developed for higher education institutions by ACPA, SAS, and other professional organizations, as well as Common Core and state standards, district benchmarks, and standardized school tests. Standards permeate teaching and learning at every step – many teachers say, e.g., “I teach standard 5.6.2 today,” not realizing that they do not teach standards, yet their standards-configured mindset acts according to the integrated imprint. Nowadays standardized testing is done using technology: “Every dimension of life in schools has been subjected to the testing technologies of educational psychology in the twenty-first century—in the process leaving nothing to chance. Mechanistic regulation has become more powerful than ever” (Kincheloe, 2006, p. 226). Three well-known examples of formalistic education are programmed learning (Skinner, 1954), standardized testing, and multiple-choice tests, all of which discredited themselves. Standardized testing, for instance, helped to shape standardized learning: a formal question calls for a formal answer. Skinner wrote, “There is a simple job to be done. The task can be stated in concrete terms. The necessary techniques are known. The equipment can easily be provided. Nothing stands in the way except cultural inertia” (Skinner, 1954, p. 86). This statement exposes formalization and oversimplification in education.

Formalization is a process of representing an object, phenomenon or activity as a general, structured, schematic and simplified layout reflecting its most essential features. This formal representation is used to ensure a better understanding or more convenient, or more efficient use of the formalized item. It is worthwhile to note, nonetheless, that the form is a constraint for the content.

Formalization is an effective and long-established way of

- (1) Describing scientific phenomena, concepts, and ideas;
- (2) Presenting knowledge;

- (3) Standardizing rules;
- (4) Managing and controlling human groups and organizations;
- (5) Modeling teaching and learning.

There are four levels of formalization in education:

*Organizational* – management and control of educational institutions, its structural units, and people (teachers, students and employees).

*Programmatic* – establishment of educational laws, standards, benchmarks, guidelines, regulations, directives, plans, etc. for teaching and learning.

*Subject matter* – organization and representation of the content in the learning materials in a simplified, structured, and rationed form.

*Procedural* – the way learning is designed, carried out, evaluated, and controlled: typical, standardized lesson procedures and class routines defined by the goals, standards, lesson plans, templates, assignments, tasks, communication patterns, feedback, assessment, evaluation, and grading rules.

So, formalization in education performs two major functions: *regulatory* and *representational*.

Regulatory formalization creates a centralized, top-down structure. We will leave regulatory organizational formalization outside of our discussion as it pertains more to the management science and focus on the latter three levels.

### **Online learning formalization phases**

Teaching and learning (T&L) is a game with formal rules. Educational institutions impose strict formal guidelines on the learning process. Academic programs are defined by the standards, curricula, syllabi, preset outcomes and expectations. An online Learner Management System (LMS) creates a formal course shell in which students perform their learning tasks. A learning course uses not authentic objects, or complete knowledge, or real procedures, but sets of formal artificial constructs that partially reflect essential features. The content is necessarily preselected, structured, and presented in manageable chunks or modules in various forms (text, visual, and audiovisual information) for students to process and extract new knowledge. The formalized content, as well as course assignments and activities, are embedded in the course shell.

An online course is usually based on a platform (e.g., BlackBoard) and has a formal structure that shapes and regulates the student's learning procedure. This procedure is very formalistic: students perform only the actions available in the course shell which incorporates a specified number of possible routes and outcomes. The actions students take are generally only superficially related to real life, so they are largely formal too. Therefore, students can only follow the instructions and navigate through the course in the predetermined direction performing the required actions and submitting completed assignments for evaluation. Following formal rules is like sliding on the ski track down the slope.

Course content is based on structured, pre-programmed learning materials and presented in a well-organized, often simplified, and easily digestible form. The course has a clear, straightforward structure ensuring effortless navigation, unambiguous instructions and tasks, transparent expectations, benchmarks and guidelines, and evaluation criteria. Students in an online class download the course, select the scheduled assignment, read the prompt, complete the assignment using required sources found both in the course (e-book, texts, applets, visual materials, etc.) and on the Internet, and upload it into the gradebook. They also participate in threaded discussions, small group work, and live sessions, and communicate with the instructor when there is a need. Student performance routine in the

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course directed by a rigid trajectory, behavioral patterns, and fixed tasks contributes to the formalization of the background (knowledge and experiences), reactions to the instructional prompts (in patterns, quantity, quality, and time), performance (learning preferences, diligence and actions), and learning outcomes. But does completing formal tasks mean students learned what they needed? There may be little or no connection between a student's action and the semantics of the task, which causes a critical disruption within the learning process, and the actual results of the learning may not correspond to the preset outcomes. A student can theoretically vary the depth and width of his/her learning but is constrained by the goals and objectives, formal course requirements, time on task, and an urging desire to get the grade ASAP. What are students' degrees of freedom within such a formalized system?

Online teachers expect students to be independent, autonomous, self-directed, self-sufficient, and highly motivated learners. Some of them are such learners, and academically strong students commonly succeed in the online environment. However, a very high attrition rate in online institutions – 40–80% (Bawa, 2016; Chisirtensen and Spackman, 2017) indicates many students are not prepared for this format of learning. The most obvious explanation is poor previous education (ACT, 2018; Dynarski, 2018) which has not provided students with effective learning skills, fundamental knowledge, and the right attitudes. No wonder, online college students are generally not too enthusiastic about learning on their own (Serdyukov and Hill, 2013). Many of them rely on the formal, straightforward course structure and unambiguous organization of the class, direct leadership, strong support, and even pressure from the instructor. Some students declare openly, “I am the type of a learner that needs clearer directions.” They are willing to trade the benefits of autonomous learning for the security of the formal class, thus demonstrating their dependence on outside factors for their success rather than on their own skills and abilities. The need for an externally imposed formal structure, organization, and obligation might be explained by students' lack of confidence in their abilities to accomplish their learning independently. They are trying to avoid risk-taking fearing poor grades. They request crystal clear assignment prompts and directions and want templates and samples. This dismal self-reliance feature comes, as some studies demonstrated (Miertschin *et al.*, 2015), from poor learning habits and time management skills, lack of diligence, persistence, and effort (which can be a result of inadequate previous educational experiences), as well as insufficient learning skills (reading, writing, critical thinking, problem solving and research), weak foundational knowledge, low motivation, negative attitudes, and other factors. Students generally prefer a formalized OL structure for the convenience's sake.

Students who are attracted to OL by its convenience (Christensen and Eyring, 2011) often demonstrate a lenient attitude towards learning. Their performance in an online class can be explained by the principle of the least effort (Zipf, 1949), which brings humans to employ economies of effort in many processes of mental tasks, including learning. It is definitely easier to perform a formalized activity. Research (Reichle *et al.*, 2000) demonstrates human brains seek to minimize the mental workload by choosing the strategy that makes less work for the brain. For instance, only 20–30% of students in the average classroom do assigned reading (Perusal.com) – many substitute reading course books with easily available, abridged, and unreliable information readily offered by Google and Wikipedia. They are content with superficial reading which seeks not to disclose hidden meaning, but to attend to evident meaning, examining that which is perceptible and apprehensible in the surface of the text (Formalism and Its Discontents, 2017). According to Liu and Yang (2004), students show a strong preference for easy and fast information retrieval, therefore they are looking for convenient ways to accomplish their learning with the least effort (Serdyukov, 2015). Formalistic education helps to satisfy this urge for convenience. Clicker or push-button learning is a metaphor for convenience education.

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Online college instructors in turn embraced a formalistic approach to teaching and enjoy its convenience too: they are no longer required to write and deliver their own lectures, which traditionally used to be a major demonstration of high professorial competence. They ceased to be the leaders in the learning process and instead reduced their performance to mostly secondary, formal service functions. Everything in an online class, including the content, has been developed by the course designers and embedded into the course. The online instructor's main function nowadays is to facilitate students' learning, i.e., keep the course procedure alive – the instructor stays on the side of the process and observes students' independent struggle with the content and assignments. Instructor performance shrank to answering students' questions and grading assignments. Reading and responding to student work, however, is the core of the instructor's job (Warner, 2020). Online educators today, regrettably, place emphasis mostly on adapting new technologies to their teaching, or more often, accommodate their teaching to the new technologies instead of using effective pedagogy to drive their technology-enhanced teaching. Their professional development is based not on a sound pedagogic theory but on occasional technology-focused training, practical tips, and instructional resources. Students are, nevertheless, worried about the instructor's nominal presence in online classes (Serdyukov, 2019; Online Student, 2020).

Asynchronous learning is a further step towards formalistic learning. While asynchronous learning is a powerful OL tool contributing to the flexibility and convenience of learning, it deprives students of socialization (Oztoc and Brett, 2011; Boling *et al.*, 2012; Asfaranjan *et al.*, 2013). Asynchronous learning, compared to synchronous learning, is essentially static and offers limited choices. Students enjoy a solitary experience. They are disconnected from the instructor and class community, do not develop relationships, seldom collaborate, have narrowed options to share their ideas and discoveries and to apply them in real life, lack diversity of opinions; response and feedback are usually scanty, usually delayed, and error handling is more complex. There is a loss of human emotions, affection, and excitement.

A growing tendency towards asynchronicity of online learning driven by many private for-profit and even non-for-profit institutions is grounded largely in business considerations – increasing enrollments by making OL more accessible and convenient. A watered-down curriculum and low academic rigor are the expected side effects of such an approach. This causes concern among many educators who fear this process which focuses exclusively on formal and deficient knowledge construction will potentially deprive students of the three critical benefits of education – personal, intellectual and social development, and cause deterioration of the learning outcomes. No wonder, asynchronous online courses are notorious for low completion rates.

Precision learning is the next phase of the formalization of education which leads to the complete automation of the learning. It is an evidence-based approach that uses precise methods of data analytics to capture valid and reliable information to drive student success and improve outcomes using adaptable algorithms (Makhluif, 2019). Automation of education is another growing trend (Hitchcock, 2019; Bennett, 2020). It is expected AI-based learning systems will replace live instructors (Grace *et al.*, 2018). Formalization is a prerequisite for automation of the learning process as the computer can operate only with formal objects using algorithms. It cannot function with open-ended situations that do not have predetermined limits, are unrestricted, broad, complex, allow for future changes, revisions, or additions, nor have fixed answers. So, automated learning systems will be purely formalistic in nature. “AI is not a substitute for broken politics, discriminatory institutions, or a failing biosphere. Believing in an algorithmic solution to a structural problem is pure magical thinking” ... “Skinner-like behaviorist practices where every moment of a student's day is monitored for compliance and correctness is incompatible with learning” (Warner, 2020).

Microcredentials and microcompetences used in competency-based education and precision learning are another example of formalization through minimization, discretization, and quantization: “Competencies include explicit, measurable, transferable learning objectives that empower students” (Ryserse, 2017). To measure students’ microcompetencies the content and process must be necessarily formalized. Minimalism in education as a means of accommodating the teaching to students’ insufficient background competency attempts to disassemble knowledge into smaller and smaller pieces for convenient consumption. Microcredentials break down holistic and connected learning into small, manageable, often disjointed lumps creating discrete, short-term, modular learning experiences. Microminiaturization of learning is an effort to atomize both knowledge and learning process reducing them to the smallest, bite-sized – simple and formal – consumable and measurable items, similar to video clips. Knowledge in such courses is fragmented, precisely organized, and presented in prefabricated modules, miniature chunks, or learning objects, like canned cooked food. Students develop clip consciousness which results in an almost complete absence of rational bases and clear logic, and forms fragmented, mosaic perceptions and experiences (Bakhtina, 2011). “Clip thinking is regarded as a process of reflecting a multitude of various properties of objects, without taking into account the relationships between them, characterized by fragmented information flow, illogicality, heterogeneity of incoming information, high speed of switching between fragments of information as well as the lack of a holistic perception of the surrounding world” (Volkodav and Semenovskikh, 2017, p. 345). Students can lose the forest for the trees. The smaller the unit of learning, the more likely the student may forget it when the time comes to use it in a different context. This runs counter to the holistic approach to education which embraces not only the whole child, but also the whole society, whole universe, and whole knowledge, and Gestalt theory which are both based on Aristotle’s axiom, “The whole is greater than the sum of its parts,” as well as to the adage that learning is a living process.

We consider microcredentialing to be an ingenious attempt to sustain students’ motivation to learn by adapting the learning to their inadequate entry level (simplification), their shortening attention span (accommodation), and offering more frequent rewards to create an instant gratification effect (satisfaction). It is intended to create extrinsic motivation, which is not conducive to quality learning – while true, intrinsic motivation is developed by the learner’s environment. The idea of badges as an extrinsic motivator and symbol of accomplishment is borrowed from the elementary school, and in a college setting appears as infantilization. At the level of teaching, it looks like a micromanagement of the learning. From the point of view of psychology, it may seem right (Pavlov’s effect); from the point of view of academic integrity, especially in adult learning, it is questionable. This microcompetencies’ approach might be appropriate for some professional training, but hardly beneficial for use in general education, particularly because of the poor knowledge base student obtain in school (ACT, 2018) and a holistic nature of the knowledge. It may lead to the disintegration of knowledge, degradation of learning, grade inflation, and poses a threat to the consistency of both education and upbringing.

Knowledge is often regarded as an intellectual capital that can be produced and disseminated (Serrat, 2017), delivered, and consumed. In the consumerist society, the learning products have become consumer goods – a tangible commodity produced and subsequently purchased to satisfy the current wants and perceived needs of the buyer (student). Grades, credits, certificates, diplomas, and degrees are examples of such tangible products which students care about. OL allows to accumulate more credits in less time, and even low pass rates might increase graduation rates (Protopsaltis and Baumi, 2019). The quality of the learning outcomes remains questionable (). The commodification of the learning (Kauppinen, 2013) is becoming pervasive, and it enhances its formalization.

While OL disrupts social relationships, we know learning is by nature a social experience. People express and develop different qualities in collective interactions, collaboration and socialization rather than in individual settings which is crucial for life and work in a human society. Vygotsky argued everything is learned on two levels: first, through interaction with others, and then integrated into the individual's mental structure (Vygotsky, 1978). Bandura's social learning theory also suggests that through observation and modeling of the behavior of others, a person will develop socially and cognitively (Bandura, 1977). We do learn through communication (Hills 1979), and a teaching-learning process is essentially an act of communication (Mustea, 2016). According to Moore and Kearsley's transactional distance learning theory (1996), the two critical elements of effective online learning are dialogue and autonomy, both ensuring quality learning. G. H. Mead argues the human mind is a social structure created by social interaction (Mead, 2015). All these theories clearly emphasize the value of socialization and synchronous interactions in online learning suggesting that they precede asynchronous learning. Asynchronous and fully automated OL void this critical aspect of genuine education. "Lack of sufficient interaction between students and faculty is likely online education's Achilles' heel" (Protosaltis and Baumi, 2019, p. 1).

Additionally, the online learner separated from all other participants by a computer screen is already within a formalized environment and behaves accordingly. In a live class, thanks to the continuous interaction with the group, students are involved in active information exchange, discussions, get a variety of impacts, react, argue, experiment, solve numerous problems – a constantly boiling, intellectually and emotionally rich process which helps to grow the mind and forge a character. A big question arises, how to balance a vital social, humanistic, developmental character of education against the efficiency and convenience of OL?

### **Real and potential outcomes of formalistic learning**

Formalization leads to overregulation, limited choices, lack of flexibility and monotony. We see five major reasons for concern about excessive adherence to formalization in learning based on digital technology:

- (1) Disconnect from real life.
- (2) Inadequate learning outcomes.
- (3) Social deprivation.
- (4) Health, cognition, and identity hazards.
- (5) Conditioning of students.

Formalized education has little relevance to real life, and students are ill-prepared for its challenges (Caplan, 2018). Examples of typical formalistic assignments are "Read Chapter 3 and answer three questions" and "Choose the correct answer out of the four choices." Formalized learning produces deficient formal learning outcomes. We analyzed students' activities and learning products in various online graduate-level (!) educational courses taught from 2016 to 2020 using Bloom's taxonomy and found out:

- (1) Students can recognize, repeat, reproduce, find, select, copy, imitate, match, list, label, outline, describe, cite-performing actions at the low levels of the taxonomy.
- (2) Students have difficulty to operate at higher levels of taxonomy: it is problematic for them to analyze, investigate, compare, contrast, classify, relate, infer, interpret, summarize, assess, estimate, evaluate, judge, justify, conclude, identify criteria, criticize, deduct, disprove, determine importance, rate, validate, prove – demonstrating deficit of analytic skills and critical thinking.

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- (3) Students are often at a loss when asked to formulate, generalize, improve, invent, make up, generate, produce, create, plan, organize and manage, and seldom perform at the highest levels of cognition.

Online education, according to [Protopsaltis and Baumi \(2019\)](#), has failed to reduce costs and improve outcomes for students. Analysis of students' work frequently demonstrates little width and depth of thinking and limited professional expertise. Students commonly prefer concrete, hands-on tasks, and often ask for succinct directions, scaffolds, hints and prompts to complete the assignments. For example, when asked to analyze and compare several lesson plans according to the predetermined criteria teacher candidates commonly describe the plans consecutively, one by one, rather than placing them side by side. They fail to critically assess each of them using the selected factors to find similarities and differences between them, discuss their strengths and weaknesses, and draw valid conclusions. It has been noted that online education allows no space for critical thinking ([Joseph, 2020](#)). When asked to design their own lesson plan, students request templates and samples, though they have the textbook and supplemental materials with a detailed description of the planning structure and process. Free-style essays usually produce a formal compilation from different internet-based sources without original creative thought and innovative ideas. A literature review which is an informal assignment as a part of the thesis incidentally is one of the toughest tasks for students in research classes. This happens because "online education assigns a higher value to quantifiable and downloadable content. Abstract notions, aesthetic values, sentiments and subjective responses of an experiential kind are sidelined. It does not encourage multiplicity of perspectives, subtleties, deliberations or arguments. This is dangerous and reduces education to a mere utilitarian and technical engagement. . . This is a wrong understanding of the purpose of education" ([Joseph, 2020](#)). Formalized learning is not conducive for developing creative cognitive skills and produces superficial outcomes. This runs counter to the 21st century requirement for students to have developed competencies, such as deep mastery of challenging content, critical thinking, complex problem-solving, effective communication and collaboration, and self-direction ([Darling-Hammond et al., 2017](#)).

The social fabric of education that kept everybody and everything – students, teachers, learning and teaching, community, society, and culture together - has been disrupted by the industrialized, formalistic methods and machine online learning. Human beings are dispersed in the virtual environment and have little chance for real-life, face-to-face interactions. While previously to the OL era we enjoyed not only common activities, but also relationships that are important to keep society going, maintain common ground which helped us understand each other and solve problems, and preserve a common culture which united us all, at this juncture everybody drifted away into solitary computerized caves. The year 2020 will remain in history as the beginning of the great dissociation era. OL, in turn, particularly the asynchronous one, is narrowing opportunities for socialization and is devoid of empathy. It is an individual educational diet ([Davis, 2017](#)) primarily intended for independent learning and not for sharing, thus asocial by definition. With the increasing focus on asynchronous, precision, and automated learning, as we indicated earlier, social opportunities in OL keep diminishing further - students are turning into individual, private islands floating in the virtual ocean. Rather than engaging with other human beings, students engage with the machine and become monitored by algorithms, which in turn alters the very nature of work. "It is a vicious circle that divides students from their teachers with every trip around" ([Warner, 2020](#)). There is nothing except a frail formal artificial structure of online classes that brings students temporarily together and creates a pretense at socialization, while they are now mostly on their own against all odds. Automation destroys identities ([Heacock, 2018](#)), and brings about social risks ([Silveira, 2019](#)). We will soon feel the consequences of this alienation and desocialization both in education and in society, and they will have serious and



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long-lasting effects for generations to come. Our feeble attempts to save some of the socialization in learning via unstable, short-lived, artificial, virtual substitutes like networking cannot restore it.

In addition to social deficiency, the widespread use of technology, according to [Sousa \(2014\)](#), is having negative effects on students' attention and memory systems. A strong warning about the harmful effects of the Web comes from [Maurer et al. \(2013\)](#), who caution that modern media, particularly networked computers, are endangering our capacity to think, to remember clearly, and to read and write with concentration; they also jeopardize creativity. The divide between work, home and learning disappears, and the latter ceases to be a concerted activity which unavoidably affects both its process and results. A question arises, do we know what happens to the human brain in a formalistic environment? The comedian and star of *Blackadder*, Mr. Bean (Rowan Atkinson), said addressing contemporary culture: "The problem we have online is that an algorithm decides what we want to see, which ends up creating a simplistic, binary view of society" ([Lloid, 2021](#)). The convenience of OL negatively affects attitudes and behaviors ([Westra, 2016](#); [Zhao, 2012](#); [Goik, 2018](#)). The introduction of technology often results in an exit of humanity ([Warner, 2020](#)). Don't formalism, rationality, practicality and efficiency signal a lack of human feelings? Think about socio-emotional learning which is so much in vogue today. The danger of machine learning originates from technology (rooted in the ideology of the technological rationality), which has restructured itself into a repressive force morphing into a new normal human identity based in social conformity, simplistic behavior and thought ([Gerardi, 2017](#)). It allows power structures to monitor individuals ([Joseph, 2020](#)). Behavioral theory applied in teaching, as is known, employs techniques to promote behavior that is desirable and discourage that which is not. Programmed education is an example of such a formalistic approach to learning, and so are other machine-based approaches.

Any information system is made to relieve the brain from work: the more formalized the system, the more regulated the behavior, the less load on the brain, and the less energy the human spends. The less the brain works, the more it can be controlled. Formalization and standardization are becoming a means of social conditioning and modulation which is the process of training (not educating!) individuals to respond in a manner generally approved by the society in general and certain groups (e.g., educational institutions) within society. Students get hardwired and programmed in the formal OL environment. [Conley \(2013\)](#) explains social conditioning is shaped by the creation of "good" and "bad" behaviors - persistent reinforcement and the use of operant conditioning which influences individuals/groups to develop particular behaviors and/or ideals. Formalistic, standardized machine-based education imposes certain norms and routines of learning which condition students into certain actions. Norms are a set of predefined patterns or standards of behavior that students should be following within the classroom. Routine is a sequence of actions regularly followed, a fixed program. These techniques are commonly used in school. Implemented in the "recommending" or guiding algorithms they become an embedded mechanism for modifying behaviors. Excessive formalization and standardization result in conformity and uniformity, which are incompatible with a major law of life - diversity. Due to the human adaptation mechanism, students in a formalistic environment are being molded and "harmonized," and develop preformatted, formalized thinking and behavior. They lose the ability to think and make decisions independently and creatively - they are using instilled patterns and ready answers. How about developing their autonomy which is one of the goals of education? With time such a process cannot fail to develop predesigned, controlled thinking and preprogrammed behavioral patterns and alter students' mindset, which may have profound social consequences. Formalism being an antithesis of creativity destroys individuality, independence and progress. Free people do not want an absolute power of the norm, standards, formats, prescriptions and restrictions.

Formalization of OL is an evolutionary process: every bureaucratic system tends to formalize further. The question is, does it guarantee its stability? Formalization leads to rigid centralization and complexity of the system which eventually limits its efficiency and can exert other negative effects (Pertusa-Ortega *et al.*, 2010; Jimenez, 2017). The fewer degrees of freedom the system has, the more its rigidity, the less efficient it becomes, and the sooner it will collapse when it reaches its ultimate tensile strength. A vivid example is the collapse of the Soviet Union in 1991 which had been a rigid, centralized, top-down, progressively formalized social system that reached its ultimate tensile strength. What can challenge a formalized learning system? No. 1, the external pressure, e.g., society's dissatisfaction with the quality of general education and professional degrees. No. 2, the internal pressure building within the system, e.g., students' discontent with the process or their learning outcomes and more people choosing informal, self-directed learning which is not only free but open and more efficient (Moore, 1973; Cross, N/A). Both processes are currently at work. Unregulated, informal learning is already a significant aspect of our learning experience. Formal education no longer comprises the majority of our learning (Siemens, 2005).

### Possible solutions

Technology creates various challenges to humans in many aspects of life, including education. While we cannot and should not stand in the way of technological innovations, we, the people, must lead the process, not become submissive to the machines for the sake of convenience, effectiveness, or profit. We cannot let go of the humanitarian aspect of education in favor of technology, nor deprive OL of informal social learning. Online educators ought to strongly maintain this critical aspect of education. They should make all efforts to engage students in communication, interaction, collaboration and cooperation; integrate inquiry, discovery and problem-solving approaches and offer meaningful tasks. One way is to use a blended approach combining synchronous learning with the asynchronous and, whenever possible, with live, face-to-face sessions. Another is to integrate a variety of real-life, live experiences in OL – modeling genuine situations and using authentic case studies, as well as taking students out of the OL box into the outside world. While at present digital technologies support mainly formal service functions in OL (logistical, structuring, managing), we need to find ways to engage students in more active, participatory and creative activities which will help develop deep cognition and produce the desired learning outcomes. To remain human beings within a formalistic digital environment we must get out of the isolationist virtual reality bubble into the real, unformalized, diverse world. Such an approach requires a new pedagogy, a different attitude towards education, and rigorous, continuous professional development for online instructors coupled with responsible administrative quality control. Connectivism can be one of its foundations (Goldie, 2016).

Online learning is a part of the general educational theory and practice. The integration of information and communication technologies into education can be effective if supported by sound and innovative pedagogic theory which assures the quality of teaching and learning (Serdyukov, 2015). E-Pedagogy must be also centered on minimizing formalism and regulations of all sorts in education while demonstrating consistent approaches to provide humanistic education in an online environment.

### Conclusion

Online learning is a fantastic invention, but we should use it with open eyes weighing its advantages against possible harms. Formalization of online education is an obvious and growing trend prompted by the systems' needs, business and other interests, societal culture, consumerist approach to education, growing bureaucracy, technology limitations and students' preferences. Formalization blends in perfectly with the digitalization of education. It can produce maximum efficiency of the learning process coupled with convenience, but at the

same time, it leaves little room for individual freedom, creativity, and independence of thought. It is going to be a “filling the matrix” education. Then we will be able to mass “print” prewired professionals, like a printed circuit plate. This is what the globalized, consumerist, profit-oriented culture wants. We cannot afford to substitute true education with a mechanistic substitute.

Three drivers of formalization in education are:

- (1) A paradigm shift toward stricter, centralized administrative control, growing accountability and standardization.
- (2) The mechanistic view of the learning and its automation.
- (3) Profit-making, optimization, consumerism and convenience yearning.

Education has become a business of producing human capital on an industrial scale. Businesses are not only automating away manufacturing jobs, but also the public sector, in our case education. Online education is growing and transforming from online classes led or facilitated by instructors with student participation in various kinds of group work to the next stages - adaptive, precision, and automated learning. Automation as an ultimate stage of formal education which does not need live teachers will lead to a crisis of identity, and the least educated will be the most left behind. Education and learning are human endeavors, and they are far too important to turn over to algorithms and artificial intelligence (Warner, 2020). While we are working towards the AI-based OL, we cannot afford to lose generations of students to formalization and must retain a positive human social environment by integrating it into OL (Serdyukov, 2019).

Our efforts to innovate education must be directed not solely on introducing new technologies but simultaneously on developing new, effective pedagogic approaches supporting the successful integration of technologies in learning. The true success of OL depends on old-school principles: creative, caring and supportive teacher attitude and engagement, constant students' participation in learning activities, and patient encouragement from all stakeholders (Carey, 2020). Although a certain level of formalization is necessary for the educational system to function efficiently, we must rely less on formal rules, standards, regulations and strict administrative control to allow for more choices, more flexibility, and freer, creative student performance in OL, as well as more independence for educators. Finnish experience powerfully demonstrates the effectiveness of such an approach (Sahlberg, 2011). Formalization of education threatens to degrade the primary purpose and meaning of education, so learning must be deformalized.

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