

**‘Positive Universities’ : Exploring Student Experience at the University of Toronto  
through Positive Psychology**

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## Introduction

We are at a pivotal moment in higher education, where positive initiatives could be imperative to securing future well-being. Even before COVID-19 provoked the current emergency, student mental health was considered to be in crisis (Ibrahim et al., 2012). Not only do universities provide academic education, they also serve as a premise for the development of interpersonal connections, and the chance to explore choices. Unfortunately, the structures and the environment in which positive practices can flourish, are challenged by the situation. Prioritizing extrinsic motivations (e.g. grades) negates natural intrinsic motivations, as defined by Self-determination theory (Ryan & Deci, 2017). Students feel unable to participate in discussions that would prioritize a better environment and mental health. Therefore, the concept of a positive institution that values well-being, is a field that merits further research. Despite the consensus that positivity is to be encouraged, there is a lack of literature and research in the university sphere (Gable & Haidt, 2005). The current situations and policies can exacerbate a negative experience for students.

COVID-19 provided both an additional challenge and an opportunity to examine and reimagine how Positive Psychology and Self-determination theory can be applied to meet psychological needs effectively, in both traditional and online learning. Positive psychology emphasizes ‘optimizing’ personal development, and extending this beyond just minimal outcomes (Gable & Haidt, 2005). This paper focused on analyzing student feedback with regard to their experiences with institutional practices and classroom environment at the three campuses of the University of Toronto, and what effects these structures had on student overall student mental health.

## Methods

### Participants

A total of 275 participants completed the survey. Of these, 182 students were registered at the St. George campus, 73 at Mississauga, 19 at Scarborough, and one did not state their campus. Participants ranged in age from 18 to 61 ( $M = 23.74$ ,  $SD = 5.95$ ). Looking at gender, 177 identified as women, 89 as men, 2 as non-binary, 5 preferred not to say, and 2 did not indicate their gender. The sample was 46.5% White, 22.9% East or Southeast Asian, 6.5% South Asian, 4% Indigenous. Of the remaining 20%, 10% did not report their ethnicity and the other 10% were Black (2.5%), Caribbean (.03%), Central Asian (1.8%), Latinx or Hispanic (2.2%), Middle Eastern or North African (1.8%), and Mixed race or other (1%). Participants GPAs ranged from 1.25 to 4 ( $M = 3.06$ ,  $SD = .68$ ).

Participants were recruited via University Departmental Mailing lists, Student Groups, and other social media platforms such as Reddit and Instagram. Participants were given the opportunity to be entered into a raffle to win one of fifty \$50 Giftcards to the University Bookstore. In addition to our listed scales and measures, we obtained relevant data pertaining to demographics, academic Programmes of Study ("POST") and time zone from which participants were attending classes. All identifying and personal data, such as email addresses collected for distributing raffle prizes, remained anonymous, and was not linked to any of the subject's responses. The targeted participants were undergraduate students at all three campuses of the University of Toronto, and were recruited via Undergraduate mailing lists, Reddit, and other social media platforms.

## Measures

This survey consisted of seven overall sections: 1) Best Course Experience, 2) Worst Course Experience, 3) Online Learning Experience, 4) Organizational Level, 5) Well/Ill being, 6) Self-Determination, and 7) Demographics.

*The Best and Worst Course Experiences sections (Sections 1 & 2)* focused on the students' feelings regarding the course they considered to be the 'best' or the 'worst'. Each section contained the following:

- a) *The Learning Climate Questionnaire (LCQ)*: This category contained 16 statements, initially referring to the conduct of the instructor (Williams & Deci, 1996). For the purposes of this study, the stems were modified from the original 'my leader', to 'my instructor', in order to better address the research goals. Participants rated the extent to which they agreed with each statement, from Strongly Disagree (1) to Strongly Agree (7). In order to interpret the scores, each participants' score was averaged and item 13 was reversed. The higher a participants' average score was, the higher the level of perceived autonomy support.
- b) *Satisfaction with the course*: This category contained 7 statements. Participants rated the extent to which they agreed with each statement regarding the delivery of the course and the structure, from Strongly Disagree (1) to Strongly Agree (5). In order to interpret the scores, the numbers were averaged. All items created for this scale are contained in Appendix A.
- c) *Overall grade and performance in the course*: This category contained 16 options. Participants indicated the grade they received in this course from A+ - F, including options for Credit/No Credit (CR/NCR). This also included a subsection for participants to indicate how they performed in that course relative to their performance in other courses.

- d) *Open-ended questions*: These questions asked participants to elaborate on the specific components that made the learning experience the ‘best’ or the ‘worst’.

*The Online Learning Experience section (Section 3)* included a space for participants to summarize their perceptions of online delivery, and asked the following:

- a) *An open-ended question*:

What are some structures and systems used in online learning that you would like to see implemented upon return to in-person courses, if any (for example, Zoom office hours, more advanced course webpages, asynchronous group work, etc)? Why?

*The Organizational Level section (Section 4)* pertained to overall perceptions of University structures, experiences and policies. This section contained the following nine questions:

- a) *An open-ended question* about barriers faced by the participants:

Considering your experience with your OVERALL university experience over the last academic year, write a short paragraph about the biggest BARRIERS you faced in having a positive university experience, and why. As just some examples, this can include a wide variety of things, including but not limited to: course experiences, mental health supports, accessibility services, communication from administration, departmental policies, residential programming and services, etc.

- b) *An open ended question* about the supports offered to participants by the University:

Considering your experience with your OVERALL university experience over the last academic year, write a short paragraph about the biggest SUPPORTS you faced in having a positive university experience, and why. As just some examples, this can include a wide variety of things, including but not limited to: course experiences, mental health supports, accessibility services, communication from administration, departmental policies, residential programming and services, etc.

- c) *An open ended question* that provides an opportunity for participants to recommend changes:
- What are some solutions or changes can you think of that would contribute to your positive university experience? Please note that these suggestions can include anything, and that you do not have to take administrative or financial concerns into account.
- d) *A scale* for participants to indicate how likely they think the change could be implemented over the next 5 years: from a scale of Extremely Unlikely (1) to Extremely Likely (5).
- e) *Organizational Support Scale*: This scale was used to determine how organizational support by the University Institution is implemented and perceived by students (Eisenberger & Huntington, 1986). The original scale was modified from being about the ‘workplace’ to about the ‘University’, in order to address research goals accurately. In order to decrease participant burden, the original scale was reduced from 36 statements, to the most relevant 14 statements, including statements such as ‘The University values my contribution to its well-being’. Participants rated the extent to which they agreed with each statement, from Strongly Disagree (1) to Strongly Agree (7). Negative items such as ‘The University fails to appreciate any extra effort from me’ were reverse coded, and the ratings were averaged.
- f) *Overall Class Experience*: This scale was used to determine quality and quantity of logistical arrangements, classroom environment, and support staff (Teaching Assistant) contributions: This scale consisted of 10 statements. Participants rated the extent to which they agreed with each statement, from Strongly Disagree (1) to Strongly Agree (5), which included statements such as ‘Overall, I am satisfied with

the number of interactions I have had with my Instructors/ Professors'. All items created for this scale are contained in Appendix B.

- g) *Overall University Experience scale*: This scale was used to gauge participants' satisfaction with the number of and quality of communications sent by upper management at the University. This scale consisted of 10 statements. Participants rated the extent to which they agreed with each statement, from Strongly Disagree (1) to Strongly Agree (5), which included statements such as 'I am satisfied with the overall communication from senior management at the university (e.g. the University President)'. All items created for this scale are contained in Appendix C.
- h) *Loyalty scale*: This scale was used to help gauge the participants' loyalty and commitment to the university - from an abstract sense of loyalty, to a more participatory loyalty. This scale included 4 statements. Participants rated the extent to which they agreed with each statement, ranging from Strongly Disagree (1) to Strongly Agree (7), which included statements such as 'I would join an alumni association after I graduate'. All items created for this scale are contained in Appendix D.

*The Well/ Ill Being Section (Section 5)* focused on understanding participants' overall thoughts and feelings, as well as their overall stress, depression, and anxiety levels.

Specifically, this section contained the following five questions:

- a) *The Perceived Stress Scale (PSS)* (Cohen et al., 1994) asked participants to indicate their levels of perceived stress. This scale included 10 statements. Participants rated how often they experienced feelings outlined in each statement, such as 'In the last year, how often have you felt confident about your ability to handle your personal problems?' from a scale of Never (0) to Very Often (4). PSS scores were obtained by

reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8), and then summing across all scale items.

- b) *The Centre for Epidemiological Studies-Depression scale (CES-D scale)* is 20-item self-report measure that asks participants to indicate how often they have experienced common depression symptoms (Radloff, 1977), drawing on the six major components of depression (depressed mood, guilt and worthlessness, feelings of helplessness, decreased psychomotor functioning, loss of appetite and decreased sleep quality). Participants rated how often they experienced feelings outlined in each statement, from Rarely or None of the Time (0) to Most or All of the Time (4). Each response had an associated value (e.g. 'Rarely' = 0, 'Most or All of the Time' = 4, etc.). Participants' responses were then summed, and higher scores represented higher levels of depressive symptoms.
- c) *The Life Satisfaction scale*, which measures feelings of contentment, and the ability to flourish (Diener et al., 1985). This scale included 5 statements. Participants rated the extent to which they agreed with the feelings outlined in each statement, from Strongly Agree (1) to Strongly Disagree (7), which included statements such as 'In most ways my life is close to my ideal'. Participants' responses were then summed, and higher scores represented higher levels of satisfaction.
- d) *The Positive and Negative Affect Scale (PANAS)*: Participants rated the extent to which they agreed with the listed 20 single words that described affective states (Interested, Distressed, Excited, Upset, Strong, Guilty, Scared, Hostile, Enthusiastic, Proud, Irritable, Alert, Ashamed, Inspired, Nervous, Determined, Attentive, Jittery, Active and, lastly, Afraid) (Watson et al., 1988) on a scale from 1 (Very slightly/ Not at all) to 5 (Extremely). The timeframe of this scale was modified from 'over the last week' to 'over the last year', in order to better address the research question, and for

the sake of uniformity across all mental health scales. To interpret the scores, the Positive Affect Score was calculated by adding all the scores on items 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19. Scores could range from 10 – 50, and higher scores denoted higher levels of positive affect. Similarly, the Negative Affect Score was calculated by adding the scores on items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20. Scores could range from 10 – 50, and lower scores denoted lower levels of negative affect.

- e) *Participant Vitality scale* (Ryan & Frederick, 1997): This scale was used to gauge how ‘vital’ and energized the participant felt overall. This scale contained 7 statements, and participants indicated the degree to which the statement was true for them and their life from a scale of 1 (Not at all true) to 7 (Very true), including statements such as ‘I look forward to each new day’. Scores obtained from these scales could be interpreted in two ways: either by omitting the second statement and averaging the rest, or by reverse scoring the second statement before calculating the overall average.

*The Self-determination section (Section 6)* was used to determine the participants’ sense of self-determination, and to gain a deeper and more nuanced understanding of the motivation behind their actions and commitments to their studies and their universities, as well as their perception of self. This section contained the following two questions:

- a) *The Basic Psychological Needs Scale - General (BPNS General)* (Deci & Ryan, 2000): This scale contained 21 statements, and participants indicated how true the statement was for them and their life from a scale of 1 (Not at all true) to 7 (Very true). It included statements such as ‘I feel like I am free to decide for myself how to live my life’. In order to interpret the scores, three subscale scores were formed: one for the degree to which the person experiences satisfaction of each of the three needs (Autonomy, Competence, and Relatedness). This was done by reverse scoring all the

items that are worded negatively (e.g. subtracting the item response from 8). Once the necessary items are reverse scored, the items were averaged on the relevant subscale.

- b) *The Multidimensional Work Motivation Scale (MWMS)*: This scale was used to understand the intentions behind why students put effort towards their university education (Gagné et al., 2015). The scale was adapted from describing experiences in the 'workplace' to describing experiences at the 'University', in order to better address the research question at hand. This scale contained 10 statements. Participants rated the extent to which they agreed with each of the statements regarding their own motivations as students, on both a personal and practical level, from 1 (Not at all) to 7 (Completely). It included statements such as 'I put effort into my University work because I have to prove to myself that I can'. In order to interpret results, scores were summed and then averaged.

In addition to these measures, 'attention check' questions were dispersed throughout the survey in order to ensure that only meaningful data was collected.

## Results

### Preliminary Analyses

#### *Correlations*

#### **Best Class Correlations, Worst Class Correlations (Tables 1 & 2)**

Table 1 displays correlations for variables related to students' 'best' class experiences, and Table 2 displays correlations for variables related to students' 'worst' class experiences. Across both types of experiences, the Learning Climate (LCQ Best and LCQ Worst) was related to satisfaction with the class ( $r_{best} = .58, r_{worst} = .77, p < .05$ ) and performance ( $r_{best} = .18, r_{worst} = .20, p < .05$ ), though relationship was stronger in the case of the 'worst' class experience. However, only in the worst class was learning climate related to positive affect ( $r_{best} = -.06, ns, r_{worst} = .28, ps < .05$ ) and negative affect ( $r_{best} = .07, ns, r_{worst} = -.22, p < .05$ ).

#### **University-Level Correlations (Table 3)**

Organizational support was associated with basic psychological need satisfaction ( $r = .38, p < .05$ ), loyalty ( $r = .53, p < .05$ ), and all measures of student well-being (rs range from  $|.16|$  to  $|.54|, ps < .05$ ).

#### **Primary Analyses (Tables 4, 5, 6 & 7)**

We tested the hypothesis that the Learning Climate in participants' 'Best' and 'Worst' classes is related to overall satisfaction with the course. Since participants tend to feel more positively towards courses they do well in, we controlled for the impact of performance (final grade, final grade relative to other course grades) on satisfaction.

In the case of the worst class, results indicated that GPA was not significantly related to performance ( $b = .09, ns$ ). Controlling for GPA, learning climate was significantly related to performance in the worst class ( $b = .16, p < .05$ ). Interestingly, in the best class GPA was negatively related to performance ( $b = -.16, p < .05$ ). Controlling for this effect, learning climate was a significant predictor of relative performance ( $b = .18, p < .05$ ). Taken together these results suggest that the learning climate has a significant impact on students' performance (relative to their own past performance) in both the best and worst classes. Results for these analyses are shown in Tables 4 & 5.

We also tested the hypothesis that overall satisfaction with the university is predicted by organizational need support, over and above any impact of GPA (on satisfaction with the university). To test this hypothesis we again conducted a Hierarchical Regression Analysis with GPA entered in Step 1 and organizational need support in Step 2.

Results indicated that GPA was significantly and negatively related to satisfaction with the university this past year ( $b = -.34, p < .05$ ). Controlling for this effect, organizational need support was positively associated with university satisfaction ( $b = .65, p < .05$ ). This overall model was highly significant ( $R^2=.49, 95\% \text{ CI: } [.39, .56]$ ). Results for these analyses are shown in Tables 6 & 7.

**Table 1**

Means, standard deviations, and correlations with confidence interval. Note. M and SD are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
Best Satisfaction	4.31	0.57										
Best Learning Climate	5.57	0.79	.58**									
			[.49, .65]									
BPNS	-0.00	0.88	.15*	.18**								
			[.03, .26]	[.06, .29]								
Best Performance	3.83	0.88	.27**	.18**	-.09							
			[.15, .37]	[.06, .29]	[-.20, .03]							
Org Support	4.07	0.95	-.00	-.06	.38**	.01						
			[-.12, .12]	[-.17, .06]	[.27, .48]	[-.11, .13]						
Stress	22.97	5.98	.20**	.14*	-.50**	.11	-.54**					
			[.09, .31]	[.02, .25]	[-.59, -.41]	[-.00, .23]	[-.62, -.45]					
CESD	41.31	11.55	.05	.06	-.65**	.17**	-.48**	.75**				
			[-.07, .17]	[-.06, .18]	[-.72, -.58]	[.05, .28]	[-.57, -.38]	[.70, .80]				
PAS	3.04	0.81	-.02	-.06	.49**	-.01	.42**	-.46**	-.51**			
			[-.14, .10]	[-.17, .06]	[.40, .58]	[-.13, .11]	[.32, .51]	[-.55, -.36]	[-.59, -.42]			
NAS	2.79	0.84	.07	-.00	-.52**	.17**	-.40**	.69**	.69**	-.15*		
			[-.05, .19]	[-.12, .11]	[-.60, -.43]	[.05, .28]	[-.50, -.30]	[.62, .74]	[.62, .75]	[-.26, -.03]		
SWL	4.40	1.35	.14*	.07	.37**	.03	.16**	-.35**	-.41**	.20**	-.33**	
			[.02, .25]	[-.05, .19]	[.26, .46]	[-.09, .15]	[.05, .28]	[-.45, -.24]	[-.50, -.30]	[.08, .31]	[-.43, -.22]	
Loyalty	3.52	0.84	-.03	.01	.25**	-.01	.53**	-.35**	-.36**	.32**	-.26**	.21**
			[-.15, .08]	[-.11, .13]	[.14, .36]	[-.13, .11]	[.43, .61]	[-.45, -.25]	[-.46, -.25]	[.21, .42]	[-.36, -.14]	[.09, .32]

Table 2

Means, standard deviations, and correlations with confidence intervals

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
Worst Satisfaction	2.45	0.95										
Worst Learning Climate	3.47	1.14	.77**									
			[.71, .81]									
BPNS	-0.00	0.88	.11	.20**								
			[-.01, .22]	[.08, .31]								
Worst Perf	2.33	1.08	.19**	.20**	.00							
			[.07, .30]	[.08, .31]	[-.11, .12]							
Org Sup	4.07	0.95	.34**	.30**	.38**	.04						
			[.23, .44]	[.19, .41]	[.27, .48]	[-.08, .16]						
Stress	22.97	5.98	-.32**	-.29**	-.50**	-.17**	-.54**					
			[-.43, -.21]	[-.40, -.18]	[-.59, -.41]	[-.28, -.05]	[-.62, -.45]					
CESD	41.31	11.55	-.27**	-.28**	-.65**	-.14*	-.48**	.75**				
			[-.37, -.15]	[-.39, -.17]	[-.72, -.58]	[-.25, -.02]	[-.57, -.38]	[.70, .80]				
PAS	3.04	0.81	.26**	.28**	.49**	.10	.42**	-.46**	-.51**			
			[.15, .37]	[.17, .39]	[.40, .58]	[-.02, .21]	[.32, .51]	[-.55, -.36]	[-.59, -.42]			
NAS	2.79	0.84	-.21**	-.22**	-.52**	-.15*	-.40**	.69**	.69**	-.15*		
			[-.32, -.09]	[-.33, -.10]	[-.60, -.43]	[-.27, -.04]	[-.50, -.30]	[.62, .74]	[.62, .75]	[-.26, -.03]		
SWL	4.40	1.35	.01	.01	.37**	.01	.16**	-.35**	-.41**	.20**	-.33**	
			[-.11, .12]	[-.11, .12]	[.26, .46]	[-.10, .13]	[.05, .28]	[-.45, -.24]	[-.50, -.30]	[.08, .31]	[-.43, -.22]	
Loyalty	3.52	0.84	.27**	.19**	.25**	-.01	.53**	-.35**	-.36**	.32**	-.26**	.21**
			[.16, .38]	[.07, .30]	[.14, .36]	[-.13, .10]	[.43, .61]	[-.45, -.25]	[-.46, -.25]	[.21, .42]	[-.36, -.14]	[.09, .32]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

Table 3

Means, standard deviations, and correlations with confidence intervals. Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10
1. BPNS	-0.00	0.88										
2. Autonomy	4.32	0.87	.90**									
			[.87, .92]									
3. Competence	4.32	1.00	.86**	.66**								
			[.82, .88]	[.58, .72]								
4. Relatedness	4.75	0.95	.87**	.70**	.59**							
			[.84, .90]	[.64, .76]	[.51, .66]							
5. Org Sup	4.07	0.95	.38**	.40**	.36**	.24**						
			[.27, .48]	[.29, .49]	[.26, .46]	[.12, .35]						
6. Loyalty	3.52	0.84	.25**	.18**	.36**	.12	.53**					
			[.14, .36]	[.07, .30]	[.25, .45]	[-.00, .23]	[.43, .61]					
7. Stress	22.97	5.98	-.50**	-.50**	-.55**	-.27**	-.54**	-.35**				
			[-.59, -.41]	[-.58, -.41]	[-.63, -.46]	[-.38, -.16]	[-.62, -.45]	[-.45, -.25]				
8. CESD	41.31	11.55	-.65**	-.59**	-.64**	-.49**	-.48**	-.36**	.75**			
			[-.72, -.58]	[-.66, -.51]	[-.71, -.57]	[-.57, -.39]	[-.57, -.38]	[-.46, -.25]	[.70, .80]			
9. PAS	3.04	0.81	.49**	.43**	.54**	.33**	.42**	.32**	-.46**	-.51**		
			[.40, .58]	[.33, .53]	[.45, .62]	[.22, .43]	[.32, .51]	[.21, .42]	[-.55, -.36]	[-.59, -.42]		
10. NAS	2.79	0.84	-.52**	-.49**	-.53**	-.35**	-.40**	-.26**	.69**	.69**	-.15*	
			[-.60, -.43]	[-.57, -.39]	[-.61, -.44]	[-.45, -.24]	[-.50, -.30]	[-.36, -.14]	[.62, .74]	[.62, .75]	[-.26, -.03]	
11. SWL	4.40	1.35	.37**	.38**	.28**	.30**	.16**	.21**	-.35**	-.41**	.20**	-.33**
			[.26, .46]	[.27, .48]	[.17, .39]	[.19, .40]	[.05, .28]	[.09, .32]	[-.45, -.24]	[-.50, -.30]	[.08, .31]	[-.43, -.22]

Table 4

Regression results using Best Performance as the criterion

Predictor	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>beta</i>	<i>beta</i> 95% CI [LL, UL]	<i>sr</i> <sup>2</sup>	<i>sr</i> <sup>2</sup> 95% CI [LL, UL]	<i>r</i>	Fit	Difference
(Intercept)	0.02	[-0.11, 0.15]							
GPA	-0.16*	[-0.28, -0.04]	-0.17	[-0.30, -0.04]	.03	[.00, .09]	-.17*		
								$R^2 = .029^*$	
								95% CI[.00,.09]	
(Intercept)	0.02	[-0.11, 0.14]							
GPA	-0.21**	[-0.34, -0.08]	-0.23	[-0.36, -0.09]	.05	[-.01, .10]	-.17*		
LCQ Best	0.18**	[0.06, 0.31]	0.20	[0.06, 0.33]	.04	[-.01, .08]	.14*		
								$R^2 = .065^{**}$	$\Delta R^2 = .036^{**}$
								95% CI[.01,.13]	95% CI[-.01, .08]

Note. A significant *b*-weight indicates the beta-weight and semi-partial correlation are also significant. *b* represents unstandardized regression weights. *beta* indicates the standardized regression weights. *sr*<sup>2</sup> represents the semi-partial correlation squared. *r* represents the zero-order correlation. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.

\* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

Table 5

Regression results using Worst Performance as the criterion

Predictor	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>beta</i>	<i>beta</i> 95% CI [LL, UL]	<i>sr</i> <sup>2</sup>	<i>sr</i> <sup>2</sup> 95% CI [LL, UL]	<i>r</i>	Fit	Difference
(Intercept)	-0.01	[-0.14, 0.12]							
GPA	0.09	[-0.04, 0.21]	0.09	[-0.04, 0.22]	.01	[.00, .05]	.09		
								$R^2 = .008$	
								95% CI[.00,.05]	
(Intercept)	-0.01	[-0.14, 0.12]							
GPA	0.07	[-0.05, 0.20]	0.08	[-0.06, 0.21]	.01	[-.01, .03]	.09		
LCQ Worst	0.16*	[0.03, 0.29]	0.16	[0.03, 0.29]	.03	[-.02, .07]	.17*		
								$R^2 = .034^*$	$\Delta R^2 = .026^*$
								95% CI[.00,.09]	95% CI[-.02, .07]

Note. A significant *b*-weight indicates the beta-weight and semi-partial correlation are also significant. *b* represents unstandardized regression weights. *beta* indicates the standardized regression weights. *sr*<sup>2</sup> represents the semi-partial correlation squared. *r* represents the zero-order correlation. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively.

\* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

**Table 6**

Regression results using Best Satisfaction as the criterion

Predictor	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>beta</i>	<i>beta</i> 95% CI [LL, UL]	<i>sr</i> <sup>2</sup>	<i>sr</i> <sup>2</sup> 95% CI [LL, UL]	<i>r</i>	Fit	Difference
(Intercept)	0.01	[-0.12, 0.14]							
Best Performance	0.21**	[0.08, 0.35]	0.21	[0.08, 0.34]	.04	[.01, .11]	.21**		
								<i>R</i> <sup>2</sup> = .043** 95% CI[.01,.11]	
(Intercept)	0.00	[-0.10, 0.11]							
Best Performance	0.14*	[0.03, 0.26]	0.14	[0.03, 0.25]	.02	[-.01, .05]	.21**		
LCQ Best	0.50**	[0.39, 0.61]	0.52	[0.41, 0.64]	.27	[.17, .37]	.54**		
								<i>R</i> <sup>2</sup> = .314** 95% CI[.21,.40]	$\Delta R^2$ = .270** 95% CI[.17, .37]

Note. A significant *b*-weight indicates the beta-weight and semi-partial correlation are also significant. *b* represents unstandardized regression weights. *beta* indicates the standardized regression weights. *sr*<sup>2</sup> represents the semi-partial correlation squared. *r* represents the zero-order correlation. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates *p* < .05. \*\* indicates *p* < .01.

**Table 7**

Regression results using Worst Satisfaction as the criterion

Predictor	<i>b</i>	<i>b</i> 95% CI [LL, UL]	<i>beta</i>	<i>beta</i> 95% CI [LL, UL]	<i>sr</i> <sup>2</sup>	<i>sr</i> <sup>2</sup> 95% CI [LL, UL]	<i>r</i>	Fit	Difference
(Intercept)	0.00	[-0.13, 0.13]							
Worst Performance	0.17*	[0.03, 0.31]	0.17	[0.03, 0.30]	.03	[.00, .08]	.17*		
								<i>R</i> <sup>2</sup> = .027* 95% CI[.00,.08]	
(Intercept)	0.01	[-0.08, 0.09]							
Worst Performance	0.04	[-0.05, 0.13]	0.04	[-0.05, 0.13]	.00	[-.01, .01]	.17*		
LCQ Worst	0.74**	[0.65, 0.83]	0.74	[0.65, 0.83]	.54	[.45, .63]	.75**		
								<i>R</i> <sup>2</sup> = .564** 95% CI[.48,.63]	$\Delta R^2$ = .537** 95% CI[.45, .63]

Note. A significant *b*-weight indicates the beta-weight and semi-partial correlation are also significant. *b* represents unstandardized regression weights. *beta* indicates the standardized regression weights. *sr*<sup>2</sup> represents the semi-partial correlation squared. *r* represents the zero-order correlation. *LL* and *UL* indicate the lower and upper limits of a confidence interval, respectively. \* indicates *p* < .05. \*\* indicates *p* < .01.

## Discussion

The scope of this research has been to investigate the effects of university climate and online learning on student mental health at the University of Toronto during the COVID-19 pandemic, over the last academic year (2020-2021).

Even when controlling for how students usually performed in other classes (overall GPA), the results demonstrated that the learning climate had a significant impact on well-being. While this had an impact across the board, including results from the 'best' class, it was the 'worst' class that learning climate was even more strongly linked with satisfaction. Given the high-stress nature and structures of university education, the existence of poor learning environments have been shown to negatively impact students as, arguably, they do not allow students to feel a strong sense of support, and hinder students such that they cannot flourish. The findings of this study are typical and are consistent with previously published literature in the field (Seligman et al., 2009). This suggests that variation in the worst class explains more of the variance in student well-being than does variation in the learning climate in the best class. In other words, how autonomy supportive their worst class was had a greater impact on student well-being than how autonomy supportive their best class was.

Furthermore, higher GPA was associated with greater dissatisfaction with university structures, organizational support, as well as the amount and quality of correspondence from the University. This may have been in part due to these students nurturing higher ambitions, and preferring to plan advance targets, and so they are more likely to have their goals and targets thwarted due to poor communication and poor needs support from their University. Even after taking this relation into account, perceived organizational support for basic psychological needs was associated with greater satisfaction with the university.

At the University level, lower organizational support was associated with lower BPNS. As a consequence, students felt a lower sense of loyalty to the University, and scored low on all the measures of student well-being. The results of this study are indicative of the pivotal role organizational support plays : when appropriate support is in place, and the learning climate is positive, it can provide a space for students to feel more accepted, more secure and able to thrive, both on an academic and personal level. Conversely, a negative learning climate has a disproportionate effect on well-being, which can create a cycle of difficulties that can impede overall well-being.

In conclusion, it seems that despite the unusual circumstances, the results cannot be assumed to be primarily the consequences of the policies implemented during the pandemic. Other factors more typically associated with the student experience, such as instructor-student correspondence or course design and delivery, could be relevant, both pre and post pandemic. Further research would benefit from further exploration and analysis of the potential solutions students envision, as well as the extent of their applicabilities in a real-world context. Furthermore, research can be expanded to include data on a larger range of universities, both in Canada and in other parts of the world.

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## Appendix A

Based on my experiences **over the last year (2020-2021)..**

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I am satisfied with the number of interactions I have had with this instructor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the quality of interactions I have had with this instructor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the quality of teaching of this instructor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with the personal accommodations provided by this instructor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would take another course with this instructor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend this course to other students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This course inspired me to learn more about the subject	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



To indicate that you are paying attention, please select "somewhat agree" for this item.

     

Overall, I am satisfied with the quality of teaching of my Teaching Assistants (TAs) (If not applicable, please select 'NA')

     

I am satisfied with my overall learning experience.

     

Overall, I am satisfied with my ability to access course materials and resources.



I am satisfied with the Accessibility Services available at my University (If not applicable, please select 'NA')

I knew who to contact when I had a problem or a question.

## Appendix D

Please rate how much you agree with the following statements.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
I feel a sense of loyalty to my University.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would donate money to my University (if I had the money to do so).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would join an alumni association after I graduate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would proudly wear a sweatshirt (or other attire) with my university name on it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## References

- Cohen, S., Kamarck, T., & Mermelstein, R. (1994). Perceived stress scale. *Measuring stress: A guide for health and social scientists*, 10(2), 1-2.
- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment*, 49(1), 71-75.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied psychology*, 71(3), 500.
- Gagné, M., Forest, J., Vansteenkiste, M., Crevier-Braud, L., Van den Broeck, A., Aspley, A. K., ... & Halvari, H. (2015). The Multidimensional Work Motivation Scale: Validation evidence in seven languages and nine countries. *European Journal of Work and Organizational Psychology*, 24(2), 178-196
- Gable, S. L., & Haidt, J. (2005). What (and why) is positive psychology?. *Review of general psychology*, 9(2), 103-110.
- Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of psychiatric research*, 47(3), 391–400. <https://doi.org/10.1016/j.jpsychires.2012.11.015>
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied psychological measurement*, 1(3), 385-401.
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 101860
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. Guilford Publications.
- Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of personality*, 65(3), 529-565.
- Seligman, M. E., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford review of education*, 35(3), 293-311.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of personality and social psychology*, 54(6), 1063.

Williams, G. C., & Deci, E. (1996). Perceived Autonomy Support: The Climate Questionnaires The Learning Climate Questionnaire (LCQ), 7–10.