

“Going hybrid on a dime”: Insights for transformation in education toward sustainable quality development

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Abstract

This study contributes to research on Quality in Education and examines what possibilities now exist for schools to reinvent and transform using technology-based systems as part of the equation. It is speculated that the pandemic has changed the future of work emphasizing hybrid solutions and networking. The purpose of this article is to present findings from phase two of the qualitative case study to examine what happened to a private school when it went “hybrid on a dime” to maintain attractive quality education.

Keywords: Hybrid schooling, Digital culture, Attractive quality, Transformation in education

Introduction

The global imperative to address sustainable development calls for organizations to re-examine their practices to meet complex societal challenges (UN Agenda 2030). Among the organizational actors, education has been singled out by UNESCO as essential to achieving sustainable development, articulating a new agenda to “reorient education to help people develop knowledge skills, values, and behaviors needed for sustainable development” (UNESCO, 2017). The UN argues that “obtaining a quality education is the foundation to improve people’s lives and sustainable development” (ibid) by ensuring competencies and skill development to live and work in the 21st century, as well as foundational values of equity, and democracy through access to education. Yet as Sterling (2010) states there is a conflict between the current paradigm of schooling and what is needed to meet this challenge.

For several decades, technology has been promoted as a transformative device for advancing education toward 21st-century living and work. In 2006, The EU Commission on education identified eight key competencies that support quality in education, of which digital competence, global awareness, and social skills were included (European Union, 2006). The call stretched the focus from technology as a mere tool, to technology as a context for interacting and learning. Similarly, U.S. educational programming under the umbrella initiative called Framework for 21st Century Learning (2009), promoted an integrated model of core subjects, digital media and technology skills, life and career skills, and learning skills such as communication, creativity, collaboration, and critical thinking. This global agenda provided the pedagogical impetus for redesigning schools to contribute to a sustainable future.

Subsequently, numerous studies demonstrated that innovations were beginning to occur in some schools throughout Europe and North America (Baudry et al, 2011; Brecko et al, 2014; Brunvard & Byrd, 2011;). However, little evidence exists that schools were being redesigned sufficiently to meet the future needs of students and society Serdyukov (2017). Fischer et al (2020) and Bosconi et al (2013) found innovation remains incremental and superficial. These researchers suggest that this is not enough to stimulate deep transformation in education, as defined by changes in the way students learn, the way teachers teach, and how knowledge is created and shared. Fischer, et al 2020 argue that innovation in education is not merely about the application of technology in the classroom. Transforming, or in their words, reinventing education, requires a transformation in how we think about learning, teaching, and integrating the new media in broader systems of schooling. In their research, they conclude that schools fall short of transformation due to a heavy focus on the “automation” of technology as a device rather than a way of being.

In 2007 Snyder introduced the Digital Culture theoretical model (2007; 2015) as a way to frame the complexities of transforming schools to prepare youth for 21st-century living and work. The model grew out of 10 years of research on the application of ICT in education (Snyder, 2008). Evident was that most technology-based innovations were contained in a classroom or two; a finding in line with the above-mentioned. Lacking was an understanding of the interdependency between organizational systems, pedagogical practice, and the values of the school, which were needed if technology would serve as a transformative device. Like others, Snyder (2007; 2008) concluded that technology alone could not suffice as the driver of change. Placing technology in the hands of a few would not lead to the transformation that was needed to redesign schools for a sustainable future. Needed was a systems perspective in which the application of technology was

determined by the goals, vision, and mission of the school and the needs of stakeholders. Moreover, that technology would be applied at the whole school level in concert with the guiding principles of the school’s pedagogical and didactical design.

Many now speculate that lessons from the Covid-19 Pandemic may be the disequilibrium needed for educators and society to walk through the mind-shift needed to a new paradigm for education to promote sustainable, attractive schooling that integrates technology with whole-school development. The COVID-19 pandemic introduced chaos in a myriad of forms throughout the global community. In education, school leaders, teachers, parents, and students had little choice but to forge new ways of learning and teaching. They had to rapidly adapt work structures and learning configurations with the support of technology, quite literally on a dime, while also maintaining the emotional and physical well-being of themselves, their families, and their students. The pandemic experience now provides an impetus for research and development to understand how schools can take the step into a new paradigm of the digital culture (Snyder, 2007), in which the way of working, learning, and interacting are transformed.

The purpose of this article is to present findings from phase two of a qualitative case study to examine what happened to a school during the hybrid model phase. In particular, the focus is given to understanding how teaching and learning were impacted by the hybrid model, and the potential implications this has for sustainable quality development and transformation of schooling.

Background

In Spring 2020, we began a longitudinal study of a private school in Tampa Florida focusing on “leading during a pandemic”, which has since been published (Snyder & Snyder, 2021). Findings from phase one illustrated how the school was able to adapt quickly to the complex conditions of the Covid-19 Pandemic. Evident was how the leadership team built upon the school’s foundational values of collaboration, teaming, and networking, and the need to maintain education for societal growth. Tensil, et al., (2021) suggest that this is important as a sustainability strategy that interconnects performance with innovation, customer needs, and stakeholder engagement. The heavy emphasis on collaboration and inclusion in the school also reflects the mind-shift to which Sanders (2010) refers, with the focus on dynamic thinking, collaboration, and drawing on the strengths of the internal school-work systems.

During this initial study (spring and summer 2020) the school was working on a new “back-to-school plan” to develop a more sustainable model for schooling over the coming year. Their “quick-fix” implementation of a 100% virtual approach during spring 2020 was deemed unsustainable if the pandemic continued. Their back-to-school plan was based on a hybrid model of schooling. Their motto was: “the building is closed, but we are open for learning”. As researchers, we continued to follow the school during the Pandemic year (2020-2021) and observed innovations in teaching and learning that redesigned the school because of the hybrid model.

As the year unfolded, we began to observe that the disequilibrium caused by the pandemic was potentially creating more value for the stakeholders (students, parents, teachers, and community). For example, in the 2021-2022 school year, enrollment at this independent school was the highest

it had been in years (Niche.com, 2021), despite the challenges of the Pandemic. It is conceivable to surmise this is in part due to the increased perceived value (Zeithaml, 1988) of the school program, the attractive quality (Lilja & Wiklund, 2007) that was experienced by families throughout the pandemic, and the ability of the faculty and staff to embrace the disequilibrium using instructional and operational technology in ways not previously imagined (Snyder, et al. 2008). This stimulated curiosity about how the school shifted to a hybrid model on a dime and might provide insights into sustainable attractive quality in education.

Beyond technology-driven school development: A systems and quality orientation

Leading organizations in a globally connected, internet-based age are complex and are challenging for leaders to develop internal systems and structures that are flexible and responsive (Rill, 2016). New organizational systems need to meet customer needs (Fundin, et al, 2020) while being grounded and stable for building the kinds of healthy work environments that invite innovation and creativity to support sustainable development (Uhl-Bien & Arenam 2018). Practices within the field of quality management can provide insights to help educational leaders manage this balance between policy requirements, structure, process, and culture to be adaptive and responsive to customer needs.

Quality management is an approach to organizational development focusing on the continuous improvement of products and services to meet and exceed customer needs (Deming, 1986). It is based on a set of guiding principles and values, combined with tools and processes, that are applied within a systems orientation (Capra & Luigi, 2016) to develop products and services. The core values function together as a system to align the work processes with the needs of customers, both internal and external. The organization’s culture, defined by shared values, norms, and behaviors, is also recognized as an integral part of shaping and sustaining quality (Shingo, 2017). If the organizational culture is strong, it will fill co-workers with energy as well as shape their behaviors and decisions.

The literature on quality management suggests that one of the ways organizations can be more responsive to changing conditions is to leverage attractive quality and perceived value as key elements for understanding how to build responsive systems (Johnson, 2021). The theory of attractive quality introduced by Kano et al., (1984) is often described as the surprise and delight attributes when purchasing a product or service, and is a strong driver of loyalty, word-of-mouth, and saleability (Lilja & Wiklund, 2007). Kano et al. (1984) proposed the theory of attractive quality as a method for describing the relationship between two aspects, the objective (product or service) and the subjective (experience of the user/customer).

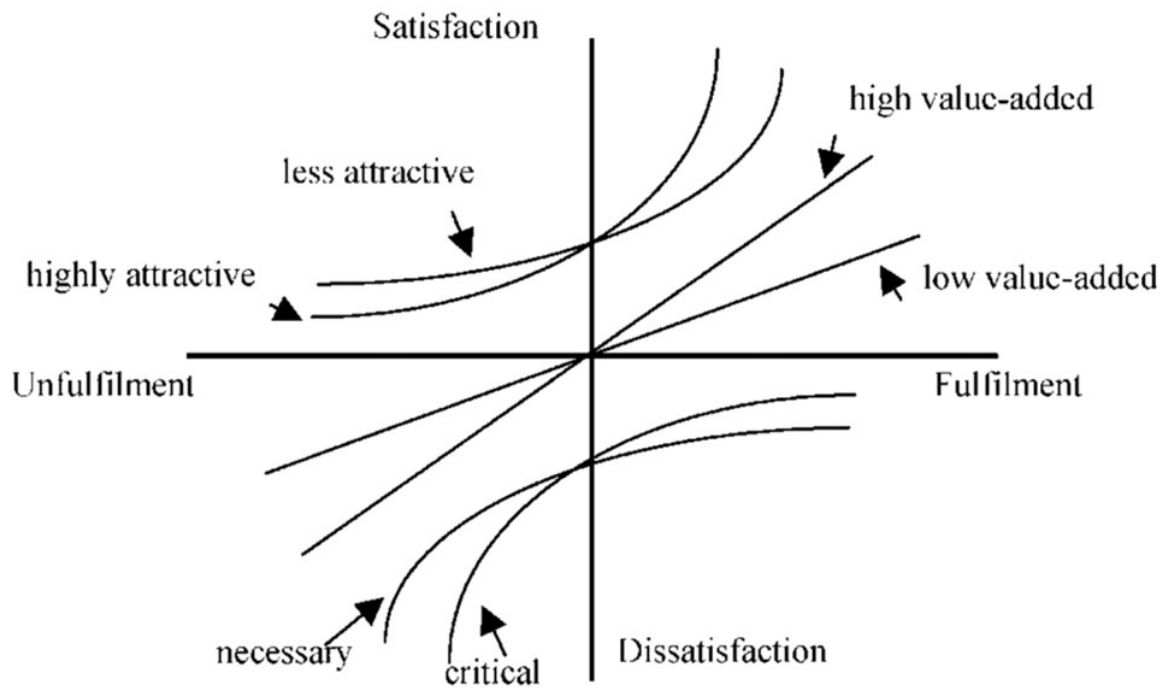


Figure 1: Refined Kano's model of quality attributes (Yang, 2005)

Yang (2005) modified Kano's original model to include quality factors that customers perceive (see figure 1). Yang (2005) altered the quality elements of Kano's model into the following eight dimensions based on the degree of importance to the consumer: highly attractive and less attractive, high-value-added and low-value-added, critical and necessary, potential and care-free. In the refined model, if two product requirements cannot be met simultaneously, perhaps due to technical and financial constraints, the company will determine which is more crucial to customer satisfaction (Chen et al., 2020; Matzler & Hinterhuber, 1998).

Within the context of education, attractive quality can serve to determine the degree to which the school is designing learning environments that not only meet but also exceed the needs of its stakeholders. In contemporary quality management, this means developing schools from the perspective of their stakeholders rather than from a top-down model in which the needs of stakeholders are perceived to be known. This is an upside-down model to traditional schooling, which is typically designed around national curricula. Using the theory of Attractive Quality as a guide stimulates educators to ask new questions about what their students and other stakeholders need and want and to design schools that not only meet these needs but exceed expectations. This ups the ante from incremental innovation to long-term transformation.

Creating the conditions for school transformation, which are governed by deep cultural traditions and values, may require leaders to think beyond the box (Rill, 2016). Achieving this mind shift will require leaders to move from Linear/static thinking with separate functions, to random/dynamic thinking, in which functions are seen as interrelated and systemic (Sanders, 2010). This has implications for both organizational structures as well as the organization's culture (Schein, 2004). Traditional structures of the 20th century will not suffice (van Kemenade & Hardjono, 2019). Suarez and Montes (2020) hypothesize that building organizational resilience requires organizational routines and simple rules, which combined with improvisation as the key

ingredients for resilience, suggesting that the balance between structure and culture is paramount.

Snyder & Snyder (2021) suggest that transforming schools toward sustainable quality requires a paradigm shift in what it means to organize and lead schools as a living system. They define Sustainability as the responsiveness of a living system to changes in the environment. Creating sustainable conditions for work requires a departure from isolation in any form, which assumes a fundamental shift toward systems thinking, fostering human networks through which energy systems self-organize to invent, innovate and sustain. Moreover, they suggest that values are drivers that keep adaptation in line with future goals, while the structures provide a framework for improvisation and innovation. To merely apply new technology without being grounded in a set of values, only reinforces temporary innovations. It is the interplay between innovative changes, supporting structures, and work culture that creates the conditions for leading sustainable quality development in today’s society. The Digital Culture model (Snyder, 2007) merges research on technology in education with quality management and leading complex systems to provide educators with a systems model for redesigning schools toward the 21st century goals.

The Digital Culture model: A systems framework for transforming schools

The Digital Culture model includes four dimensions: communication, organizational systems, pedagogy, and technology. The Communication dimension represents human exchange that takes place through technology, including written, spoken, and visual forms. Questions related to this dimension include what kind of information is exchanged, who initiates, who is included, who responds, the timing of the exchange, length, sender-receiver relationship, and push-pulled information. The technology dimension represents digital media (information communication technology) that supports any combination of visual, auditory, or text-based communication. This includes the type of technology and how it is used. For example, email, chat, forums, intranet, Internet, videoconference, and visual software. The pedagogical dimension represents forms of exchange that support the sharing and building of ideas and learning, which includes collaboration, social networks, communities of practice, and online mentoring forums. The organizational systems dimensions represent identity, structure, and culture that are supported in a workplace by communication technology, for example, distributed work teams, open landscape offices, norms, values, behaviors, and codes.

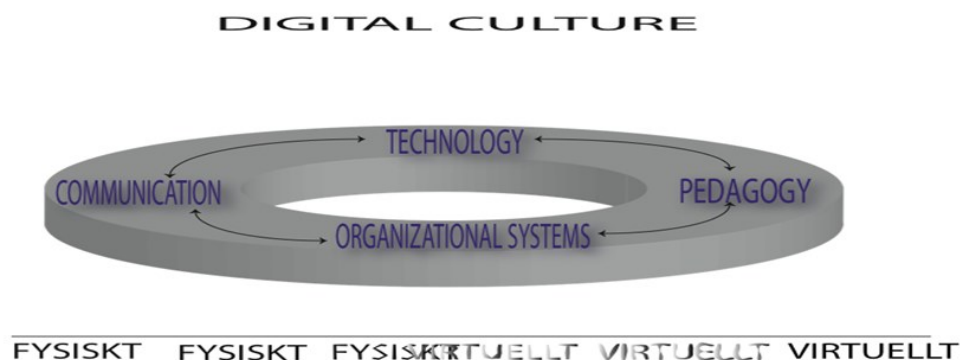


Figure 2: The Digital Culture model, Snyder, 2007

Figure 2 illustrates more in-depth underlying aspects in each of the dimensions associated with the digital culture. The inter-connecting circles represent the systems nature of the digital culture in which decisions are guided by the core of the school's work: the pedagogical practices. Among the elements embedded in this dimension are teaching and learning theory, classroom organization, and the role relations between student and teacher. The pedagogical principles are supported by organizational work systems which include the structure of teaching and learning (i.e. team teaching, multi-grade or single-grade classrooms, scheduling, etc). The school's approach to communication, both as an organizational component as well as within the classroom is also supported by the organizational systems. Technology is perceived as the system of tools that are designed and applied in the school to create conditions for success in teaching and learning.

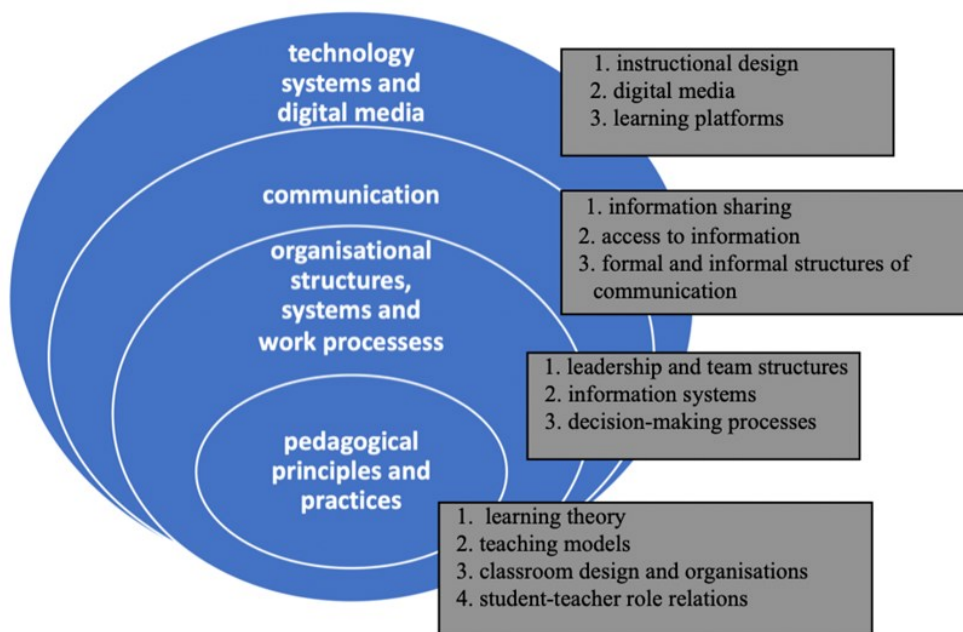


Figure 3: examples of aspects underlying the four dimensions of the digital culture

Shaping a digital culture of learning in the global age is about more than technological innovations in schools. It is about creating a working culture in which staff and students engage in shaping their learning and social development. Borrowing from the fields of culture and communication studies, we are reminded that as learners we are not just students in a classroom following a curriculum. We are members of a larger culture that becomes our curriculum. As we engage with one another in active exchange, we give meaning to a collective space. Using media and technologies contributes to our communication, giving rise to new knowledge to shape a global ecumene. Educators can take the next step and support the development of schools as living systems, not just bureaucratic institutions. As living systems, comprised of cultures and networks, schools can adapt their learning environments to respond to changes in society and prepare youth for lifelong learning and living in a global age. The Digital Culture model is used in this study as a framework to explore more in-depth how the case site addressed the challenges of redesigning their school during the pandemic to sustain attractive quality.

Methodology

The study presented in this article is based on a qualitative single-site case study of a school in Tampa, Florida USA. It is part of an ongoing longitudinal study to examine sustainable quality development in education. This portion of the study was conducted by three researchers, two university-based professors, and a doctoral student who is also employed at the school.

Research questions

Four questions guided this study:

1. What factors were important for designing and implementing a hybrid model of schooling?
2. What changes were made in the school to support a hybrid model of learning?
3. In what way did the hybrid model impact teaching and learning at the school?
4. In what ways did the hybrid model impact the culture of the school?

Case description

The case site was a PreK-3 through 8th grade private, non-sectarian independent school, founded in 1968 in Tampa, Florida. It is dedicated to a hands-on, child-centered philosophy based on best practices in education and knowledge gained from leading-edge brain research to accelerate learning. As of the 2021-2022 school year the enrollment was 520 students and a faculty and staff of over 130 equating to a student-to-teacher ratio of 8:1. The school is located in a large suburban neighborhood. Students are mostly from middle to upper-class families.

Data Collection

Qualitative data were collected through interviews, focus groups, and document analysis. Permission to conduct this study was given by the leadership of the school. Access to key informants was established through the leadership team. Consent was secured prior to interviews. All participants were contacted via email, in which the purpose of the study and the research questions were presented.

The focus groups were conducted via a hybrid model by university-based researchers (on zoom) and school-based researchers (in-person). They were recorded and lasted one hour in length. Respondents were selected based on their role in the school and availability. Two separate focus groups were conducted and included four division leaders from the elementary school, one early-childhood teacher, and the principal of the middle school. A second focus group was conducted with four teachers from the middle school and the principal of the middle school.

Interviews: Two one-to-one interviews were conducted with a teacher from the pre-school, and a science teacher from the middle school. Respondents were selected based on their experience designing and delivering the hybrid model, as well as their availability. Both interviews were conducted by the external researcher, using zoom. The interviews were recorded and lasted 1,5 hours.

Document analysis: The “back-to-school plan” and the “Family Remote Learning Plan” provided background information about the remote-hybrid learning model designed by the school in the summer of 2020.

Survey data: Quantitative data from two quality assessment measures were also included: 1) the Contentment Foundation (Contentment.org, 2021) provided evidence of employee well-being. The wellbeing assessment and analytics monitor 48 critical aspects of well-being at the individual,

group, and whole-school levels. The survey collects data on physical health, psychological wellbeing, community climate, inner climate, relationship to experiences, and emotional efficacy; 2) Measure of Academic Progress (MAP), growth assessment measures student growth using the RIT (Rasch Unit) scale to help teachers measure and compare academic growth. The MAP Growth test is administered in the fall, winter, and spring of each school year to demonstrate academic growth and areas of instructional need within specific classrooms enabling teachers to identify the academic needs of their students with laser focus. It is grade level independent and dynamically adjusts to each student’s performance as they take the test.

Data Analysis

Qualitative data were analyzed by the three researchers using a two-step approach. In The first step, inductive analysis techniques (Patton, 2002) helped to uncover themes, patterns, and categories embedded within the data. Analyses were conducted independently by the researchers during round one and then combined to compare the identified themes and patterns. Final refinements to the patterns, themes, and categories were determined from the combined analysis. In the second step, the patterns and themes were further analyzed using deductive techniques (Patton, 2002) during which the Digital Culture model served as a framework through which to further identify the themes and patterns found in the data.

RQ 1: Factors important for designing and implementing a hybrid model of schooling

According to the focus groups, interviews, and document analysis, shifting to a hybrid model of schooling on a dime involved factors that are categorized under the leadership and organisational systems dimension. Among them were: 1) creating a sense of community was essential for buy-in; 2) articulating a common purpose and vision grounded in the school’s values served as a guide post for transformation during the crisis; 3) designing open channels of communication and feedback loops for all stakeholders; 4) structures and platforms that supported immediate competence development; 5) participation of all stakeholders; 6) out of the box thinking; 7) redesigning planning and scheduling; 8) team teaching. Below are some examples from the data that illustrate these key factors.

Sense of community and common purpose

To create a sense of common purpose, the leaders of the school developed a motto that served as an anchor point throughout the Pandemic. Hashtag “One Community” became the slogan to reflect a culture of connectedness and family. The “Family Remote Learning Plan”, was designed to provide opportunities for children to be engaged in learning in the absence of being on the school’s campus. The text reflects the school’s intent to design innovative solutions that are grounded in the values and principles of the school. On page one, the following is stated: “We all understand that the face-to-face interactions in the vibrant and engaging classrooms our students and teachers enjoy each day are better in-person than occurring remotely. However, what we seek to create is a remote learning environment where teachers and students continue to be engaged in ways made possible by our many options for learning via the connectedness through

the internet. There are many alternative and effective approaches available to our teachers to keep our student’s minds active in meaningful ways. But parents, we need your help.” (p. 1).

Strategic plans, action plans, and resources

A guide to teaching Remotely” was designed to assist teachers. The plan states, “The goal of our remote learning plan is to provide opportunities for our children to be engaged in learning in the absence of being here on our beautiful campus. We are asking you to think outside the box in how you approach your teaching via Canvas, Zoom, and our library of online instructional resources. Rather than ask children at the elementary and early childhood levels to be tied to a screen, try to provide opportunities for them to read, write, share ideas, explore, create, play, and move.” (p. 3). Included in the documentation was a library of resources, case examples, and a reminder to “breathe, be kind to yourself, reframe your thinking and think outside the box, see yourself as a member of a team in which resources are shared, [and remember] we’re all in this together. The document also contained suggestions for how to integrate technology to stimulate learning and hybrid groups, including interactive power points, discussions on canvas, and the Kahoot learning game. Additional resources were also introduced including wideopenschool.org, a network for supporting learning from home that inspires kids, supports teachers, relieves families, and supports the community, among others.

Feedback loops and continuous dialogue

According to the interviews, the school’s leadership team sought regular feedback from parents and teachers throughout the implementation phases to ensure continuous quality. The data collected enabled the school to adjust its policies and procedures to begin the school year. At the start of the school year, the teachers welcomed 64% (323) of its enrolled students on campus and 36% (178) remotely via Zoom. Many questions were asked about the reliability and bandwidth of the school network, and whether it could support the strain of so many simultaneous Zoom meetings. Open lines of communication were vital if the school was to keep its finger on the pulse of a polarized community, allowing as large a percentage as possible to be satisfied with the learning taking place both in and out of the classroom. Throughout the year, the school created return points for families to decide whether to move from remote to in-person or remain at home. Toward the end of the school year, 91% of students were on campus while only 9% remained remote.

RQ 2: Changes in the school to support hybrid learning

Implementing and sustaining the hybrid model of schooling required changes and innovation that are reflected in all four dimensions of the Digital Culture model. Table 1 highlights some of the specific changes that were made. Details have been placed in one of the four categories. However, it should be noted that there is an interdependent relationship between them (a systems orientation) that creates the heart of the schooling from the perspective of the digital culture.

Technology	Communication	Pedagogy	Organization and administration
Three I-pads were purchased for each team to use in integrating the at home students into the classroom learning.	Teachers wore microphones over their face masks; at-home student photos were displayed on the classroom white board.	Kids were put into cooperative learning groups in 7 th grade English,	The buildings and grounds were all cleaned and prepared for modifications to new furniture and learning arrangements. New sinks and walkway gates were added to self-contain certain student populations from each other.
Teachers in early childhood set up ZOOM stations on movable I-pad tripods, where they could move any I-pad around the room to show this and that to kids at home.	At home students photo copy their work and send it to Canvas, or upload it to email.	7 th graders functioned in ZOOM breakout rooms, integrating in-class and at home kids into the groups to discuss short stories they were all reading.	Desks were space either six feet apart, or plexiglass partitions were inserted between students at tables and desk combinations.
New fire walls were added to the campus, with increased broad band width and access points.	Teachers use CANVAS (platform for online teaching) to post materials for students.	The Science program used technology to bring real-world scientists into the classroom.	Teachers had one workshop with the tech people before school started, and then each team just figured out how this was going to work: simultaneous in-class with at-home kids.
	Teacher planning and scheduling has moved from paper to a shared online document	Students are invited to design their own workspace	Eventually new people were hired for each primary team (i.e. signing in and out of kids, the microphones, the break out rooms)
	Teachers contact parents of remote students daily to get feedback	In the science program, teachers developed new ways to integrated remote learners. When chemicals are used, kids at home are assigned to groups to observe the work of others. Pedagogical developments continue in this area to assign these students to a process observer role to play an important function in the learning process.	The flow of students was changed so that students remained in one classroom, and instead teachers moved from room to room; for example, the arts came to the classroom, the science teachers had a lab cart that they took with them.
	“free periods” are becoming space for extra tutoring	A math teacher reported challenges to meet the needs of all students simultaneously in a blended learning context. Typically, she and her co-teacher share the role, but when this is not possible, she has invited students to help others, building on peer learning.	The technology specialists collaborated with the division leaders to develop solutions for “classroom” learning
			Teachers move to the kids instead of the kids changing classrooms

Table 1: Four Elements of the Digital Culture Model

Pedagogical principles guided decisions

Decisions were made from pedagogical principles of team teaching and cooperative learning, and social interaction, rather than technology. As one teacher shared, “for us, it was important to make connections equally with students who were learning from home and students in the classroom. With the technological solutions, we were able to form a resemblance of simultaneous learning with both groups”. When asked further to explain what they meant, the teacher shared that learning is dynamic. In active classrooms, as was typical in this school, students’ sense of inquiry and peer learning meant that teachers needed to be flexible and “spontaneous” to natural learning moments. Examples of technological innovations that supported this included iPad on tripods to facilitate natural movement in the classroom and to provide alternative classroom camera angles to maintain connection and engagement with the remote students. Zoom breakout rooms were used to place students in peer-learning groups to connect remote and classroom learners.

Restructuring the flow of movement in the school

One of the biggest innovations in the school is related to scheduling and the flow of students. Rather than moving students from class to class, the teachers moved to the classrooms. This stimulated many new developments in team teaching and cross-curricular planning. Planning documents changed from paper to digital and enhanced access to information and communication between parents and teachers and the teaching staff as a whole. A commitment to parent involvement stimulated new networks to support informed decision making; the creation of a family remote plan, and continuous communication forums.

Technological solutions support teaching, learning, and communication

To support classroom learning, technological solutions were designed around the pedagogical and communication needs of the teachers and students. For example, as indicated in Table 1 Collaborative solutions were implemented with Pear Deck and Adaptive Learning algorithms, while Canvas served as a platform through which to communicate, share, store and retrieve information. Communication with parents was supported daily through the sharing of materials on Canvas and zoom meetings. To support the value of presence and good communication, teachers were provided with microphones and speakers so they could be heard clearly through their masks. The Canvas platform was used to share and store information from students (i.e. assignments).

Summary

These are but a few of the examples of changes made during the Hybrid model period. What is evident from the data is the system’s orientation to the innovation that stimulated changes in multiple dimensions simultaneously. For example, the interdependence of decisions made from the pedagogical to the technological and organizational. The pedagogical principles in the school were the core feature in the dialogue about technological solutions. Rather than asking what technology was available, the designers asked, what is most important for us to achieve in our learning environment? The key values of social interaction, “OneCommunity” open lines of communication, and a commitment to continuous improvement became the guideposts that enabled the school to maintain and sustain quality in learning through the pandemic. The

introduction of the CANVAS learning management system served multiple needs, including communication with students and parents. As well, teachers used the online planning system which stimulated changes in communication and program planning, and in some cases improved possibilities for cross-curricular planning.

RQ 3 & 4; Impact on teaching, learning, and quality culture

The Elementary school experience

According to division leaders and teachers in the elementary school, the hybrid-remote learning platform and structure impacted both teaching and learning in a myriad of ways, as well as the organization of learning. Evident were also changes in the culture of the school. For example, in early childhood, teachers reported that “The tempo of life is slowing down and kids are starting to engage in their learning differently”. In the fifth grade, teachers witnessed a change in behavior and social skill development among students. As one of the division leaders shared, “I heard more teachers last year say that they developed an appreciation from each other’s areas of competence. The students demonstrated empathy and patience because we were all so visible in where we were and what we were trying to do. There was a different kind of transparency”. I even noticed in our community increased empathy, support, and appreciation. We were challenged as teachers, and now I am wondering if our then 5th graders who are now 6th graders will continue to develop these social skills in Middle School.

Other teachers and division leaders in the elementary school talked about the strength of teaming that was enhanced by the hybrid model. The “Specials” classes (i.e art, music, physical education) were integrated into the classroom as compared to the prior “pull-out model” in which kids would move to the specials class. This provided new opportunities for team teaching in a variety of ways, among them scheduling, providing flexibility and time for the general education teachers to connect with parents or with remote learners who needed extra help. As well, the integration of the specials in the general education classroom stimulates new insights and dialogue about partnering to co-design the curriculum, stimulating innovation in the already established team teaching and multi-aged classroom pedagogical approach present in the elementary school.

The Middle School Experience

In the middle school, the story of hybrid learning was quite different. The traditions in the middle school were designed around ability grouping, which dictated in part teaching team organization and the scheduling of classes. Providing simultaneous learning to classroom-based and remote learners challenged this model, causing teachers to sacrifice what they considered quality in education for better classroom management in a hybrid setting. As one teacher shared, “We made decisions in a fundamentally different way. Even though we thought it was the best way at the time, we saw problems when the kids started to come back to the classroom. Teachers in the middle school also echoed the challenges to provide quality education from a learner’s perspective. As one person shared, “It was challenging because all of a sudden, we were thrown into scenes, such as: “Here is a school computer, a new way of connecting (ZOOM), “Here are things that you can do. While we had a good introduction from the leadership, we were

challenged to put one more layer of learning on ourselves to be able to teach. “I am having to try and learn something [technology] while using it, and to put forward the kind of quality for my students.” Another teacher echoed this and shared, “When we went hybrid it was a new way of teaching: you have to address the kids in the room, and then combine the materials for the kids on ZOOM. It was like trying to fly an airplane and play a basketball game at the same time. Students are on zoom and they need a top-level education; it was a balance.”

Another challenge articulated was the loss of spontaneity to meet student's needs in the moment, and the ability to identify the needs of remote students when they couldn't see details in the face or body language, which were part of the communication teachers relied upon to provide quality teaching to their students. “We needed to remember that students on zoom weren't seeing what the classroom kids were seeing. It was a remembering piece for me. If the student was less engaged, it was about remembering to get them engaged. the technology was also challenging. When it wasn't working, how to keep them connected? It was a constant juggling act, and trying to get your lesson plan to continue during this was challenging. The computer on one side of the room, the kids spread around the room made it hard to read the student when we couldn't see them so well”. Another teacher explained further, “As a math teacher, I can read student's faces and see what are their needs. With remote connections, I couldn't see the students and what they were doing at that very moment. When we were full remote, we had different technology, we could see everyone remote and what they were doing/writing, having students verbally explain their work is very different from seeing what they were doing on paper.”

The flexibility and spontaneity were repeatedly shared as fundamental challenges for the middle school teachers. Two teachers shared in a dialogue, “The times when you want to be spontaneous, the child at home doesn't have that opportunity. Those teachable moments were limited and that hurt me not to provide that. If I were designing a room, the breakout rooms are great, but I want to be to fly on the wall hovering over. If I need to go into the breakout rooms then I changed the energy; it breaks their momentum.” On the flip side, teachers in the middle school shared ways in which students began to own their learning differently. “Kids are also given more freedom to engage in their learning and to own their learning space. In the sixth grade, students are invited to give identity and meaning to their workspace (for classroom-based kids this means their end of the table; for distance learners, it means their home space). “Kids pride themselves in their designs and they get creative with the materials they use. One kid made a “Covid fortress” outlining his table space with Christmas lights and signs.”

Aggregated Impact on Learning from the MAP Growth

Assessment Data

Figure 4 represents MAP growth assessment data from winter 2020 to fall 2021, with different grade levels shown by color. (Dark blue represents Kindergarten and grey represents 8th grade) The school tested most students from kindergarten through 8th grade just two months before the pandemic began, providing a baseline on which to measure academic progress throughout the pandemic. In mid-March 2020, the school left for spring break and did not return for the remainder of the school year. This meant MAP testing could not be completed as shown in Figure 4. However, comparing winter 2019-20 to winter the following year, it is evident that almost all

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grade levels exhibit the same or higher mean RIT scores. This is significant due to the complex nature of the hybrid teaching and learning taking place throughout the school year.

The school year began with 132 students (26% of the student body) learning remotely from home. It was assumed by teachers and administration that student growth would be stalled in some way as other schools have experienced. Interestingly, the opposite was true and student growth remained on or above the level of pre-pandemic learning. It should be noted that at the time of writing, limited data are available for the fall 2021-22 assessment window. The available data does show a trend downwards but this can be attributed to the summer learning loss described earlier. It is hypothesized that if we had data from spring 2019-20, the time when the whole school was remote and unable to test, data would show SLL decreases between spring and fall, mirroring the trends the school has experienced for years.

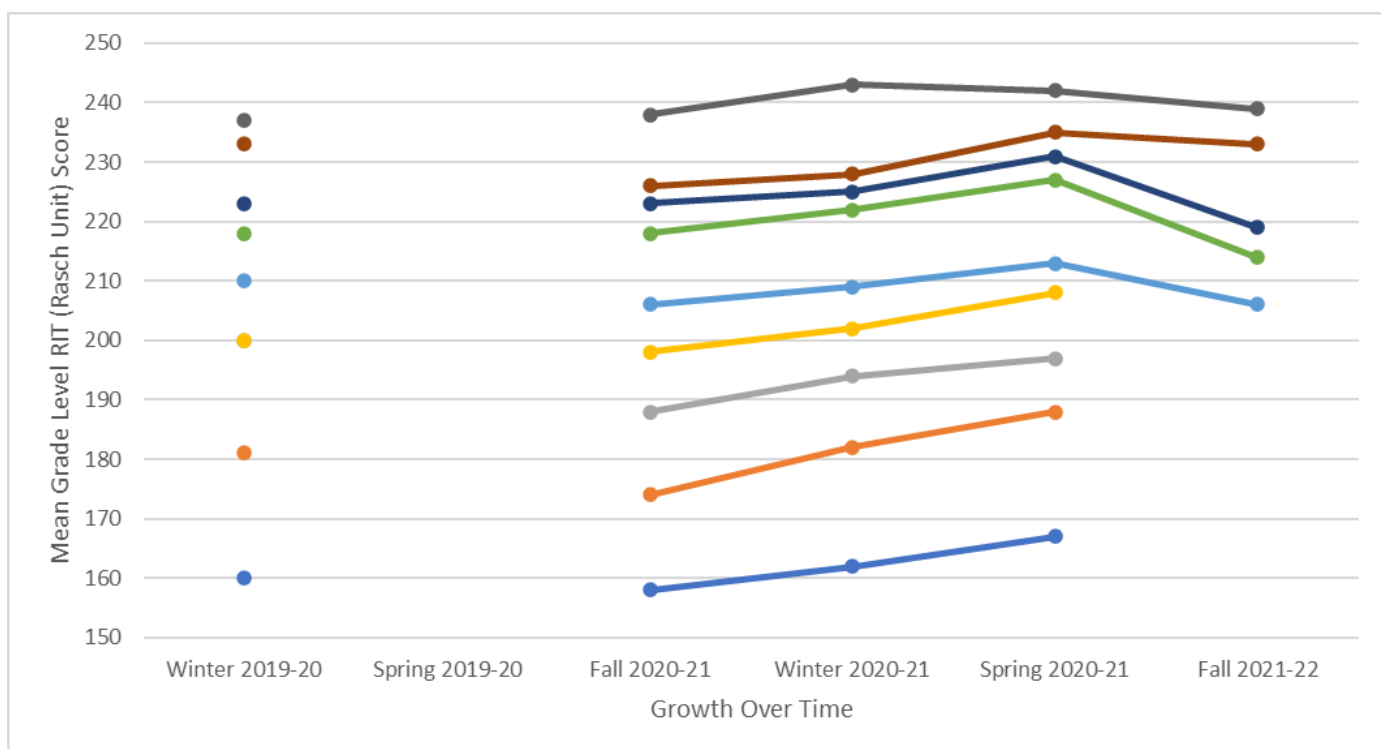


Figure 4: MAP Growth Assessment Data Over Time

The stability and even growth in student test scores have contributed to the increase in attractive quality experienced by the parents of the school. When the pandemic began, parents were rightfully worried about the effects COVID would have on their children’s academic, social, and emotional growth. These same parents were surprised and delighted to learn not only did their children experience a year full of joy, but their academics did not suffer. The school has heard from many parents regarding their sincere appreciation of the teachers and staff for helping make this happen. The school’s record re-enrollment, at a time when the economy was in flux, also supports the fact that customer loyalty and perceived quality of the schooling experience were at an all-time high.

Impact on Faculty Wellbeing

The impact on faculty well-being was measured by the Contentment Foundation analytics, which focused on physical health, psychological wellbeing, community climate, inner climate,

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relationship to experiences, and emotional efficacy. Figure 5 displays visually the aggregated whole school favorability rating generated each time a survey is taken. The lowest schoolwide favorability score, 69.2, was produced the same month as the global pandemic began. Shortly after this survey was taken, the whole school moved to fully remote learning. In August 2020, the school began arguably the toughest year of teaching in the school’s history, according to interviews with teachers. Managing the high level of necessary engagement of students both online and in-person took a toll on the overall personal wellbeing of the teachers and staff, especially according to survey data, in the areas of diet, sleep, immune system, emotional wellness, purpose in life, self-gratitude, and growth mindset. As the school entered the 2021-22 school year, the faculty and staff recorded their highest ever overall wellbeing score of 72.49.

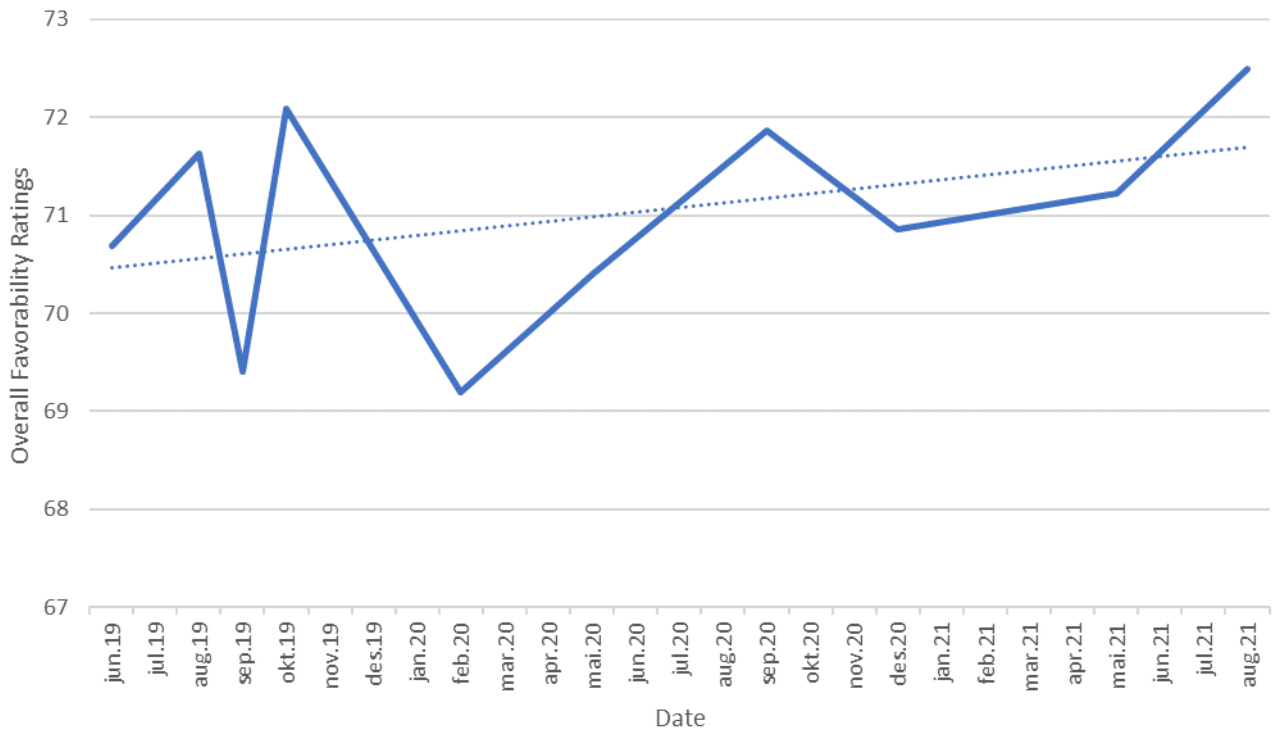


Figure 5: Schoolwide Personal Wellbeing Survey Data

The theory of attractive quality (Lilja & Wiklund, 2007) can be applied loosely in this situation as the teachers and staff are not necessarily the purchasers of a particular product or service. However, the high level of personal well-being, at a time when the school was beginning yet another tough school year, could be described as fundamental to the success of the first few weeks of school. Furthermore, when people are yearning for connection and positivity in their lives, the school, along with all its smiling teachers and staff members, is providing its customers with the definition of attractive quality. Parents and students are surprised and delighted with the depth of community the school provided to their families over these hard months and in turn, the perceived value of the school program and customer loyalty seems to have increased since the beginning of the pandemic.

Analysis and Discussion

How leaders respond to a pandemic without sacrificing quality is an indication of how sustainable and adaptable is the organization. When the changes are guided by customer needs they can serve as a contemporary indicator of Quality (Fundin, et al. 2020). Findings from this study illustrate that innovation in schools can be transformative if the right conditions are in place. In this case study, “going hybrid on a dime” was necessary for the school to maintain attractive quality in their education during a global pandemic. Adapting quickly was made possible by several critical factors that many researchers argue are essential to sustain quality development (Fundin, et al 202; Rigby, 2018; Tensel, et al., 2021), among them, we identified the following:

1. A systems approach to organizational development
2. Participatory culture
3. Informed decision making
4. A customer orientation
5. clarity of purpose and alignment of work systems
6. networking

The data also demonstrated that the redesign of schooling through technology-based solutions is complex and requires a fit between the pedagogy and the organisational structure of teaching and learning. When the fit is good, technology can extend and transform; when the fit is poor, technology can amputate teaching and learning. For example, the use of iPads and Canvas learning management systems extended teaching and learning, and also enhanced attractive quality. At the Elementary level, this adaptation appeared to innovate how teachers worked together, how the curriculum was designed in collaboration with different units and subjects, and how teachers partnered to give “relief” and create space for meeting the needs of individual students and parents who needed extra attention.

Changes were made to the scheduling, grouping of students, and teaming of teachers, making the learning environment more attractive. This illustrates how teachers can be stimulated by technology to adapt and reinvent learning in a digital age (Fisher, et al., 2020). The data also suggests that the established culture of team teaching created important conditions for the hybrid model to thrive and transform the school, reinforcing Brunetti, et al (2020) finding that technological competence needs to be applied in a broader culture that supports continuous improvement and innovation.

In Middle school, there was evidence of how attractive quality was amputated as teachers struggled to maintain the values for learning, based on ability grouping. The level of attractive quality diminished with the hybrid learning model, raising fundamental questions about what is required for integrating technology in schools to stimulate innovation and attractive quality transformation. This raises further questions about how team teaching can be advanced to

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provide more flexibility for teachers, along with the additional teacher resources added to the environment for responding to emerging needs.

The relationship between communication and pedagogy was also highlighted as important to innovate and maintain attractive quality. Structural elements in scheduling, planning, and curriculum development were more flexible, and could be sacrificed to prioritize the social connections and well-being among students; a finding that is in line with both Fisher et al, (2020) and Brunetti, et al. (2020). Seen from an attractive quality perspective (Lija & Wiklund, 2007), teachers were responsive to the needs of their students and used the fundamental principles and values of the school’s pedagogy to inform decisions about the use of technology in the hybrid learning situation. Moreover, the school’s goal to create a sense of “being here” and “one community” drove the design of the hybrid model and the decisions that ensued during its implementation.

On the surface, it may appear that technology was the conduit for the design of the hybrid model. We would caution the reader to look more deeply at the implications to understand that the digital culture was made possible by a deeper awareness among the school leaders of quality management and the importance of creating value for customers and stakeholders. Moreover, of a systems orientation to continuous development. Technology integration does not, by itself, generate value. Transformation occurs when educators work together, interconnected, to generate new and unexpected value, made possible by technology. Our analysis from this study is that the redesign of schooling took place through how the school communicated, consumed, created, and organized using technology in unexpected ways that added attractive value to its internal and external customers.

Transforming the school over time is a non-linear process (Snyder, et al, 2008) which suggests that the four dimensions of the Digital Culture model operate in a dynamic integrated system of forces as the pendulum swings between them (see figure 6). The pendulum swing is guided by the values and philosophy in the organization to ensure that the different dimensions are strategically developed as an integrated whole and aligned with the goals and mission of the organization. A culture of continuous improvement and continuous professional development is essential to ensure sustainable quality development as the pendulum swings, perhaps multiple times to find a new place.

If your focus as a leader, or as a school, leans too heavily in one direction or another, the needs of the other critical areas represented in the digital culture model will make themselves known, normally displayed through a lack of responsiveness to a particular area. For example, if we focus all our energy and time on developing pedagogy, naturally our focus is off on communication, and we might hear from our customers regarding this miss. However, due to the nature of gravity, the ‘equilibrium’ of life forces the pendulum towards communication thus keeping the organization balanced. Just an idea. Sustainable development is an ongoing ‘process’ in which we must continue to innovate in these different areas, rather than arrive at the destination of sustainability. Pendulums, in perpetual motion, help us visualize a never-ending ‘dance’ through and between the interconnectedness of life itself in a human organization.



Figure 6: The Pendulum Swing of the Digital Culture model

Conclusions

This study illustrates how schools can innovate and sustain quality in education by integrating technology with the pedagogical and philosophical values of the school. With a year of combined remote and in-class teaching and learning under their belt because of the pandemic, teachers' competence, and comfort with technology in learning skyrocketed to a new galactic level. Their experience demonstrates that transformation in education is well served when innovation is based on the deeper, value-based elements that drive the organization to continue aligning decisions with the vision and mission of their work. When digital solutions are in-line with the values and the culture of the organization and quality will be sustainable.

Perhaps this story about Corbett Prep's capacity to "Go hybrid on a dime" reinforces the larger story of developing a school over time as a strong cohesive living system, one that is strong because of its interconnections, interdependencies, and networking both within the school, and with parents and the larger community. Isn't the overarching message in this story, also about the resilience of Educators to invite, listen to, and engage others to help shape the journey, while searching for continuous feedback? The Digital Culture Model shows the power of a school to move on a dime to respond to the enormous challenges of maintaining and exceeding expectations for student learning, teacher well-being, parent satisfaction, and attractive quality during a lengthy pandemic. This is a picture of complexity that shows the strength that evolves from a school with a common purpose, where everyone is engaged and involved in shaping the school's continuous improvement journey, even in a pandemic. It also reflects the importance of developing processes for feedback and dialogue among organizational members to reflect on the appropriateness of innovations to transform schools toward enhanced quality and sustainable development. Allowing the digital culture's "pendulum to swing", guided by the values and goals

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of the organization, can foster a continuous internal capacity to embrace disequilibrium and ensure attractive quality for the community of schooling.

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