

Appendix 5: Crosstabulations

Item 1

Overview

The following cross-tabulations represent students reactions to statements about group work in relation to their answers to questions specific to the group project in their course. The mean and standard deviation are calculated based on the 7-point likert scale. A one-way ANOVA was used to test for significant differences and Tukey's HSD post-hoc test was used to investigate the differences between groups.

Item 1.1

Students who knew how the group project related to course objectives were significantly more likely to indicate some level of agreement with the statement, *I learn more effectively in groups*.

Figure 1.1

Do you know how the group project relates to course objectives?	I learn more effectively in groups			Mean (1-7)	Std.dev
	Agree	No Opinion	Disagree		
Yes (N=700)	64.1%	7.7%	28.1%	4.626^a	1.489
No (N=18)	27.8%	16.7%	55.6%	3.278^b	1.809
Unsure (N=60)	55.0%	13.3%	31.7%	4.333^{ab}	1.591

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 1.2

Students who knew how the group project related to course objectives were significantly more likely to indicate some level of agreement with the statement, *I see value in group assignments*. These data, in conjunction with item 1.1, suggest students have more positive attitudes toward group work when the alignment between the group task and the learning objectives for the course are made explicit.

Figure 1.2

Do you know how the group project relates to course objectives?	I see value in group assignments			Mean (1-7)	Std.dev
	Agree	No Opinion	Disagree		
Yes (N=700)	73.6%	14.7%	11.7%	5.456^a	1.177
No (N=18)	16.7%	38.9%	44.4%	3.5^b	1.948
Unsure (N=60)	70.0%	13.3%	16.7%	5.017^a	1.467

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item I.3

Students who replied that their instructor provided guidance on how to work in groups were significantly more likely to indicate some level of agreement with the statement, *I learn more effectively in groups*.

Figure I.3

Did your instructor provide guidance on how to work in groups?	I learn more effectively in groups			Mean (1-7)	Std.dev
	Agree	No Opinion	Disagree		
Yes (N=700)	66.6%	7.2%	26.2%	4.694^a	1.455
No (N=18)	49.7%	10.1%	40.2%	4.107^b	1.633
Unsure (N=60)	65.1%	11.0%	23.9%	4.761^a	1.484

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item I.4

Students who rated the project *much better* than past group projects were significantly more likely to agree with the statement, *I learn more effectively in groups*, than students who rated the project anything other. Similarly, students who rated the project *a little better* or *about the same* were significantly more likely to agree with the aforementioned statement than those who rated the project *a little* or *much worse*.

Figure I.4

Overall, where would you place this group project compared to other group projects you have participated in?	I learn more effectively in groups			Mean (1-7)	Std.dev
	Agree	No Opinion	Disagree		
Much better (N=169)	78.1%	6.5%	15.4%	5.201	1.330
A little better (N=255)	67.0%	6.3%	26.6%	4.694^b	1.428
About the same (N=257)	58.7%	10.9%	30.3%	4.436^b	1.449
A little worse (N=76)	35.5%	11.8%	52.6%	3.658^a	1.571
Much worse (N=23)	39.1%	4.3%	56.5%	3.435^a	2.041

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 1.5

Students who rated the project *much better* than past group projects were significantly more likely to agree with the statement, *I see value in group assignments*, than students who rated the project anything other. Similarly, students who rated the project *a little better* or *about the same* were significantly more like to agree with the aforementioned statement than those who rated the project *a little* or *much worse*.

Figure 1.5

Overall, where would you place this group project compared to other group projects you have participated in?	I see value in group assignments				
	Agree	No Opinion	Disagree	Mean (1-7)	Std.dev
Much better (N=169)	97.0%	0.6%	2.4%	6.018	0.854
A little better (N=255)	88.3%	3.1%	8.6%	5.418^b	1.117
About the same (N=257)	86.4%	3.9%	9.7%	5.288^b	1.167
A little worse (N=76)	65.4%	5.3%	29.4%	4.533^a	1.571
Much worse (N=23)	52.1%	4.3%	43.4%	4.130^a	2.074

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 1.6

Students who rated the project *much better* than past group projects were significantly less likely to agree with the statement, *I do not understand why my instructors assign group work*, than students who rated the project anything other.

Figure 1.6

Overall, where would you place this group project compared to other group projects you have participated in?	I do not understand why my instructors assign group work				
	Agree	No Opinion	Disagree	Mean (1-7)	Std.dev
Much better (N=169)	4.8%	9.5%	85.8%	2.320	1.136
A little better (N=255)	9.9%	12.3%	77.9%	2.711 ^c	1.263
About the same (N=257)	14.2%	15.4%	70.3%	2.929 ^{bc}	1.337
A little worse (N=76)	23.0%	20.3%	56.8%	3.297 ^a	1.588
Much worse (N=23)	30.4%	21.7%	47.7%	2.522 ^{ab}	1.702

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 1.7

Students who rated the group project *much better* than past group projects were significantly more likely to agree with the statement, *I enjoy using technology tools like wikis, blogs, chat, threaded discussion forums, social networking sites, and collaborative applications (i.e. Google Apps)*, than students who rated the project anything other.

Figure 1.7

	I enjoy using technology tools like wikis, blogs, chat, threaded discussion forums, social networking sites, and collaborative applications (i.e. google apps)				
Overall, where would you place this group project compared to other group projects you have participated in?	Agree	No Opinion	Disagree	Mean (1-7)	Std.dev
Much better (N=169)	90.5%	4.8%	4.8%	5.166	1.511
A little better (N=255)	84.0%	9.0%	7.0%	4.727 ^c	1.446
About the same (N=257)	71.8%	14.5%	13.6%	4.198 ^b	1.547
A little worse (N=76)	60.0%	9.3%	30.3%	3.750 ^b	1.790
Much worse (N=23)	56.5%	8.7%	34.7%	4.130 ^{bc}	1.938

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 1.8

Students who rated the project *much* or *a little better* were significantly more likely to agree with the statement, *Technology tools make it easier for me to complete group assignments*, than students who rated the project *about the same* or *a little* or *much worse*.

Figure 1.8

	Technology tools make it easier for me to complete group assignments				
Overall, where would you place this group project compared to other group projects you have participated in?	Agree	No Opinion	Disagree	Mean (1-7)	Std.dev
Much better (N=169)	81.6%	8.9%	9.5%	5.798 ^c	1.153
A little better (N=255)	78.4%	8.6%	12.9%	5.441 ^c	1.177
About the same (N=257)	73.8%	15.2%	11.0%	5.051 ^b	1.372
A little worse (N=76)	78.9%	10.5%	10.4%	4.560 ^a	1.832
Much worse (N=23)	95.2%	0.0%	4.3%	4.609 ^{ab}	1.779

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 2.1

Students who used *other wiki* (a wiki other than T-wiki, the wiki supported by DoIT) were significantly more likely to indicate some level of agreement with the statement, *I am confident that my group benefited from using technology tools* than students who used a Collaborative Site. There were no other significant differences between technologies.

Figure 2.1

Technology	I am confident that my group benefited from using technology tools.			Mean	Std. dev.
	Agree	No Opinion	Disagree		
Collaborative Sites (N=253)	86.2%	7.9%	6.0%	5.557^a	1.162
TWiki (N=30)	86.7%	10.0%	3.3%	5.633^{ab}	0.890
Google Docs (N=81)	91.3%	4.9%	3.7%	5.864^{ab}	1.081
Other Wiki (N=225)	90.6%	5.8%	3.5%	5.853^b	1.142
Learn@UW (N=81)	88.9%	7.4%	3.7%	5.802^{ab}	1.054

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 2.2

Students who used *other wiki* (a wiki other than T-wiki, the wiki supported by DoIT) were significantly more likely than students who used a Collaborative Site to rate the project *much or a little better* than past group projects they have participated in. There were no other significant differences between technologies.

Figure 2.2

Technology	How would you rate this group project compared to other projects you have worked on?					Mean	Std. dev.
	Much better (2)	A little better (1)	About the same (0)	A little worse (-1)	Much worse (-2)		
Collaborative Sites (N=306)	16.7%	32.0%	35.0%	12.7%	3.6%	0.454	1.027
TWiki (N=30)	16.7%	23.3%	50.0%	10.0%	0.0%	0.467	0.900
Google Docs (N=80)	35.0%	31.2%	15.0%	12.5%	6.2%	0.7625	1.235
Other wiki (N=220)	25.9%	34.5%	30.9%	6.4%	2.3%	0.755	0.986
Learn@UW (N=94)	24.5%	35.1%	33.0%	6.4%	1.1%	0.717	0.926

Item 2.3

Students who used *other wiki* (a wiki other than T-wiki, the wiki supported by DoIT) were significantly more likely to indicate some level of agreement with the statement, *Technology tools made it more convenient to do group work* than students who used a Collaborative Site. There were no other significant differences between technologies.

Figure 2.3

	Technology tools made it more convenient to do group work.				
Technology	Agree	No Opinion	Disagree	Mean	Std. dev.
Collaborative Sites (N=253)	79.0%	11.7%	9.0%	5.327^a	1.292
TWiki (N=30)	90.1%	3.3%	6.6%	5.567^{ab}	1.104
Google Docs (N=81)	84.7%	10.1%	5.1%	5.646^{ab}	1.188
Other Wiki (N=225)	83.8%	6.2%	4.8%	5.763^b	1.117
Learn@UW (N=81)	84.8%	11.4%	3.8%	5.570^{ab}	1.094

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 2.4

Students who rated the project as much better than past group projects were significantly more likely than those who rated the project as something other to indicate some level of agreement with the statement, *Technology tools enhanced the quality of the final group product*.

Figure 2.4

	I am confident that my group benefited from using technology tools.				
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.
Much better (N=153)	95.5%	3.2%	1.2%	6.22^a	0.850
A little better (N=215)	94.5%	2.3%	3.2%	5.82^b	1.012
About the same (N=214)	83.2%	12.5%	4.7%	5.49^c	1.082
A little worse (N=55)	71.4%	12.5%	16.1%	5.07^c	1.605
Much worse (N=18)	79.0%	10.5%	10.6%	5.26^{bc}	1.522

Means not sharing a common superscript (a, b, c) are significantly different, $p < 0.05$

Item 2.5

Students who rated the project as better than past group projects were significantly more likely than those who rated the project as the same or worse than past projects to indicate some level of agreement with the statement, *Technology tools enhanced the quality of the final group product.*

Figure 2.5

	Technology tools enhanced the quality of the final group product.					
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.	
Much better (N=153)	95.5%	3.2%	1.2%	6.10^a	1.034	
A little better (N=215)	94.5%	2.3%	3.2%	5.73^a	1.096	
About the same (N=214)	83.2%	12.1%	4.7%	5.36^b	1.150	
A little worse (N=55)	71.4%	12.5%	16.1%	4.82^b	1.728	
Much worse (N=18)	79.0%	10.5%	10.6%	4.84^b	1.675	

Means not sharing a common superscript (a,b, c) are significantly different, $p < 0.05$

Item 2.6

Students who rated the project as much better than past group projects were significantly more likely than those who rated the project as something other than much better to indicate some level of agreement with the statement, *Technology tools made group work more convenient.*

Figure 2.6

	Technology tools made group work more convenient					
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.	
Much better (N=153)	92.9%	3.9%	3.2%	6.12^a	0.944	
A little better (N=215)	89.5%	6.0%	4.7%	5.56^b	1.146	
About the same (N=214)	78.1%	16.4%	5.6%	5.38^{bc}	1.107	
A little worse (N=55)	62.5%	16.1%	21.5%	4.93^c	1.562	
Much worse (N=18)	58.0%	21.1%	21.1%	4.74^{bc}	1.727	

Means not sharing a common superscript (a,b, c) are significantly different, $p < 0.05$

Item 2.7

Students who rated the project as much better than past group projects were significantly more likely than those who rated the project as something other to indicate some level of agreement with the statement, *Technology tools made group work more convenient*.

Figure 2.7

	Technology tools made group work more convenient					
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.	
Much better (N=153)	94.8%	3.3%	2.0%	6.12^a	0.944	
A little better (N=215)	85.4%	8.0%	6.6%	5.56^b	1.146	
About the same (N=214)	79.8%	14.1%	6.1%	5.38^{bc}	1.107	
A little worse (N=55)	72.7%	10.9%	16.3%	4.93^c	1.562	
Much worse (N=18)	63.2%	15.8%	21.1%	4.74^{bc}	1.727	

Means not sharing a common superscript (a,b, c) are significantly different, $p < 0.05$

Item 2.8

Students who rated the project as much better than past group projects were significantly more likely than those who rated the project as something other to indicate some level of agreement with the statement, *Technology tools improved the group process*. Except for the much worse category, which is a small percent of the sample, as the project rating improves, the level of agreement with the above statement increases significantly.

Figure 2.8

	Technology tools improved the group process					
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.	
Much better (N=153)	91.5%	6.5%	2.0%	6.02^a	0.956	
A little better (N=215)	85.0%	8.9%	6.1%	5.50^b	1.104	
About the same (N=214)	70.9%	21.1%	8.0%	5.15^c	1.152	
A little worse (N=55)	60.8%	16.1%	23.3%	4.52^d	1.629	
Much worse (N=18)	63.1%	21.1%	15.8%	4.89^{bcd}	1.370	

Means not sharing a common superscript (a,b, c, d) are significantly different, $p < 0.05$

Item 2.9

Students who rated the project as much better than past group projects were significantly more likely than those who rated the project as something other to indicate some level of agreement with the statement, *I will use technology tools for future group projects.*

Figure 2.9

	I will use technology tools for future group projects					
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.	
Much better (N=153)	93.5%	5.9%	0.7%	6.18^a	0.852	
A little better (N=215)	85.1%	9.8%	5.1%	5.67^b	1.175	
About the same (N=214)	81.4%	14.0%	5.5%	5.44^{bc}	1.140	
A little worse (N=55)	67.3%	14.5%	18.2%	5.00^c	1.610	
Much worse (N=18)	77.8%	16.7%	5.6%	5.61^{abc}	1.335	

Means not sharing a common superscript (a,b, c) are significantly different, $p < 0.05$

Item 2.10

Students who rated the project as much or a little better than past group projects were significantly more likely than those who rated the project as about the same or a little worse to indicate some level of agreement with the statement, *I received training on how to use the technology tool my instructor provided to the class.*

Figure 2.10

	I received training on how to use the technology tool my instructor provided to the class					
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.	
Much better (N=153)	82.4%	7.1%	10.4%	6.48^a	1.387	
A little better (N=215)	79.1%	11.6%	9.2%	5.33^a	1.269	
About the same (N=214)	60.7%	17.8%	21.5%	4.80^b	1.568	
A little worse (N=55)	58.9%	19.6%	21.4%	4.62^b	1.733	
Much worse (N=18)	68.5%	10.5%	21.1%	4.63^{ab}	1.950	

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 2.11

Students who rated the project as much or a little better than past group projects were significantly more likely than those who rated the project as something other to indicate some level of agreement with the statement, *I am glad my instructor incorporated the technology tool into class*. These data suggest satisfaction with the technology tool correlates with satisfaction with the group project.

Figure 2.11

I am glad my instructor incorporated the technology tool into class.					
Project Rating	Agree	No Opinion	Disagree	Mean	Std. dev.
Much better (N=153)	80.8%	6.6%	4.6%	6.48^a	1.387
A little better (N=215)	78.0%	11.7%	10.2%	5.33^b	1.269
About the same (N=214)	55.3%	32.9%	11.8%	4.80^c	1.568
A little worse (N=55)	30.4%	32.1%	37.5%	4.62^d	1.733
Much worse (N=18)	33.4%	33.3%	33.4%	4.63^{cd}	1.950

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 3.1

Students who knew how the group project related to course objectives were significantly more likely than their peers who did not know how the project related to course objectives to rate the project as *much better*, *a little better*, or *about the same* than past group projects they have participated in. These data suggest students are more likely to have an enjoyable project experience when the alignment between the group project and course objectives are made clear.

Figure 3.1

Do you know how the project relates to course objectives?					
	Much Better (N=168)	A little better (N=256)	About the same (N=255)	A little worse (N=76)	Much worse (N=23)
% YES	95.2% ^{bc}	95.7% ^c	86.6% ^b	76.3% ^a	69.6% ^a

Means not sharing a common superscript (a,b, c) are significantly different, $p < 0.05$

Item 3.2

Students who indicated there was a need for policies or procedures to deal with serious group conflict were significantly more likely than their peers who indicated there was not a need for policies or procedures to rate the project as *much worse* than past group projects they have participated in.

Figure 3.2

Was there a need for policies or procedures to deal with serious group conflict?					
	Much Better (N=168)	A little better (N=256)	About the same (N=255)	A little worse (N=76)	Much worse (N=23)
% YES	8.5%	11.3% ^a	9.1% ^a	14.5% ^a	39.1% ^b

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 3.3

Students who indicated their instructor provided guidance on how to work in groups were significantly more likely than their peers who indicated their instructor did not provide guidance to rate the project as *much better*, *a little better*, or *about the same* than past group projects they have participated in. These data suggest providing students with guidance on how to work in groups is a factor in how students view the project.

Figure 3.3

Did your instructor provide guidance on how to work in groups?					
	Much Better (N=168)	A little better (N=256)	About the same (N=255)	A little worse (N=76)	Much worse (N=23)
% YES	76.8% ^c	64.8% ^{ac}	62.7% ^a	46.1% ^b	39.1% ^b

Means not sharing a common superscript (a,b) are significantly different, $p < 0.0$

Item 4.1

The figure below shows how students rated the group project based on how many hours they spent in a typical week working independently on their group project. The only significant difference exists between students who spent 0-1 hours and 4-5 hours working on their group project. The students who spent 4-5 hours working independently were significantly more likely than the students who spent 0-1 hours to rate the project *much* or *a little better* than past group projects. In general, the data suggests students were more satisfied with the project when they were spending between 2 and 9 hours per week working independently on the group project.

Figure 4.1

N=782	Overall, how would you rate this group project compared to other group projects you have been involved in?						
In a typical week, how much time did you spend working independently on your group project?	Much better (2)	A little better (1)	About the same (0)	A little worse (-1)	Much worse (-2)	Mean	Std. dev
0-1 hours (N=314)	15.3%	30.9%	39.8%	11.8%	2.2%	0.452^a	0.962
2-3 hours (N=332)	23.2%	34.6%	30.7%	9.0%	2.4%	0.672^{ab}	1.006
4-5 hours (N=81)	29.6%	37.0%	24.7%	6.2%	2.5%	0.852^b	1.001
6-7 hours (N=34)	41.2%	26.5%	14.7%	5.9%	11.8%	0.794^{ab}	1.366
8-9 hours (N=7)	57.1%	14.3%	0.0%	14.3%	14.3%	0.857^{ab}	1.676
More than 9 hours (N=14)	14.3%	35.7%	35.7%	7.1%	7.1%	0.429^{ab}	1.089

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$

Item 4.2

The figure below shows how students rated the group project based on how many hours they spent in a typical week working together with their group, either face-to-face or online at the same time. The only significant difference exists between students who spent 0-1 hours and 4-5 hours working on their group project. The students who spent 4-5 hours working independently were significantly more likely than the students who spent 0-1 hours to rate the project *much* or *a little better* than past group projects. In general, the data suggests students were more satisfied with the project when they were spending between more time per week working with their group.

Figure 4.2

N=782	Overall, how would you rate this group project compared to other group projects you have been involved in?						
	Much better (2)	A little better (1)	About the same (0)	A little worse (-1)	Much worse (-2)	Mean	Std. dev
0-1 hours (N=314)	15.9%	31.6%	38.6%	11.3%	2.6%	0.470^a	0.976
2-3 hours (N=332)	21.7%	34.7%	32.2%	9.3%	2.2%	0.644^{ab}	0.991
4-5 hours (N=81)	36.2%	30.4%	23.2%	4.3%	5.8%	0.870^b	1.136
6-7 hours (N=34)	48.0%	20.0%	12.0%	8.0%	12.0%	0.840^{ab}	1.434
8-9 hours (N=7)	28.6%	57.1%	0.0%	14.3%	0.0%	1.000^{ab}	1.000
More than 9 hours (N=14)	55.6%	33.3%	11.1%	0.0%	0.0%	1.444^{ab}	0.726

Means not sharing a common superscript (a,b) are significantly different, $p < 0.05$