"RETHINKING HIGHER EDUCATION: BLENDED LEARNING"

EWORA WEBINAR, 25 JANUARY 2021
SUMMARY REPORT



Published by: European Women Rectors Association (EWORA)



Publishing date: 22 February 2021

Author:

Gerd Kortemeyer

based on contributions from

Ada Pellert, Jennifer Sparrow, Karin Brown, and Sarah M. Springman

Contact:info@ewora.org

http://www.ewora.org

Acknowledgments

The 2nd EWORA Webinar entitled "Rethinking Higher Education: Blended Learning" was held on 25 January 2021 and chaired by **Prof. Dr. Sarah M. Springman, Rector of ETH Zurich.** Presentations were given by **Prof. Dr. Ada Pellert, Rector of FernUniversität in Hagen, Prof. Dr. Jennifer Sparrow, Associate Vice President for Teaching and Learning with Technology, Pennsylvania State University, and Karin Brown, Educational Developer at ETH Zurich.**

The presentations are available under https://www.ewora.org/ewora-2nd-webinar- (retrieved January 2021)

The organizers would like to thank to **Amelie Reist**, who provided technical assistance.

Finally, EWORA would like to thank all participants of the webinar who put their time and energy into creating a fruitful discussion during the webinar.

Foreword

Notwithstanding the slow rate of change over the past 600 years in how professors and lecturers lecture (sage on the stage), and how students learn, the last 20 years have witnessed a growing appreciation that active self-driven learning (with a guide on the side) is becoming the gold standard for some aspects of university teaching and learning. Forward looking institutions have been investigating the opportunities and applicability of 'distance learning', even before the millennium. This has occurred partially through the foundation and development of distance learning universities or via new 'commercial' actors in the tertiary education world. Additionally, more established universities have set up specific overarching programmes to promote online teaching and learning and have developed the associated education technology and research.

It is a pleasure to launch this webinar on blended learning, given my conviction about the benefits arising from this form of teaching and learning. This derives from my engagement in various ways over the past 30 years and I would like to dwell on this, briefly, from a personal perspective.

Computer Aided Learning was advanced in the early nineties in Great Britain through an initiative from the Higher Education Funding Council for England¹. I engaged at an early stage, as a newly appointed lecturer at the University of Cambridge, with colleagues (e.g. Davison, 1993; 1995, Jaksa et al., 2000) in my subject area, who were developing specific modules for the cross-university GEOCAL project. As ETH launched the ETH World initiative in 1999 to 'digitise' aspects of teaching and administration, under the leadership of Vice President Professor Gerhard Schmitt, my group obtained various tranches of funding to build two generations of offerings in blending learning (CALICE and GeoTIP; e.g. Sharma et al., 2001; Springman et al., 2013) through changing the way in which knowledge was imparted and learning was to be supported. Indeed, this one course was COVID-ready in the mid noughties...

Notwithstanding a range of funding programmes and support for curricular development like those mentioned above, these have been largely ignored by a great majority of individual lecturers, who have been content to carry on, as dictated by tradition. The dynamic disruption provoked by the SARS-CoV-2 (COVID-19) virus has focused minds on some of the benefits and challenges and raised the debate about opportunities for the future. We must benefit from this somewhat uncontrolled experiment in teaching and learning within tertiary education.

This is why this webinar has been offered and hosted by ETH Zurich, in association with experts from the universities engaged in the world of blended learning, on behalf of the European Women Rectors' Association (EWORA). I am grateful to Dr. Gerd Kortemeyer for his most valuable assistance.

Sarah Springman Rector February 2021

.

18th International Conference on Soil Mechanics and Geotechnical Engineering, Challenges and Innovations in Geotechnics, Paris, France, 2.-6.9.2013, (4): 3463-3466, Presses des Ponts.

 $^{{\}color{blue}1} \ \underline{\text{https://www.gov.uk/government/organisations/higher-education-funding-council-for-england}}$

Davison, L. (1993). Pedagogical criteria. Internal Discussion Paper, GeotechniCAL Consortium, University of West of England.
 Davison, L. (1995). GeotechniCAL style guide. Internal Discussion Paper, GeotechniCAL Consortium, University of West of England.
 Jaksa, M. B., James, P. R., Davison L. R. & Toll, D. G. (2000). Computer Aided Learning In Geoengineering Education: Current Resources And Future Trends. ISRM International Symposium, Melbourne, Australia. Paper Number: ISRM-IS-2000-224

Sharma, J. S., Springman, S. M. & Davison, L. R. (2001). An Internet-based Multi-threaded Approach to Computer-aided Learning in Civil Engineering 7th International NETTIES Conference. 3rd International Conference on New Learning Technologies. Pp. 7.2.1-7.2.8. Springman, S.M. Herzog, R. & Seward, L. (2013). Over a decade of experience with computer aided learning in geotechnical engineering.

Introduction

In 2001, the then-president of Pennsylvania State University ("PennState"), Graham Spanier, called the convergence of online and resident instruction "the single-greatest unrecognized trend in higher education" (Young, 2002). Arguably, for wide segments of higher education, this trend remained unrecognized until two decades later, when a virus forced faculty and administrators alike to abandon the notion of solely relying on the centuries-old practice of resident, face-to-face instruction. Within days, the pendulum swung the opposite way: suddenly everything was online (Fig. 1). Today, after almost a year of primarily teaching online, hardly anybody seriously expects the pendulum to swing all the way back to the other extreme, once the pandemic is over – almost invariably, we will end up with a blend of online and resident instruction.

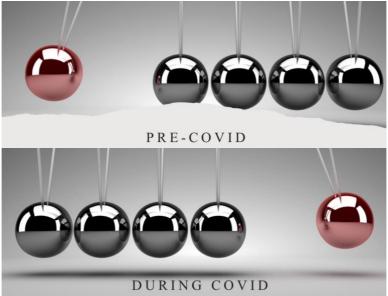
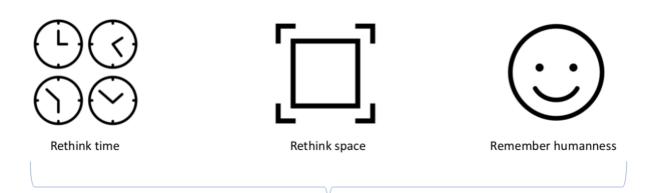


Fig. 1: J. Sparrow

But two decades ago, the vision was not just one of some random "blend," the term used was "convergence," a coming-together of the two forms of instruction. While the pendulum is still at its extreme online position, we need to start rethinking where we want it to find its new equilibrium. This is why the webinar "Rethinking Higher Education: Blended Learning" is timely and expedient right now, while we are still in the middle of the pandemic.



Only then do we talk about tech Fig. 2: K. Brown

A common threat of the presentations and discussions was that we need to rethink time and space of instruction. But we were also reminded of remembering humanness (Fig. 2). Only then is it time to think about technology – one could even hazard to claim that maybe Blended Learning remained an "unrecognized trend" for two decades because in 2001, it was actually web technology that was the "single-greatest trend," not yet its thoughtful application in instruction.

Rethinking and Remembering

Rethinking *when* (time), *where* (space), and *with whom* (humanness) we learn will determine *how* we learn and enable *what* we learn (Fig. 3).



Fig. 3: A. Pellert

Implementation of Blended Learning, not merely driven by technology (like in 2001) or emergencies (like in 2021), involves thoughtfully overcoming structural challenges, not merely switching media.

Rethinking time

Traditional, lecture-based instruction is synchronous: learners and instructors meet at the same time – the event happens "live." When the emergency hit, for much of university instruction, not much changed when these lectures were forced online: only the venue changed, but technologies like Zoom are used to transmit the same synchronous event. However, another element stole in through the backdoor: learners asked for these lectures to be recorded and made available, so they could asynchronously watch them (again or for the first time) later, essentially turning the video stream into a podcast.

Fig. 4 shows different modes of instruction, some inherently synchronous, some asynchronous, and some media that can be used either way: scripts or online materials can be read alongside a lecture, ahead or afterwards; video materials can be watched live or recorded. In any case, the portfolio of available techniques and technologies is much more substantial than just Zoom-lectures.

It is not the question whether synchronous or asynchronous is better, but which mode of instruction is better for which instructional scenario and for whom, and sometimes compromises may have to be made: an exercise session is probably best handled in an interactive, synchronous fashion, but life-long learners or those with limited internet bandwidth would still benefit from an asynchronous podcast of the session – here, asynchronous media allow them to organize learning within their busy lives.



Fig. 4: A. Pellert

True convergence of resident and online is reached when both media are synergetic. One such model is the Flipped Classroom (e.g., Bishop and Verleger, 2013), which is a particular flavor of Blended Learning: knowledge-transfer in the form of online materials, scripts, and podcasts is achieved asynchronously *before* the synchronous component of each teaching cycle, where interactive discussions, exercises, projects, formative assessment and other methods of activation are deployed. Students need to come to class prepared, where the asynchronously gained knowledge is anchored, integrated, contextualized, applied, and critically evaluated using synchronous activating techniques.

Rethinking space

Coming together at the same time in the same space was a luxury we rarely appreciated before it became impossible. We are missing seeing each other in person, but mostly we are missing the opportunity to interact and dynamically collaborate with each other. Having a campus provided a cognitive structure, and it provided a chance for spontaneous encounters, while now the institution became almost invisible.

Some institutions like PennState already had a head-start when it came to Blended Learning, since being a distributed campus with locations all over the state, the question of how to give equal experiences to all of those students, particularly in courses shared among the locations, drove the need for rethinking space. When the crisis hit, the situation created new case studies: active learning techniques like peer-discussions had to be extended across not just distributed lecture halls, but into students' homes, possibly half a world away – as it turns out, breakout groups might even work better than attempting this in a large lecture hall, and more faculty are adopting this new pedagogy.

Maybe the era of large lecture halls has passed, and some institutions already dropped their plans to renovate large lecture halls; the type of frontal, one-way teaching happening in these venues may as well be carried out online independent of time and space. Instead, the trend to create learning spaces on campus which truly take advantage of the unique and valuable affordances of face-to-face instruction gained new momentum, and institutions are constructing whole new studio, project, and laboratory

buildings. Large lecture halls can also be transformed into active learning spaces by taking out seats and having more flexible, movable furniture.

Right now, students are mostly learning at home, but eventually, they may again do so in coffee shops public transportation, during breaks at their work place, or in nooks and crannies on campus – *anywhere*. In all of this, we should not forget that "anywhere" may not be the same for all everybody, and that our demand for learning anywhere may amplify socio-economic discrepancies. Personal and professional space collapse, which can be charming if the cat jumps on the keyboard, but also disconcerting. Some students may have quiet rooms with large desks, high-speed internet, fast computers, and large screens, while others share rooms with siblings or roommates, have outdated hardware, and use their smartphone as a hotspot to somehow attempt to follow streaming high-resolution video over 3G cellular networks with limited data volumes. Universities need to provide workspace or assistance with infrastructure for these students (for example through loaner programs, like PennState does), so the desired synergy between resident and online education does not end up being a drain of energy for these learners. The same is true for student teaching assistants, who might have to teach from inadequate locations with inadequate equipment.

Remembering humanness

Blended Learning does not mean automated, disembodied or robotic learning. Humans are not machines, and human learning is very different from Machine Learning. Tools like those in Fig. 4 are media, which mediate between humans: instructors and learners, as well as learners and learners.

Also, learning is hard work. Particularly in online settings, a common observation is that motivation suffers. Offering asynchronous resources can enable organization and self-directedness, but also procrastination. Collaboration, networking and peer-support are essential to supporting learners and learning, and besides offering virtual venues for human interaction, the opportunities offered by the resident components of Blended Learning should be taken advantage of (instead of, for example, offering hours of frontal lectures during face-to-face times). Increasing motivation can also arise from increased personalization, particularly towards interest-led curricular variations and pathways through the materials.

PennState's faculty development curriculum puts a large emphasis on these human aspects of learning (Fig. 5, which is a module in its larger curriculum discussed later); how can I foster learner engagement, and how can I foster emotional well-being of the students?

Design Student-Centered Learning Activities and Engagement In this module you will explore strategies for engaging your students both face-to-face and online and how to develop rich synchronous and asynchronous learning experiences. You will add plans for activities to your course blueprint and have the opportunity to explore tools to support learning activities in the blended classroom. • Engage Learners in the Blended Course • Promoting a Social Presence and Emotional Well-Being

Fig. 5: J. Sparrow, based on the PennState BlendLT Learning Path (2021); see also Fig. 9.

Humanness includes to the need to socialize and spend time with peers, to have a sense of belonging; however, that may depend on the individual: a typical college-age student might have a higher need to socialize than an older business professional who just came for the content – also here, Blended Learning can offer an opportunity to individualize the educational experience according a person's needs for emotional well-being.

Humanness includes that both instructors and learners have limited time and energy: the technical possibility that we can teach and learn anytime (independent of time) and anywhere (independent of space) does not mean that we humanly can. Particularly during the onset of the crisis, faculty felt overwhelmed by "hybrid" scenarios teaching with equal quality face-to-face and online (e.g., Fig. 6); some institutions stepped up by providing increased technology support, including, like PennState, TechTAs that are helping out in managing the Zoom sessions.



Fig. 6: Tweet by Prof. Alexandra Finley, University of Pittsburgh

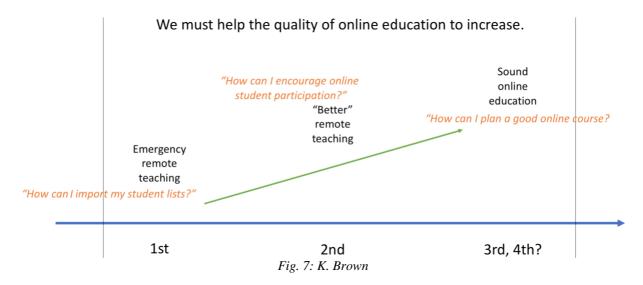
Research shows that faculty are investing more time into teaching in online venues, and that this time infringes on their personal rather than their research time. Some students are online all the time, and there are students who expect faculty to do the same. There is, though, some unexpected help from the students, as they organize themselves online and open chatrooms and forums to answer each other's questions and teach each other. Here, faculty may gain a new perspective on their own roles in teaching, namely as the expert rather than the person who answers all the questions.

Later during the crisis, learners pointed out that they are drowning in materials, as faculty, enabled by technology, find it too easy to assign more and more materials. Faculty need to be aware of the cognitive load, and that time is a finite resource.

... and then thinking about technology

Asking better questions

As online teaching moved from "emergency mode" to more established forms, a common observation has been that the quality of the questions that faculty ask of support staff and educational developers substantially changed (Fig. 7).



Initially, questions dealt with technical aspects of the tools, for example, how to import class lists and establish breakout rooms in Zoom. As those hurdles were overcome, questions moved on to how to improve the teaching, for example how to encourage participation. During the third semester, as online teaching became more and more mainstream, faculty started asking how to plan and design their future courses, i.e., only then did form (utilized technology) really follow function (didactic scenario).

Several of these 3rd-generation questions just come back to old questions: what is good teaching? Just because the media changed does not mean that we are facing a whole new scholarship of teaching and learning. However, the disruption in media can mean that some of these questions are finally being asked by university faculty, while before, the topic of teaching rarely came up in day-to-day conversation of faculty. The crisis created a new openness to discuss old questions, which also became apparent in increased attendance at faculty teaching dialogue events like Refresh Teaching at ETH Zurich. Similar observations were made in PennState's BlendLT, where faculty across disciplines suddenly started comparing and contrasting what works for them.

Form follows function

Digitization for the sake of digitization is not the goal:

Digitalization so far (...) has led only to few disruptive innovations or major strategic changes in education and its transfer, and has so far been thought of too little from the perspective of the actual users (...). Digital media should not be used for their own sake, but in order to meet concrete educational requirements.

Bils, Brand & Pellert, 2019 (translated from German)

To decide which technologies and techniques to use, an assessment of the proposed course's "blueprint" is useful (Fig. 8). Some educational choices are discrete, others continuous ("sliders"). One has to start thinking about the balances between individualized and collaborative learning, and one needs to carefully consider the role of the instructor and the student – what is the engagement strategy, how is feedback given to the instructor, peers, and the learner? We should not presume that we know what's best for instructors, instead we should empower them to make the didactical choices that are right for them and their discipline.

Blended course blueprint About the students About the course Instructor(s) ratio, department, learning objectives Modality Engagement strategy (one only) Blended Fully online Asynchronous Synchronous O Between students and students O Between students and content O Between students and instructors Role of instructors Independent Active Passive (mastery-(fixed-pace) Didactic concept Students' role Feedback **Assessments** ☐ Input-based (expository) ☐ Listen, read and take notes ☐ Self-reflection with criteria ☐ Feedback ☐ Practice-based (exercises) ☐ Complete exercises, answer questions Peers ☐ Unlocks new content ☐ Collaborative (group work) ☐ Collaborate, work in groups Instructors ☐ Graded performance ☐ Experimental (simulations) ☐ Complete experiments (explore simulations) ☐ Automatic (quizzes, code) ☐ Bonus

Fig. 8: K. Brown, prototype based on Means, Bakia & Murphy (2014)

Based on such considerations, courses can be completely redesigned. Pennsylvania State University Teaching and Learning with Technology developed the BlendLT curriculum (PennState, 2021) as a series of faculty engagement opportunities to foster the Blended Learning transformation of courses (Fig. 9). Addressed are:

- Pedagogical knowledge: how does Blended Learning impact my particular teaching discipline in my domain, what are the potential benefits? What are the new affordances for face-to-face time, now that I have taken some of the lecture out of the time that we get to spend together? What kind of assessment of learning can I offer to the students?
- Technical skills: what are the technologies that I need in order to support my pedagogy?
- Research component: how do I know this works?

The course is based in part on Kathryn E. Linder's *The Blended Course Design Workbook* (Linder, 2016). The course designers wanted to make sure that they would be ready to "eat their own dog food," so the course itself is carried out as a Blended Learning experience.

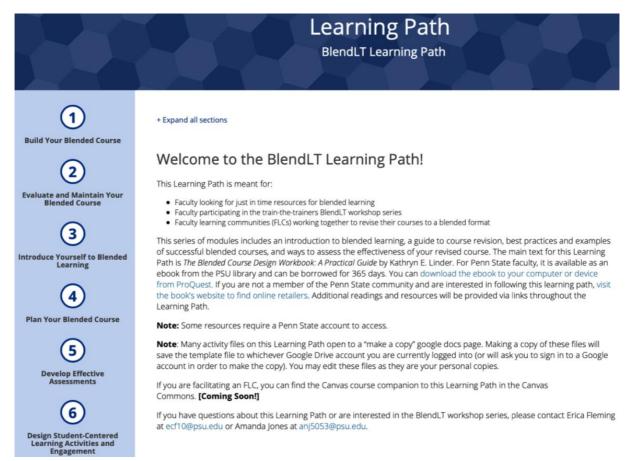


Fig. 9: J. Sparrow, based on the PennState BlendLT Learning Path (2021)

Fig. 10 shows a corresponding course at ETH Zurich, which follows an asynchronous "choose your own adventure" philosophy by making available or hiding modules according to participants' individual interest. In Blended Learning fashion, also this course is accompanied by synchronous workshops.



Fig. 10: K. Brown

Evaluation and quality control

Evaluation of blended courses should not be an afterthought, as PennState's faculty development curriculum underlines (Fig. 11). Given the large investment of time and effort to construct such a course, evaluation should begin even before the course is launched, where adherence to emerging standards should be assessed (e.g., UCF, 2021), and it should be continued by careful attention to student evaluations and feedback (e.g., LeHigh, 2021). This includes accessibility for students with disabilities, where electronic course materials provide both opportunities and challenges. A course is a living, evolving entity, and the continuing role of faculty in maintaining and developing a course cannot be overemphasized.

In this module you will complete your final check before launch and learn how to leverage feedback to improve and maintain your course on an ongoing basis. • Evaluating Before Launch • Maintaining and Improving Your Course Semester to Semester

Fig. 11: J. Sparrow, based on the PennState BlendLT Learning Path (2021)

An essential component of innovation in university teaching should be the gathering of evidence regarding its effectiveness. The rigorous application of sound scientific practice and data-based decision making is very much at the heart of universities – except, all too often, in the area of teaching, where gut-feelings and traditions sometimes replace actual data. Switching modes of teaching and breaking centuries-old traditions offer opportunities for the establishment of evidence-based teaching practices. The ETH course includes a mandatory reflection task, in which participants need to report what worked for them and how; responses in turn provide a "birds-eye" view for educational developers on actual teaching practice. In addition, faculty interviews are conducted on how teaching choices are being made, how faculty used to teach, how they teach now, and what choices they will make for the future *and why*.

It was emphasized that simply going back to the "old way" of higher education will not result in *increased* quality of education, which is something we expect from Blended Learning. Institutions now need to take the time to reflect why the transition to online teaching seems to have been so successful, under the circumstances, and fundamentally consider the question of quality of teaching in this new light.

During the discussion, it was pointed out that blended and online offerings will increasingly need to be considered in the institutions' accreditation processes; the accreditation criteria need to be adjusted and aligned, and the standards and metrics for the "new normal" of higher education will need to be established and communicated by the respective accreditation bodies. Also, legal frameworks regarding teaching loads and examination requirements have not caught up with the "new normal."

Thinking ahead

We are moving past the emergency: better questions are being asked (Fig. 8), and courses are being developed as Blended Learning experience from the ground up (Figs. 9 and 10). Thinking even further ahead into the future, where should higher education move in the globalized information age?

There are clear curricular mandates: any curriculum needs to encompass basic competencies with regard to digital literacy and data literacy – computational and cross-disciplinary competencies need to be an integral part of any digitization strategy. However, the notion that humans finish a degree program (even one that incorporates these 21st-century competencies) and then are "set for life" as far as their education goes is a thing of the past. Today, graduates need to compete in a global environment, whole industry segments vanish while others emerge, and fast-moving fields in engineering and natural sciences truly demand life-long learning. Blended Learning could make continuing higher education more accessible.

Yet, at the same time, there are still strong discrepancies and frankly injustices in the access to higher education, be they regional, political, plain discriminatory, or socio-economical. Blended learning could, in principle, level the playing field.

FernUniversität in Hagen facilitated the development of a set of 12 theses as part of the Hagen New Learning Manifesto (Fig. 11), which were presented at our webinar². These describe one approach to making learning accessible, individualized, flexible, and relevant; independent of time and space, yet remembering the humanness of the learners by putting them into the center and in control of their own learning.

Overcoming the boundaries between institutions enables life-long learning, as students might initially finish a comprehensive degree at one institution, but then attend small, targeted modules at other institutions. There is also the idea of a new kind of internationalization, alas without the benefit of cultural immersion. There will be questions about the value of "mobility without mobility."

Overcoming boundaries also enables being open to each other's content, exchanging content. Seeing how hard it is to produce high-quality multimedia content, the idea of sharing digital content among institutions holds promise for collaborative advancement. Learning becomes networked, not just in the technical sense.

- 1. New Learning means lifelong education.
- 2. New Learning promotes equal opportunities.
- 3. New Learning puts learners at the center.
- 4. New Learning rethinks the roles of teachers and learners.
- 5. New Learning means networked learning.
- 6. New Learning makes flexible and self-directed learning possible.
- 7. New Learning measures learning success by individual goals.
- 8. New Learning sees technology as an opportunity without ignoring risks.
- 9. New Learning increases digital (media) competencies and data literacy.
- 10. New Learning guarantees privacy and data protection and prevents digital discrimination.
- 11. New Learning overcomes boundaries between educational institutions.
- 12. New Learning requires new, collaborative educational policy.



Fig. 11: A. Pellert,

based on FernUniversität in Hagen, Rethinking Learning: The Hagen New Learning Manifesto (2021)

13

 $^{^{2}\} Participants\ can\ lend\ their\ support\ to\ this\ manifesto\ at\ \underline{https://www.fernuni-hagen.de/form/universitaet/hagener-manifest.shtml}$

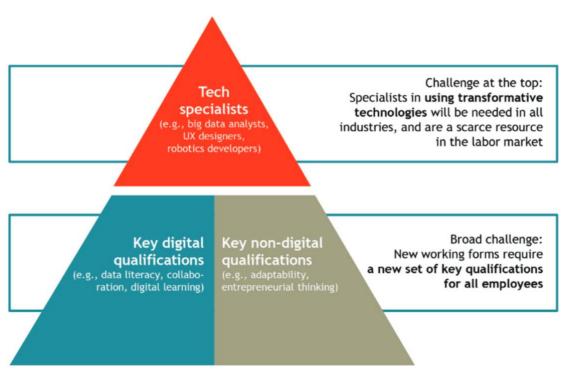


Fig. 12: A. Pellert. Source: Stifterverband and McKinsey (Kirchherr et al., 2018)

Last but not least, when rethinking higher education, we need to consider the slowly but steadily changing perceived role of higher education in society. While for centuries, higher education emphasized the value of "education for education's sake" (sometimes earning itself the questionable reputation of "ivory tower"), we increasingly find ourselves confronted with demands for preparing students and graduates to compete in a global economy by conveying digital, "soft," and tech *skills* (Fig. 12). In a global educational market, which increasingly offers non-traditional, just-in-time skills training, brokers networking opportunities, and provides asynchronous certification and degree opportunities, while at the same time not necessarily adhering to the same professional, scientific, critical thinking, and integrity standards of traditional institutions of higher education, we have an increased responsibility toward our learners to offer well-rounded, high-quality, and relevant *education*. Blended learning is one of the instruments to gain more flexibility when dealing with these expectations, tensions, and apparent conflicts.

Conclusion

The webinar brought together leaders from a wide spectrum of institutions with respect to geography, size, and institutional focus, yet the immediate challenges of the pandemic and the continuing challenges of adapting to new learning paradigms are universal.

University administrators have the responsibility of enabling faculty to thoughtfully implement evidence-based innovations and already-proven good practices in their Blended Learning endeavors, where technological form follows didactic function. Thus, this includes more than making available technical resources and support personnel, but also fostering an institution-wide learning culture, providing professional development opportunities, and strategically recruiting young faculty with a dedication to teaching into stable tenure-track positions that allow them to build and improve their courses through several iterations of evaluations, maintenance and evidence-gathering.

Faculty autonomy in designing their courses will remain important, even in times of structural changes at the institutional level. University administrators play a crucial role in adapting their institution to the landscape of "New Learning" in what will have been the largest disruption in higher education since 1088.

References:

Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. In *ASEE national conference proceedings, Atlanta, GA* (Vol. 30, No. 9, pp. 1–18).

Bils, A., Brand, H., & Pellert, A. (2019). Hochschule(n) im digitalen Wandel. Aus Politik und Zeitgeschichte, 27-28, 42.

FernUniversität in Hagen (2021). Rethinking Learning: The Hagen New Learning Manifesto, https://www.fernuni-hagen.de/english/university/manifesto-text.shtml (retrieved January 2021).

Kirchherr, J., Klier, J., Lehmann-Brauns, C., & Winde, M. (2018). Stifterverband für die Deutsche Wissenschaft e.V. and McKinsey & Company. Future Skills – Discussion paper 1: Which Skills are Lacking in Germany. https://www.future-skills.net/which-skills-are-lacking-in-germany (retrieved February 2021).

LeHigh (2021). Making sense of student evaluations. https://cas.lehigh.edu/content/making-sense-student-evaluations (retrieved January 2021).

Linder, K. E. (2016). The blended course design workbook: A practical guide. Stylus Publishing, LLC.

Means, B., Bakia, M., & Murphy, R. (2014). Learning online: What research tells us about whether, when and how. Routledge.

PennState Teaching and Learning with Technology (2021). BlendLT, https://tlt.psu.edu/blendlt/; https://tlt.psu.edu/blendlt/; https://tlt.psu.edu/blendlt/; https://tlt.psu.edu/blendlt/; https://tlt.psu.edu/blendlt/; https://tlt.psu.edu/blendlt-learning-path/blendlt-learni

UCF BlendKit (2021). Quality Assurance in Blended Learning, https://blended.online.ucf.edu/blendkit-course-blendkit-reader-chapter-5/ (retrieved January 2021).

Young, J. R. (2002). Hybrid Teaching Seeks To End The Divide Between Traditional And Online Instruction. The Chronicles Of Higher Education, A33. 19.05. 2015.