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THE SILVER LINING FOR LEARNING WEBCASTS AS A BOTTOM-UP DRIVER OF GLOBAL EDUCATIONAL INNOVATION

Silver lining for learning (SlI: silverliningforlearning.org) is an unfunded, unsponsored, bottom-up initiative that emerged as a direct result of the pandemic. The authors are part of a team that co-founded this series of weekly webcasts (starting mid-March 2020), with close to 100 episodes as of March 2022. As the website describes, SlI «is an ongoing conversation on the future of learning» with innovative educators and education leaders from across the globe. The demands of 21st century work, citizenship, and life require a transformation of instruction to foster a very different set of knowledge, skills, and dispositions than those mandated by current national and regional educational governance systems focused on outdated educational goals and methods. This article describes representative SlI episodes and highlights the grassroots innovations that have been featured in them. The episodes on SlI have highlighted bottom-up models for transformative innovation that complement top-down initiatives for incremental educational improvement in industrial-era schooling. Regional, national, and global policies and reports have some value, but their recommendations lack detail about specific models for educational transformation in which participants experience ownership, cultural relevance, and contextual alignment. These bottom-up cases of innovation have been selected to illustrate educational transformation, particularly those involving digital forms of learning, design, and technology. Sections in this article on Student autonomy and Self-determination, Communities of learners, and Educational creativity and Innovation highlight a range of perspectives on innovation from the co-hosts. The creative tensions among these perspectives drive rich dialogues that help to make the show evocative for new models and methods. SlI demonstrates that, with almost no resources, locally led but globally motivated innovations can be recognized, celebrated, and shared across the world.

KEYWORDS *Innovation, Technological Change, Education, Policy.*

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1. Introduction

Across the world, governance of digital technologies in K-12 education has historically been driven by top-down decision making via federal or regional agencies. Over the past few decades, these agencies have attempted to foster certain kinds of digital learning, typically those consistent with prior historically defined pedagogical norms and formats. These initiatives, for the most part, have focused on providing digital devices, tools, and curricula, with the goal of improving access to opportunities for learning. This emphasis on access, framed within existing educational norms, have often led to significant investments, such as supplying tablet or laptop devices for classroom use. On the other hand, these same agencies have attempted to suppress forms of digital learning that go against existing paradigms of schooling. Examples of such suppressive approaches include policies that impose blanket bans on cellphone usage in schools, even when the proposed activities are educational in nature, and these devices are ubiquitous and may be the predominant digital infrastructure in that region.

This has changed in recent years, mainly based on insights gained from failed implementations. Thus, global non-profits, such as the Oecd, the World bank, and Unesco, have urged more effective usage of learning technologies and have advocated for better enlightened policies. They emphasize the importance of strategic plans that mandate and fund investments beyond technology infrastructure (e.g., investing in teacher professional development to use digital learning technologies effectively). Even these initiatives, however, are often framed in ways that reinforce approaches to schooling that were adopted a century ago. This means technological innovations that challenge pervasive norms of presentational instruction, psychometric high-stakes summative tests, and curricula centered on industrial-era economies, are often suppressed. Essentially this model of educational improvement is based on «command and control» approaches that reflect top-down preservation of past educational models: the teacher controls the students; the headmaster controls the teachers; and the district, state, and federal governments regulate the schools and the technologies they are able to use.

This emphasis on outdated and ineffective instructional models is disappointing particularly given our current knowledge about learning and its embodiment in the mind and brain, as documented in reports such as *How people learn II: learners, context, and culture* (National academies of science, engineering, and medicine 2018). While publicly funded colleges and universities have somewhat more autonomy than K-12 educational systems, the overall industrial-era model of teaching and learning is still pervasive at all levels of

learning, with digital technology used primarily to automate instruction as an attempt to increase efficiency rather than to focus on the needs of the learner.

The Covid-19 pandemic and the closure of schools abruptly rendered moot many of these discussions about the value and role of digital technologies in education. Governance mechanisms, that had stayed static for decades, were forced to implement massive change in policies to address this new challenge. The scale and rapidity of this change was stunning. In a mere 45 days starting in mid-February 2020, schools in over 180 countries shut their doors, affecting the education of 1.5 billion learners (United Nations 2020). In many cases where face-to-face interaction was not possible, the world had become part of a forced educational experiment, as the pandemic prompted tactical decision making and policy setting by governance agencies to enable a pivot to remote learning. The Covid-19 pandemic has pushed the use of technologies for online learning to the forefront.

This shift is important and needed for reasons beyond the pandemic. As described in *The 60 year curriculum: new models of lifelong learning in the global digital economy* (Dede and Richards 2020), the demands of 21st century work, citizenship, and life require a transformation of instruction to foster a very different set of knowledge, skills, and dispositions than those mandated by current national and regional educational governance systems. It is clear that digital learning technologies ought to be used not to automate industrial-era teaching and learning, but instead to innovate, to develop new models of learning with technology that are based on our current knowledge-base about effective learning. It is essential that we develop bottom-up, student-centered, transformational initiatives and systems, rather than continue to rely on dysfunctional top-down governance based on outdated educational goals and methods. Achieving such a shift involves incorporating innovative approaches that creatively use digital technologies to enable next-generation teaching, approaches that are consistent with our current knowledge about the mind and brain and are directed towards preparing students for work, citizenship, and life in the 21st century.

This shift in goals, emphasis, and practices are not system-wide, nor are they necessarily systematic. What is clear, however, is that the pandemic and the shockwaves it sent through the educational systems globally, combined with this new view of learning and education, have provided opportunities to rethink, reimagine, and redesign educational systems that diverge from the «business as usual» model of learning we have all become accustomed to. It can be seen as a golden opportunity to question assumptions, design alternative approaches, and test them in the real world. And, just as importantly, it needs ways of sharing with the wider world the success (and failures) of these

initiatives, to spread the word, as it were with the broader educational community.

It is in this context that we describe one such initiative, Silver lining for learning (Sll: silverliningforlearning.org), that emerged as a direct result of the pandemic. The authors are part of a team that co-founded this series of weekly webcasts (starting mid-March 2020), with close to 100 episodes as of March 2022. As the website describes, Sll «is an ongoing conversation on the future of learning» with innovative educators and education leaders from across the globe. These conversations began under the «dark cloud» of the Covid-19 crisis and continue today – providing a «space to discuss the creation of equitable, humanistic and sustainable learning ecosystems that meet the needs of all learners». The format of Sll was designed as webinars because research shows webinars are positively associated with gains in knowledge and skills and are slightly more effective than online asynchronous learning management systems and offline face-to-face classroom instruction (Gegenfurtner *et al.* 2019). Countries such as India are considering webinars as a valuable complement to conventional instruction (Gupta *et al.* 2021).

Essentially Sll is a weekly one-hour show which is broadcast live on YouTube and then archived on the Sll website (silverliningforlearning.org). Each episode is typically designed and produced by four co-hosts, who are professors with deep interest and expertise in education broadly and learning technologies in particular. The guests are students, teachers, school administrators, researchers, and education entrepreneurs who have initiated and advocated for significant innovations in education. Typically, shows are forward looking (and sometimes controversial) with the purpose to bring together educational thought leaders, entrepreneurs, and innovators around the world and inspire new educational models and innovations. Each episode, thus, can be seen as a multimedia case about transformative educational innovations occurring across the world; many of these cases were enabled by the disruption the pandemic has created in compliance mechanisms and top-down governance. The design of Sll episodes is consistent with research on the design of effective webinars (Gegenfurtner *et al.* 2020), such as the importance of flexibility of access, being shorter than 90 minutes, etc.

So far, Sll has touched on a broad range of topics including student autonomy, remote learning, novel learning organizations, pioneering curricula and programs, innovative ways of teaching, fresh views and perspectives on educational environments, new approaches to education policy and philanthropy, the latest advancements in educational assessments, and groundbreaking pedagogical and technological inventions. The innovations that the guests have shared are inspiring; many started as grassroots efforts, initiated by

individuals with the passion and desire to transform education. These individuals, and the organizations in which they operate, did not necessarily respond to government incentives or policies, but instead followed their passions and commitments towards making learning accessible to all, and through that to make a difference in education and society. Often lacking top-down direction or resources, they took action and persisted, creating educational experiences or programs that offer learning experiences well suited to the challenges and opportunities of the emerging global digital economy and civilization.

The guests on Sll have come from all over the world – from highly impoverished settings in Africa and Asia, where resources for education can be extremely limited, to contexts that are significantly better off, such as well – resourced educational organizations in the United States and the United Kingdom. Without requiring a common show structure, the guests each week typically reflect on what the state of education was prior to their initiative(s) and then highlight the inroads made through various exciting projects and programs to transform the learning experiences. Discussions often focus on whether the initiative's model is sustainable and scalable (Dearing *et al.* 2015).

As we look across close to two years of episodes, we find that – despite differences in educational resources, opportunities, and accessibility and overall wealth – innovators have a number of common characteristics: passion, vision, persistence, purpose, and a deep commitment to making education better. Most important, every show offers hope and models for a better tomorrow, whether those tomorrows are in Italy, Indonesia, India, the Philippines, Bhutan, Canada, Argentina, Australia, Korea, Israel, Malaysia, Nepal, Costa Rica, or Thailand or from the myriad other places featured in Sll. Moreover, it is the collective of all these episodes, their diversity and richness, that provide an extensive archive of the kinds of innovations occurring across the world, and in that process provide models and prototypes for others to build on.

The remainder of this article describes representative Sll episodes and highlights the grassroots innovations that have been featured in Sll. As a complement to top-down regulation, these bottom-up cases of innovation are selected to illustrate educational transformation involving digital forms of learning, design, and technology. Sections on Student autonomy and Self-determination, Communities of learners, and Educational creativity and Innovation highlight various perspectives on innovation from the co-hosts; the creative tensions among these perspectives drive rich dialogues that help to make the show evocative for new models and methods.

2. Student autonomy and self-determination

One of the innovations we have seen during the pandemic is granting students more opportunities for autonomy and self-determination (Wehmeyer and Zhao 2020; Zhao 2018). Instead of operating remote learning following the traditional timetable, many schools began to explore new ways of teaching. One approach is to enable students to make decisions about their own learning, to allow students to define their learning outcomes, and to make it possible for students to exercise their right to self-determination, which means that students take responsibility for their learning. This required schools to be less focused on covering the curriculum, less concerned about keeping to prescribed times of learning, and less preoccupied by the immediate results of standardized learning.

Sll has featured a number of episodes that highlight how students experienced more choice and voice in their own learning. Episode 15, for example, showcased students from three countries: Australia, China, and the Usa. Shen Shuowen and Guo Xingyan were 12th graders from the Dalton academy at the Affiliated school of Peking University, Beijing, China. Ivanni Jamin was a 12th grader from Hawaii Preparatory academy in Kameula, Hawaii, Usa. And Paranjay Jadhav and Ellie Sifis were two students from Lindfield learning village in Sydney, Australia.

Although coming from different cultures and backgrounds, all students experienced the freedom to choose what they wanted to do. For instance, students in the Dalton academy in Beijing, were asked to work on projects that mattered to them. The students engaged in writing, communicating globally, and supporting each other; they developed projects and books. In Linfield learning village, students were given the opportunities to decide what courses they wanted to take and what projects they were interested in doing. Similarly, students in the Hawaii Preparatory academy were asked to work on authentic projects that were of value to them.

All these students spoke highly of their experiences and showed great pride in their products. They were happy that they could decide on what they did and that teachers were very proud of their work, providing not only emotional support but also material resources and substantive feedback. When asked about their peers' experiences, these students were also highly appreciative, commenting on how the experiences helped all students develop a sense of ownership of their learning as well as authenticity within their learning. That said, one student also commented how difficult it was for some students to be making their own decisions in the process and also noted that the school did not provide broad, unlimited choices for them.

Episode 33 again had students sharing their experiences engaged in autonomous learning and self-determination. This episode had two adults, Baman Kumar Ghimire, Motherland secondary school and Bishwa Raj Gautam, Program specialist, Regional english language office (Relo) in U.S. Embassy in Nepal (Ghimire and Gautam 2020). They brought a number of students with them. Their innovation is simple: introducing students to English Massively open online courses (Moocs) and support their learning from Moocs (Zhang *et al.* 2020).

This episode is quite amazing considering where the students are located: Nepal, a small country in the high mountains in South Asia. The country is largely isolated physically from the outside world, and its economic situation is considered to be poor compared to the Western developed countries. But the students, amazingly, have been studying English from Moocs developed in Western countries (Ghimire and Gautam 2020; Zhang *et al.* 2020). Further, while their learning started with English from Moocs but did not stop there; they discovered a plethora of other interesting topics and soon began to take more courses. The students have studied Greek and Roman mythology, Dinosaur paleobiology, Egyptology, Ecosystems dynamics and conservation, Learning to code for web, New models of business in society, The science of well being, and numerous other courses that interested them. One student, in particular, took over 100 Moocs during the pandemic, while many others took dozens of courses. Clearly, they took advantage of the free and open resources that were available to them.

The students took conventional courses from their school and Moocs out of their own free time. They were given certificates of completion, which they could show their parents that they were actually learning when they spent time on a computer. Parents in Nepal were admittedly apprehensive about what their teenage children would be doing online when stuck at home during peak pandemic times. Many assumed that they would be playing games. When they witnessed something previously unheard of, a certificate of English language learning from Harvard University for their son or daughter, they become extremely proud and supportive. Some even found ways to fund internet access at home and get an additional computer for their children, so that they would not have to share as often and could complete more courses.

What is perhaps underappreciated and undervalued is the community of teenage learners who were sharing their Mooc enrollments, progress, tips and suggestions, and successes with each other. Typically, they employed social media like Facebook to announce their most recent course completions and challenges. Some even listed the difficult courses that they had completed (such as in computer science and engineering courses from Mit, the University

of Michigan, or Stanford University) on their college application forms. In one case, completing such types of Moocs as a teenager directly resulted in admission to a university in the United States.

In reflection, it is obvious that a passionate teacher like Baman Kumar Ghimire was a key factor in creating the enthusiasm for Moocs and Mooc completion, as well as the extensive sharing of new Mooc opportunities that led to a true community of learners located across a number of secondary schools in Nepal. The big question now is whether such a community of inspired Mooc learners can be replicated in low resource communities in other countries and regions of the world, including the United States and other developed countries.

Moocs have been in existence for over a decade and have attracted a huge number of users (Bonk *et al.* 2015). Their purpose was certainly not to serve as English learning materials for non-English speakers; however, these students in Nepal were using them for English language learning. More important, these students innovatively expanded their activities beyond language learning as they became interested in the content of the courses. Moreover, it is out of their choice that they opted to take the Moocs. In follow up research interviews with about a dozen of these teenage Mooc learners, it is clear that they have refined views on what self-directed learning is and how they can benefit from it (Kadirova *et al.* 2021).

This creates a great new possibility for all students, in developing and developed education systems, to expand their learning opportunities. Further, online learning materials are not limited to Moocs; there are abundant YouTube videos and numerous online courses and materials. When students become owners of their learning and when they are exposed to and enabled to learn from these materials, students' learning is truly unlimited.

Not only are students taken advantage of technology and the opportunities to design their own learning, adults have been actively designing learning opportunities. In Episode 43 of Sll, we had Kiran Sethi and Aakash Sethi, two outstanding educators in India who have been designing new forms of learning that enable learners to take charge. Kiran Sethi is a social entrepreneur who started as a designer. She founded a school and served as its principal. She has been a strong advocate for student voice and, in 2009, Sethi launched *Design for change* to instill an I Can mindset in children. It asks children to select any problem that bothers them, imagine a way to make it better, do an act of change, and share their story of change with the world. It is today one of the world's largest movement of social change, led by children. Over 2.2 million children and 65,000 teachers in more than 60 countries have been influenced by this movement.

Aakash Sethi, also an entrepreneur, has worked extensively on training and facilitating youth leadership programs in over 10 countries. As Ceo of *Quest alliance*, he leads the non-profit to enable young people to learn on their own 21st Century skills. Quest integrates cultures, tools, and practices of self-learning in the Indian education and vocational training system to enable young people to experience and autonomy and take charge of their own learning and career pathways.

For Episode 35, we invited Michael Nachbar, Executive director of the *Global online academy* (Goa) and Emily McCarren, principal of the academy at Punahou School, a founding member of Goa. Another innovative organization that creates opportunities to support autonomy and self-determination, Goa is a consortium of schools from different parts of the world. It supports students and teachers from member schools to take and offer courses online. These courses often go outside typical school curriculum and can be taken by students in different schools from around the global. «Learning unbound» is the hallmark that characterizes Goa.

Goa essentially enables students from different parts of the world to take innovative courses together. This new approach first can be a challenge for students who are more used to taking on-campus courses with students and teachers they already know. To take these courses online with unknown learners and teachers, the students need to make their own decisions and develop new ways of learning. Goa also greatly expands the number of courses for students to choose from, which requires them to know their interests and make decisions about these courses. Furthermore, students taking courses from Goa are more likely to work with other students online, which requires skills in online collaboration and time management.

Sll has also had other episodes that involved teachers and students as guests. There is a strong movement towards supporting student autonomy and self-determination. As Covid-19 disrupted traditional educational practices, learning for many students had to go remote, and teachers had to adopt the new way of teaching. The pandemic also disrupted the traditional learning communities built on school campuses; as a result, students could find learning partners from beyond their schools. Students, through remote learning, also realized that they could learn on their own with teacher support remotely; this meant that teachers realized that they did not need instruct as much as before, but instead could serve as mentors and guides.

Across the world, although remote learning experiences had differing qualities for various students and teachers, the pandemic has created a rare opportunity to make students their own owners of learning. It would be a mistake for schools to simply to return to the same schooling as prior to the

pandemic. This is the time to reimagine education as a journey for students to experience autonomy and self-determination (Zhao 2020, 2021; Zhao and Watterston 2021).

3. Communities of learners

A review of more than 80 episodes of Sll (at the time of the writing of this article), each of which exhibits a project, initiative, method, program, resource, or tool that is attempting to foster change or transformation in education, reveals some emergent themes or patterns. These patterns are not clearly marked or labeled, as in prepackaged statements indicating just the right ingredients or components that work every time. Instead, there are tendencies mentioned and examples or individual cases of success that might be attempted and potentially replicated, at least to some degree.

With each show, the batch of ingredients comes into a clearer view: A pinch of flexibility and a couple of pinches of options. An ounce or two of feedback and other forms of support and guidance. Two scoops of relevancy and meaningfulness. Toss in a few grams of spontaneity and another two of informal and nontraditional learning. And be sure to include several doses of optimism, collegiality, and sharing, as well as willingness to accept several rounds of trial and error. Surround it all with high expectations and a few free and open learning incantations. Get the picture? Change in education to any degree is not easy, while transformative educational changes often exhaust all of the special potions and spells you have at your disposal.

While no recipe exists, let alone a recipe book, detailing the key ingredients of educational change, there are some principles or components that others could attempt that might set in motion the innovation process, be it large or small. Looking back at all the Sll shows, some programmatic features and methods tend to repeat. For instance, the use of inquiry-based learning where learners can build their expertise in an area and take ownership over their own learning seems to develop motivation and excitement in the learning process.

Opportunities and incentives for learner autonomy, as well as self-directedness of one's learning pursuits, undoubtedly underlie dozens of the environments we have visited during the past couple of years. Such learner-centered instruction was on display in Episode 8 on «Rethinking education with great questions» featuring the work of Paul Kim at Stanford and his Stanford mobile inquiry-based learning environment (Smile) project. Kim has spent nearly two decades designing ways to use technology to build literacy skills of young people, spanning the globe from blind children in India and the

Dominican Republic to the children of migrant workers in central America and Mexico to youth in under resourced schools in Rwanda, Tanzania, Thailand, and Palestine.

The Smile system helps children and adults generate and evaluate questions based on important events and course readings. Importantly, it operates on low-cost mobile devices. Using artificial intelligence programming, Kim recently enhanced the Smile platform (now Smile Ai) with many millions of questions in its database in order to enable the system to evaluate student questions according to five levels of increasing complexity. Smile Ai now can also generate questions at those same five levels, from basic-fact types of questions to those requiring analysis, evaluation, and synthesis skills. With that, the entire ethos of a K-12 or higher education classroom shifts from traditional teacher-centered instruction to a highly interactive learning ecosystem where students pose and analyze questions in competition and collaboration with classmates. Students gain literacy skills by asking and answering various questions on their mobile devices, and, in the process, acquire valuable skills for life. Learning is now fun, engaging, and rewarding, as well as a constant challenge when new questions or problems are posed.

Importantly, the Smile app is free to download and use. As such, Episode 8 is a prime example of participatory change; anyone who has access the Smile system can turn their classroom into a center for literacy, curiosity, and question asking adventure. To enhance the possibilities, Kim is now working on ways to get low-cost access to the internet through readily accessible devices.

In many Sll episodes, it is clear a sense of community drives the learning process while incentivizing the learners. It almost does not matter which episode is selected, one could pause the recording and analyze the situation to see the importance of developing a community (Bonk *et al.* 2004; Wenger 1998; Wenger *et al.* 2002). As Bonk *et al.* (2004) point out, while many scholars assume that nurturing online communities will enhance the learning experience, the research literature has yet to yield clearly defined paths toward the development of technology-enhanced communities, thereby making them difficult to describe and develop. Scholars note that, among the key principles of online learning communities, are having shared purposes, norms, and goals. Bonk *et al.* also emphasize shared spaces for generating, sharing, and negotiating ideas, as well as the importance of member influence and participation, nurturing a sense of identity with the community, team member collaboration, fostering a sense of autonomy as well as belongingness, trust and respect for members, a chance to fulfill personal needs, and embedding activities in real world events or settings.

When reviewing our over 80 episode list, some Sll shows allude to many of these principles in support of online communities and communities of practice. For instance, in Episode 81, Chaoran Wang and Jasmine Zhu discuss how a nonprofit organization in Shanghai called Project VolunOnline provides synchronous hybrid instruction to children in under-sourced Chinese village schools. A community of teachers has emerged in Project VolunOnline to provide volunteer instruction, in particular for English language learning.

Wang and Zhu describe how online spaces are used to provide innovative learning experiences for rural students. For many of these, one or both parents have moved to more urban areas within China to seek employment; thus, they are now living with a single parent or their grandparents. In this episode, Wang and Zhu introduce their experiences, challenges, struggles, and hopes of working with rural Chinese children and voluntary online teachers. Project VolunOnline personnel share a common belongness to a community that attempts to improve the lives of these rural children. They also display respect for others and a shared mission. Unfortunately, it was apparent during this episode that the model employed in this project to educate rural Chinese youth, while innovative and exciting, lacks sufficient scalability to impact large populations at an affordable cost-at least at this time.

Similarly, in Show 38, Cornell Professor Marianne Krasny and her colleagues have utilized massive open online courses (Moocs) to act as a springboard for local community sustainability and environmental education projects. Online sharing of course content to established online networks stimulates live face-to-face educational and participatory events. Learners across regions of the world join forces on a topic, often related to Stem education. With that, Moocs, which typically are quite passive in nature, transform to be engines of change and beacons of hope to the world community; an example is work on responding to climate change.

Again, one must ponder the design factors that enable Moocs to facilitate and support online social networks and local groups. How are the final projects students produce nurtured and celebrated? How do Mooc participants apply what they have learned to a local sustainability practice or action? This project also recognizes participants' local practices, such as through inviting them to co-author journal articles and e-books and facilitating ongoing social media discussions, debates, and raw data sharing after the course ends. In terms of social change and impact, this ambitious team has designed one of the most exciting initiatives in the history of Moocs. Through their assorted efforts, what has been learned via the Mooc can quickly impact local practices and actions.

As mentioned, networks and communities pervade almost every Sll session. In Episode 59, Betsy Dalton and Susie Gronseth organized an international community of educators interested in Universal design for learning (Udl) which resulted in a major book on this timely topic. In Episode 49, Brian Beatty of San Francisco State University, along with colleagues from Delgado community college in New Orleans and Pierce college in Philadelphia, describe the benefits and challenges of adopting a HyFlex model of instruction. As the name implies, HyFlex is a highly flexible and adaptable form of instruction that was described more than a decade ago by Beatty, but was not widely understood or implemented until the pandemic. Fortunately, a community of HyFlex instructors has grown around Beatty's blog on the topic along with a freely downloadable book (Beatty 2019).

During the episode, Beatty explained the two key conditions that should be present for a course (or class) to meet the HyFlex definition: 1) an in-person mode and at least one online participation mode are available, and 2) students are able to select their preferred participation mode for each class session. To complete the flexible course options, online participation is available in synchronous or asynchronous mode; sometimes both. It is important to point out that a Hyflex course contains four fundamental values: 1) learner choice, 2) equivalency, 3) reusability, and 4) accessibility.

While establishing communities of learners was a common theme across our various sessions, Sll documents that a singular individual with innovative ideas and a passion to see them implemented can make a substantive contribution toward the educational change process. Individuals that stand out include Khendum Gyabak in Episode 74, who persistently pushed for more equitable forms of learning in inequitable places like Bhutan, Papua New Guinea, and Nepal. She shared her inroads and adventures in the non-profit's Facebook page, while she employed Instagram to share pictures videos that she took.

Also quite noteworthy is Cassandra Brooks in Episode 39 in December 2020, who posts blogs and makes video recordings of the Ross sea area of Antarctica; these have been viewed by nearly one million people as she desperately works to preserve the «Last Ocean». A few weeks later, in Episode 42 in early 2021, we were joined by science educator Jean Pennycook, who studies Adélie Penguins in Antarctica. She sends her live footage from the ice, as well as communicating various research findings to hundreds of classrooms around the world along with pedagogical activities in which students and teachers might engage.

Gyabak, Brooks, and Pennycook each had extensive support networks that have enabled them to make an impact. Without National science foundation funding, for instance, Pennycook would not be able to travel to Antarcti-

ca. Nevertheless, Sll is showcasing ways that individuals and the communities in which they participate – or craft – can make a substantive impact on the world.

4. Educational creativity and innovation

The hope and the driving idea behind the Sll series was the possibility that the pandemic would force educational institutions to question assumptions that had long been taken for granted. We believed that the forced move to remote learning would push us as educators, worldwide, to recognize and acknowledge the fact that education, as it had been prior to the pandemic, was not working for many learners. We hoped that the pandemic and the shock it gave to the educational system might empower society broadly, and educators in particular, to look at schooling and education anew and find ways to reimagine the role, mission and value of learning and what it offers to our broader social, cultural and economic lives.

Sadly, not all educational institutions moved in the right direction. At the beginning of the pandemic, many educational institutions either shut down or tried to replicate «business as normal», often through non-stop hours of Zoom «classrooms» and homework, leading to frustration, apathy and sometimes anger on the part of the learners (and their families). Despite these challenges, there were many instances of individual teachers who stepped up to the challenge and, despite the constraints they worked under, did an amazing job. Many episodes of Sll, particularly towards the beginning of the series, highlighted heroic educators from across the world who through their creativity, doggedness, and commitment attempted to do the best for the children in their care.

This theme of creativity at the level of individuals, teams or organizations is a prominent theme throughout the series. In particular, the ideas of creativity, play, and their implications for education were directly addressed through three episodes during the summer 2021. First off was Episode 62, with Vlad Glaveanu and Edward Clapp on participatory creativity, followed by Episode 63 with Pasi Salhberg and Alexandra Harper on the important role of play for learning and development; and finally Episode 64 with Peter Gray and Bria Bloom speaking about self-directed learning, play, and unschooling from an evolutionary perspective. The role of creativity, something these three episodes emphasized, can also be seen in almost every episode of Sll.

But as we look beyond these three shows, and skim across the past over 80 episodes of Sll, it is important to realize that creativity played out in two dif-

ferent ways. The first has to do with individual or group creativity; and the second has to do with systems or organizational innovation. In other words, creativity is the domain of the individual (or team) while innovation works at the level of the organization or the system. The first focuses on educators, working individually or in groups, creatively addressing the challenges thrown up by the pandemic, or broader educational challenges without necessarily seeking to change the status quo or existing systems of learning. The second, is more profound, seeking as it does to create innovative systems that go beyond individual actors to develop new sustainable forms or educational thinking and practice. We believe that both of these are important for education, though we believe that the latter (systemic innovation) has a greater chance of continuing beyond this current pandemic context.

The Sll webcast episodes illustrate many models for creative learning demonstrated by teams of educators (in ways large and small) to meet the needs of their students. As the scale of the disruption caused by the pandemic began to be recognized, it became clear that schools were more than sites for learning and that the role of educators is greater than that of equipping students with the knowledge and skills they need to be successful in the future. Schools provide safe environments for students to aid their emotional, civic and social development. They can be community hubs (often for social welfare programs for those with greatest need). Thus, at a fundamental level, the pandemic forced educators to see their role in a new light–and to find ways to connect with their learners and with each other in new and powerful ways.

These examples of creativity can be seen in episodes that focused on how different educational systems across the globe respond to emergency remote learning. These include (but are not limited to) Episode 2 (Delivering education when schools are closed: lessons from China), Episode 6 (The view from Italy), Episode 13 (Remote teaching and home learning in South Korea and Singapore), and Episode 18 (The view from Israel). Other episodes such as Episode 14 with Iste leadership and Episode 24 with Catlin Tucker focused on identifying best practices for online learning and for providing support to educators suddenly thrown into this modality. The importance of creativity can be most clearly seen in Episode 37 (Puerto Rico: overcoming catastrophes, Covid, and corruption in the Caribbean). The level of ingenuity that our guests had to demonstrate (such as using radio and other technologies) when the island was hit by hurricanes and other natural disasters was truly inspirational. There are many other episodes, too numerous to list here, that were similarly inspirational: powerful stories of people working under difficult circumstances, bringing their expertise and ingenuity to bear on complex, often intractable immediate challenges of practice. Episode 70 (Lessons teacher edu-

cators should have learned from the pandemic) focused on the implications of the pandemic on teacher preparation and teacher professional development in schools of education.

That said, and as mentioned above, these episodes focused on the system as it exists now, finding ways to make it work more efficiently or to address the sudden challenges the pandemic had forced on all of us. However important and inspiring this creativity was, it functioned within the existing frameworks, systems and paradigms of education. These actions by educators and teams of educators, undoubtably inspirational and heroic, did not question or seek to change the fundamentals of the system or broader culture within which education functions. These systems and culture are structures (often invisible) that guide and determine patterns of thought and action. To be clear, the fact that these educators and innovators did not seek to question the broader systems in no way questions or undermines the work that they did. They saw the immediate challenges brought about by the pandemic and stepped up with ingenuity, tenacity and resilience to address these challenges.

That said, there were episodes on Sll that focused on developing broader, more responsive, equitable systems that offer new models and examples of how education can or should be. In certain cases, such as in Episode 12 (Large scale learning environments: writers in the secret garden) our guests, Drs. Aragon and Davis from University of Washington, described novel ways in which young people support and learn from each other through participation in online fanfiction communities. They discussed their book *Writers in the secret garden* (2019) and explained how distributed mentoring, as seen in these fanfiction sites, could improve not only other online learning platforms, but also formal writing instruction in schools, thus offering a new model for peer-to-peer learning driven by the passions and talents of the learners themselves. In addition, a set of episodes on Moocs (as described elsewhere in this article) focused on new models and systems that provide students with opportunities to explore and learn.

More systemic in their approach were Episode 35 on the Global online academy and Episode 78 about designing the next education workforce. Since the Global online academy has been described earlier in this article, this section looks deeper into Episode 78 and the work being done by the guests Brent Maddin and Krista Adams as part of a broader initiative to redesign the process of K-12 learning and, in parallel, teacher preparation. In essence, the Next education workforce work seeks to create systems level change in the very design of K-12 learning spaces (real and virtual). It does so by arguing that the default one-teacher-one-classroom model of schooling is unsustainable for most educators. As a result, our education system does not reliably

deliver quality learning outcomes and experiences for nearly enough people, especially students of color and those from low-income backgrounds. With the disruptions caused by Covid, our guests argued that we have a once-in-a-generation opportunity – and obligation – to fundamentally redesign how we staff schools. These new staffing models focus on providing all students with deeper and personalized learning by building teams of educators with distributed expertise and empowering educators by developing new opportunities to enter, specialize, and advance in the profession.

As shown in Episode 78, beginning as a pilot in 2019 in one school, by fall 2021 the work has expanded to nearly 30 schools across five school districts impacting over 260 educators and 6,600 students. Mesa Public Schools – the largest school district in Arizona – has made a bold commitment to begin moving 50% of their schools to Next education workforce models in the next five years. Our guests described not just the broad contours of the work and its philosophical underpinnings, but also provided specific examples of how this work plays out in an actual school system. Stevenson elementary in Mesa public schools are implementing these innovative staffing models, beginning with one grade level, and then expanding (in the midst of the pandemic) school-wide. These new staffing models include not just teachers, but also teacher-interns and members of the community. This has meant developing new curricula in the teacher preparation program to better support beginning teachers to implement these new models, as well as developing micro-courses and learning experiences for members of the community who may have the requisite expertise to effectively lead in a classroom setting, but do not have the time or inclination to get teacher certification. In this way, the next education workforce initiative works across multiple systems and organizations, higher education teacher preparation programs, schools, and districts, and the broader community.

Overall, these episodes of Sll demonstrate not just individual (and group) creativity; they also provide examples of sustainable system-level innovation. To reiterate, the idea is not that one is better than the other but rather these forms of creativity work in different spaces and contexts. The former, individual/group creativity, focuses on the immediate challenges, working within existing contexts. The latter, focuses on the organizational and systemic change, working to create new forms and models of engagement and learning.

5. Looking forward

In the almost two year of Sll, we have had the privilege to speak with and learn from over 200 educational innovators and practitioners. The conversations by themselves have value – shared as they to a live audience via YouTube live. The original idea that started Sll is to showcase innovative and creative educational practices, particularly those with technology. After two years, the recorded episodes have become an archive of educational innovations. Researchers, policy makers, and practitioners have visited various episodes for leads, insights, and evidence. These archived innovations may serve as a historical reminder in the future of the wide-spread innovations triggered by the Covid pandemic. Although Sll was not intended or designed as curricular content, it has been used in graduate courses. Students watched the episodes and reflected on them. In some cases, professors also asked students to model after the format of the show to create their Sll shows.

In the future, we envisage broadening the scope of the educational impact of these offerings. Some of the hosts have already used Sll recordings in their teaching – often at the graduate level. We have also heard of others who have done the same. On possible trajectory would be archive (on the Sll site) some of these lesson plans and course designs so that they could become more useful to other undergraduate and graduate degree programs and courses.

Sll exemplifies the tremendous growth in online video and audio-based content with specific focus. Webinars, YouTube shows, Facebook shows, and podcasts have been growing significantly in recent years. There is no way to actually track how many such shows exist, but we know that many of them are of good quality and relevant to education. While schools and higher education have not typically considered these shows as curricular content, it is important for educators to consider integrating such content in courses not only because of their substance, but also because of their delivery format and modality in an age when many learners are much more interested in multimedia content delivered on their smart devices than in traditional print.

6. Conclusion

The episodes on Sll have highlighted bottom-up models for transformative innovation that complement top-down initiatives for incremental educational improvement in industrial-era schooling. Regional, national, and global policies and reports have some value, but their recommendations lack detail about specific models for educational transformation in which participants

experience ownership, cultural relevance, and contextual alignment. One-size-fits-all precepts have their place in the politics of change, but history has shown these efforts are not scalable and sustainable unless aligned with bottom-up initiatives. Episode 59 of Sll describes the need to reconceptualize philanthropy and public investment to include as primary decisionmakers those who benefit from an educational innovation, as well as depicting mechanisms to accomplish this.

Sll demonstrates that, with almost no resources, locally led but globally motivated innovations can be located, celebrated, and improved. We urge that similar efforts be undertaken to complement the current political fixation on high-level commissions, reports, policies, and exhortations. Without this balance, educational transformation will continue to be advocated, but not undertaken, sustained, and scaled.

References

Aragon, C. and Davis, K. (2019), *Writers in the Secret Garden: Fanfiction, Youth and New Forms of Mentoring*, Cambridge, MA, MIT Press.

Beatty, B. J. (2019), *Hybrid-Flexible Course Design: Implementing Student-Directed Hybrid Classes*, EdTech Books. Available at https://edtechbooks.org/hyflex/ (last accessed on 22nd February 2022).

Bonk, C. J., Lee, M. M., Reeves, T. C. and Reynolds, T. H. (eds) (2015), *MOOCs and Open Education Around the World*, New York, Routledge.

Bonk, C. J., Wisher, R. A. and Nigrelli, M. L. (2004), *Learning Communities, Communities of Practice: Principles, Technologies, and Examples*, in K. Littleton, D. Miell and D. Faulkner (eds), *Learning to Collaborate, Collaborating to Learn*, New York, Nova Science Pub, pp. 199-219.

Dearing, J.W., Dede, C., Boisvert, D., Carrese, J., Clement, L., Craft, E., Gardner, P, Hyder, J., Johnson, E., McNeel, D., Phiri, J. and Pleil, M. (2015), *How Educational Innovators Apply Diffusion and Scale Concepts*, in Chee-Kit Looi and Laik-Woon Teh (eds), *Sustaining and Scaling Educational Innovations*, New York, Springer, pp. 81-104.

Dede, C. and Richards, J. (eds) (2020), *The 60-Year Curriculum: New Models for Lifelong Learning in the Global Digital Economy*, New York, NY, Routledge.

Gegenfurtner, A. and Ebner, C. (2019), *Webinars in Higher Education and Professional Training: A Meta-Analysis and Systematic Review of Randomized Controlled Trials*, in «Educational Research Review», 28, 100293. doi:10.1016/j.edurev.2019.100293.

Gegenfurtner, A., Zitt, A. and Ebner, C. (2020), *Evaluating Webinar-Based Training: A Mixed Methods Study of Training Reactions Towards Digital Web Conferencing*, «International Journal of Training and Development», 26(2), pp. 5-21.

Ghirmire, B. K. and Gautam, B. R. (2020), *Nepali High Students in Massive Open Online Courses (MOOCs)*, in C. J. Bonk, M. M. Lee, T. C. Reeves and T. H. Reynolds (eds), *MOOCs and Open Education around the World, New York, Routledge*, pp. 90-98.

Gupta, S.K. and Sengupta, N. (2021), *Webinar as the Future Educational Tool in Higher Education of India: A Survey-Based Study*, in «Technology, Knowledge, and Learning», 26, pp. 1111-1130.

Kadirova, D., Li, Z. and Bonk, C. J. (2021), *Nepali Adolescents Exploring MOOCs: Scalable Results Lending to an Optimistic Future*, paper presented at the 2021 Association for Educational Communications and Technology (Aect) International Convention, Chicago, IL, 3 November.

National Academies of Sciences, Engineering, and Medicine (2018), *How People Learn II: Learners, Contexts, and Cultures*, Washington, DC, The National Academies Press. doi:10.17226/24783.

United Nations (2020), *Policy Brief: The Impact of COVID-19 on Children*, Available at https://www.un.org/sites/un2.un.org/files/policy_brief_on_covid_impact_on_children_16_april_2020.pdf (last accessed on 22nd February 2022).

Wehmeyer, M. and Zhao, Y. (2020), *Teaching Students to Become Self-Determined Learners, Alexandria*, VA, Association for Supervision and Curriculum Development.

Wenger, E. (1998), *Communities of Practice: Learning, Meaning, and Identity*, NY, Cambridge University Press.

Wenger, E., McDermott, R. and Snyder, W. M. (2002), *Cultivating Communities of Practice: A Guide to Managing Knowledge*, Boston, MA, Harvard Business School Press.

Zhang, K., Bonk, C. J., Reeves, T. C. and Reynolds, T. H. (eds) (2020), *MOOCs and Open Education in the Global South: Challenges, Successes, and Opportunities*, NY, Routledge.

Zhao, Y. (2018), *Reach for Greatness: Personalizable Education for all Children*, Thousand Oaks, CA, Corwin.

Zhao, Y. (2020), *COVID-19 as a Catalyst for Educational Change*, Prospects. doi:10.1007/s11125-020-09477-y

Zhao, Y. (2021), *Learners without Borders: New Learning Pathways for all Students*, Thousand Oaks, CA, Corwin.

Zhao, Y. and Watterston, J. (2021), *The Changes we Need: Education Post COVID-19*, in «Journal of Educational Change», 22(1), pp. 3-12.