A Framework for the Sudden Switch to Remote and Online Teaching

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Abstract

The COVID-19 pandemic in Spring 2020 necessitated a sudden shift to remote learning. Faculty at Saint Michael's College, in Vermont (USA), had ten days to re-plan their courses as well as potentially learn new pedagogies, adapt to technology for instruction and delivery, and help students adjust to the changes. In addition, faculty needed to prepare for the likelihood of online teaching in Fall 2020. Applying a structured approach to instructional design, I implemented remote and online instruction for a Strategic Management course by reworking a framework derived from my previous research. This paper explains the framework and offers examples of class projects and assignments that were effective in achieving learning outcomes for both the remainder of the remote Spring 2020 and the fully online Fall 2020 semester. I describe successes and challenges from this application and offer ideas for future research development. The approach can be adapted to upper level seminar courses in Computer Science and Information Systems.

Keywords: Instructional design, framework, COVID-19, projects

1. REMOTE AND ONLINE LEARNING

The COVID-19 public health emergency in March 2020 required Saint Michael's College's administration to make expeditious decisions for faculty to teach, and students to learn safely in the face of a fast-moving deadly virus (Jasick & Redden, 2020; WHO Timeline, n.d.). Saint Michael's is a Catholic, residential, small liberal arts College, located in Vermont (USA). We offer 39 majors in 19 fields of study, including Business Administration (BU), Accounting (AC), Computer Science (CS) and Information Systems (IS). Business Administration is the College's most popular major, representing 20% of the 1,500 student enrollment.

Due to the pandemic, higher Education changed instantly (Jaschik & Redden, 2020), and faculty, many of whom had never taught online, had 10 days to take their fully residential, in-person (i.e. Face-to-Face or F2F) classes remote using instructional technology tools, video conferencing applications, and Canvas by Instructure, the College's learning management system (LMS). As noted by Saint Michael's instructional technologists, remote learning differs from online learning. Remote learning occurs when classes, which were planned to be taught F2F, are delivered remotely by necessity or choice. Facilitating a remote learning experience by transitioning courses online provides continuity during a loss of in-class time. Hodges, Moore, Lockee, Trust & Bond (2020) further differentiate emergency remote learning as a temporary shift of instructional delivery, which will return to the F2F format once the crisis has abated. Appendix 1 describes differences between remote and online learning.

Whether courses are offered online, or remote, or by any instructional approach, effective learning results from careful instructional design and planning by teachers (Weimer, 2013). Achieving learning outcomes during periods of remote learning, and for planned online learning, requires

flexibility, reliance on new (and trusted) pedagogy, and effective implementation of instructional technology. While typical planning for online teaching is six to nine months (Hodges, *et al.*, 2020), our instructional technologists arranged immediate and ongoing support for remote instruction. Faculty scrambled to prepare to deliver classes from home (or from within closed offices). Lansford (2020) and Flaherty (2020) stated that faculty needed to find ways to balance both practical and technical aspects of their work and home life. All classes at Saint Michael's remained remote for the duration of Spring 2020. The Registrar reported about 30% of the faculty and 15% of the students remained fully online for the Fall 2020 semester.

The remainder of this paper addresses how I used a framework from one of my previous research papers to shape my remote instruction in Spring 2020 and online instruction in Fall 2020. The paper addresses successes and challenges of balancing instructional technology, educational process, and people (i.e., students and faculty) engaged in an undergraduate Strategic Management course. Two sections of 18 students were enrolled both semesters. The senior-level, writing-intensive course is required for BU majors. The course also serves as an elective for IS and AC majors.

2. PEOPLE, PROCESS, AND TECHNOLOGY

During the 10-day spring break that preceded returning to instruction in March 2020, I examined best practices (see for example, Centre for Innovation in Teaching and Learning, n.d.-b), reviewed course design rubrics (see for example, Canvas Course Evaluation Checklist review by Baldwin & Ching, 2019), and participated in informal faculty conversations, via Facebook Group pages. These were just a few resources which offered tips, frameworks, models, examples, and support, as well as conversations. For well over a decade, many models have been introduced for faculty development centering around topics such mentoring, engagement, technology, and assessment (META) (Dittmar & McCracken, 2012) and learner-centered approaches to teaching (Weimer, 2013). Reviewing multiple models for my Strategic Management course revealed several concepts to incorporate for my remote and online learning courses:

- keeping a learner-centered design;
- offering project-based experiential learning;
- adapting to constantly changing instructional technology;
- supporting students in asynchronous and synchronous environments; and
- staying true to assessment and outcomes.

Clearly these concepts focused on the integration of students and faculty with educational processes and appropriate use of technology. The People-Process-Technology (PPT) framework proposed in my previous research, (Chen and Popovich, 2003), was based on the then emerging research in Customer Relationship Management (CRM). The proposed PPT framework in the CRM paper was part of a comprehensive, cross-functional, and enterprise-wide strategy to develop innovative customer-centric and technology-driven business processes continuously aimed to fit customer needs and to optimize profitable relationships. (See Figure 1).

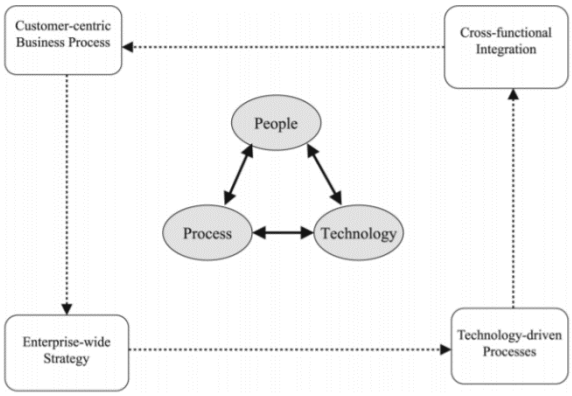

Figure 1. People, Process and Technology Framework (Chen and Popovich, 2003).

There was a need for a systematic, yet flexible approach to Spring 2020 remote and Fall 2020 online instruction that was innovative and adaptive (Rapanta, *et al.,* 2020), technology-driven (Bates, 2003), pedagogically sound (Tennyson, *et al.,* 2010), learner-focused (Weimer, 2013), and designed to achieve course learning outcomes (Dittmar, E., & McCracken, 2012). With a few modifications, the People, Process, and Technology (PPT) model described in Chen and Popovich (2003) was generalizable to the current situation of remote and online education. In the adaptation, referenced as TiPS for **T**echnology (**i**nstructional), **P**edagogy, and **S**tudents/Faculty, the goal was to maximize the learning environment for students, achieve learning outcomes, and ultimately, optimize student retention and graduation rates.

ISSN 2473-4901
v7 n5542

Table 1 and Table 2 identify the components of the original PPT framework and the adaptation to TiPS for remote/online learning.

Original PPT Framework in Chen and Popovich (2003)	**Revised TiPS Framework for Remote/Online**
People	People refers to ***Students and Faculty***
Process	The learning process is accomplished through ***Pedagogy***
Technology	Technology encompasses the ***Instructional Technology*** tools available to faculty to design, implement, and evaluate courses.

Table 1: PPT to TiPS (inner framework)

Original PPT Framework in Chen and Popovich (2003)	**Revised TiPS Framework for Remote/Online**
Customer-centric business process	**Learner-centered**
Enterprise-wide strategy	**Department & course learning outcomes**
Cross-functional Integration	**Integration of theory to practice**
Technology-driven processes	**Technology-enabled**

Table 2: PPT to TiPS (outer framework)

In summary, the adapted framework integrated three principal components: Students and Faculty, Pedagogy, and Instructional technology. Balancing the three components requires a learner-centered approach to achieve department and course learning outcomes through technology-enabled tools, and assignments and projects that apply theory to practice. The arrows in the model, similar to Chen and Popovich (2003) indicate a philosophy of continuous evaluation and improvement. The adapted TiPS model is shown in Figure 2. The next section explains each component in the framework.

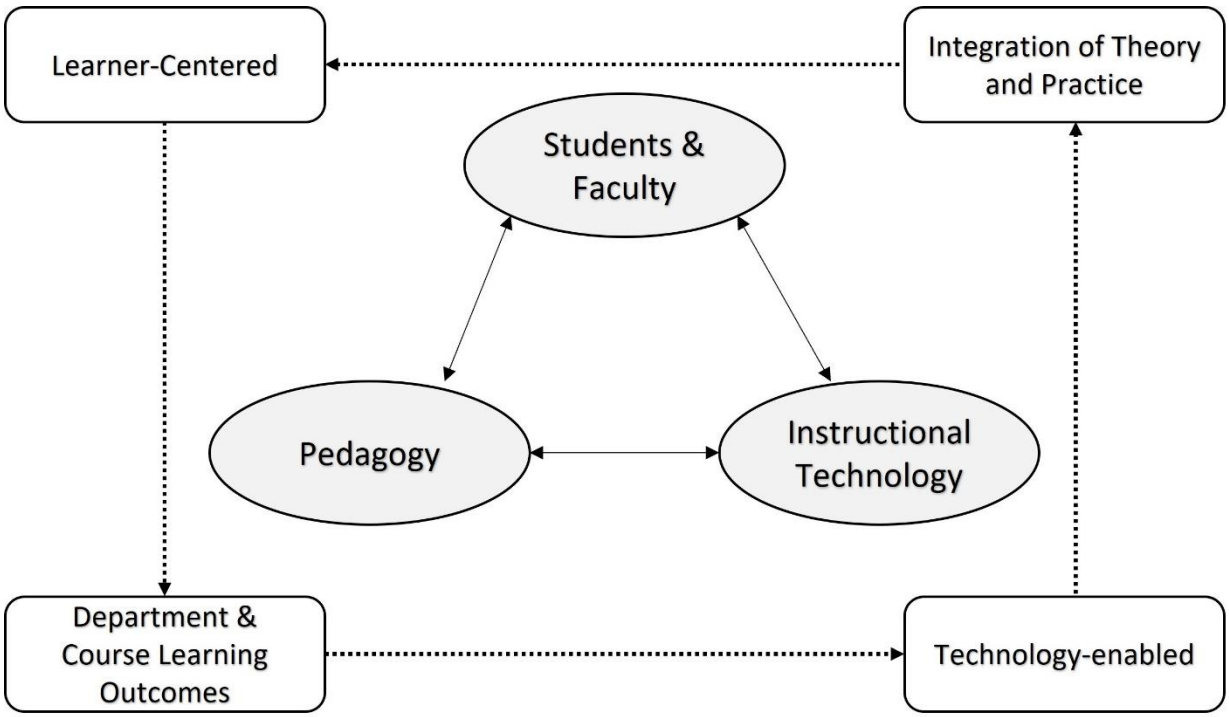

Figure 2. TiPS: Technology (instructional), Pedagogy, Students & Faculty

3. TiPS Framework

Approaching the switch to remote for Spring 2020 and recognizing that the upcoming Fall semester was likely to be online, two choices were possible: operate under a crisis management situation or discover ways to foster better teaching and learning (Adkins & Tu, 2021). With an eye towards creative opportunity and a desire to focus on positive innovation, the adapted model inspired me to research and learn to build an effective course to help my students achieve learning outcomes.

People: Students & Faculty

Hodges *et al.* (2020) concluded that the migration to remote/online learning created disruptions to students, staff, and faculty lives outside the educational institution. Faculty had to consider a number of factors, such as class size, learning objectives, and content, for example, to determine whether synchronous or asynchronous learning was more effective for their courses. In addition, the choice was also influenced by students' personal situations, which may have been challenged by varying technical skills, access to technology, connectivity, work and family obligations, physical learning environment, and individual learning styles. Deadlines, policies, and assignments all required flexibility. Faculty had to balance teaching, research, and service obligations and quite possibly had to learn completely new pedagogies and techniques to implement digital technologies (Rapanta, *et al.,* 2020). A disadvantage of online learning is the lack of F2F instruction, so configuring the learning environment to foster exchange of ideas and information requires, among other considerations, faculty buy-in and a strong organizational structure (Sagheb-Tehrani, 2009). Chen and Popovich (2003) noted the importance of top management support and a commitment to CRM throughout the organization. Best practices in instructional design emphasizes flexible learning environments and basing instructional strategies on individual learners (Tennyson & Schott, 2010).

Weimer (2013) distinguishes "learner-centered" from "student-centered" to keep the focus away from the notion of students merely being "customers" (see also Searcy, 2017). Instead, she places the focus on students as "learners," who are supported by practices and policies that directly affect learning (p. 72). There was no shortage of tips (i.e. Bates, 2003) or instructional design models (i.e. Tennyson & Schott, 2010 and Brookfield, 2017) to assist faculty in their course design and assessment.

Additionally, faculty and students had to adjust to physical and emotional conditions and constraints. It was not even clear that the online environment was conducive to learning (Lederman, 2020). Boardman, Vargas, Cotler, & Burshteyn (2021) surveyed students on performance and feelings of connectedness to peers and faculty in their remote classes. Their small sample determined that feeling connected to peers decreased after switching to remote learning. Within the adapted TiPS model, the Strategic Management course addressed the challenges facing students and faculty by keeping a learner-centered focus on design, implementation, assessment, and revision.

Process: Pedagogy

According to Chen and Popovich (2003), CRM allowed companies to integrate business processes to understand and respond to market changes. Selecting from a combination of potential materials (i.e., videos, recorded lectures, homework problems, readings) and types of interactions (i.e., discussions, presentations, virtual break out rooms, peer reviews) required matching content knowledge to department and course learning outcomes. These efforts often required ongoing flexibility and immediate adjustment (Coman, Tiru, Mesesan-Schmitz, *et al*., 2020). In addition, clearly communicating requirements to students, often via multiple channels, was key to staying aware of evolving student needs (Rapanta *et al.,* 2020).

In a recent review, Adkins & Tu (2021) identified both successes and challenges to the sudden shift to remote learning. A key takeaway: there is no one-size-fits-all model for the successful switch. Keeping students (learners) at the center of the course, learning to modify (or simplify) expectations, helping students adapt to technology, and allowing them to participate actively in their learning processes are considerations for course structure and design when shifting to remote learning (Adkins & Tu (2021), Rapanta *et al.*, 2020).

The expectation that the liberal arts will provide a return on investment and real-life work experiences has been repeatedly discussed in the literature (Cole, 2012; AACU&Y News, 2020). Pre-COVID-19, the Strategic Management course had already integrated instructional technology tools with project-based learning. A benefit of project-based learning for students is the integration of theory and practice which allows authentic opportunities for them to gain

knowledge, work independently, and gain critical skills potential employers seek (i.e., Rice & Shannon, 2016). In preparing for remote instruction, I realized that planned, semester-long experiential-based projects had to be adapted. However, it was important for projects to remain focused on learning outcomes that advanced students' professional development as well developed their critical thinking, problem-solving, and communication skills. For example, one pre-COVID-19 project required field interviews with managers. Since organizations were occupied taking immediate actions to protect employees, establishing response teams, keeping contact with customers, ensuring their own liquidity, stabilizing the supply chain, developing contingency plans, and demonstrating purpose (Staples, 2020), it seemed prudent to not add additional networking requests by students. However, creating opportunities for discussion on COVID-19 was a way to adapt and approach revised assignments. See a sample discussion topic in Appendix 2.

Technology: Instructional Technology

The College purchased full licenses for all faculty and students for Zoom video conferencing software. Khare and Popovich (in press 2021) published a classroom decision-based case on the switch to remote instruction, Zoom's explosive growth, communication modes, and best practices for video-conferencing. In Chen and Popovich (2003), information technology optimized interactions both internally and externally. A goal our instructional technologists set for faculty was to consider whether and how instructional technology tools could improve remote and online instruction by supporting course and department learning outcomes. Privileging learning outcomes allows faculty to design effective learning environments.

Recent surveys and conversations with executives regarding student skills in a post-pandemic workplace (Lieberman, 2021) indicate that in addition to problem-solving, critical thinking, innovation, creativity, agility, empathy, flexibility, and growth mindsets, there is increased demand for using tools that facilitate human connection and collaboration. Digital fluency was also included as important to acquiring and keeping jobs. Being able to "combine" and "manipulate" information to solve complex problems have "tremendous value in the hiring market" (Chau, 2019). Within the adapted TiPS model, it is important to NOT assume that students are familiar or comfortable with the various instructional technologies that may exist within a course. Allowing them time to ask questions and offering resources on how to use the tools effectively are important. The Strategic Management course included video introductions to all instructional technology tools in play. Additionally, the learner-centered structure recognizes that different faculty use different pedagogy and instructional technology tools for assignments and projects in their courses.

Table 3 lists a brief sampling of currently available instructional technology tools, which can be implemented to optimize online and remote teaching and learning.

Examples of Instructional Technology Tools
• Video conferencing software (i.e. Zoom, Google Hangouts, Skype) • Student performance analytics (available in College LMSs and publisher content) • Lecture capture (i.e. Echo 360, Panopto, YuJa, Kaltura) • Publisher digital content (i.e. SmartBook in McGraw-Hill's Connect platform, etc) • Student response systems (i.e. clickers) • Blogging tools • Collaborative tools (i.e. Microsoft Office 365) • Gaming or simulations • File sharing • Audio and video producing tools

Table 3. A sampling of instructional technology tools

Continuous Improvement

The arrows in the TiPS model indicate continuous improvement through evaluation and revision. Chen and Popovich (2003) identified an ongoing evaluation loop around the entire CRM process: from design to feedback to evaluation. Instructional design is also a continual process. One model to consider is ADDIE (Analyze, Design, Develop, Implement and Evaluate) (i.e. see Kurt, 2017 for an overview of ADDIE). The TiPS evaluation process recognizes that Instructors often make incremental revisions and on-the-fly modification, especially for remote and online learning. Another key takeaway is that what works really well one day, such as a collaborative discussion, may be ineffective the next. Because TiPS recognizes the changing needs of students, the model offers faculty flexibility in the design and regular reflection of progress towards learning outcomes. Instructors who demonstrate a genuine commitment to learning motivate

students and impact their learning (Weimer, 2013).

4. PUTTING TiPS TO WORK

Some of our faculty were fortunate in having had experience teaching online from summer programs or from other institutional experience. Norton & Hathaway (2015) note that some faculty gain insight from observing their own online teachers. Many of our faculty relied upon the College's instructional technologists for assistance in the development and implementation of course and instructional frameworks. College faculty decided whether synchronous or asynchronous models, or a blending of these modalities worked for their outcomes and students' needs. My sections of Strategic Management used a blending of synchronous in-class meetings via Zoom videoconferencing software, and asynchronous individual and collaborative group assignments and projects during both the remote and online semesters.

When the two sections of Strategic Management resumed in mid-March 2020, the environment could be described as chaotic, stressful, and anxiety-ridden with various states of confusion. Students were riding an emotional rollercoaster of worries. For students, every course they were taking was set-up differently. It was also clear their faculty had different comfort levels with remote teaching and the instructional technology tools. Our Strategic Management course was already a "heavy user" of Canvas, in that even prior to the pandemic, we made regular use of instructional technology tools (such as publisher content, video capture and the collaborative Microsoft Office 365 suite). The start of Fall 2020 was also a challenging time as students had to adjust to taking classes which were a combination of online, face-to-face, and hybrid.

On March 19, 2020, it was almost like the first day of class, all over again. I explained the systematic approach taken to redesign our course. We reviewed the revised syllabus. The online calendar feature in Canvas had been completely revised and updated. Some assignments that were not as critical to learning outcomes were simply dropped, and others received significant revisions to adapt to our new remote learning environment. Using Zoom's breakout rooms, in-class "project workdays" were added to the schedule. Typical lecture content was moved to video with either out of class written or video discussion boards or in-class small breakout room group discussions with "lessons learned" shared to the entire class. However, we stayed true to the course learning outcomes, with an emphasis on applying practice to theory.

A student commented, "the flexibility of the professor and her desire to see us succeed is what was really most effective. I appreciated the built-in work days to collaborate on projects and presentations with peers. Even though it was a lot of work and writing, what helped was that the professor knew how to navigate the online class and teaching atmosphere. The breakout check-in discussions at the beginning of class gave me peace of mind knowing there was support for me if I needed it."

5. TiPS IN Action

The following offers a review of assignments and projects during the two semester period. Each assignment indicates its focus on the balance of students/faculty, pedagogy, and instructional technology. These assignments can be adapted to a variety of courses and course levels.

Collaborative Check-ins – Focus on Students
On that "first" day in March 2020, and in every synchronous class period thereafter, the first order of business, ranging from 10 to 15 minutes, was to have small group check-ins and an opening collaborative assignment. Casual discussion at the start of synchronous classes was also recommended by Boardman *et al*. (2021).

A discussion question or statement required the use of one of the Microsoft Office 365 applications and the shared link to the file was available on Canvas under the day's agenda. Rather than "sharing screens," which took up too much time as students struggled with the Zoom tools at first, students could follow the discussion in the file with the large group discussion following the breakout activity.

Students were assigned to randomly or pre-set breakout rooms with the suggestion to "Take 3 minutes" to:

- share a good or happy event or news
- describe a challenge, struggle, or concern
- offer support to one another

A noticeable difference in demeanor and participation was often evident at the end of the breakout session. Students also gained valuable software skills with their extensive use of Microsoft tools. Students evaluated the courses highly and commented in evaluations that they appreciated the caring and supportive

environment created, which allowed people to connect, even though we were remote.

One student stated, "the professor acknowledged that we may be struggling with adjusting to the new ways of classes. This was helpful as we had to move back home and adjust to home life. By getting us talking in small groups on how we were doing, it was encouraging."

Short Written Assignments & Peer reviews – Focus on Pedagogy

As the writing-intensive course for the BU major, Strategic Management focused on effective business writing and presentations. Rather than an iterative process on one topic, we practiced writing with a series of three short papers, which when put together, formed a student's first case analysis. Students analyzed secondary research to write a one-to-two page, single-spaced executive summary for each of the three assignments. For this project, students were divided into three different teams of six for the purpose of peer review. Each team was assigned a large public company from a list of options; the teams and the selected company remained the same for three writing assignments. Students were encouraged to communicate with one another and to help each other research and organize each of the short papers. I expected students to submit their own work. All student submissions were verified through the College's online plagiarism checking service. Table 4 describes each writing assignment.

Each student was tasked with peer reviewing the other five people in their team. Assigning peer reviews in Canvas grants access to the peers' submitted files and students can add comments and attach files for each peer. A company-specific rubric was provided to the students. Following the due date, students had at least four days to read their peers' papers and offer substantive, productive comments on the rubric by the next class period. After reviews were submitted, we used breakout rooms for each group to discuss "what was done well," "what could use improvement," and "what did you learn for the next assignment." These "lessons learned" were then shared with the larger class in the main discussion room.

Analyzing the scores from four semesters –two without peer reviews and two with the peer review process– identified a positive, statistically significant difference in graded papers for the courses with the peer reviews (Popovich, *in preparation*). Students commented that they appreciated the opportunity to improve their grade with each short paper and to hear from others. A few students also mentioned spending more time editing because "peers would review their work." An additional comment mentioned "our small group built a learning environment that was both positive and collaborative."

Assignment Topic	**Brief Description**
SWOT/Mission /Vision/ Sustainability *SWOT* (strengths, weakness, opportunities, and threats)	Conduct a *SWOT* analysis and summarize your findings. Evaluate the company's mission/vision and sustainability efforts. Evaluate whether the company has a sustainable competitive advantage and demonstrates superior profitability.
External Analysis *PESTLE:* (Political, Economic, Social, Technology, Legal, Environment)	Analyze the company's industry with a macro analysis such as *PESTLE*. Analyze the competitive marketplace with benchmarking. Does your research suggest that the firm's competitive strategy is working? Provide evidence.
Financial Analysis	Using 5-years of publicly available financial data, analyze the company's financial position and recent trends with ratio analysis. Make recommendations based on your analysis. Include your Excel file.

Table 4. Summary of written assignments

Pandemic Strategy Project – Focus on Pedagogy

The pre-COVID-19 comprehensive project was to have students, in small teams, build their professional network and meet a business executive or business professional in an executive leadership role. The project, approximately 30% of the final grade, was designed for students to witness how strategic management theories were actually practiced. After studying the selected company, the student team would then interview the professional. Finally, the team would moderate a live, 30 to 45 minute in-class video conference as a panel presentation with prepared questions asked to the business professional. A final presentation would include a written analysis as well as a reflection on lessons learned.

Students were encouraged to search out companies and individuals that were aligned with their own career interests.

The project's experiential component with the business executive had to be canceled due to business professionals managing their own COVID-19 crisis situations. Instead, we adapted the project to focus on what businesses were doing to manage the crisis. The assignment was called "Pandemic Strategy." The project evaluation was re-weighted to account for 15% of the final grade, rather than the 30% originally assigned. New, shorter, collaborative video projects and discussions were put in its place; these new items comprised the other 15% of the final grade. Students in both semesters were creative with these projects and were able to apply benchmarks for comparisons within the industry.

Creative Discussion Boards & "Our Take" Lecturettes – Focus on Instructional Technology

The BU department had, several years ago, designed "Guidelines for Effective Discussion Board Participation" for use in summer online courses (see Appendix 3). Included in the guidelines is the requirement to follow a structured routine for all discussion board assignments:

- **POST** to the board by a certain date;
- **Respond** to the posts of a pre-determined number of people or the entire group; whichever was smaller, by a certain date; and
- **REPLY** to all those that took time to write a comment to their post by the time the board closed.

The **POST-RESPOND-REPLY** cycle is repeated for all discussions. Students appreciate the routine of established due dates for each segment. In addition, these guidelines removed frustration felt by the students who posted their answers in a timely fashion and then had to wait for others who seemed to always post just as the discussion closed. Finally, the **REPLY** portion verified engagement when students took time to read what other students took time to write.

During the remote semester, most of the theory-based content was covered prior to Spring break. Once we went remote, discussion boards were used, but sparingly. One student mentioned they appreciated the "break" from discussion boards as it seems they were heavily used in other courses. We did use discussion boards weekly for reflection and short article or video reviews. Students were assigned brief news stories, videos, or podcasts that focused primarily on how businesses were responding to the pandemic. Students appreciated the flexibility to choose whether to record or write a short response about the content. One group took the initiative to meet on Zoom and held a live discussion. They recorded the session and submitted the recording. Thus, a traditional online teaching tool was used in a creative way to foster a positive learning environment through collaboration.

I invited a faculty colleague to record "Our Take" lecturettes with me as an alternative to a traditional recorded lecture. Each "Our Take" was approximately 15 to 25 minute conversational overviews of the assigned readings which ended with our impressions on how the readings/theory applied to the business world. Students enjoyed the dialog of these brief before-class videos and in class were assigned to small groups to answer several questions about the readings.

Integration of Theory and Practice – Creating Balance with TiPS

My over-arching teaching objective in a BU and AC program nestled within a liberal arts institution is to help students develop into graduates who bring their heads and hearts to work, and recognize the value of being life-long learners. Part of this process is for students to enhance their abilities to assess situations from a variety of lenses from their liberal arts studies, to offer recommendations, and to evaluate their actions within a larger social context. Brookfield (2017) addresses critically reflective teaching from four complementary lenses: students' eyes, colleagues' perceptions, theory, and personal experience. His definition of critical reflection is the sustained and intentional process of identifying and checking the accuracy and validity of our teaching assumptions. Brookfield (2017) suggests we need to examine our assumptions, constantly inquire, and practice our work through the four lenses.

All assignments in my courses are attached to course learning outcomes which are matched to our BU department learning outcomes. I examine the course through four cornerstone touchpoints: student evaluations, faculty observation and pedagogy discussions, networking with business and community leaders, and alumni connections. These touchpoints allow me to evaluate how my projects and assignments integrate theory with current business practice and trends. Using the

TiPS framework helped me to balance my course design, outcomes, assignments, and assessments from the viewpoint of a critically reflective teacher (Brookfield, 2017).

6. ADAPTING TiPS TO OTHER COURSES

There are numerous instructional design models to choose from in the research within business sub-areas as well as general higher education fields (i.e., Tennyson & Schlott, 2010). While all models offer general guidelines to organize pedagogical content to achieve outcomes, the TiPS framework, with its emphasis on learner-centered approaches to match pedagogy to learning outcomes enabled through instructional technology, can be easily adapted to any discussion or writing-based course. Keeping TiPS in mind allowed me to make quick adjustments in an unprecedented environment where student needs seemed to change by the moment. The framework allowed me to adapt to different student learning styles and implement multiple methods to achieve our learning outcomes. Using the framework in Fall 2020 as a tool established a mindset around effective instructional design. I balanced pedagogy integrated with instructional technology, evaluated student outcomes, and facilitated student learning.

7. FUTURE DIRECTIONS

The People-Process-Technology framework in Chen and Popovich (2003) focused on improved profitability by a cross-functional, enterprise-wide strategy to optimize customer-centric and technology-driven processes. The TiPS framework offers a dynamic model for faculty by keeping a learner-centered focus that balances technology and pedagogy for the sudden switch to remote education and the intentional online planning for Fall 2020. In April 2020, the World Economic Forum reported that 1.2 billion children globally were impacted when schools closed from the COVID-19 pandemic (Li & Lalani, 2020). The pandemic pushed Higher Education to assess their online learning programs and resources. Designing, developing, and evaluating online content, regardless of delivery mode, creates opportunity for faculty to collaborate and learn from each other. The next step for this research is to introduce TiPS to other faculty and determine how the model can be implemented in AC, CS, IS, and other BU courses. Secondly, TiPS as a framework needs further research to determine its efficacy and its potential impact on students' academic performance, retention and, ultimately, graduation.

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Appendix 1

Remote vs. Online course delivery

	Remote	Fully Online
Design Philosophy	By instructor with some support; learning experience varies depending on instructor expertise with learning technology	Technology facilitates self-directed learning; instructor as content author supported by instructional designer
Development Framework	Often developed week-by-week, with consideration and adjustment of the overall course plan.	Fully developed at the start of the course; may go through multiple iterations before development is considered complete.
Instruction Delivery	Asynchronous (i.e. recorded lectures) OR synchronous (i.e. real-time classes in conferencing applications).	Primarily asynchronous; some synchronous components.
Student Preparedness	Students may be less technologically prepared, with access to a mobile device only and limited connectivity in their homes; instructional planning should reflect these limitations.	Students know from the onset that all instruction will happen online, so likely have access to the technology that enables them to actively engage in the learning experience.
Learning Management Use	General use of system to communicate with students, relay course content, and administer assessments and grades.	Advanced use of tools and components to facilitate social interaction of class and learning activities.
Instructor Presence	Mirrors expectations of face-to-face instruction.	Students are expected to be self-directed with regular check-ins by Instructor to monitor progress and provide feedback.
Interaction with Classmates	Periodic; often instructor initiated.	Interaction is built into learning activities; addition of defined spaces within the learning environment for social interaction.

Source: Remote vs. Online course delivery (adapted from Memorial University, Centre for Innovation in Teaching and Learning, n.d.-a).

Appendix 2

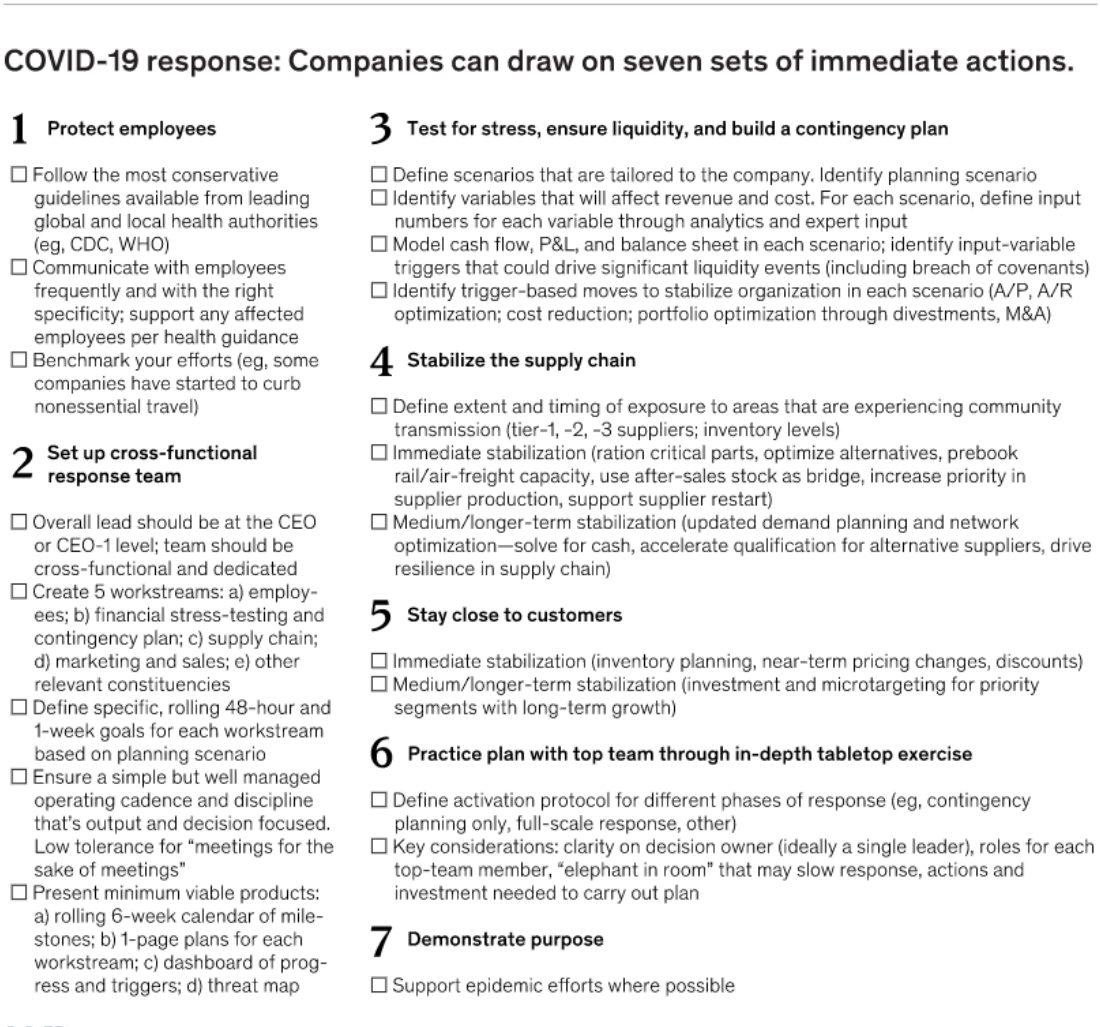
Source: McKinsey's Briefing note #2, March 9, 2020. The below graphic is available at the end of Briefing Note #2. See references for the link.

Learning Objectives:

1. Analyze organizational context, strategy, operations, processes, and performance;
2. Identify and analyze current business practice responses to the COVID-19 pandemic

Directions:

1. Join one of seven breakout rooms in Zoom, each room number is associated with a response/action number in the image below.
2. Review the Briefing Note #2 article, discuss with your group, and give supporting examples of your assigned response/action.
3. Prepare 1-2 slides on your findings
4. We have 15 minutes to prepare this discussion
5. Share with the class in the main Zoom session



COVID-19 response: Companies can draw on seven sets of immediate actions.

1 Protect employees

- ☐ Follow the most conservative guidelines available from leading global and local health authorities (eg, CDC, WHO)
- ☐ Communicate with employees frequently and with the right specificity; support any affected employees per health guidance
- ☐ Benchmark your efforts (eg, some companies have started to curb nonessential travel)

2 Set up cross-functional response team

- ☐ Overall lead should be at the CEO or CEO-1 level; team should be cross-functional and dedicated
- ☐ Create 5 workstreams: a) employees; b) financial stress-testing and contingency plan; c) supply chain; d) marketing and sales; e) other relevant constituencies
- ☐ Define specific, rolling 48-hour and 1-week goals for each workstream based on planning scenario
- ☐ Ensure a simple but well managed operating cadence and discipline that's output and decision focused. Low tolerance for "meetings for the sake of meetings"
- ☐ Present minimum viable products: a) rolling 6-week calendar of milestones; b) 1-page plans for each workstream; c) dashboard of progress and triggers; d) threat map

3 Test for stress, ensure liquidity, and build a contingency plan

- ☐ Define scenarios that are tailored to the company. Identify planning scenario
- ☐ Identify variables that will affect revenue and cost. For each scenario, define input numbers for each variable through analytics and expert input
- ☐ Model cash flow, P&L, and balance sheet in each scenario; identify input-variable triggers that could drive significant liquidity events (including breach of covenants)
- ☐ Identify trigger-based moves to stabilize organization in each scenario (A/P, A/R optimization; cost reduction; portfolio optimization through divestments, M&A)

4 Stabilize the supply chain

- ☐ Define extent and timing of exposure to areas that are experiencing community transmission (tier-1, -2, -3 suppliers; inventory levels)
- ☐ Immediate stabilization (ration critical parts, optimize alternatives, prebook rail/air-freight capacity, use after-sales stock as bridge, increase priority in supplier production, support supplier restart)
- ☐ Medium/longer-term stabilization (updated demand planning and network optimization—solve for cash, accelerate qualification for alternative suppliers, drive resilience in supply chain)

5 Stay close to customers

- ☐ Immediate stabilization (inventory planning, near-term pricing changes, discounts)
- ☐ Medium/longer-term stabilization (investment and microtargeting for priority segments with long-term growth)

6 Practice plan with top team through in-depth tabletop exercise

- ☐ Define activation protocol for different phases of response (eg, contingency planning only, full-scale response, other)
- ☐ Key considerations: clarity on decision owner (ideally a single leader), roles for each top-team member, "elephant in room" that may slow response, actions and investment needed to carry out plan

7 Demonstrate purpose

- ☐ Support epidemic efforts where possible

Source: **Staples (2020).**

Appendix 3

Guidelines for writing an effective online post

1. Use business language. Do not use informal or texting language. Limit first person use: the idea is to discuss theory; NOT opinion (unless asked for your opinion or reflection). Use Spell check. Suggestion: Write your post in Microsoft Word first to save the document and then paste to the discussion post; Canvas can be picky especially for Mac users.

2. Engage in the topic. You have to be "all in" to get the most out of the online learning environment. If you find you are struggling with staying focused: contact your professor. We are here to assist. Our role, as your instructor, is to be a cheerleader and coach. We will contribute to keep the discussion on pace or to change direction, but do NOT expect a regular response from the faculty: this is YOUR discussion board!

3. We do not have access to "nonverbal cues" such as nodding our heads in agreement. The online discussion is a way for you to interact and engage with the entire class. Be courteous and respectful. REMEMBER: DO NOT YELL! (i.e. use all caps).

4. Back it up! While appreciated, unless requested, this is NOT about personal opinion. You must first qualify your argument. In your replies, you may then offer your experience, but, unless indicated, this is not a personal reflection. We want to apply the theory. Using examples is critical but the examples must be evidence-based and therefore should have a citation (if from outside the text).

5. Do not copy more than 2-3 sentences from the text. We are interested in your interpretation; not the books!

6. You want to write a first post that expands the conversation. Do not just agree or disagree. All posts and responses should be meaningful.

7. Ask questions if you are confused! Either ask the professor, use the question discussion board, or ask a classmate!

8. Each discussion involves three actions: **POST** your answer to the question. **RESPOND** to others. **REPLY** to those that took time to respond to you! Pay attention to the different **Post-Respond-Reply** dates! These are on Canvas.

9. Do not over-post just to post. We do not want to impose a length requirement - it is more about substance than quantity. However, each question should have a response that is from 1-3 paragraphs and each paragraph should have 4-8 sentences. Make sure if you use bullets to use them effectively and sparingly.

10. Do not procrastinate. Follow the **Post, Respond, and Reply** due dates and remember that Canvas only publishes the final close/due date. Check our calendar for dates.

11. When identifying students to offer a comment, look for students that do not have many responses to their post. If everyone just posts to the first person, then that first person has quite a bit of work to accomplish because they must write follow-ups to all comments!

Source: Developed by the BU and AC faculty at Saint Michael's College