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Student and Professor Perspectives on Exemplary Practices in the Use of Information and Communication Technologies (ICTs) and e-Learning in Colleges

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ABSTRACT

Knowing that motivation is at the crux of learning, we examined students' motivation to engage - or not - in courses which include the use of information and communication technologies (ICTs). Although many college instructors use ICTs, there are no studies on the perspectives of professors identified as exemplary users of technology. This is why we interviewed 114 professors deemed by their students to be excellent in their use of technology in their teaching. We obtained our interviewees by first surveying 337 students, 95 of whom were immigrants, about their ICT likes, dislikes, suggestions and teacher nominations. Highlights of the student survey indicate that there were no significant differences between genders, the English and French colleges, and those born in and outside of Canada. An overwhelming majority of students liked it when their professors used ICTs in their teaching and were able to detail their views (e.g., wanting access to PowerPoints online). After coding what the students truly appreciated, we realized our take-home message is that it is preferable for professors to employ simpler and fewer ICTs well than to use many, complicated ones without a pedagogical purpose. Finally, in comparing the two perspectives, our results show that many students wanted to use their own technology in the classroom but that a majority of their professors did not allow them to do this, except for the exemplary professors where most of them did allow this.

SUMMARY

Many college professors use diverse information and communication technologies (ICTs) in their teaching. As motivation is at the crux of learning, one must consider students and their motivation to engage - or not - in courses which include the use of ICTs. Despite these two factors, there are no studies on the perspectives of professors identified as exemplary users of technology in their teaching. Nor is there much research on the use of ICTs in postsecondary classrooms where students' and professors' perspectives are compared directly. Only the study by Venkatesh et al. (2016) asked the same questions of both groups regarding a variety of technologies. Their study showed that students are more satisfied with courses where lecture-related ICTs are used (e.g., PowerPoint, videos), whereas professors felt that constructivist uses of ICTs (e.g., blogs, wikis) were more effective.

We surveyed students, including immigrants and non-immigrants, to see if their ICT preferences differed. We also interviewed professors nominated by their students as exemplary in their use of ICTs in their teaching to find out about their ICT best practices and challenges. Finally, we compared student and teacher perspectives.

We interviewed 114 professors deemed by their students to be excellent in their use of technology. We identified them by surveying 337 College students, 95 of whom were immigrants, about their ICT likes, dislikes, suggestions and teacher nominations. We targeted students and professors from one Anglophone and one Francophone college. Our methods of data analyses included descriptive statistics, coding and category creation and inferential statistical tests (ANOVA, X2, t-test, correlations).

The student sample can be treated as a whole because there were few significant differences between students born in and outside of Canada, the College they attended or their gender. The findings indicate that 93% of students liked courses where their professors used ICTs in their teaching. However, 49% of students disagreed with the statement that instructors allowed them to use their personal technologies in class and 32% of students disagreed with the statement that professors showed them how to use ICTs needed in their courses. Over 80% of students felt that the following ICTs worked well for them: online posting of grades, assignments, course outlines and course notes / PowerPoints as well as the online submission of assignments, computer labs, emails and presentation software. Digital textbooks and online courses only had poor ratings. Many types of infrequently used ICTs by professors were identified by students as working well for them. These include online materials (i.e., attendance records, tests), a variety of ICT tools used in class (i.e., grammar tools, language learning software, simulations/virtual experiments, mind mapping, web conferencing), hardware (i.e., clickers), online tools (i.e., wikis, portfolios and podcasts) and virtual office hours.

As for the exemplary professors, they mostly learned to use technology on their own or had previous experience with technology. Their most common challenges were technical and institutional problems. The ten technologies most frequently used were: e-mail, grades, assignments, PowerPoints, course notes, tutorials / practice exercises and web links available online, computer labs, presentation software and videos. The least frequently used technologies were web conferencing, Twitter, chat rooms, mind mapping, podcasts, LinkedIn, clickers, blogs, Wiki sites and Facebook. The Course Management System (CMS) was primarily used for three reasons: to post course notes/PowerPoints, grades and assignments. It was also used for attendance, submission of assignments, the calendar and tests. To communicate with students, most professors used e-mail associated with the CMS,

although some used other e-mail systems such as Gmail. A few professors also used instant messaging, online chats on the CMS, texting, Facebook and virtual office hours.

There were no significant differences between female and male professors regarding comfort or proficiency using technology. The number of years teaching in the College system was not significantly related to professors' levels of comfort with or knowledge of technology. 83% of the exemplary professors allowed their students to use their personal technology in class. Gender and number of years teaching at a College did not significantly affect this.

Take-home messages include the following: an overwhelming majority of students, including immigrant students, like it when their professors use technology in their teaching. Thus, it is indeed worthwhile to invest in supporting professors' use of technology and, more importantly, using it well. Most students liked it when their professors used simple technology (e.g., email, posting grades online, PowerPoint); however, these ICTs had to be used well (i.e., quick response time, engaging visual support). It is also important to remember that exemplary College professors were much more likely to allow students to use their personal technology in the classroom than professors in general. Exemplary professors used ICTs for meaningful pedagogical reasons. There are still discrepancies though (e.g., students wanting to use their own technology, online testing, clickers, mind mapping tools). This is why future research needs to adopt a comparative framework and maintain the key element of interviewing student-nominated professors.

RESEARCH REPORT

Part A – Context of the research

1. Background

Knowing that motivation is at the crux of learning, we examined students and their motivation to engage - or not - in learning and course activities which include the use of information and communication technologies (ICTs). In fact, today's college instructors reflect a powerful trend in postsecondary education, which is to use diverse ICTs (Cassidy & Scapin, 2013; Lapostolle et al., 2013). Questions such as, "Does more extensive use of ICTs by instructors ensure better learning?" and "Is teaching using ICTs seen as more or less effective by students and instructors?" have been asked and, yet, these have been shown to be overly simplistic (Abrami et al., 2006; Bernard et al., 2004; Bell & Federman, 2013; NMC Horizon Report, 2013). The complexity, of course, stems from the fact that technology is not used within a vacuum. Indeed, in his review, Barrette (2009) emphasizes the fact that it is not just the technology but the pedagogical framework in which it is used that is crucial.

Even though students' and professors' views about the effectiveness of different technologies have been shown to differ (Venkatesh et al., 2016), the literature on the use of technology in teaching and learning is based primarily on data from students (Poellhuber et al., 2012; Rashid & Asghar, 2016). Nevertheless, it is professors who set the tone and determine the pedagogical practices used in class. Of course, there are studies of faculty views about technology use in class, including its use in online learning (e.g., Croteau, Venkatesh, Beaudry, & Rabah, 2015; Lloyd, Byrne, & McCoy, 2012). Despite this, there are no studies on the perspectives of professors identified as exemplary users of technology. Therefore, in this research, we explore the views, experiences and technology-related pedagogical practices of professors deemed by students to be excellent in their use of technology in teaching.

One of the most current and controversial issues in the area of ICT use in postsecondary education is the use of personal technologies by students in the face-to-face classroom. Lindroth and Bergquist (2010) state that there is no universally accepted protocol that dictates mobile technology usage in the classroom. Thus, neither the professors nor the students fully understand the appropriate role of laptops and other mobile technologies. This uncertainty surrounding their use in the classroom has resulted in three reactions from professors: rejecting the use of laptops, ignoring the laptops, and accepting the laptops (Kay & Lauricella, 2011). Some professors do not allow their students to use their laptops at all in class, due to off-task behavior; thus rejecting laptops all together (Young, 2006). This approach creates a potential confrontation between the teacher and the students wishing to use technologies (Kay & Lauricella, 2011). Other professors opt to ignore laptop use in their classes which leads to unstructured use where students can choose what they want to do. This approach has the intrinsic risk of facilitating extensive off-task behavior (Fried, 2008). The final approach, which accepts and embraces the use of laptops in class, is also referred to as the structured use approach. This approach attempts to integrate the technology as a tool to support and enhance pedagogical practices (Gay, Stefanone, Grace-Martin, & Hembrooke, 2001). The strategies that have been implemented include extensive exercises on the laptop which are preceded by a short lecture, active use of software that is related to the course and virtual experiments which are completed in small groups (Barak, Lipson, & Lerman, 2006). Kay and Lauricella (2011) found that students engaged in more on-task behaviors, such as note-taking and other academic tasks, when professors used a structured

approach to laptops in the classroom. Likewise, students spent less time on off-task behaviors, such as instant messaging and sending personal emails, when a structured approach was used.

Finally, our last concern was that there is very little comparative research on the use of ICTs in college and university classrooms where similarities and differences between students' and professors' perspectives are directly compared. In our literature search we were able to find few studies which directly compared these two groups in terms of ICT use and views. Among these, only the study by Venkatesh et al. (2016) asked the same questions of both groups on a broad variety of technologies from email to course management systems to blogs. Their study, which included large sample sizes for both students and professors, showed that, generally, students are more satisfied with courses where lecture-related ICTs are used (i.e., PowerPoint, videos), whereas professors felt that constructivist uses of ICTs (i.e., blogs, wikis) were more effective.

2. Hypotheses

We had three main hypotheses:

- Phase 1: Students who are immigrants, compared to non-immigrants, will have a preference for ICTs used in teaching that are (a) text-based and visual rather than solely audio, and (b) not based on synchronous (i.e., simultaneous) interactivity.
- Phase 2: Professors nominated by their students for best ICT practices in their teaching will have a reasoned approach to how they use ICTs, feel that they enhance student learning but face a variety of challenges.
- Phase 3: Category frequencies of ICTs used by instructors reported by students and instructors will be compared; significant differences will be discovered.

3. Goals

What makes this investigation unique is that excellence in ICT related pedagogical practice has been determined by the students and then operationalized by their instructors. We were interested in the diversity of the student participants because different ICT-related pedagogical practices may be beneficial for one group of students (e.g., males versus females, immigrants versus non-immigrants) but not for another. The results can be used to guide decisions about which ICTs should be used by instructors to meet specific learning objectives in diverse pedagogical contexts.

Studying the experience of instructors deemed effective in their use of ICTs, including the facilitators and obstacles they experience, has allowed us to gather information concerning "best practices"; something many faculty want to know about when designing courses which incorporate ICTs to ensure that these promote student engagement and motivation. This further emphasizes the need for understanding ICT "best practices" from the students' perspective.

Part B – Solutions based on the results, research outcomes and implications

1. Audiences

Our project is pertinent to the ministère de l'Éducation et de l'Enseignement supérieur (MEES), Fonds de recherche du Québec - Société et culture (FRQSC), College administrators, College professionals, university and College professors as well as the Association pour les applications pédagogiques de l'ordinateur au post-secondaire (APOP), Association pour la recherche au collégial (ARC), Association québécoise de pédagogie collégiale (AQPC), Cégep à distance, Centre de documentation collégial (CDC), Profweb, Réseau des répondants et répondantes TIC (Reptic), and La Revue Pédagogie collégial.

2. Implications of the conclusions

New policies could be put into place which include guidelines for how face-to-face teaching environments could include students' personal technologies, where appropriate. Using a needs-analysis framework to survey students on a regular basis about their ICT likes and dislikes in the postsecondary environment would allow professors to target the ICTs most likely to increase student engagement and motivation. We need to hear from exemplary professors on a more regular basis as this is essential for identifying facilitators and barriers. Finally, asking students and professors identical questions provides a framework for comparative analysis which, in turn, allows professors to get the 'right fit' when choosing and effectively using ICTs in their teaching.

3. Immediate or expected outcomes

This report offers take-home messages and solutions which have been disseminated, and continue to be, to the post-secondary level of education. For instance, we are presenting our comparative-analysis results at ARC-ACFAS in May of 2017 and then in June of 2017 we are presenting at the collegial-level conference (AQPC). In this presentation, an ICT-pedagogical counsellor will collaborate with one of the researchers in order to focus on the practical implications of our results. In other words, we are offering data-driven instructional design recommendations for the postsecondary level. Since we interviewed students and professors from diverse pre-university and technical College programs, our results can be generalized.

Since universal design in pedagogy is becoming increasingly more popular, near-future implications of our work would be to framework our findings within the principles of universal design in pedagogy (McGuire, Scott & Shaw, 2003; Nguyen, Fichten, Barile et Lévesque, 2006; Barile, Nguyen, Havel & Fichten, 2012). In fact, one of our presentations (in Alberta in 2016, Connecting the dots: How student data on their use of ICTs fits into a UDL Framework) used our student results to inform and refine ICT practices in postsecondary teaching within a UD framework.

4. Limitations of the study

Our student and teacher samples are not representative as they are only from one Anglophone and one Francophone College. The teacher sample is a quota sample, which is determined by the different numbers of participants that were required from selected

categories. In this case, we wanted to interview professors from all the programs so we targeted ten professors per institution, from both pre-university and technical programs, who had the most nominations per category (e.g., Sciences and Engineering, Arts, Social Sciences). In both the student and teacher studies, some of the data were difficult to code into a limited number of categories (e.g., students' suggestions and professors' advice). Finally when comparing student and teacher data, only certain questions were equivalent across both samples.

5. Take-home messages

- These results can be applied to many college-level students as there were few significant differences between students born in Canada versus those who were born outside of Canada, males versus females, program of study and French versus English Colleges.
- These results can also be used by professors from both pre-university and technical programs across various disciplines. Thus, for instance, we know that students like it when their professors use videos and presentation software, keeping in mind though that they have a clear sense of how their professors should do this so that it is effective; these student likes apply to all types of courses across the College spectrum.
- These results can also be used in department presentations and specialized conferences. For instance, when we presented to science professors at SALTISE (Supporting Active Learning & Technological Innovation in Studies of Education), we were able to share data on specialized ICTs in this field and science-pertinent advice from expert ICT science professors (e.g., the use of virtual simulations in science classrooms and laboratories).
- As simple as it is, the message is clear: an overwhelming number of students like it when their professors use ICTs in their teaching. This means that yes, it is indeed worthwhile to invest in this area of pedagogy and that professors who are reluctant to use ICTs need to be encouraged to embrace this reality.
- Not all professors are ICT experts and there is only so much time per session that professors can dedicate to acquiring new knowledge and then applying this to their teaching. Here is the encouraging news: the students did not expect or want their professors to use complicated ICTs. Instead, they wanted the simple things like posting grades online to be done in a clear (i.e., provide the correct grade as well as the average and standard deviation) and timely fashion. This message has been coined in one of our presentations titled "Doing ordinary things extraordinarily well: Faculty perspectives on excellence in ICT and e-Learning use in colleges".
- Finally, the biggest difference between College professors in general and the exemplary ICT user professors was whether or not they allowed their students to use their own mobile technology in the classroom and laboratories. As is perhaps predictable, the nominated professors allowed their students to use their own technology on a significantly higher basis than students reported that College professors in general allowed. This is a current debate among professors, departments, programs and institutions. Some institutions have created guidelines and policies (see for example, the University of Montreal which requires all professors to permit students to use their own mobile technologies in class (Conseil des études de premier cycle, 2013). More policies are required, the debate needs to continue based on informed research and more importantly, effective guidelines for how to use students' mobile technologies in teaching need to be made available to professors.

6. Key solutions

- Have students list their preferred ICTs for postsecondary learning and briefly explain why.
- Have students explain how these preferred ICTs should be used by their professors.
- Have students list the ICTs they do not like their professors to use and briefly explain why.
- Have students nominate professors for best practices in the use of ICTs in teaching.
- Address the infrastructure barriers which exemplary ICT user professors listed.
- Distribute the facilitators for exemplary ICT use to professors, colleges, university and ICT groups within the college network.
- When examining ICT use at the postsecondary level, place students and professors within a comparative framework so as to offer a complete picture when reforming policy and pedagogy.
- Strongly encourage reluctant professors to use a few simple ICTs in their teaching in effective ways and provide them with the support they need to accomplish this.
- When appropriate, allow students to use their personal technology in face-to-face classrooms (note: of course this is already an undisputed reality in blended and online learning environments).

Part C – Methodology

1. Methodological approach

This was a descriptive and comparative study. Additional details about the method and the findings are available in Fichten et al. (2015) and Jorgensen et al. (2017).

2. Data collection

Phase 1 – Student Perspective In the autumn of 2014 we distributed paper and pencil surveys (Questionnaire for College Students) in general-education courses at Cégep André-Laurendeau and Dawson College. This questionnaire was used to recruit students for the online questionnaire. In the winter of 2015, students completed our online questionnaire (E-Learning Questionnaire), which included a checklist (Computer Technology Checklist).

Phase 2 – Teacher Perspective Professors nominated by their students for excellent use of ICTs met with one interviewer and one note taker. A checklist (Computer Technology Checklist) and nine questions (Interview Questions for Professors) were used and answers were coded***.***

Phase 3 – Students and Teacher Perspectives*: *A Comparative Framework - In fall 2016 and winter 2017 student and teacher data from the Computer Technology Checklist were analysed.

3. Sample sizes

N= 1387 paper questionnaire (337 were immigrants). Three hundred and eleven students provided extensive online data: 95 of them were immigrants (online questionnaire and checklist), 114 of them nominated professors.

4. Statistical analyses

Inferential statistical tests (ANOVA, X2, test t, correlations), additional statistical measures (Kurtosis: checks for skewness) and descriptive.

Part D – Results

Additional details about the findings are available in Fichten et al. (2015) and Jorgensen et al. (2017).

1. Key results

***Phase 1 – Student Perspective*.** Overall, the student sample can be treated in its entirety when it comes to the E-learning Questionnaire (includes 23 technology-related questions and the 37 item checklist of technology used by professors) because there were few significant differences between students born in Canada and those born outside of Canada (this is how we defined immigrants in our study), the College they attended (French versus English) or gender. Items included statements like 'I like courses where my professors use technology' and 'I am comfortable using technology'. The absence of differences allowed us to report the following results for the entire student group. Here are some of the findings:

- 93% of students indicated that they liked courses where their professors used ICTs.
- 32% of students disagreed with the statement that professors showed them how to use ICTs needed in their courses.
- 49% of students disagreed with the statement that instructors allowed them to use their personal technologies in class.
- Over 260 of the 311 students felt that the following ICTs worked well for them: grades, assignments, course outlines and course notes posted online; online submission of assignments; computer labs; emails; and presentation software.
- Digital textbooks and online courses, in contrast to the above, only had ratings around 3 on 6-point scales; thus, perceived effectiveness was low.
- Many types of infrequently used ICTs (i.e., fewer than 2/3 of students indicated their professors used this) were identified as working well for students (i.e., over 2/3 of students). These include online materials such as attendance records and tests/quizzes; a variety of ICT tools used in class (i.e., grammar tools and checkers, language learning software, simulations/virtual experiments, mind mapping and web conferencing); hardware such as clickers; several online tools (i.e., wikis, portfolios and podcasts) as well as virtual office hours.

Students also offered ICT-related suggestions. Table 1 shows the top five with examples, in rank order of frequency.

Table 1: Top Five Suggestions ICT-Related Solutions Given by Students

1. Use and availability of technology at school

   (e.g., more power outlets in class / in the library; more printers around school; better access to computer labs to work on assignments; more accessible areas for Wi-Fi for phones and tablets)

2. Instructors' knowledge and use of technology

   (e.g., make sure that all instructors have a basic understanding of how a projector works; classes should not revolve around technologies; a small 101 course for professors who are not used to using a computer given by the college's tech support; technology should be an aid to teaching rather than replacing my instructor)

3. Presentation software: PowerPoint

   (e.g., More in class PowerPoint lectures; PowerPoint presentations that highlight key terms; interesting visual components like photos rather than just text; clearer PowerPoints; less busy; no need to use PowerPoint if slides are useless; avoid presentations were the instructor simply reads the PowerPoint)

4. Performance of technology at school

   (e.g., Better quality projectors; often problems with Wi Fi; computers in computer labs require improvement; problems with the "online classroom"; Adobe Connect did not work well; speakers did not work; the webcam was frozen; computers are very slow in labs and classrooms; better software leases; replace computers with faster ones)

5. CMS features (due dates; calendar; on-line practice/exercises)

   (e.g., put up online course announcements (for example notification of a project submission date approaching or exam dates); upload practice exams/questions/quizzes; upload practice quizzes that provide full explanation; practice quizzes/exercises that will tell us right away that we have a mistake and what that mistake was; use a single CMS platform by all instructors; create a calendar online; put a digital version of all documents online; post everything done in class online)

Phase 2 – Teacher Perspective. Our exemplary professors, nominated by their students for excellence in the use of ICTs in their teaching, mostly learned to use technology on their own or had previous experience with technology. Their most common challenges were technical and institutional problems; they mainly dealt with these problems on their own. The ten technologies most frequently used were e-mail, grades available online, assignments available online, computer labs, presentation software, web links available online, online submission of assignments, course notes / PowerPoints available online, videos, and tutorials / practice exercises available online. The ten technologies least frequently used were web conferencing, Twitter, chat rooms, mind mapping, podcasts, LinkedIn, clickers, blogs, Wiki sites, and Facebook.

In terms of the Course Management System (CMS), this was primarily used by the professors to post course notes / PowerPoints (83%), grades (73%) and assignments (52%) online. It was also used to post attendance (37%), the course outline (33%), web links (21%), readings (18%) and to receive assignments (29%) online. For communicating with their students, most professors used e-mail associated with the CMS (87%), although some used other e-mail systems (26%) such as Gmail, Hotmail, or a college e-mail. Some of them (25%) also used other means to communicate with students, including instant messaging, online chats on the CMS, texting, Facebook and virtual office hours. Only 9% used Facebook to communicate with their students.

There were no significant differences between females and males for comfort level, $t(112) = 1.09$, $p = 0.280$, or proficiency, $t(111) = 1.52$, $p = 0.132$ in the use of technology. The number of years that they had taught at college (median cut-point = 6.89) was not significantly related to the professors' levels of comfort with, $t(112) = 1.46$, $p = 0.146$, or knowledge of technology, $t(111) = 1.51$, $p = 0.252$. There was a significant, positive correlation between the professors' level of knowledge and comfort in the use of technology, $r(113) = 0.880$, $p < 0.001$. Eighty-three percent of professors allowed their students to use their personal technology in class. Gender and number of years teaching at a College did not significantly affect this.

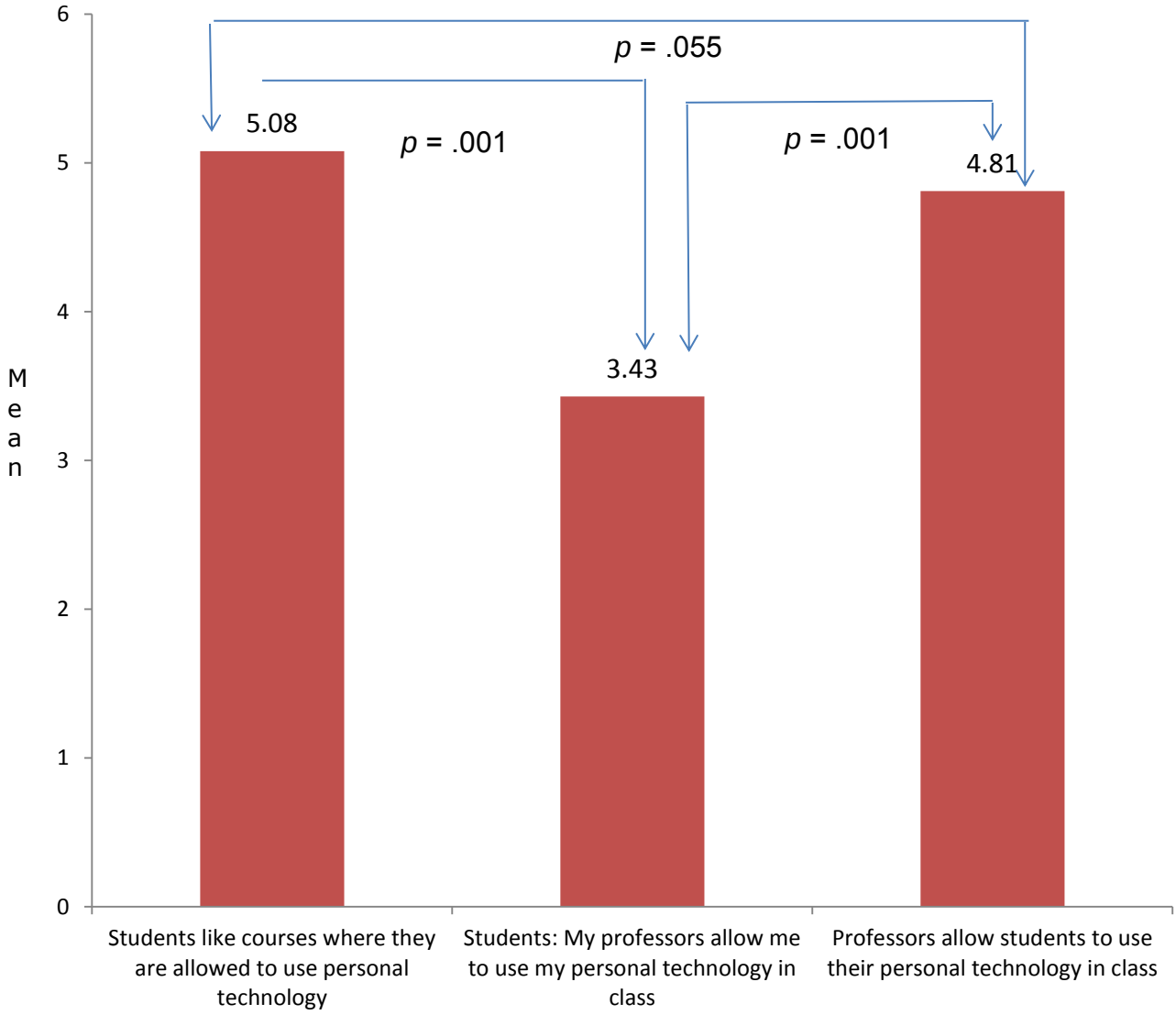
Phase 3 – Students and Teacher Perspectives: A Comparative Framework. Here the 37 items on the Computer Checklist were compared in terms of the professors' use of the type of technology versus how effective the students perceived it to be. Both groups felt that many online tools (e.g., gradebooks) enhanced the teaching-learning experience; they also agreed on the usefulness of online submission of assignments, the use of computers, videos and presentation software to teach, and email to communicate. Neither group found digital textbooks, blogs, collaborative work online, chat rooms, the use of interactive white boards, discussion forums, instant messaging and all types of social networking to be particularly helpful. The discrepancies, perhaps the most interesting findings, included online tests, wikis, 'clickers', mind mapping, the use of simulations / virtual experiments and virtual office hours (see Table 2 below where the percentage of ICT use by professors is compared to the percentage of students who stated that these ICTs worked well for them).

Table 2 – Comparison of Percentage of Professors who use ICTs and Students who stated that the ICTs Worked Well for Them

	% of professors: ICT Use	**% of students: ICTs worked well**
Simulations / virtual experiments	37%	88%
Attendance record available online	59%	90%
Tests / quizzes available online	39%	86%
Clickers	17%	73%
Mind mapping	11%	71%
Virtual office hours	30%	85%
Wiki Sites	22%	74%

In general, students were significantly more likely to appreciate courses where professors permitted them to use their own technology in class (M = 5.07, SD = 1.13) than to indicate that their professors allowed them to do so (M = 3.45, SD = 1.58), (paired samples t-test) $t(285) = 13.98$, $p = 0.001$. Despite this, the extent to which professors allowed students to use their own technology in class (M= 4.81, SD = 1.62) was significantly greater than students' belief that, in general, their professors allowed them to do this (M = 3.43, SD = 1.59), (independent samples t-test) t (416) = 7.56, p = 0.001. See graph below where the means of students liking courses where they were allowed to use personal technology, students reporting that their professors allowed them to use it, and the nominated professors reporting that they allowed students to use their personal technology are compared.

Figure 1 – Student and Teacher Perspectives on Allowing the Use of Personal Technology in Class



2. Conclusions and possible / suggested solutions

- Phase One: Since liking something is often linked to engagement and motivation, students' ICT likes (e.g., use of videos) should be considered in course planning and teaching. Not only is it important to note these likes, how students want the ICTs to be used is essential if not even more important (e.g., short and recent videos which are pertinent to the course content).
- Phase Two: Learning from 'the best' is logical; however, we do not use this type of data enough when marrying research with its practical implications nor do we always recognize this when it is a student-conferred status.
- Phase Three: It is important to place student and teacher data within a comparative framework to identify harmony and disharmony in terms of ICTs that students like and those the professors actually use.

3. Key contributions / Main contributions

Our research contributes to the firmly established field of ICTs and postsecondary pedagogy and less common research on ICTs in postsecondary education for certain populations like immigrants. Practically speaking; it allows administrators, professionals and practitioners to learn and apply best practices. Below is a breakdown of these contributions:

- An overwhelming majority of students, including immigrant students, like it when their professors use technology in their teaching.
- Most students liked it when their professors used simple forms of technology (i.e., emails to communicate, posting grades online, PowerPoint); however, these ICTs had to be used well (i.e., a quick response time, clear and engaging visual support).
- Exemplary professors are more likely to allow students to use their personal technology in the classroom than professors in general.
- Exemplary professors use ICTs for meaningful pedagogical reasons – as opposed to using an ICT for the sole purpose of using technology in teaching.
- When student and teacher results are compared, there are still discrepancies in a variety of ICT areas (i.e., online testing, clickers, mind mapping).

Part E – Future research

1. New directions and research questions

- As ICTs evolve, how can continued research on exemplary professors for their use of ICTs in their teaching contribute to the effective teaching of immigrant students, second-language students, students with disabilities and students in general studying at the post-secondary level?
- Why did the students like versus dislike the use of certain ICTs? In answering this key question, can we develop a generalizable framework for the effective use of ICTs in teaching at the postsecondary level?
- If both students and professors agree on the use of certain ICTs, does this increase student engagement and significantly improve grades? What else can be discovered within this comparative framework?
- How can our current research results and further investigation in this area be integrated into a universal design paradigm?
- For what purpose do students indicate that they use or would like to use their personal technologies in class?
- How can students and professors work collaboratively to use ICTs effectively?

2. Main solution

As obvious as it may seem, it must be emphasized that the key to exploring new avenues in research on ICTs and immigrant students is to support applied research (i.e., funding, infrastructure and mentoring for both teacher and student researchers alike).

REFERENCES

Barrette, C. (2009). Métarecherche sur les effets de l'intégration des TIC en pédagogie collégiale. *International Journal of Technologies in Higher Education, 6*(2-3), 18-25. doi:10.7202/1000008

Buchanan, T., Sainter, P., & Saunders, G. (2013). Factors affecting faculty use of learning technologies: Implications for models of technology adoption. *Journal of Computing in Higher Education, 25*(1), 1-11. doi:10.1007/s12528-013-9066-6

Charles, E. S., Lasry, N., & Whittaker, C. (2013). L'adoption d'environnements sociotechnologiques comme moteur de changement pédagogique. *Pédagogie Collégiale ,26*(3), 4-11.Retrieved from http://vega.cvm.qc.ca/arc/doc/CHARLESetCie-Vol%2026-3.pdf

Cheong, P. H., Shuter, R., & Suwinyattichaiporn, T. (2016). Managing student digital distractions and hyperconnectivity: Communication strategies and challenges for professional authority. *Communication Education, 65*(3), 272-289. doi:10.1080/03634523.2016.1159317

Conseil des études de premier cycle. (2013, October). *Les technologies mobiles en classe:Encadrer leur utilisation pour soutenir l'apprentissage des étudiants*. Retrieved from http://sse.umontreal.ca/numerique/documentation/EU23_R3.pdf

D'Apollonia, S. (2013). *ICT Survey*. Montreal: Dawson College.

Dziuban, C., & Moskal, P. (2011). A course is a course is a course: Factor invariance in student evaluation of online, blended and face-to-face learning environments. *Internet and Higher Education, 14*(4), 236-241. doi:10.1016/j.iheduc.2011.05.003

Fichten, C. S., King, L., Jorgensen, M., Nguyen, M. N., Budd, J., Havel, A., Asuncion, J., Amsel, R., Raymond, R., & Poldma, T. (2015). What do college students really want when it comes to their instructors' use of information and communication technologies (ICTs) in their teaching? *International Journal of Learning, Teaching and Educational Research, 14*(2), 173-191. Retrieved from http://www.ijlter.org/index.php/ijlter/article/view/522/pdf.

Gebremedhin, M. A., & Fenta, A. A. (2015). Assessing professors' perception on integrating ICT in teaching-learning process: The case of Adwa College. *Journal of Education and Practice, 6*(4), 114-124. Retrieved from http://files.eric.ed.gov/fulltext/EJ1083759.pdf

Howard, S. K., & Mozejko, A. (2015). Professors: technology, change and resistance. In M. Henderson & G. Romeo (Eds.), *Teaching and digital technologies: Big issues and critical questions* (pp. 307-317). Port Melbourne, Australia: Cambridge University Press.

Jorgensen, M., Havel, A., Fichten, C., King, L., Marcil, E., Lussier, A., Vitouchanskaia, C. (2017). "Simply the best": Professors nominated by students for their exemplary technology practices in teaching. *Education and Information Technologies*. Advance online publication. doi:10.1007/s10639-017-9594-1.

Lapostolle, L., Auclair, E., Lapostolle, G-M., Barrette, C., Charbonneau, S., & Mailloux, M-C. (2013). *Inventaire des recherches (1985-2012) concernant l'intégration des technologies de l'information et de la communication à l'enseignement collégial*. Montréal: ARC. Retrieved from http://vega.cvm.qc.ca/arc/doc/Inventaire_TIC_1985-2012.pdfhttp://vega.cvm.qc.ca/arc/doc/Inventaire_TIC_1985-2012.pdf

Poellhuber, B., Karsenti, T., Raynaud, J., Dumouchel, G., Roy, N., Saint-Laurent, S. F., & Géraudie, N. (2012). *Les habitudes technologiques au cégep : résultats d'une enquête effectuée auprès de 30 724 étudiants*. Centre de recherche interuniversitaire sur la formation et la profession enseignante (CRIFPE). Retrieved from https://eduq.info/xmlui/bitstream/handle/11515/19679/033205-poellhuber-karsenti-et-al-habitudes-technologiques-college-resultats-enquete-eng-2012.pdf?sequence=1&isAllowed=y

Raby, C., Karsenti, T., Meunier, H., & Villeneuve, S. (2011). Usage des TIC en pédagogie universitaire: point de vue des étudiants. *Revue internationale des technologies en pédagogie universitaire, 8*(3), 6-19. doi:10.7202/1006396ar

Rashid, T., & Asghar, H. M. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior*, 63, 604-612. doi:10.1016/j.chb.2016.05.084.

Ravizza, S. M., Hambrick, D. Z., & Fenn, K. M. (2014). Non-academic internet use in the classroom is negatively related to classroom learning regardless of intellectual ability. *Computers & Education, 78*, 109-114. doi:10.1016/j.compedu.2014.05.007

Roy, N., & Poellhuber, B. (2012). Pan-Quebec survey of the practices, competencies, attitudes, benefits and challenges inherent in the use of e-learning by 25,561 post-secondary students. In T. Bastiaens, & G. Marks (Eds.), *Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2012* (pp. 1902-1911). Chesapeake, VA: Association for the Advancement of Computing in Education. Retrieved from http://www.editlib.org/p/41884.

Sharp, J. G., Hemmings, B., Kay, R., Murphy, B., & Elliott, S. (2016). Academic boredom among students in higher education: A mixed-methods exploration of characteristics, contributors and consequences. *Journal of Further and Higher Education*. Advance online publication. doi:10.1080/0309877X.2016.1159292

Venkatesh, V., Rabah, J., Fusaro, M., Couture, A., Varela, W., & Alexander, K. (2016). Factors impacting university instructors' and students' perceptions of course effectiveness and technology integration in the age of web 2.0. *McGill Journal of Education, 51*(1), 533-562. Retrieved from http://mje.mcgill.ca/article/view/9130/7093

APPENDICES

QUESTIONNAIRE FOR COLLEGE STUDENTS

Please write your responses or fill in the circle with a pencil (like this: •).

1. Your gender: O Female O Male O Other O Prefer not to say

2. Your date of birth: Day:_____ Month:_____ Year:_____

3. a) Were you born in Canada? O Yes O No
   b) If not, how old were you when you came to Canada? _____

4. Did you complete your high school education in Canada? O Yes O No

5. In which language(s) did you complete your high school education?
   O English O French O Other (please specify) _____

6. Which language(s) do you speak at home?
   O English O French O Other (please specify) _____

7. Parental education (generally, 1-6 years is primary school, 7-11 years is high school, 12-16 years is college/university, and 17+ years is graduate school).

   Approximately how many years of education did your parent(s) complete?
   Years:_____Choose one: O Mother O Father
   Years:_____Choose one: O Mother O Father

8. What is your program of study in College? (select one)
   - Pre-university: Social Science (including profiles)
   - Pre-university: Science (including profiles)
   - Pre-university: Creative Arts, Literature and Languages (C.A.L.L.) (including profiles)
   - Career/Technical program (please specify) _____
   - Other (please specify) _____

9. How many College semesters have you completed? _____

10. What percent of your classes do you generally attend? _____ %

11. Indicate which of the following apply to you (you can select more than one).
    - Visual impairment (that is not adequately corrected by wearing glasses or contact lenses)
    - Deaf or hard of hearing / hearing impairment
    - Learning disability and / or ADHD
    - Mobility impairment
    - Chronic medical / health problem (e.g., diabetes)
    - Mental illness
    - Autism spectrum disorder
    - Other (please specify) _____
    - I do not have any of the above

12. Are you registered with your College to receive accommodations related to a disability?
O Yes O No

13. For me to complete my program of study will be: (select one)

O	O	O	O	O	O
Very easy	Somewhat easy	Slightly easy	Slightly difficult	Somewhat difficult	Very difficult

For the statements below indicate your answer. (select one)

14. I intend to complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

15. Most people who are important to me think that I should complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

16. I can overcome any obstacles or problems that could prevent me from completing my program of study if I want to.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

17. Most people who are important to me expect me to complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

18. I expect to complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

19. It is mostly up to me whether or not I complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

20. I am determined to complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

21. Most people who are important to me would be disappointed if I did not complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

22. All things considered, it is possible that I might not complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

23. I have complete control over completing my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

24. I will try to complete my program of study.

O	O	O	O	O	O
Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree	Moderately agree	Strongly agree

Answer the following questions about how you view completing your program of study. (select one)

25. Completing my program of study will be:

a) **Rewarding - Punishing**

O	O	O	O	O	O
Very rewarding	Somewhat rewarding	Slightly rewarding	Slightly punishing	Somewhat punishing	Very punishing

b) **Useful - Useless**

O	O	O	O	O	O
Very useful	Somewhat useful	Slightly useful	Slightly useless	Somewhat useless	Very useless

c) **Bad - Good**

O	O	O	O	O	O
Very bad	Somewhat bad	Slightly bad	Slightly good	Somewhat good	Very good

d) **Harmful - Beneficial**

O	O	O	O	O	O
Very harmful	Somewhat harmful	Slightly harmful	Slightly beneficial	Somewhat beneficial	Very beneficial

e) **Wise - Foolish**

O	O	O	O	O	O
Very wise	Somewhat wise	Slightly wise	Slightly foolish	Somewhat foolish	Very foolish

f)	**Unpleasant - Pleasant**					
	O Very unpleasant	O Somewhat unpleasant	O Slightly unpleasant	O Slightly pleasant	O Somewhat pleasant	O Very pleasant
g)	**Desirable - Undesirable**					
	O Very desirable	O Somewhat desirable	O Slightly desirable	O Slightly undesirable	O Somewhat undesirable	O Very undesirable
h)	**Boring - Exciting**					
	O Very boring	O Somewhat boring	O Slightly boring	O Slightly exciting	O Somewhat exciting	O Very exciting

26. Can we contact you if we are looking for participants for future studies? O Yes O No

Citation: Adaptech Research Network. (2014). *Questionnaire for College students*. Montreal, Quebec: Author. Retrieved from http://adaptech.org/sites/default/files/QuestionnaireForCegep%20Students.pdf

E-LEARNING QUESTIONNAIRE FOR COLLEGE STUDENTS

DEMOGRAPHICS

Q1. Your gender Female Male Other Prefer not to say

Q2. Your date of birth Day:_____ Month:_____ Year:_____

Q3. In which country were you born? [Dropdown list of countries, Canada first]

Q4. Which College do you attend? [Pull down: Cégep André-Laurendeau, Dawson College, Other]

Q5. How many College semesters have you completed?

Q6. What was your average when you finished high school? [Textbox with a % sign beside it]

Q7. What is your cumulative R-Score / Cote R / CRC? [Textbox]

Q8. Indicate which of the following apply to you (you can select more than one). [Check boxes]

a. Totally blind
b. Visual impairment (that is not adequately corrected by wearing glasses or contact lenses)
c. Deaf
d. Hard of hearing / hearing impairment
e. Speech / communication impairment
f. Learning disability (LD) (e.g., dyslexia)
g. Attention deficit hyperactivity disorder (ADHD)
h. Mobility impairment: wheelchair / scooter user
i. Mobility impairment: use of a cane / crutch / walker
j. Limitation in the use of hands / arms
k. Chronic medical / health problem (e.g., diabetes, Crohn's)
l. Mental illness (please note that this does NOT include a learning disability or attention deficit hyperactivity disorder)
m. Neurological impairment (e.g., epilepsy, traumatic brain injury)
n. Autism spectrum disorder (e.g., autism, Asperger's)
o. Other (please specify) _____
p. I do not have any of the above

EXPERIENCES WITH COMPUTER TECHNOLOGIES IN COLLEGE

Q9. What is your overall assessment of College instructors' use of computer technologies in your courses?[Pull down: terrible, very poor, poor, good, very good, excellent, not applicable]

For the next series of questions rate your level of agreement using the following scale: [pulldown]

Strongly disagree
Moderately disagree
Slightly disagree
Slightly agree
Moderately agree
Strongly agree

Not Applicable

Do not spend too much time on any one statement. If an item is not applicable to you, respond with 'Not applicable'.

IN GENERAL…

Q10. In general, when my College instructors use computer technologies in their teaching, these are accessible[1] to me given my disability / impairment.
[JavaScript - only comes on the screen if the student self-identifies as having a disability in Q8 by checking options a to o]
Q11. In general, my computer technology needs at my College are adequately met.
Q12. In general, my computer technology needs at home are adequately met.
Q13. In general, when my College instructors use computer technologies in their courses, my needs are adequately met.
Q14. In general, my Wi-Fi needs at my College are adequately met.
Q15. In general, the number of power outlets (i.e., AC plugs) at my College adequately meet my needs.
Q16. In general, my College instructors allow me to use technologies in class.
Q17. In general, my College instructors can teach effectively using technology.
Q18. In general, my College instructors show me how to use the technology needed in my courses (e.g., Excel, Google Docs).

I AM…

Q19. I am very knowledgeable in the use of computer technologies.
Q20. I am very comfortable using computer technologies.

BASED ON MY EXPERIENCE, I LIKE COURSES…

Q21. I like courses in which the instructor does not use technologies.
Q22. I like courses which use a lecture format without technologies.
Q23. I like courses which use INDIVIDUAL WORK in class without technologies.
Q24. I like courses which use GROUP WORK in class without technologies.

BASED ON MY EXPERIENCE, I LIKE COURSES…

Q25. I like courses in which the instructor uses technologies.
Q26. I like courses which allow me to use technologies in class (e.g., laptop, tablet).

[1] Accessibility: For the purposes of this study, accessibility refers to the ability of a learner, regardless of their disability, to easily and independently use computer technologies. For some learners, this may require the use of adaptive technology (e.g., software that reads what is on the screen).

Q27. I like courses which use a lecture format with technologies (e.g., PowerPoint, videos).
Q28. I like courses which use technologies while doing INDIVIDUAL WORK in class (e.g., computer lab).
Q29. I like courses which use technologies while doing GROUP WORK in class (e.g., Smart Board).
Q30. I like courses which use group work online (e.g., Facebook, Google Docs).
Q31. I like courses which are entirely online.

Q32. I like courses which use only digital textbooks.
Q33. I like courses which use online resources (e.g., grades, course notes).

Q34. Please name up to three of your College instructors who have used technologies in a way that worked well for you (i.e., used technologies in a way that helped you learn).
[Textboxes Instructor #1 (full name), Instructor #2 (full name), Instructor #3 (full name)]

Q35. Indicate the technologies which at least one of your COLLEGE INSTRUCTORS has used.
[Pulldown: Yes ; No ; Not sure ; Don't recognize this term]

ONLINE COURSE MATERIALS MADE AVAILABLE BY MY COLLEGE INSTRUCTORS

a. Assignments
b. Calendar
c. Course notes
d. Course outline
e. Digital textbooks
f. Grades
g. Attendance record
h. Tests / quizzes
i. Tutorials / practice exercises
j. Web links / URLs
k. Other (please specify)

ONLINE TOOLS THAT MY COLLEGE INSTRUCTORS USED

a. Blogs
b. Collaborative work online (e.g., Google Drive / Google Docs)
c. Submission of assignments (e.g., online, email)
d. Podcasts
e. Portfolios (collection of the student's work)
f. Videos
g. Wiki sites (collaborative websites)
h. Style guides (e.g., APA, MLA, Chicago styles)
i. Other (please specify)

HARDWARE THAT MY COLLEGE INSTRUCTORS USED

a. Clickers (remote device for in-class surveys)
b. Computer used to teach in class
c. Computer in a computer lab
d. Projector (multimedia)
e. Smart Board
f. Other (please specify)

COMMUNICATION TOOLS THAT MY COLLEGE INSTRUCTORS USED

a. Chat room
b. Discussion forum
c. Email
d. Instant messaging (e.g., Google Talk, Skype)
e. Virtual office hours
f. Other (please specify)

SOCIAL NETWORKS THAT MY COLLEGE INSTRUCTORS USED

a. Facebook
b. LinkedIn
c. Twitter
d. Other (please specify)

TECHNOLOGIES USED IN CLASS BY MY COLLEGE INSTRUCTORS

a. Grammar tools and checkers (e.g., Antidote)
b. Language learning software
c. Mind mapping / concept mapping / graphic organizer (e.g., Inspiration, Cmap)
d. Presentation software (e.g., PowerPoint)
e. Simulations / virtual experiments
f. Web conferencing (e.g., Skype, Adobe Connect)
g. Other (please specify)

Q36. Check the technologies that instructors at your College used that usually worked well for you.

[JavaScript – only appears for items in Q35 where the student answered yes]

Yes *No*

Q37. List up to three examples where your College instructor(s) used technologies in a way that worked well for you. [Textboxes Example #1, Example #2, Example #3]

Q38. List up to three examples where your College instructor(s) used technologies in a way that did not work well for you. [Textboxes Example #1, Example #2, Example #3]

Q39. List up to three suggestions about how technologies can be used in a way that would work better for you in class or in the College. [Textboxes Suggestion #1, Suggestion #2, Suggestion #3]

Citation: Adaptech Research Network. (2015). *E-learning Questionnaire.* Montreal, Quebec: Author. Retrieved from http://adaptech.org/sites/default/files/E-learning%20questionnaire.pdf

INTERVIEW QUESTIONS FOR PROFESSORS: Interviewer Version

1) What ways do you use presentation software such as Power Point, Prezi or Google Slides within your courses (prompt: e.g., visual support, lectures, uploaded to the school's course management system)?

2) What types of computer technology do you use to teach and communicate with your students? (prompt: includes phone/email, helping them study and evaluating them, inside and outside the classroom)

3) What challenges have you had using computer technology, and how did you overcome them? (prompt: student, teaching and institutional challenges)

4) What helps you use computer technology effectively in your teaching? (prompt: e.g., training for professors, expert help from someone, personally owned software, personal motivation, high level of knowledge in how to use computer technology)?

5) When you have students with disabilities in your courses, what changes, if any, do you make to how you use computer technology? (prompts: e.g., blind, Deaf, LD, ADHD, mental health; ask about what disability(s) the students had)

6) When you have students whose mother tongue is neither English nor French in your courses, what changes, if any, do you make to how you use computer technology?

7) Is there any type of computer technology that you wish you could use in your courses? (If yes: What prevents you from using these?)

8) Do you have any advice for those who would like to use computer technology in their courses? (prompt: If yes, please give some examples.)

Ask question nine <u>after</u> the interviewee has completed the checklist.

9) Have I forgotten anything? Is there anything else you would like to mention?

Adaptech Research Network. (2015). *Interview questions for professors: interviewer version*. Montreal, Quebec: Author. Retrieved from http://adaptech.org/sites/default/files/INTERVIEW%20QUESTIONS%20FOR%20TEACHERS.pdf

COMPUTER TECHNOLOGY CHECKLIST FOR PROFESSORS

Please check the technologies that you use/have used in your teaching.

Course Materials Available Online	**Yes**	**No**
a. Assignments	□	□
b. Calendar	□	□
c. Course notes	□	□
d. Course outline	□	□
e. Digital textbooks	□	□
f. Grades	□	□
g. Attendance record	□	□
h. Tests / quizzes	□	□
i. Tutorials / practice exercises	□	□
j. Web links	□	□
Online Tools	**Yes**	**No**
a. Blogs	□	□
b. Collaborative work online (e.g., Google Docs)	□	□
c. Submission of assignments (e.g., online, email)	□	□
d. Podcasts	□	□
e. Portfolio	□	□
f. Videos	□	□
g. Wiki sites (collaborative websites)	□	□
h. Style guides (e.g., APA, MLA, Chicago)	□	□
Hardware	**Yes**	**No**
a. Clickers	□	□
b. Computer used to teach	□	□
c. Computer in a computer lab	□	□
d. Projector (multimedia)	□	□
e. Smart Board	□	□
Communication Tools	**Yes**	**No**
a. Chat room	□	□
b. Discussion forum	□	□

c. Email	□	□
d. Instant messaging (e.g., Google Talk, Skype)	□	□
e. Virtual office hours	□	□
Social Networking	**Yes**	**No**
a. Facebook	□	□
b. LinkedIn	□	□
c. Twitter	□	□
Technologies Used In Class	**Yes**	**No**
a. Grammar tools (e.g., Antidote)	□	□
b. Language learning software	□	□
c. Mind / concept mapping (e.g., Inspiration, Cmap)	□	□
d. Presentation software (e.g., PowerPoint)	□	□
e. Simulations / virtual experiments	□	□
f. Web conferencing (e.g., Skype, Adobe Connect)	□	□

For the questions below, please select the answer which best applies to you.

1. I am very knowledgeable in the use of computer technologies.

O Strongly disagree	O Moderately disagree	O Slightly disagree	O Slightly agree	O Moderately agree	O Strongly agree

2. I am very comfortable using computer technologies.

O Strongly disagree	O Moderately disagree	O Slightly disagree	O Slightly agree	O Moderately agree	O Strongly agree

3. I allow my students to use computer technology in class.

O Strongly disagree	O Moderately disagree	O Slightly disagree	O Slightly agree	O Moderately agree	O Strongly agree

Adaptech Research Network. (2015). *Computer technology checklist*. Montreal, Quebec: Author. Retrieved from http://adaptech.org/sites/default/files/COMPUTER%20TECHNOLOGY%20CHECKLIST.pdf