



Buffalo Public Schools

Putting children and families first to ensure high academic achievement for all

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RESEARCH CAPSULE

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Organizational Agility and Resilience in Public School Districts

AT A GLANCE

COVID-19 came as a shock for the entire globe capturing all the layers of the global infrastructures. It posed challenges for different types of organizations who had to introduce change in their operations and invest considerable amount of effort to operate within the set limits while attempting to survive under the set conditions of accepting and integrating change. While different sectors of industry seem to be affected by different change scenarios (e.g. low demand in hospitality and tourism industry vs. high demand in production of certain types of goods), change in the education sector partially affected post-secondary education and fully impacted K-12 education. Post-secondary education already had the experience of distance learning, and it is assumed that for colleges and universities it would have been slightly easier to move instruction from physical classrooms into the remote mode of instruction (although both are not absolutely identical). For K-12, the picture is different. At this exact moment K-12 is proceeding through processes that are new for it and historical for higher education distance learning models. Under the given conditions, agility and resilience in the public-school instructional sector is absolutely imperative. The purpose of the current brief is to discuss organizational agility and resilience in relation to the K-12 setting, to present a framework for organizational change and look at the current state of K-12 through that framework, provide a historical overview of technology integration in education, share some data collected recently from different school districts on the response to school closings and to look at possible instructional creative solutions that can allow K-12 education not only to survive, but also to prosper.

Organizational Agility, Resilience and Stages of Change

The concepts *organizational agility* and *organizational resilience* received considerable amount of discussion and research in the corporate world. However, they are equally applicable to the educational context and K-12 setting. Organizational agility is defined in the following way: “Organizational agility means all your people are motivated, highly responsive to change, and performing at their best in any

business environment”¹. Resilience, on the other hand is defined as: “... the ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper” (BSI and Cranfield School of Management)². A number of frameworks have been suggested to capture organizational change management, and since both organizational agility and resilience relate to organizational change, it is important to understand what effective change management may encompass.

ADKAR as an Organizational Change Management Framework

ADKAR is one of a number of change management frameworks suggested. Hiatt (2006) discusses the five-stage ADKAR model related to an individual, which can equally be applied to an organization: (i) *Awareness* - understanding of the nature of the change, why change is being made and the risk of not changing, information about the internal and external drivers that created the need for change, (ii) *Desire* - the willingness to support and engage in change, (iii) *Knowledge* - the information, training and education necessary to know how to change, information about behaviors, processes, tools, systems, skills, job roles and techniques needed to implement change, (iv) *Ability* - the realization or execution of the change, turning knowledge into action, and (v) *Reinforcement* - internal and external factors that sustain change. External reinforcements could include recognition, rewards and celebrations that are tied to the realization of the change. Internal reinforcements could be internal satisfaction with achievement or other benefits derived from the change.

Looking at the School Districts’ Response to Change through the Five Stages of ADKAR Model

Awareness

While awareness assumes understanding the need to change, change to remote learning in K-12 was superimposed on school districts by the current global challenges. While the districts exhibited the best possible response to it, it did not provide the districts enough time to prepare the models of remote instruction as one would do that for eLearning constructivist models. The organizational agility helped at this stage because districts exhibited a high level of awareness of the existing problem, and the need in change. However, the decision in K-12 to offer remote instruction was made under conditions different from those under which higher education built its eLearning models.

In higher education, the decisions made to move to eLearning were conditioned by the attempt to transfer learning from a traditional classroom to a virtual classroom, to offer courses through the World Wide Web so that they can be accessible to many more learners located in different parts of the globe. Another important aspect of eLearning was that it offered asynchronous instruction that was convenient for working adults. This task could not have been accomplished without the advancement in educational technology.

Evaluating the processes that school districts underwent nationwide, it could be stated that the entire national school community responded to the current condition to the best of their potential. While pressured by the unknown, the districts understood the seriousness of the moment, and the motivation of

¹ <https://www.reflektive.com/blog/hr-to-rh/>

² <https://www.bsigroup.com/en-US/our-services/Organizational-Resilience/>

the instructional sector to assure continuity in instruction was very high and resulted in providing students resources so that instruction can be transferred from school to homes. Of course, the availability of educational technology, access to the internet in homes, and limited technology experience of the users (i.e. teachers, students, parents) does pose certain challenges, but it can be stated that at this point the districts, Buffalo School District (BPS) included, addressed the high priority issue of providing resources to students to continue learning at home. Teachers use direct remote instruction whenever possible to teach, and help learners understand instructional materials so that some learning can happen at home.

Knowledge

As stated above, knowledge relates to determining how to change. For this initial level, the knowledge of school districts on how the resources could be provided to students in the fastest way seems to be the best solution, but will this be a good solution if the process of school closings proceed? Something that needs to be brought to attention is that K-12 can benefit from eLearning if it is carefully designed and managed. And the benefits of eLearning can be listed from the perspective of cognitive education. The shift to eLearning, if the model is appropriately designed, can change the classrooms from being teacher-centered to learner-centered and learning-centered. Some other aspects of instruction that can change and be managed differently are: (a) type of learning (moving learning from memorization to understanding relationships and applying skills), (b) control of learning (moving control in learning from teachers to the learners, or both), (c) focus of learning (learners working with problems rather than with topic with interdisciplinary focus rather than related domain-based instruction), (d) grouping for learning (students can learn individually, in pairs and in groups), (e) interactions for learning (students can have both human interactions, such as student-teacher, student-student, and student-other, or non-human interactions – student-information, student-environment), and (f) support for learning (students can receive cognitive and emotional, that not only can help students with understanding the instructional context, but can also help with developing learner attitudes, motivation, feelings and self-confidence in learning) (Reigeluth & Moore, 1999).

Ability

The next questions to think about is: do districts have the ability to introduce the shift to genuine eLearning models? Ability means skills, behaviors, attitudes and processes. Do students and teachers have the required technical skills to effectively work in eLearning models? What is teachers' and students' attitudes towards eLearning? What types of supports might be available to those who might need help? What processes need to be in place so that the change can happen. Other than skills, behaviors and processes, technology affordability can also create a barrier towards implementation of eLearning, although the districts seem to try to make sure that all students are provided with some type of educational technology and have hotspots to connect to the internet.

Reinforcement

Reinforcement relates to sustaining change. It is also true that hazards or disruption can also boost creativity. "New normal" has become a term that has been used quite frequently nowadays. A few questions to reflect here are: Should we try to use the experience of higher education and introduce eLearning models in K-12 and keep them after the conditions change? After all, Information and Communication Technology (ICT) skills are listed among 21st century skills for K-21 students (Claro et. al, 2012). Which grade levels may benefit more if we introduce asynchronous eLearning models? Could

eLearning be beneficial for students who are absent from school or have out-of-school suspensions even if the instruction returns back to physical classrooms? Also, could K-12 benefit from blended courses where eLearning will complement instruction in physical classrooms? The experience with distance education suggests that learners get more individualized attention from instructor in eLearning than in physical classrooms (6.77 hours vs. 0.71 hours respectively) as mentioned by Cavanaugh (2005).

Historical Overview of Technology Integration

Instructional science has a long history of integrating technology into instruction to create instructional environments to facilitate learning. In earlier attempts, educational radio and TV were used in instruction. With the emergence and development of computer technology and the Internet, computers were integrated into instruction progressively introducing technological innovations. While certain types of technology have been integrated in K-12 (e.g. computers, iPads) the development of eLearning at higher education levels resulted in “universities without walls”, which provide opportunities for learners to engage in education and access interactive instruction from different parts of the world, supporting creation of learning communities and communities of practice (Nicholson, 2007).

The initial attempt of educators in eLearning was transferring learning from a traditional classroom to a virtual classroom. In this model, online courses appeared on the World Wide Web structured into modules and lessons, similar to traditional educational algorithms. Courses became standardized, time limited, and linear as students completed formalized tasks. In this instructional model, the traditional means of knowledge distribution with only the virtual extension of textbooks and classroom teaching occurred. Students remained passive learners in the classroom who were managed by their instructors (Bessenyei, 2008).

Subsequent and more current methods of teaching in eLearning have utilized social networks, becoming more self-organized and embedded into activities. This model took advantage of YouTube, Google Docs, Doodle, Skype, Blogs, Wikies, Podcasts, and similar technologies and applications (Angulo, Fillwalk & Velasco, 2010), facilitating student interaction and collaboration in virtual communities. Students actively engaged with peers in constructing and co-constructing??? knowledge. Almost a decade ago, it was noted that developing models of eLearning would focus more on becoming multifaceted and cooperative (Goroshko & Samoilenko, 2011). As eLearning advanced, technology held a central role and played a role in the background, in an invisible way, connecting knowledge, supporting knowledge brokering, and enabling transference of knowledge to beneficial applications (Moravec, 2008). Far more than in traditional face-to-face instruction, educators in eLearning are disseminating knowledge through a wide variety of multimedia resources. Learners are expected to become active and engaged participants who seek relevant knowledge rather than passively absorbing instruction. For all of these to happen there was time and effort invested to design online instruction, prepare instructional materials, train faculty, prepare course management systems that hosed???? the classroom, the gradebook, the assignments for online learning assessment and much more.

Mapping of the District Plans During School Closure

Reinventing Public Education compiled a database³ that captured the plans of a number of school districts for supporting students during the current unprecedented mass closure in response to the COVID-19 pandemic. For the project, publicly posted district plans were searched via the Council of the Great City Schools, Chefs for Change and as well as crowdsourced recommendations. The sample in the dataset is

³ https://docs.google.com/spreadsheets/d/1n_5rHMCf2GAiOcgl4pCZD8l9zh5-1NQRKmYEk3qPLg/htmlview/#

presented by 100 school districts at this point. While this is not a representative sample for the nation, it seems to provide some idea about the support the districts are providing to the learners. (Note: The data is not static. The agency refreshes it every week and the data does seem to change too).

The district plans have been mapped related to the following six areas: (i) **Curriculum**: resources provided by district, resource coverage, (ii) **Instruction**: instruction from teacher, synchronous teaching, synchronous student engagement, students with disabilities (whether the district webpage has information on their support), (iii) **Program Monitoring**: teacher feedback on student work, formal grading, teacher check-in with students via phone, email or virtual platform, (iv) **Centralization**: whether district delegates teachers to prepare their own remote learning plan, (v) **Learning Time**: student attendance tracking, amount of instructional minutes recommended, and (vi) **Technology**: device distribution, hotspot access. The analysis of the data yielded the following results.

As the figure above suggests the support provided to all students are in the following numbers: resource coverage - 97.3%, instruction from teacher - 61.5%, synchronous teaching - 10.1%, and student synchronous engagement – 1.8%. Additionally, 69.7% of districts provide feedback, 45.9% use formal grading, and 51.4% report device distribution. More detailed information is provided in Figure 1 below.

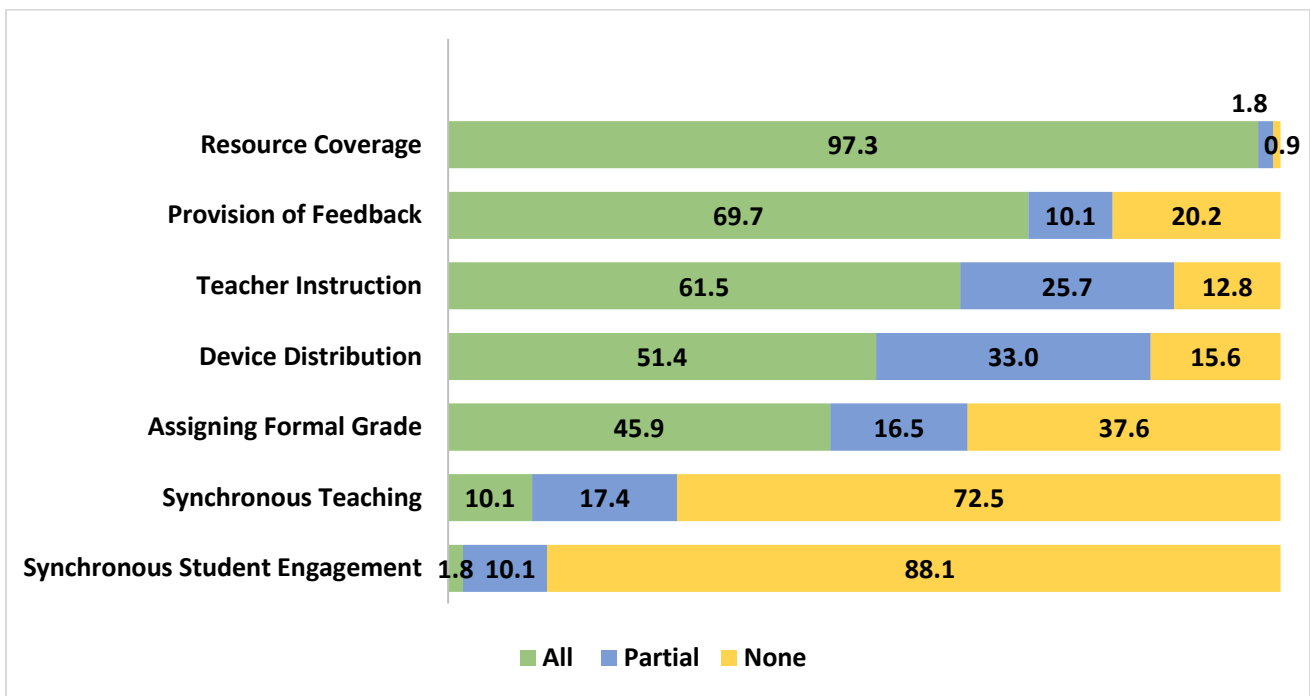


Figure 1: District Planning during School Closure

Further, in the same 100 school districts information was collected on whether student attendance is tracked, whether instructional minutes were recommended, whether teachers check in, whether students with disabilities (SWD) are served. The results of the analysis suggested that in 30.3% of school districts student attendance is tracked, in 36.7% of districts instructional minutes are recommended, in 64.2% of districts teachers check in, and in 68.8% of districts the students with disabilities (SWD) are served. These numbers are presented in Figure 2 below.

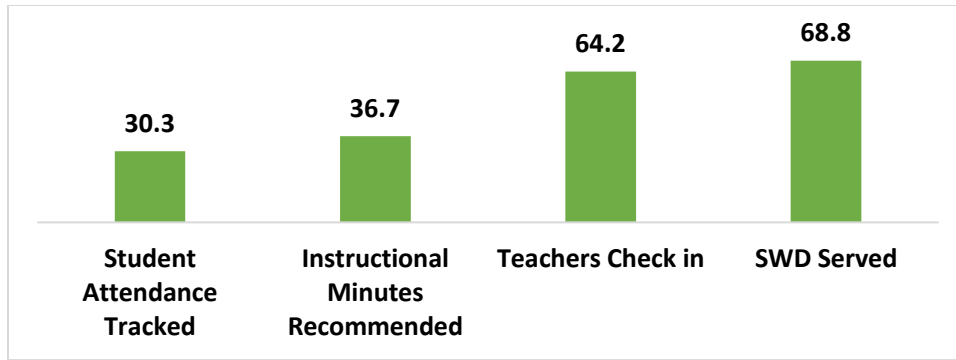


Figure 2: SWD, Check-in, Teacher Attendance, Instructional Minutes

BPS reported providing specific resources, resource coverage for all students, teacher instruction for all grades, partial synchronic teaching (i.e. instruction to some grades), partial student engagement in synchronous learning, feedback to all students, formal grading for all students, and partial device distribution to students (i.e. some grades). The district reported providing service to students with disabilities (SWD), teachers checking in, not tracking student attendance and not recommending instructional minutes.

Use of Technology Platforms for Virtual Learning

As a response to COVID-19, some agencies recommended instructional resources. For instance, Charles and Lynn Schusterman Family Foundation and PANORAMA offer a number of resources for teachers and school leaders responding to COVID-19⁴. However, while these offerings are for content which can be used both in physical classrooms and remotely, districts are using a number of platforms to reach out to students.

Exploration of the types of platforms used for instructional purposes yielded the following picture. Sixteen types of platforms/conferencing and other types of technology were reported being used by different districts. Some reported more than one technology. Among the reported technology, 41.6 % is the use of Google Classrooms. Equal percentage, that is 10.4% of districts use Schoology and Microsoft Teams, 9.1% use Canvas, 7.8% use Zoom, 6.5% used Clever, 2.6% Google Hangouts, and a number of other platforms used by individual Districts (e.g. Seesaw, LaunchPad).

⁴ <https://www.schusterman.org/blogs/team-schusterman/resources-for-teachers-and-school-leaders-responding-to-covid-19>;
<https://www.panoramaed.com/virtual-community-learning>

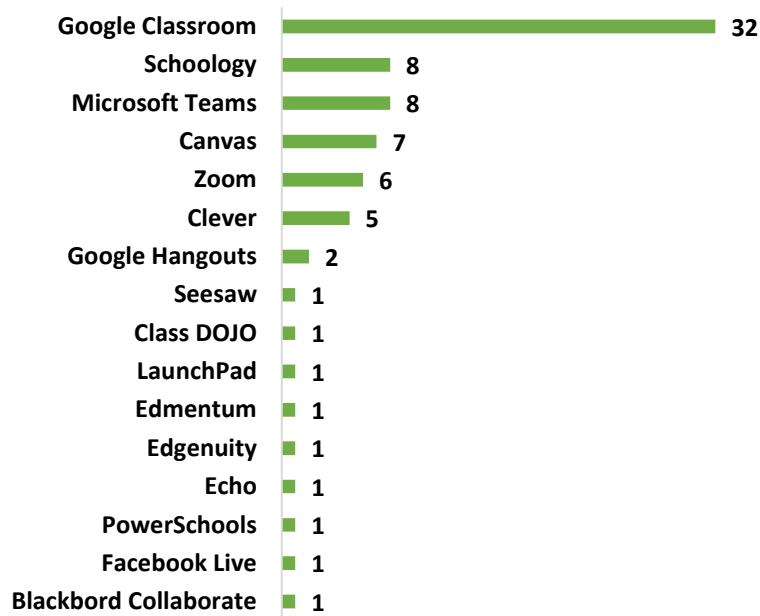


Figure 2: Counts of Types of Platforms Used for Instruction

As Figure 2 shows, the Google Classroom is the platform used by many district, and Schoology and Microsoft Teams are the two others used by equal number of districts. Buffalo Public Schools is using Schoology. Table 1 presents overall use of Schoology, as well as its use by teachers and students during the week of April 17.

Table 1: Buffalo Public Schools Use of Schoology

| Schoology Usage | Teachers (Schoology) | Students (Schoology) |
|------------------------------------|------------------------------|----------------------------------|
| • Active Student Users: 15,840 | • 10,672 assessments created | • 47,798 tests/quizzes submitted |
| • Active Student Sessions: 200,408 | • 63,295 assignments created | • 116,158 assignments submitted |
| • Active Teacher Users: 2,647 | • 20,936 discussions created | • 257,356 discussions submitted |
| • Active Teacher Sessions: 43,833 | | |

Google Classroom, Microsoft Teams and Sociology

Google Classroom is free suite that includes email, documents and storage. It has several features, among which it is, easy to add students, and management of multiple classes (announcements can be reused). Teachers can co-teach, they can add materials of different format (e.g. YouTube, GoogleForms, PDFs) and others from GoogleDrive. They can attach worksheets, customize assignments, work with students individually. It seems that most of the districts that used Google Classroom use it for providing resources in most cases. The empirical studies on Google Classrooms focused on teacher and students' perceptions about the ease of use and effectiveness of technology. Sample studies are below.

Microsoft Teams provides features for working with other people. It supports creating of virtual teams, inviting people to join them. Has features for chat and exchanging messages with other members of your team, either as a group or individually. Individuals can speak with others individually or as a group via audio

or video calls. It also affords file sharing with others and collaboration on those files collectively (i.e. viewing and editing Word documents, Excel spreadsheets, PowerPoint presentations and OneNote files).

Schoology, on the other hand, is both a learning management system (LMS) and social networking tool. It makes it quick to produce and disseminate academic content. Schoology offers a collaborative integrated learning experience to make the traditional LMS more effective. The platform empowers instructors with dynamic course creation and management tools, a global community for sharing best practices and resources, and comprehensive analytics for free. It allows sharing and tracking which provides in-depth oversight that allows for greater attention toward meeting student needs and improving student outcomes. Schoology offers an online grading system and performance-based analytics that instructors can use to get the important data needed to tailor lessons for a more effective education. Sample studies conducted on Schoology are provided below.

Empirical Research on Google Classroom

The focus of the research on eLearning platforms was on the exploring their effectiveness for student learning as well as their ease of use and user-friendliness.

Iftakhar (2016) conducted a study to report the overall view of Google Classroom adopted in the different classes. The research questions are: a) What factors influence teachers to use Google Classroom? b) How does teachers use Google Classroom in their teaching? c) What are the barriers to use Google Classroom? D) What are students' responses to the Google Classroom? The results of the study suggested that 18 students agreed that Google Classroom is effective and easy to use because they can get many uploaded files at a time and can join the class from anywhere and anytime. Google Classroom has unlimited storage. So, they can add their own reading resources too. Twenty students feel that high speed internet is mandatory to upload a file. It seems that the platform also lowers their anxiety. Eleven students feel that students also need training on Google Classroom and its effective features so that they feel motivated. Regular use can improve their understanding of the lesson. Thirty students commented that teachers should use it regularly and give positive feedback about students' participation in Google Classroom, i.e. reply to the students' comments or inquiries on time. Twenty-two of the students confessed their academic dishonesty regarding posting the copied assignments.

Al-Marroof and Al-Emran (2018) conducted a study to examine the factors that affect the students' acceptance of Google Classroom at Al Buraimi University College (BUC) in Oman, using the Technology Acceptance Model (TAM) as a theoretical framework. The results of the study suggested that both the perceived ease of use and perceived usefulness positively influence the behavioral intention, which in turn influences the actual usage of Google Classroom.

Heggart and Yoo (2018) conducted a study in which two early career academics and instructors examined the effectiveness of using Google Classroom for final year primary teacher education students to encourage student voice and agency, and to consider how the platform might influence future pedagogies at the tertiary level. The data showed that Google Classroom increased student participation and learning and improved classroom dynamics. It also revealed concerns around pace and user experience. The researchers suggested a framework to evaluate the use of online platforms through the following four concepts: pace, ease of access, collaboration and student voice/agency.

Azhar and Iqbal (2018) conducted a qualitative study to assess teachers' perception on the effectiveness of Google Classroom. The study is carried out through a qualitative research design. Semi-structured interviews were conducted with 12 higher education teachers who implemented Google Classroom for at

least one semester in their classroom. Findings of the study revealed that teachers perceive the technology as only a facilitation tool that can be used for document management and basic classroom management, without having a significant impact on teaching methodologies. The responses of the teachers indicated that lack of user-friendly interface is the main reason for its inefficiency.

Ramadhani, Umam, Abdurrahman, & Syazali (2019) conducted a quasi-experimental study to determine the effect of using the Google Classroom-based Flipped-Problem Based Learning Model (FPBLM) in the process of learning mathematics in high schools in Medan, North Sumatra, Indonesia. The results of the study suggested that the average mathematics learning outcomes of students taught using the FPBLM based on Google Classroom learning management system (LMS) showed significant increase on post-test (compared to pre-test) than in their peers engaged in conventional learning. A survey with students also indicated that in FPBLM, they felt more enthusiastic, motivated and eager to take part in learning than their peers taught in conventional classrooms.

Empirical Research on Schoology

Cummins, Brown, and Sayers (2007) suggested three design criteria for technology supported instruction: (a) Cognitive challenges and opportunities for deep processing of meaning; (b) Self-regulated activity for collaborative inquiry, and (c) Need of multiliteracies in the twenty-first century. Schoology seems to be capable of meeting all the criteria in that it can allow teachers and students to share questions, problems, and opinions within the classroom community. In this learning environment teachers can motivate students to add, create, record, and share supportive materials (i.e., audio, video, pages, pictures). In addition, teachers can make class lessons more involving and applicable in daily life by facilitating students to use their prior knowledge and experiences. The platform has student-to-student and teacher-to-student interaction features that can encourage students to contribute and share interesting and relevant ideas with classmates and teachers and learn for understanding. Teachers can monitor students' learning and performance, but students can also check their own performance. Students can share files with others and can create a classroom network guided by their teachers. The scope of student learning may move from individual to the classroom.

Sicat (2015) conducted an experimental study with 135 college students to determine the effectiveness of Schoology in regard to enhancing the proficiency in business writing. The results of the study suggested that the post-test scores in the experimental group using Schoology were significantly higher than those in the control group. The researcher concluded that the proficiency of students in business writing can be further enhanced using Schoology as a supplement to traditional teaching methods.

Priyatno (2017) conducted a qualitative case study involving 21 students enrolled in an English for Academic Purposes (EAP) course that adopted a blended learning method. The findings of the study suggested that Schoology platform helped the students to exercise autonomy in EAP learning. The students exercised their control over learning management, cognitive process, and selection of learning materials which was due to the affordance of Schoology. First, Schoology's social networking interface facilitated interaction and communication among the students. Second, its mobile application enabled the students to learn English at their pace, time, and place. Third, the media-rich materials encouraged the students to further explore other materials online.

Daud and Ghani (2017) conducted a study using the Technology Acceptance Theory and surveyed 90 students in early childhood education in Kota Bharu, Kelantan. The results of the study suggested positive response in using Schoology as a learning platform due to its flexibility, simplicity, user-friendliness, and its various functionalities.

Joshua, Swastika and Estiyanti (2016) conducted a study to explore the effectiveness of implementing Schoology on motivation and learning achievement of students. The results of the study suggested that the learning opportunities and collaborative learning have a significant impact on motivation to learn. Learning motivation, on the other hand, impacted student achievement.

Conclusion and Recommendations

While the first wave of interventions by different districts seem to be satisfactory, it is important to consider the needs of the “new normal” as a long-term project. Education today faces the challenge of compensating for learning loss in students, but it can also attempt to design instructional models integrating the affordances of eLearning even if the instruction returns to physical classrooms. If the school closings last, it is hoped that the school districts will be able to reach more students, and more students will be provided with educational technology to connect to instruction from homes. Creativity in the approaches towards instructional design, can allow districts to come out from the current situation as winners and provide students new learning environments and experiences that could raise student motivation in learning and serve students when they miss classes during the school week. As they say, there is some positive in every negative, and most probably the positive in the given situation is the need for teachers to start using technology. It is assumed that many learned new skills through professional development that may help them revise their approaches to instruction and instructional techniques used with their students.

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