Spring | 12

TechQual+ 2012 Report
University at Buffalo
Higher Ed TechQual+ Project

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1   Introduction to the TechQual+ Higher Ed Project

The Higher Ed TechQual+ Project is a multi-institutional collaboration of colleges and universities that desire to assess Information Technology (IT) service quality across key strategic service areas. Inspired by the work of Project Director Tim Chester, the CIO at University of Georgia, Athens, the TechQual+ Project has evolved from the foundation of the LibQual+ and SERVQUAL projects, to systematically measure outcomes for key Information Technology services. Going one better, the TechQual+ project has developed easy-to-use tools to gather performance data from respondents, segment and analyze the data, and provide comprehensive reporting mechanisms. Finally, TechQual+ affords comparison to peer institutions on those same standardized performance indicators, which is vital for accreditation assessment activities.

The TechQual+ Project web site provides considerable information on the purpose, process and reporting mechanism for TechQual+. Membership in the project is limited to Higher Ed institutions, and participation is voluntary. TechQual+ centers on using the same 12 question base instrument across all institutions, with the optional capability of adding additional questions to assess performance on institutional priorities. [1]

The one most useful document provided to the TechQual+ project is the Protocol Guide. This document explains the TechQual+ standardized process in detail, beginning with a full explanation of the background, assumptions and approach of TechQual+, step-by-step guidance on the use of the TechQual+ tools, and a clear protocol for conducting TechQual+ surveys, analyzing data and writing reports. Anyone interested in knowing more about TechQual+ is advised to read this document carefully, and to enjoy the outstanding video presentations provided on the www.TechQual.org web site.

Finally, since TechQual+ is a collaborative project, the project website also hosts discussion forums and FAQ documents which are indispensable for participating institutions.

2   UB's 2012 TechQual+ Surveys

The TechQual+ process, as described in the Protocol Guide, begins with careful consideration of the standard survey questions with respect to their relevance to campus IT services, and whether additional items should be added to the tool to gauge effectiveness on other issues. At the advice of Tim Chester, TechQual+ Project Director, and articulated in the Protocol Guide, institutions new to TechQual+ should carefully limit locally generated questions until more experience with the process is gained. After discussion, it was decided that UB would utilized only the standard twelve questions of the January 2012 version of TechQual+, since we routinely assess service satisfaction and utilization trends using other methods such as the annual Student IT Experience Survey administered during Fall semesters.

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[1] It should be noted the TechQual+ question set is evolving. Just before the start of UB's TechQual+ project, the standard set was 18 questions, then pared down to 12, and at the end of UB's project the set is 13 questions.

Appendix I contains the complete wording of the January 2012 TechQual+ questionnaire as presented to participants by the online tool. The text of the questions is presented often in result sections of this report as well.

2.1 Survey Groupings

UB's TechQual+ 2012 Survey was divided into three audience groupings:

1. IT Staff, i.e. professional staff whose primary role at UB is providing IT services and support;
2. Faculty and Staff (minus IT Staff); and,
3. Students.

It was suggested by Tim Chester during a November 2011 visit to UB that we solicit these three groups individually during three separate survey administrations, starting with IT Staff as a "pilot" group. Dr. Chester's notion of using IT Staff first served multiple purposes: first, get experience with the TechQual+ process using a group already familiar with the IT service areas, who are open to adopting new interfaces, and tolerant of potential glitches; second, to get an understanding of how the people who actually deliver the services assess their effectiveness doing so, and gaining their suggestions for improvements; and, finally, have a useful comparison of outcomes data which could be used in building IT staff morale and build a sense of accomplishment (presuming IT staff are more critical of their performance than their typical customers.)

2.2 SBSIRB Approval

TechQual+ is, in essence, an opinion survey research protocol involving human subjects. The TechQual+ Protocol Guide highly recommends that participant institutions obtain prior approval from the Institutional Review board (IRB) before administering at TechQual+ survey, although the TechQual+ survey poses minimal risk to respondents. Thus an application and protocol description was submitted to UB's Social and Behavioral Sciences Institutional Review Board and was approved. It should be noted this process provided valuable insights and local campus practices that improved the cohesiveness of our proposed protocol. The SBSIRB reviewers were careful to ensure that confidentiality and privacy of TechQual+ survey participants was preserved throughout the process, and reviewed all proposed communications to be used during the survey administration.

2.3 Data Custodian Approval

Next, appropriate approval was required to obtain access to participant identification information from the respective UB data custodians. This process entailed sending a request which described the TechQual+ process and protocol, described the minimal personal identifiable information required for survey sampling processes, and described the disposition of the required data during and post survey administration. Access permission for Student date was obtained from the designee of UB's Vice-President for University Life and Services.

Similarly, access permission for Faculty and Staff (including IT Staff) was obtained from the designee of UB's Vice-President for Finance and Administration.

Table 1: UB TechQual+ Survey Timelines

Survey Group	Start Date	End Date
IT Staff	March 9, 2012	March 23, 2012
Faculty/Staff	March 23, 2012	April 6, 2012
Students	April 5, 2012	April 20, 2012

The results of each survey, including a description of the survey sampling procedure and yields, follow in the next three sections respectively.

3   UB IT Staff TechQual+ 2012 Survey

At the suggestion of Tim Chester, the Higher Ed TechQual+ project director, we ran our first TechQual+ Survey with UB Information Technology professionals. This first survey would be seen as a "pilot" project to give us experience with the process before attempting the larger and more ambitious Faculty and Staff, and Student administrations.

Unlike the Faculty and Staff and Student surveys, which were to be 25% random samples of the population, we decided to include all identified IT Professionals as potential participants in the survey.   As a group, IT professionals are intimately involved in implementing UB's IT plans and services on a regular basis, thus everyone was an essential stakeholder in the outcomes of the TechQual+ process.

IT Professionals were identified by combining the CIT directory with names provided by each distributed IT leader for their IT staff, for a list of 417 names. All of these individuals were invited to participate in the IT Staff TechQual+ survey using the survey tool. Sixty-seven percent, N=277, actually completed the survey after receiving two reminders.

3.1   IT Staff Survey Results

Figure 1 depicts the results of the twelve questions from the IT Staff TechQual+ 2012 survey. The figure lists the ordinal for each question on the horizontal access, with the mean service level score on the vertical access.   The Tables that follow contain the specific question wording, scores and statistics. Questions highlighted in red indicate where the mean Perceived Service level lays below the mean Minimum Level of Service, or in TechQual+ nomenclature the "Adequacy Gap".

The Zone of Tolerance reports graphically display the relative importance of each service question as well as the Desired, Minimum and Perceived service levels. So, for example, IT staff, on average, believe the desired level of question 1, about the campus Internet service, to be

higher than all other questions, thus indicating how important is this service relative to the other areas.

Figure 1: IT Staff " Zones of Tolerance" Chart
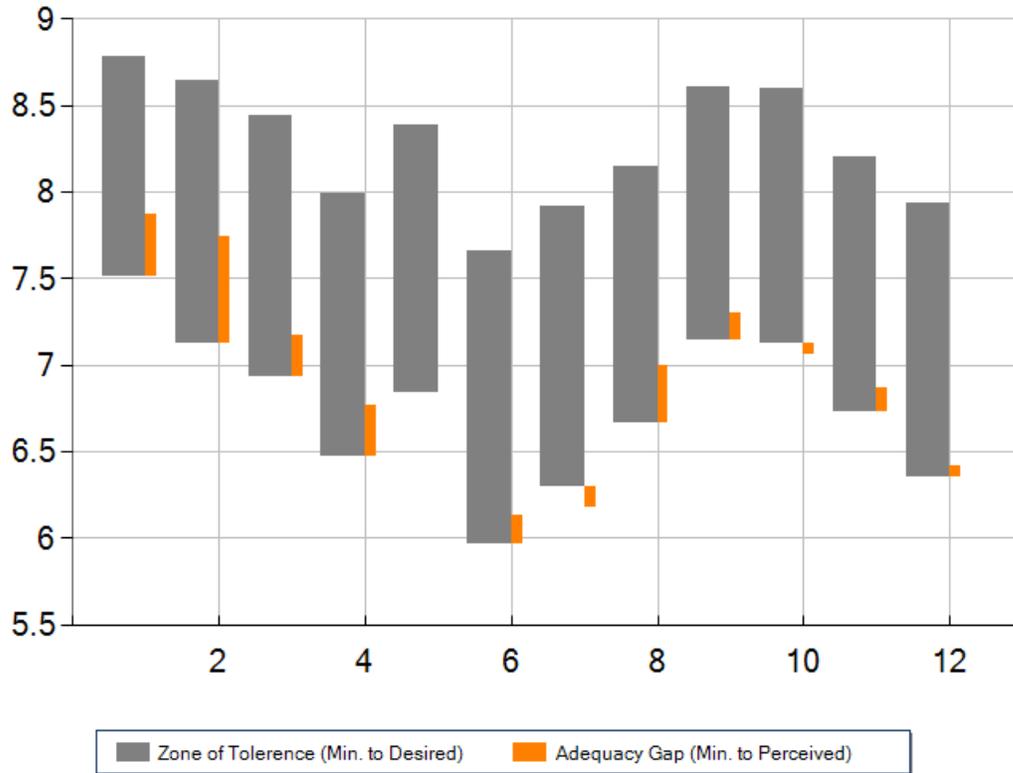
3.2 Question Results

3.2.1 Connectivity and Access

Tell us about the quality of the Internet service on campus.

#	Item		Min	Des	Per	Adeq	Supr	n*
1	Having a campus Internet service that is reliable and that operates consistently across campus.	Mean	7.51	8.78	7.87	0.36	-0.91	268
		Dev	1.15	0.50	1.01	1.06	0.98	
2	Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads.	Mean	7.13	8.64	7.74	0.61	-0.90	269
		Dev	1.25	0.60	1.06	1.24	1.04	
3	Having wireless Internet coverage in all of the places that are important to me on campus.	Mean	6.93	8.44	7.17	0.24	-1.27	260
		Dev	1.43	0.92	1.25	1.38	1.29	
4	Support for accessing the campus Internet service using my tablet or other	Mean	6.47	7.99	6.77	0.30	-1.22	211

mobile device.	Dev	1.74	1.28	1.57	1.51	1.48

In terms of Connectivity and Access, UB IT staff indicate, on average, that all levels of service in providing Internet, Wi-Fi, and mobile device connectivity are adequate, although the desired level of service falls typically a point higher than the current "perceived" level. In no case does the perceived level surpass the desired level, which indicates that IT Staff perceive these services to be within the bounds of serving campus needs, underlining efficiency, but less than truly desired to achieve excellence.

Open text suggestions provided by IT Staff for Connectivity and Access focused on these common themes:

- Some performance inconsistencies across the network
- Improvements needed for Wi-Fi coverage
- Difficulty in establishing secure Wi-Fi access, especially with smartphones
- The need for greater support for configuring and using mobile devices

The complete list of IT Staff suggestions, divided thematically by question, can be found at the ITPC Confluence site (requires UBITName and authorization).

3.2.2 Technology and Collaboration Services

Tell us about the quality of Web sites, online services, and technologies for collaboration.

#	Item		Min	Des	Per	Adeq	Supr	n*
5	Having campus Web sites and online services that are easy to use.	Mean	6.84	8.39	6.84	0.00	-1.55	262
		Dev	1.32	0.91	1.31	1.36	1.31	
6	Accessing important campus Web sites and online services from my tablet or other mobile device.	Mean	5.97	7.66	6.13	0.17	-1.53	211
		Dev	1.88	1.48	1.68	1.74	1.70	
7	Having campus technology services available that improve and enhance my collaboration with others.	Mean	6.30	7.92	6.18	-0.12	-1.73	252
		Dev	1.58	1.28	1.67	1.55	1.59	
8	Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information.	Mean	6.67	8.15	7.00	0.34	-1.14	223
		Dev	1.45	1.07	1.33	1.48	1.38	

IT Staff identified one area, Question 7 regarding collaboration services, where the perceived level of service fell below the minimum desired level of service (highlighted red by the TechQual+ reporting tool.) In all cases, the desired level of service exceeds by at least one point what is perceived level on average. These gaps indicate where IT Staff feel that these areas

deserve to be given a higher priority for funding and project resources, and where University leadership must raise the level of importance for these initiatives.

Suggestions provided by IT Staff for Technology and Collaboration Services illustrates these themes:
- Campus Office Web pages require consistent design for usability and navigation
- Much more attention must be paid to making UB websites "mobile friendly", especially frequently used services such as HUB, UBmail, etc.
- Collaboration tools, where they exist, are underutilized owing to awareness and education, and support for training
- Campus classroom technology must be ubiquitous, standardized and updated to meet emerging needs
- Staff are struggling to support mobile devices, classroom technology

Suggestions specific to Question 7, where minimum expectations are not being met, relates in part to the use of collaborative technologies to be used by IT staff to improve the effectiveness of their performance supporting faculty and staff, and in part to marketing and support collaborative technologies for the campus community. More effort is needed in encouraging IT staff communication using communication technologies, such as an effective knowledge base.

3.2.3 Support and Training
Tell us about your experiences when obtaining assistance with technology on campus.

#	Item		Min	Des	Per	Adeq	Supr	n*
9	Technology support staff who are consistently courteous and knowledgeable, and who can assist me in resolving problems with campus technology services.	Mean	7.14	8.61	7.30	0.16	-1.31	253
		Dev	1.25	0.71	1.26	1.37	1.22	
10	Getting timely resolution to problems that I am experiencing with campus technology services.	Mean	7.13	8.60	7.06	-0.08	-1.55	253
		Dev	1.23	0.70	1.34	1.40	1.30	
11	Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form.	Mean	6.73	8.20	6.87	0.14	-1.33	251
		Dev	1.50	1.10	1.38	1.38	1.25	
12	Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services.	Mean	6.35	7.94	6.42	0.07	-1.51	243
		Dev	1.45	1.19	1.54	1.44	1.38	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n* = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

Similar to the other major categories, IT Staff on average indicate that perceived levels of service exceed the minimum for support staff knowledge, communication regarding IT matters, and access to training. However, time resolution to problems, Question 10, is on average below minimum levels of expectations.

Suggestions from IT Staff reveal the themes that may be responsible for driving down the perceived level of service below the minimum for question 10:

- A need for a unified service ticketing system which supports customer communication on request status

- Improved *central* performance on service requests submitted by distributed IT staff
- Increased level of IT staff needed to adequately support the wide variety of systems and services University-wide

Suggestions for the other three questions in this section reveal the following themes:

- Higher levels of staffing
- Better Service Desk workflow and service levels
- Increased communication amongst all IT staff on campus (similar to the comments for the use of collaborative tools)
- Increase training and shared knowledge for IT Staff to effectively share critical IT information

3.3 IT Staff Survey Summary

Results of the TechQual+ survey for IT Staff tell the story of a dedicated and knowledgeable IT staff that is performing above the minimum in providing services to the University given the considerable constraints and reductions during the past five years. IT Staff are primarily concerned with increasing their productivity by streamlining workflow dependencies and communication, encouraging and increasing the use of collaborative technologies to share knowledge and expertise, and more clearly communicating needs and expectations between service groups. Noticeably lacking from the suggestions and not suggested by the quantitative results were any indications of inadequacy in the organization of IT support and services on campus. IT Staff understand and appreciate the advantages of distributed and centralized IT support at UB, but deeply desire a closer level of collaboration with their colleagues campus-wide.

4 Results of the Faculty and Staff Survey

The Faculty and Staff survey was a 25% random sample of the entire population of UB Faculty and Staff provided, with permission of the HR data custodian. A table was generated with the name, role and department for each employee. A random selection tool, provided by the TechQual+ project, was used to select a true random 25% sample of the entire list. The selected participants were loaded into the TechQual+ tool. The remaining names were deleted. Invitations were sent to the selected participants and two reminders were emailed. Thirty-five percent, N=625, actually completed the survey.

Figure 2 depicts the results of the twelve questions from the Faculty/Staff TechQual+ 2012 survey. The figure lists the ordinal for each question on the horizontal access, with the mean service level score on the vertical access. Questions highlighted in red indicate where the mean Perceived Service level lays below the mean Minimum Level of Service, or in TechQual+ patois the Adequacy Gap.

Quick visual examination of Figure 2 reveals the relative importance of the desired service levels for each question. Like the IT Staff, Faculty and Staff desired the highest level of Internet and connectivity services to the campus, but almost equally so is their desired service level IT Problem Resolution (Question 10) and access to a knowledgeable IT Staff (Question 9).

Figure 2: Faculty and Staff Zones of Tolerance
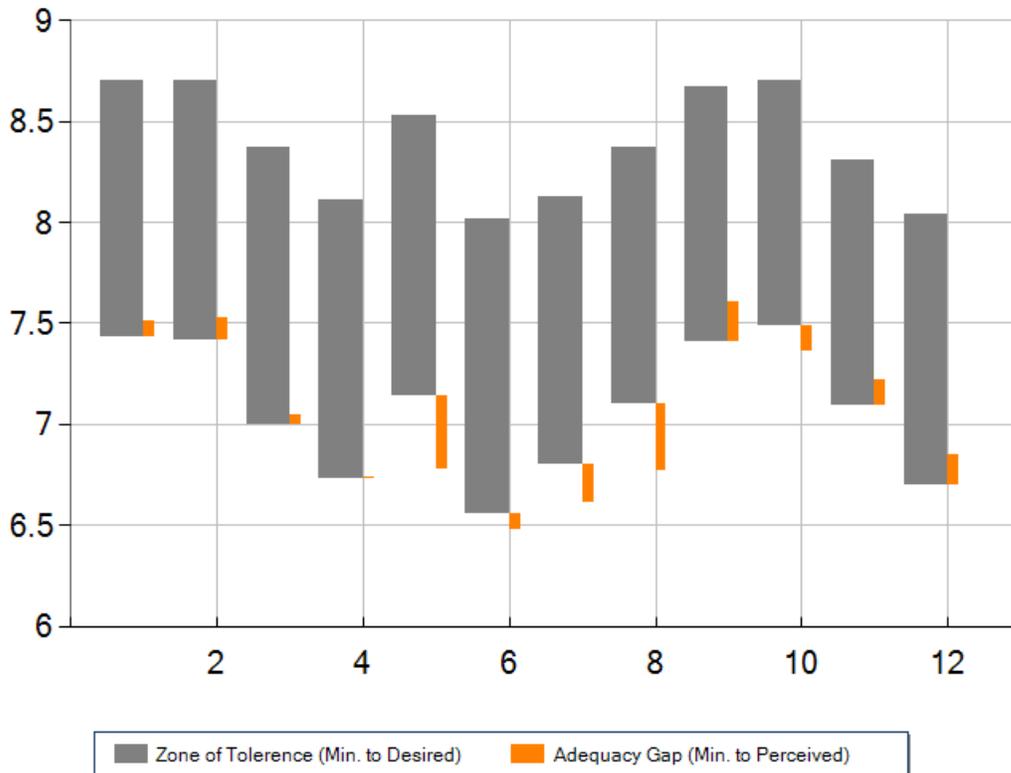
4.1   Question Results

4.1.1   Connectivity and Access

Tell us about the quality of the Internet service on campus.

#	Item		Min	Des	Per	Adeq	Supr	n*
1	Having a campus Internet service that is reliable and that operates consistently across campus.	Mean	7.43	8.70	7.51	0.08	-1.19	596
		Dev	1.41	0.71	1.31	1.30	1.20	
2	Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads.	Mean	7.42	8.70	7.53	0.11	-1.16	592
		Dev	1.39	0.73	1.24	1.35	1.16	
3	Having wireless Internet coverage in all of the places that are important to me on campus.	Mean	7.00	8.37	7.05	0.05	-1.32	538
		Dev	1.70	1.17	1.59	1.72	1.56	

#	Item		Min	Des	Per	Adeq	Supr	n*
4	Support for accessing the campus Internet service using my tablet or other mobile device.	Mean	6.73	8.11	6.74	0.01	-1.38	456
		Dev	1.86	1.43	1.74	1.87	1.72	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n* = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

In terms of Connectivity and Access, UB Faculty and staff indicate, on average, that UB's levels of service in providing Internet, Wi-Fi, and mobile device connectivity is adequate, although the desired level of service falls typically a point higher than perceived. In no case does the perceived level surpass the desired level, which indicates that Faculty and Staff perceive these services to be well within the bounds of serving campus needs, underlining efficiency.

Suggestions provided by UB Faculty and Staff for Connectivity and Access focused on these common themes:

- General agreement that Internet service is important, and adequately provided.
- Some performance inconsistencies across the network
- Web response could be slow at times
- Wi-Fi coverage must be consistent across campus
- The need for greater support for configuring and using mobile devices

The complete list of Faculty and Staff suggestions, divided thematically by question, can be found at the ITPC Confluence site (requires UBITName and authorization).

4.1.2   Technology and Collaboration Services

Tell us about the quality of Web sites, online services, and technologies for collaboration.

#	Item		Min	Des	Per	Adeq	Supr	n*
5	Having campus Web sites and online services that are easy to use.	Mean	7.14	8.53	6.78	-0.36	-1.75	588
		Dev	1.48	0.84	1.48	1.62	1.42	
6	Accessing important campus Web sites and online services from my tablet or other mobile device.	Mean	6.56	8.02	6.48	-0.08	-1.54	432
		Dev	1.86	1.46	1.68	1.84	1.74	
7	Having campus technology services available that improve and enhance my collaboration with others.	Mean	6.80	8.13	6.61	-0.18	-1.52	526
		Dev	1.73	1.25	1.64	1.58	1.55	
8	Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information.	Mean	7.10	8.37	6.77	-0.32	-1.60	481
		Dev	1.54	1.14	1.56	1.66	1.55	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n* = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

The entire section of the Faculty and Staff 2012 TechQual+ devoted to Technology and Collaboration Services, questions 5 through 8, fell on average below minimum service expectation levels. This is a significant departure from the IT Staff's average perceived levels of service.

Question 5, regarding ease of use of campus websites, had the largest inadequacy gap. Suggestions from Faculty and Staff illustrate the sentiments of inadequacy. In simple terms, respondents desire improvement in the organization and usability of UB's official web pages, with a call for consistency across web sites to aid the search of solution-seekers. Also fueling this inadequacy gap was a general dissatisfaction expressed regarding HUB's usability and organization, and a call for improvement in the information architecture and navigation of HUB service pages.

Faculty and Staff expressed suggestions regarding Question 6, accessing online services from mobile devices, which centered on the lack of progress made in providing mobile device support for key campus services. Remote and anytime access for a mobile research often engaged globally was seen to be highly desirable.

Collaboration services are seen as essential for a world-class university especially in difficult financial times. Suggestions regarding Question 7 centered on building awareness for extant collaboration tools, and providing more comprehensive support for these tools, in order to increase their adoption. Many people called from improvements in marketing these services as a first step to more efficient usage.

Also an important effectiveness issue, Faculty and Staff expressed inadequacy regarding classroom technology and collaboration tools, Question 8. Suggestions illustrate a desire that all campus instructional spaces be equally equipped with technology regardless of ownership, and that more instructional spaces with technology be made available. Some suggestions call for an update in the technology model currently supported, with an ability to display from multiple devices simultaneously. Finally, there is increasing interest in providing more Apple Macintosh computers and Apple software, likely to be riding the wave of popularity of Apple devices.

4.1.3 Support and Training

Tell us about your experiences when obtaining assistance with technology on campus.

#	Item		Min	Des	Per	Adeq	Supr	n*
9	Technology support staff who are consistently courteous and knowledgeable, and who can assist me in resolving problems with campus technology services.	Mean	7.41	8.67	7.61	0.21	-1.06	562
		Dev	1.37	0.71	1.31	1.38	1.26	
10	Getting timely resolution to problems that I am experiencing with campus technology services.	Mean	7.49	8.70	7.36	-0.13	-1.34	570
		Dev	1.34	0.67	1.45	1.58	1.43	
11	Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form.	Mean	7.09	8.31	7.22	0.14	-1.09	542
		Dev	1.49	1.01	1.40	1.40	1.30	
12	Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services.	Mean	6.70	8.04	6.85	0.15	-1.19	543
		Dev	1.74	1.28	1.51	1.71	1.50	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n* = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

Similar to the other major categories, Faculty and Staff on average indicate that perceived levels of service exceed the minimum for support staff knowledge, communication regarding IT matters, and access to training. However, time resolution to problems, Question 10, is on average below minimum levels of expectations, similar to the IT Staff, but for different reasons.

Suggestions from Faculty and Stuff reveal the themes that may be responsible for driving down the perceived level of service below the minimum for question 10:

- A desire for more and better communication regarding the status of their inquiries to IT support staff
- A desire to have direct access to their local, departmentally assigned IT support personnel, who are valued highly for their efforts. The uncertainty of leaving a voice message or using an email alias detached from an identifiable source is seen to be discomforting and potentially lacking accountability

Suggestions for the other three questions in this section reveal the following themes:

- Both central and distributed IT Staff are highly valued
- IT Support staff need to be more knowledgeable, and service quality must be made more consistent across individuals
- Better Service Desk workflow and service levels
- Simplify IT related communications to be understood by non-IT Staff, and improve the timeliness of those messages regarding services

4.2   Faculty and Staff Survey Summary

Without exception, Faculty and Staff expressed desired service levels that were not met, and in the case of Technology and Classroom services minimal levels were not attained, thus Faculty and Staff live within the "zone of tolerance", thus getting the job done while working with limitations. This conclusion tells a story of Faculty and Staff at UB who are genuinely looking for more and improved IT services in order to excel in their roles. The sentiment most negatively expressed by Faculty is their desire to have consistent access to classroom technology in all teaching and learning spaces regardless of space ownership.[2]

For both Faculty and Staff, there is a strong desire to have easy access to official university information through the web, with an emphasis on that information being timely and accurate. Some negative sentiment for UB's web information could also be due to dissatisfaction with the changes involved with the introduction of HUB, and their struggle with understanding how to proceed with their work using the new system.

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[2] Faculty similarly expressed the issue of classroom technology and ownership in the 2009 Teaching and Learning with Technology Task Group. See http://ubit.buffalo.edu/scoreboard/surveys/surveydata/reports/TLTTaskForce.pdf

Faculty and Staff truly appreciate the efforts and assistance provided by IT supports staff. They want more access to IT Staff expertise directly, and especially clear communication regarding IT matters that affect them.

# 5   Results of the Student Survey

All students enrolled at UB during the Spring 2012 semester were considered the population for the 2012 TechQual+ survey. A complete list of student's names, UBITname (used as email address), their department and status were obtained with data custodian's permission from UB's student information data. A random selection tool provided by the TechQual+ project was used to select a true random 25% sample of the entire list of students. The selected participants were loaded into the TechQual+ tool; the remaining names were deleted. Invitations were sent to the selected student participants, as were two reminders, using the email/respondent tracking mechanism of the TechQual+ online tool. Seventeen percent, N=1180, actually completed the survey.

When the survey response period closed, all identifying respondent information was removed from the TechQual+ data using the Post-Survey Cleanup procedure that is part of the TechQual+ online tool.

Figure 3 depicts the results of the twelve standard TechQual+ questions from the UB Student 2012 survey. The figure lists the ordinal for each question on the horizontal access, with the mean service level score on the vertical access. Questions highlighted in red indicate where the mean Perceived Service level lays below the mean Minimum Level of Service, or in TechQual+ terminology the Adequacy Gap.

It should be noted that student respondents were less organized when providing suggestions for each TechQual+ question. Rather they tended to offer comments on topics unrelated to the specific question. This may be a problem with the way the survey tool is constructed, or it may generally reflect a freethinking style prevalent among UB students.   Whatever the case, suggestions continue to be categorized by the question that elicited the response, regardless of suggestion topic.

Figure 3: Student Zones of Tolerance

Zone of Tolerance (Min. to Desired) Adequacy Gap (Min. to Perceived)
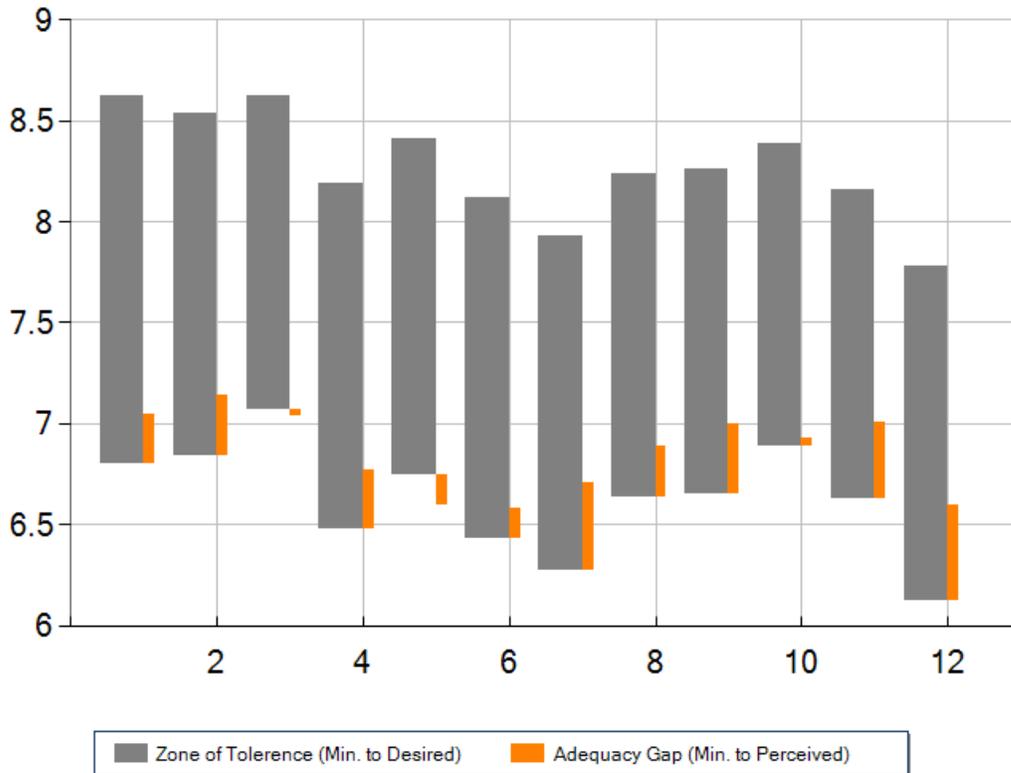
5.1   Question Results

5.1.1   Connectivity and Access

Tell us about the quality of the Internet service on campus.

#	Item		Min	Des	Per	Adeq	Supr	n*
1	Having a campus Internet service that is reliable and that operates consistently across campus.	Mean	6.80	8.62	7.05	0.25	-1.57	1206
		Dev	1.67	0.76	1.57	1.89	1.56	
2	Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads.	Mean	6.84	8.54	7.14	0.30	-1.40	1199
		Dev	1.66	0.87	1.56	1.85	1.54	
3	Having wireless Internet coverage in all of the places that are important to me on campus.	Mean	7.07	8.62	7.04	-0.03	-1.58	1182
		Dev	1.73	0.84	1.66	1.95	1.68	
4	Support for accessing the campus Internet service using my tablet or other mobile device.	Mean	6.48	8.19	6.77	0.29	-1.42	1048
		Dev	1.97	1.26	1.79	2.06	1.77	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n* = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

In terms of Connectivity and Access, UB students on average indicate that Internet service exceeds minimum standards, and it provides speedy access to web sites and file downloads (Questions 1 and 2).

Students do indicate that WiFi (wireless) service (Question 3) on campus falls below their minimum expectations by a slim margin on average. Suggestions from students for service improvement for wireless service focus on improving coverage and quality of signal throughout the campus, but especially in residence halls and apartments. Students, through their naturally mobile lifestyle, expect blanket coverage on campus, including green spaces, parking lots, and all instructional spaces.

Another more subtle distinction that can be gleaned from student suggestions in this section of the survey is that students do not make conceptual distinctions between wired verses wireless Internet connectivity. When asked about the "Internet", they mentally integrate wired, wireless and broadband (3 or 4G) connectivity into "connected".

Similar to Faculty and Staff comments regarding Question 4, support for tablet/mobile devices, students on average perceive support above the minimum, but desire a higher level of support for emerging devices. Mobile devices are now the norm, and support services are expected to be knowledgeable and easily accessible.

Finally, students express frustration with using UB's secure WiFi network, which we continuously recommend for their usage. Dropped connections and difficult configurations continue to be a disincentive to widespread adoption, and drives student use to the unauthenticated and non-secure UB Guest and UB Wireless networks.

The complete list of Students suggestions, divided thematically by question, can be found at the ITPC Confluence site (requires UBITName and authorization).

5.1.2 Technology and Collaboration Services

Tell us about the quality of Web sites, online services, and technologies for collaboration.

#	Item		Min	Des	Per	Adeq	Supr	n*
5	Having campus Web sites and online services that are easy to use.	Mean	6.75	8.41	6.60	-0.15	-1.80	1174
		Dev	1.65	0.95	1.79	2.10	1.86	
6	Accessing important campus Web sites and online services from my tablet or other mobile device.	Mean	6.43	8.12	6.58	0.16	-1.53	1006
		Dev	1.88	1.29	1.77	2.04	1.83	
7	Having campus technology services available that improve and enhance my collaboration with others.	Mean	6.27	7.93	6.71	0.45	-1.21	1085
		Dev	1.85	1.32	1.63	1.84	1.59	
8	Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information.	Mean	6.64	8.24	6.89	0.25	-1.35	1140
		Dev	1.75	1.16	1.64	2.03	1.72	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas*

Similar to Faculty and Staff, students on average expressed an expectation for having web sites and online services that are easy to use for which the minimum is not being met (Question 5). Over fifty suggestions offered by students focused on the recent introduction of UB's student information system, the HUB, and their difficulty using this system. Similarly, comments illustrated the expectation that UB web sites be less confusing, thus more usable for students attempting to locate desired information and services.

For the remaining three questions in the Technology and Collaboration Services section (Questions 6 through 8), students on average rated services at UB above the minimum expectation, but not achieving their desired expectations. Students gave the highest adequacy rating to collaborative technologies (Question 7), and like the faculty and staff desire greater effort be placed on increasing awareness of the collaborative tools and services available for their use.

Although students on average expressed service expectations greater than minimum for accessing information and apps from their mobile devices at UB, their suggestions indicate frustrations with using these devices with UB's sites and services. A quick scan of their frustrations indicate connectivity issues being a contributor to their problems (as seen above with Question 3).

Finally, Students on average expressed that classroom technology services perceptions exceeded the basic minimum levels, but not achieving their notions of desired levels either. Suggestions from students reveal sentiments similar to faculty and staff: a desire for fully technology equipped classrooms and learning spaces, and better support for using mobile devices in formal and informal learning spaces (such as reliable AC outlets.)

5.1.3 Support and Training

Tell us about your experiences when obtaining assistance with technology on campus.

#	Item		Min	Des	Per	Adeq	Supr	n*
9	Technology support staff who are consistently courteous and knowledgeable, and who can assist me in resolving problems with campus technology services.	Mean	6.65	8.26	7.00	0.35	-1.26	998
		Dev	1.78	1.13	1.72	1.95	1.65	
10	Getting timely resolution to problems that I am experiencing with campus technology services.	Mean	6.89	8.39	6.93	0.04	-1.45	979
		Dev	1.70	1.03	1.73	2.01	1.71	
11	Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form.	Mean	6.63	8.16	7.01	0.38	-1.15	1000
		Dev	1.79	1.20	1.60	1.84	1.54	
12	Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services.	Mean	6.12	7.78	6.60	0.48	-1.18	952
		Dev	1.96	1.46	1.74	1.99	1.74	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas*

Students on average indicated that technology support staff exceeded the minimum expectations in terms of their effectiveness in resolving problems with campus technology

services (Question 9), but, like all other groups, the average desired level was not met. Students expressed in their suggestions a desire for support staff to be more knowledgeable, especially first line support roles such as the CIT Help Desk.

When asked about their experience with getting timely resolution to problems with campus technology services (Question 10), similar to faculty and staff, students desire improvements in problem resolution response and response time, although the average level expressed did exceed minimal expectations. In their suggestions, students expressed frustration with the slowness of help response, and to explore other access methods to obtain support.

Question 11 asks students for their expectations regarding timely and easy-to-understand messages regarding technology services. Students again rated their service experience as above the minimum, but below their desired expected level of service. Suggestions reveal two themes: insufficient information related to IT, and the difficulty of understanding those messages. Complicating matters for students is the difficulty in using UB web sites to explore the meaning of IT messages (see the comments for question 5).

With the lowest level of desired service, students indicated in question 12, regarding access to training and self-help information, that current services exceed their minimum expectation. Coupled with comments from question 11, students desire more information about training opportunities offered to them, and an increase in training opportunities.

5.2   Student Survey Summary

Without exception, Students expressed desired service levels that were not met, and in the case of Wi-Fi access and usable web sites and online services, levels of service are perceived on average below minimum expectations. Similar to faculty and staff, students live within the "zone of tolerance", thus getting the job done while working with limitations.

Students are intensely mobile, thus their desire for ubiquitous Wi-Fi signal throughout campus. In addition, they have high expectation for online access to easy-to-use and understand web applications and information. Support for mobile devices is desired to be greater, but there is less frustration expressed in this category than faculty and stuff, most likely owing to students being the true digital natives talked about in the popular literature.

6   Results of the Combined Data Set

After all three UB TechQual+ 2012 surveys were completed, all three data sets were combined and analyzed using SPSS. The merit of the combined data set is that it reflects levels of service expectation on average that reflects the entire university community, except alumni and friends. Figure 4 is a "Zone of Tolerance" chart that compares the desired level of service for all twelve TechQual+ questions across the three respondent groups combined.

When the data are combined, two questions (outlined in red), regarding Easy-to-Use Web sites (Question 5) and Problem Resolution (Question 10), have average perceived service levels that exceed the minimum desired by the combination of IT Staff, Faculty and Staff and students. The

other ten questions have average perceived service levels that exceed minimum levels. In no case do perceived service levels meet or exceed desired levels, however.
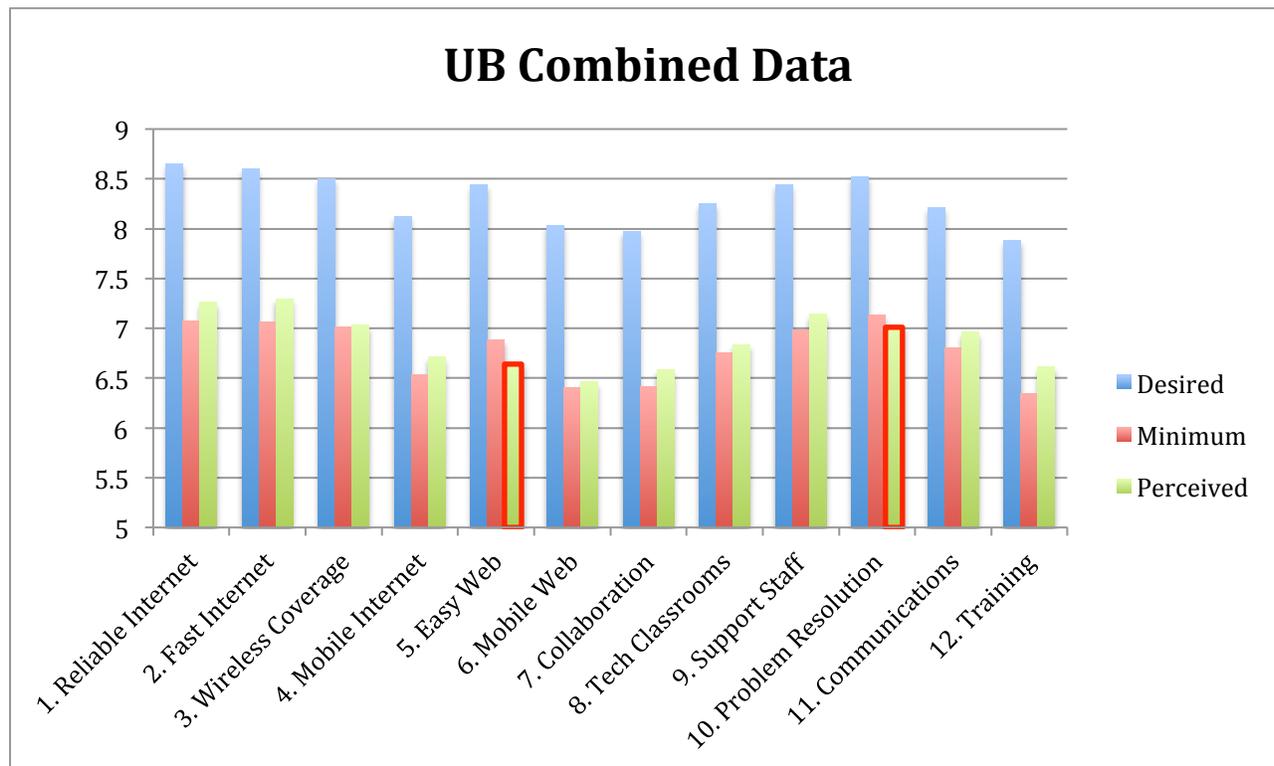
Figure 5 is a comparison view of the Desired service levels divided by each service area. It is remarkable at how similar the levels of desired service expectation are across each group for each question. Typically, desired levels for IT Staff fall below those expressed by Faculty, Staff and students, but these levels do not differ greatly. Note the Y-axis scale begins at 5, so the differences between groups are visually exaggerated somewhat.

Looking across the groups, Students express a higher average service expectation for wireless coverage and mobile web/app access (Questions 3 & 4) that is understandable given their generally mobile lifestyle. Faculty/Staff express higher average desired service levels for the four Support and Training questions (9-12), and for technology in classrooms (Question 8), collaboration tools (Question 7) and easy to use web access (Question 5). Whereas IT staff express higher average desired service levels only for reliable Internet (Question 1), this may be an artifact of IT staff self-limiting based on their knowledge of what is achievable within UB's means. Qualitative comments strongly suggest IT Staff desire faculty and staff to realize their needs through excellent technology support.
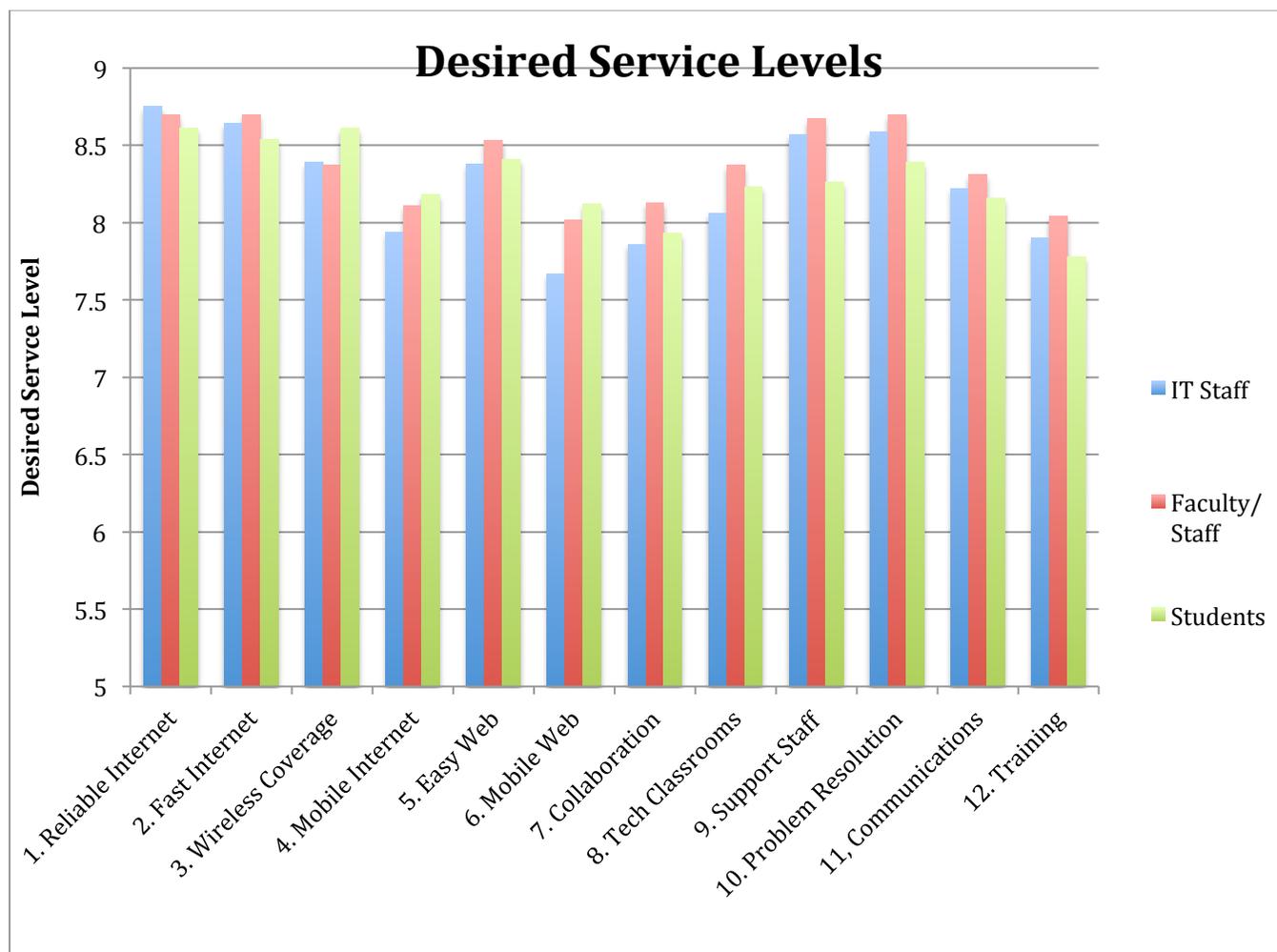
Combined Data Summary

6.1

When the data are combined, the service expectations on average tell the tale of overall service adequacy, but consistent underperformance compared to average desired service level. This picture strengthens the observation of a campus that is functioning and able to meet goals with Information Technology, but struggling to achieve excellence with IT tools.

7   Comparison with Peers

One of the valuable features of the Higher Education TechQual+ Project is the collaborative nature of participation with respect to comparison with peer institutions. Each participating institution is classified by the Carnegie Class system for this purpose. Institutions participating in the TechQual+ project have the option of combining their data into the peer database. It should be noted that all personal identifiable information is removed from institution data before they are added to the peer database.

UB data from the combined TechQual+2012 surveys were compared with over five thousand observations entered into the peer database for UB's Carnegie Class of Research (Very High)[3]. UB data is not included with the peer data when compared.

Figures 6 and 7 are Radar Charts from the TechQual+ survey tool. The Radar charts are a compact way to visualize the Desired, Minimum and Perceived levels for all 12 questions. Areas in blue represent where Perceived levels of service exceed Minimum levels, which is good. Areas in Red represent where Perceived levels of service are below Minimum service levels, considered inadequate. Areas in Yellow represent the gap between Perceived service levels and Desired service levels. Finally, areas in Green, for which there are none in either chart, represent where Perceived service levels exceed Desired service levels, refered to as "superiority" in TechQual+ terminology.

Figure 6 depicts the combined UB TechQual+ 2012 data as it was submitted to TechQual+ for inclusion into the peer database. Figure 7 is a similar radar chart for the 5000+ observations in the Peer Group. At first glance, it is remarkable how similar are the two charts, which is a quick indication how UB measures up to the peer data on all 12 service goals.

Underneath the radar charts are the actual scores for UB compared to data from the peer database for the same institutional classification, divided into the same three Service Groups used in the Zones of Tolerance charts. The TechQual+ tool gives a quick visual indicator of how we measure up at the end of the text of each question: a Gold Star indicates where UB's performance exceeds the peer group, a red Minus indicates where UB's performance is below the peer group, and no indicator designates no difference from the peer group.

7.1 Peer Comparison Discussion

For the Connectivity and Access questions, UB's performance *exceeds* the peer group. In fact, the average peer performance for Question 3 (seen highlighted in light blue) indicates that on average peer institutions do not meet minimum expectations for wireless Internet coverage on their campuses, where the composite data at UB indicates on average we do exceed minimum service levels. Also note that on average the peer data does not excel at any service level either, similar to UB's performance.

The Technology and Collaboration Services questions reveal at least one deficiency for UB compared to the peer data: question 5, regarding easy-to-use websites, shows UB's performance to be below that of the peer data.   For the other three questions, regarding Access to information for mobile devices, access to collaboration services, and classroom technology, UB's data exceeds the peer group data.

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[3] At the time of the comparison, the following institutions had submitted their data into the Peer database for class Research (Very High): Boston University, Miami University-Oxford, SUNY University at Buffalo, Texas A & M University, University of Georgia, University of Kansas Main Campus, University of New Mexico, University of South Carolina-Columbia, Wayne State University, Yale University

In the Support and Training service areas, UB *exceeds* the peer data in providing support and problem resolution (question 9) and getting timely resolution to problems (question 10). We fall short of the peer data in providing timely and simple communications regarding campus technology. Finally, UB is no different in providing training and self-help information (question 12).

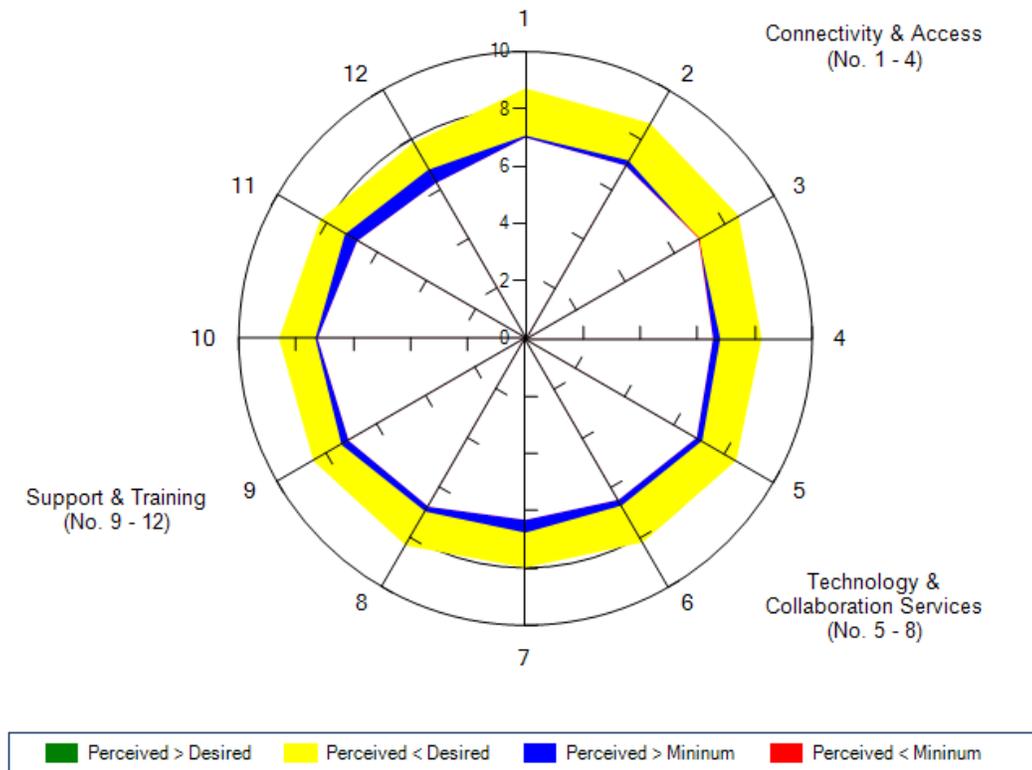**Figure 6: SUNY University at Buffalo Radar Chart**

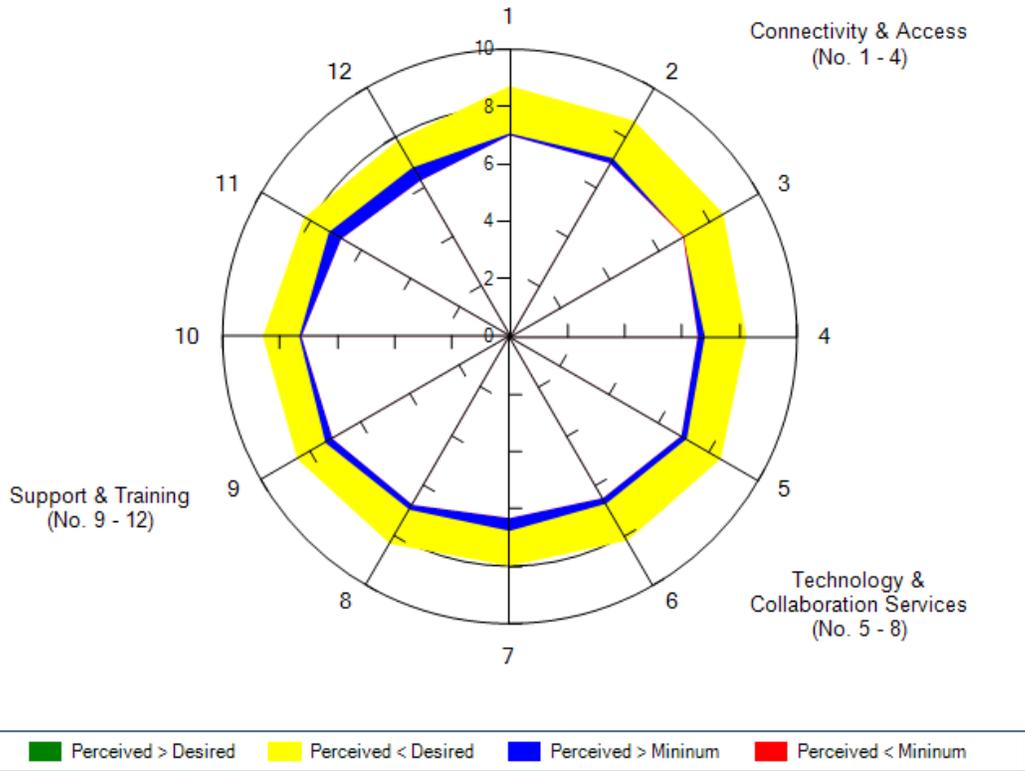**Figure 7: Peer Group: Research Universities (Very High) Radar Chart**

Legend:
- Perceived > Desired
- Perceived < Desired
- Perceived > Mininum
- Perceived < Mininum

Table 2: Peer Comparison Scores

Connectivity and Access
Tell us about the quality of the Internet service on campus.

#	Item			Min	Des	Per	Adeq	Supr	n*
1	Having a campus Internet service that is reliable and that operates consistently across campus. ⭐	My School	Mean	6.80	8.62	7.17	0.37	-1.45	1148
			Dev	1.60	0.75	1.42	1.57	1.39	
		Peer Group	Mean	7.00	8.72	7.07	0.08	-1.65	5849
			Dev	1.53	0.64	1.46	1.48	1.42	
2	Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads. ⭐	My School	Mean	6.84	8.54	7.24	0.40	-1.30	1147
			Dev	1.59	0.87	1.44	1.51	1.37	
		Peer Group	Mean	6.96	8.67	7.17	0.21	-1.50	5766
			Dev	1.53	0.71	1.44	1.46	1.39	
3	Having wireless Internet coverage in all of the places that are important to me on campus. ⭐	My School	Mean	7.15	8.63	7.16	0.01	-1.47	1082
			Dev	1.58	0.82	1.51	1.43	1.46	
		Peer Group	Mean	7.01	8.58	6.97	-0.04	-1.61	5682
			Dev	1.68	0.92	1.61	1.79	1.64	
4	Support for accessing the campus Internet service using my tablet or other mobile device. ⭐	My School	Mean	6.48	8.19	6.90	0.42	-1.29	978
			Dev	1.87	1.25	1.66	1.58	1.51	
		Peer Group	Mean	6.54	8.24	6.79	0.25	-1.44	5038
			Dev	1.83	1.22	1.66	1.77	1.66	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived >*

Technology and Collaboration Services
Tell us about the quality of Web sites, online services, and technologies for collaboration.

#	Item			Min	Des	Per	Adeq	Supr	n*
5	Having campus Web sites and online services that are easy to use. ▬	My School	Mean	6.72	8.39	6.75	0.03	-1.64	1120
			Dev	1.59	0.96	1.61	1.68	1.62	
		Peer Group	Mean	6.90	8.49	7.12	0.22	-1.37	5567
			Dev	1.50	0.85	1.34	1.47	1.32	
6	Accessing important campus Web sites and online services from my tablet or other mobile device. ⭐	My School	Mean	6.41	8.12	6.71	0.29	-1.42	948
			Dev	1.81	1.26	1.62	1.58	1.54	
		Peer Group	Mean	6.49	8.20	6.72	0.23	-1.48	4854
			Dev	1.76	1.21	1.59	1.73	1.60	
7	Having campus technology services available that improve and enhance my collaboration with others. ⭐	My School	Mean	6.26	7.92	6.80	0.54	-1.12	1038
			Dev	1.78	1.29	1.51	1.49	1.36	
		Peer Group	Mean	6.32	7.99	6.77	0.45	-1.22	5253
			Dev	1.83	1.32	1.55	1.54	1.42	
8	Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information. ⭐	My School	Mean	6.61	8.23	7.04	0.42	-1.19	1077
			Dev	1.68	1.14	1.45	1.60	1.42	
		Peer Group	Mean	6.77	8.34	6.97	0.20	-1.37	5350
			Dev	1.70	1.08	1.49	1.70	1.48	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas*

Support and Training
Tell us about your experiences when obtaining assistance with technology on campus.

#	Item			Min	Des	Per	Adeq	Supr	n*
9	Technology support staff who are consistently courteous and knowledgeable, and who can assist me in resolving problems with campus technology services. ⭐	My School	Mean	6.68	8.27	7.11	0.43	-1.16	941
			Dev	1.65	1.09	1.58	1.45	1.37	
		Peer Group	Mean	7.12	8.54	7.41	0.29	-1.13	5056
			Dev	1.54	0.86	1.40	1.39	1.28	
10	Getting timely resolution to problems that I am experiencing with campus technology services. ⭐	My School	Mean	6.89	8.38	7.11	0.22	-1.27	912
			Dev	1.60	1.00	1.53	1.48	1.39	
		Peer Group	Mean	7.25	8.60	7.33	0.08	-1.27	4969
			Dev	1.45	0.78	1.38	1.39	1.30	
11	Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form. ▬	My School	Mean	6.68	8.17	7.09	0.41	-1.08	952
			Dev	1.67	1.16	1.49	1.42	1.31	
		Peer Group	Mean	6.78	8.27	7.27	0.49	-0.99	5198
			Dev	1.68	1.10	1.43	1.51	1.34	
12	Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services.	My School	Mean	6.14	7.77	6.69	0.55	-1.08	897
			Dev	1.86	1.42	1.61	1.50	1.44	
		Peer Group	Mean	6.25	7.87	6.79	0.55	-1.08	4879
			Dev	1.92	1.44	1.59	1.59	1.49	

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); n = Total Respondents Who Completed Item; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas*

7.2 Peer Comparison Summary

When compared to TechQual+ data contributed by institutions in the same Carnegie classification, UB is ahead of the pack for almost all service categories. We fall short in the areas of providing Web sites and services that are easy to use, and in providing simple and timely communication regarding IT services to our audiences.

The comparison analysis tells that tale of similarity throughout peer institutions with regards to performance on key Information Technology services. It is reflective of the same financial constraints and technological hurdles that face Higher Ed IT organizations for peer institutions nationwide. Expectations for services overall greatly exceed our ability to achieve, so we keep our heads above water providing services a tolerable levels. Our students, faculty and staff operate and manage to excel within this zone of adequacy.

Appendix I

2012 Higher Education TechQual+ Core Survey Instrument

Connectivity and Access
Tell us about the quality of the Internet service on campus

When it comes to...

1. Having a campus Internet service that is reliable and that operates consistently across campus.

2. Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads.

3. Having wireless Internet coverage in all of the places that are important to me on campus.

4. Support for accessing the campus Internet service using my tablet or other mobile device.

Technology and Collaboration Services
Tell us about the quality of Web sites, online services, and technologies for collaboration

When it comes to...

5. Having campus Web sites and online services that are easy to use.

6. Accessing important campus Web sites and online services from my tablet or other mobile device.

7. Having campus technology services available that improve and enhance my collaboration with others.

8. Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information.

Support and Training
Tell us about your experiences when obtaining assistance with technology on campus

When it comes to...

9. Technology support staff who are consistently courteous and knowledgeable, and who can assist me in resolving problems with campus technology services.

10. Getting timely resolution to problems that I am experiencing with campus technology services.

11. Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form.

12. Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services.