



Understanding the Experience of Using Digital Technology in Higher Education within the UK: The Impacts of Data Surveillance on Staff and Students

The Digital Escalate Project
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Research Context

- ▶ The Covid-19 pandemic has accelerated the use of digital technologies in learning and teaching contexts in Higher Education Institutions (HEI)
- ▶ There are a range of unforeseen and unintended impacts and consequences of this digitization - these include changes in staff-student relations and the commercialization of HEI data
- ▶ Data surveillance concerns are on the rise and include issues associated with consent, privacy, bias and vulnerability. HEI institutions '*cannot afford to only have a single simple approach to managing student and staff data*' (Prinsloo and Slade, 2016)
- ▶ The aim of the research presented here is to capture the perceptions and experiences of students and staff using digital eLearning technologies
- ▶ With a specific focus on assessing understanding of data processes and how data is used and managed within a HEI environment

Key Research Themes

- ▶ User awareness of eLearning methods
- ▶ Benefits and challenges of eLearning
- ▶ User awareness of data driven learning analytics
- ▶ User awareness of data protection and privacy issues
- ▶ Attitudes towards data monitoring and data surveillance

Research Methods

► Approach

- Embedded in Digital Escalate Project and supported by Escalate Stirling Team
- Empirical work conducted as part of an MSc Data Science Consultancy Project

► Literature review

- To identify themes and trends for empirical investigation

► Survey

- Online questionnaire was administered in order to capture empirical evidence from students and staff at HE Institutions

► Ethics

- Ethics approved by University of Stirling General University Ethics Panel (GUEP)

► Administration

- Administered spring-summer 2021

Survey Responses

- ▶ A total of 200 responses. 117 (59%) were fully completed and 83 (41%) were partially completed. 155 (90.12%) respondents were students and 17 (9.88%) respondents were staff members. The majority of respondents were students between the ages of 18-24 and 25-34.

Variable	Category	Percentage	Count
University Occupation	I am a UK student	90.12%	155
	I am a UK staff member	9.88%	17
Geography	England	26.28%	41
	Wales	0.64%	1
	Scotland	69.87%	109
	Northern Ireland	1.28%	2
	Prefer not to say	1.92%	3
International Student	Yes	63.38%	90
	No	35.92%	51
	Prefer not to say	0.70%	1
Age	18-24 years old	42.30%	66
	25-34 years old	35.25%	55
	35-44 years old	15.38%	24
	45-54 years old	5.76%	9
	55+ years old	1.28%	2

Awareness of Different eLearning Methods

- ▶ The top 3 learning methods most frequently used were Asynchronous Online Learning (75: 62.50%), Synchronous Online Learning (74: 61.67%), and Individual Online Learning (68: 56.67%).

eLearning methods	Frequently	Occasionally	Rarely	Never	Don't know/ N/A
Computer Managed Learning	21.67%	11.67%	11.67%	30.00%	25.00%
Computer Assisted Instruction	30.83%	23.33%	17.50%	20.00%	8.33%
Synchronous Online Learning	61.67%	25.83%	8.33%	2.50%	1.67%
Asynchronous Online Learning	62.50%	19.17%	9.17%	4.17%	5.00%
Fixed E-Learning	46.67%	21.67%	10.83%	10.83%	10.00%
Adaptive E-Learning	15.83%	28.33%	16.67%	21.67%	17.50%
Linear E-Learning	15.83%	24.17%	15.83%	22.50%	21.67%
Interactive Online Learning	36.67%	35.00%	15.83%	7.50%	5.00%
Individual Online Learning	56.67%	13.33%	13.33%	10.83%	5.83%
Collaborative Online Learning	25.00%	32.50%	24.17%	14.17%	4.17%

Perceived Benefits of eLearning

- ▶ ***‘Online learning is self-paced, students can manage their own schedule’*** was reported at ‘very important’ or important by 81.7% of respondents
- ▶ ***‘Analytics using student data can improve teaching materials and boost learning outcomes’*** was reported to be ‘not at all important’ by 30.8%

Benefits of eLearning:	Very important	Important	Somewhat important	Not at all important	Don't know/ N/A
Online learning is self-paced, students can manage their own schedule	41.75%	34.95%	18.45%	3.88%	0.97%
Online learning is time-efficient, lessons can be delivered and updated quickly and efficiently	33.98%	33.01%	25.24%	6.80%	0.97%
E-learning is cost-effective, no need for travel expenses	32.04%	25.24%	25.24%	17.48%	0.00%
No need for physical classrooms, textbooks, learning material is accessible online	28.16%	16.50%	28.16%	24.27%	2.91%
Online learning is self-paced, students can manage their own schedule	30.77%	30.77%	38.46%	0.00%	0.00%
E-learning allows my academic progress to be monitored more effectively	10.68%	29.13%	34.95%	17.48%	7.77%
E-learning fully utilizes analytics from student data to improve teaching materials and boost learning outcomes	0.00%	23.08%	38.46%	30.77%	7.69%

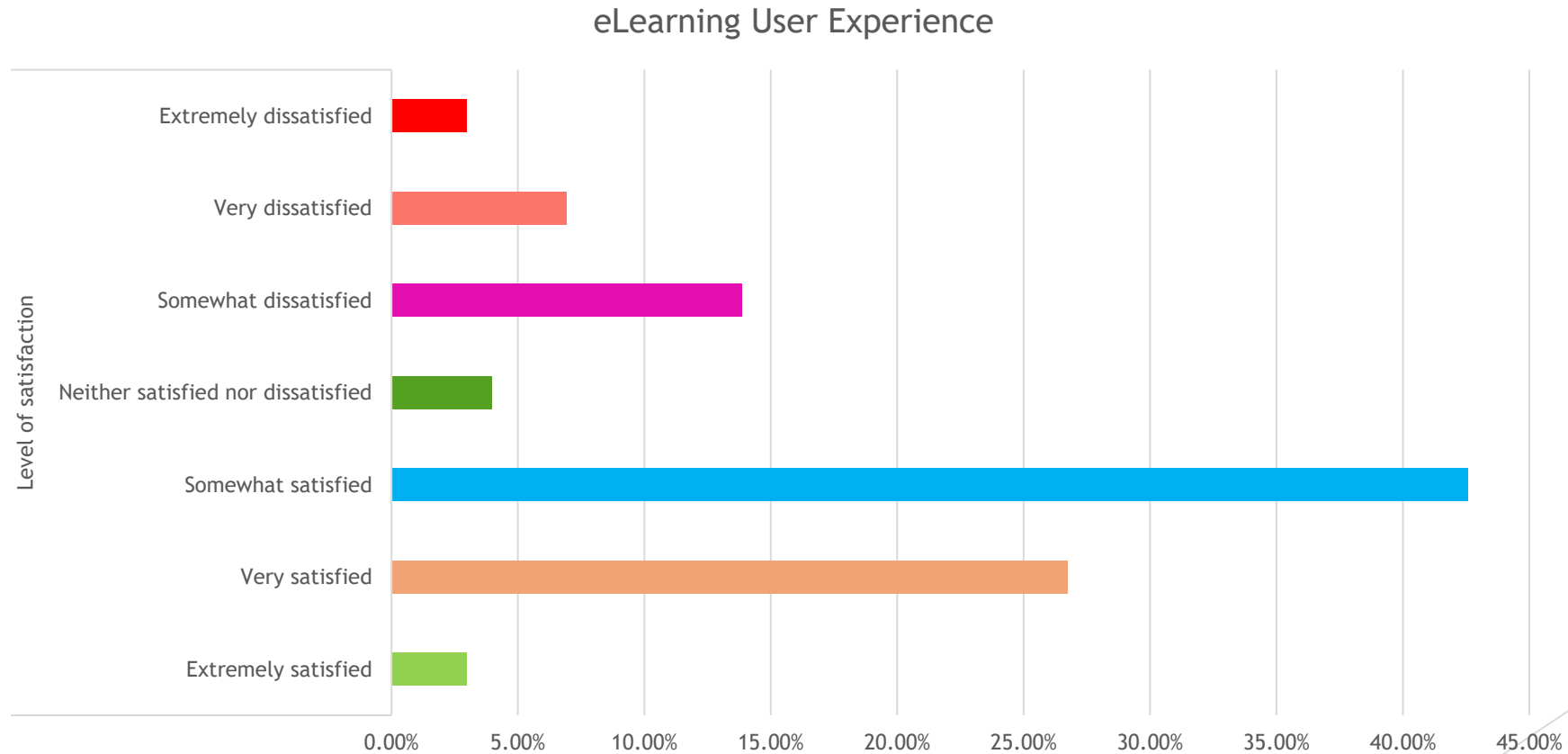
The Challenges of eLearning

- ▶ ‘*Socialization skills*’ were reported as the most significant challenge (66.99% of respondents reported ‘very important’, followed by ‘*the lack of adequate internet access*’ (64.08% of respondents)

Challenges of eLearning by students:	Very important	Important	Somewhat important	Not at all important	Don't know, N/A
Online student feedback is delayed compared to traditional methods where instructors can give immediate face-to-face feedback	39.81%	33.01%	18.45%	7.77%	0.97%
Complete e-learning may negatively impact student socialization skills, as they are unable to network face-to-face	66.99%	19.42%	7.77%	5.83%	0.00%
Complete e-learning requires strong self-motivation and time management skills	61.17%	20.39%	14.56%	3.88%	0.00%
Complete e-learning may be subjected to privacy concerns	25.24%	24.27%	22.33%	28.16%	0.00%
Complete e-learning lacks face-to-face communication	62.14%	21.36%	10.68%	5.83%	0.00%
Complete e-learning is limited to certain disciplines e.g., several practical courses such as engineering, chemistry may be difficult to offer completely online	60.19%	23.30%	10.68%	3.88%	1.94%
Complete e-learning is inaccessible to those without adequate internet access and computing facilities	64.08%	20.39%	9.71%	4.85%	0.97%
Complete e-learning classes do not have sufficient interaction between teachers and learners	54.37%	27.18%	14.56%	2.91%	0.97%

The eLearning Experience

- ▶ Most respondents reported that they were satisfied with their overall experience of e-learning



User Awareness and Consent for Data Driven Learning Analytics

- ▶ Most respondents (80%), reported to being open to sharing their data for purposes of learning analytics
- ▶ However, only 41% reported that they were aware that their data was used in this way (and a further 36% reported that they 'didn't know' or were 'not sure' that their data was used in this way.

User Awareness of Data Protection and Privacy Concerns (1)

- ▶ 43.48% of respondents indicated 'No' to being aware of their data being shared with third parties, 18.26% indicated 'Yes', while 38.26% indicated they 'didn't know' or 'were not sure'
- ▶ The vast majority of staff and students were not aware that they had consented to the use of their personal data for learning analytics

	Answer	%
STUDENTS: Did you give consent for your data to be used for purpose of learning analytics?	Yes - via terms and conditions accepted during student registration	37.86%
	No - I am not aware that I accepted any terms and conditions relating to the sharing of my personal data to generate learning analytics	35.92%
	Don't know/ Not sure	26.21%
STAFF: Did you give consent for your data to be used for purpose of learning analytics?	Yes - it is part of my employment agreement	16.67%
	No - I am not aware that I accepted any terms and conditions relating to the sharing of my personal data to generate learning analytics	66.67%
	Don't know/ Not sure	16.67%

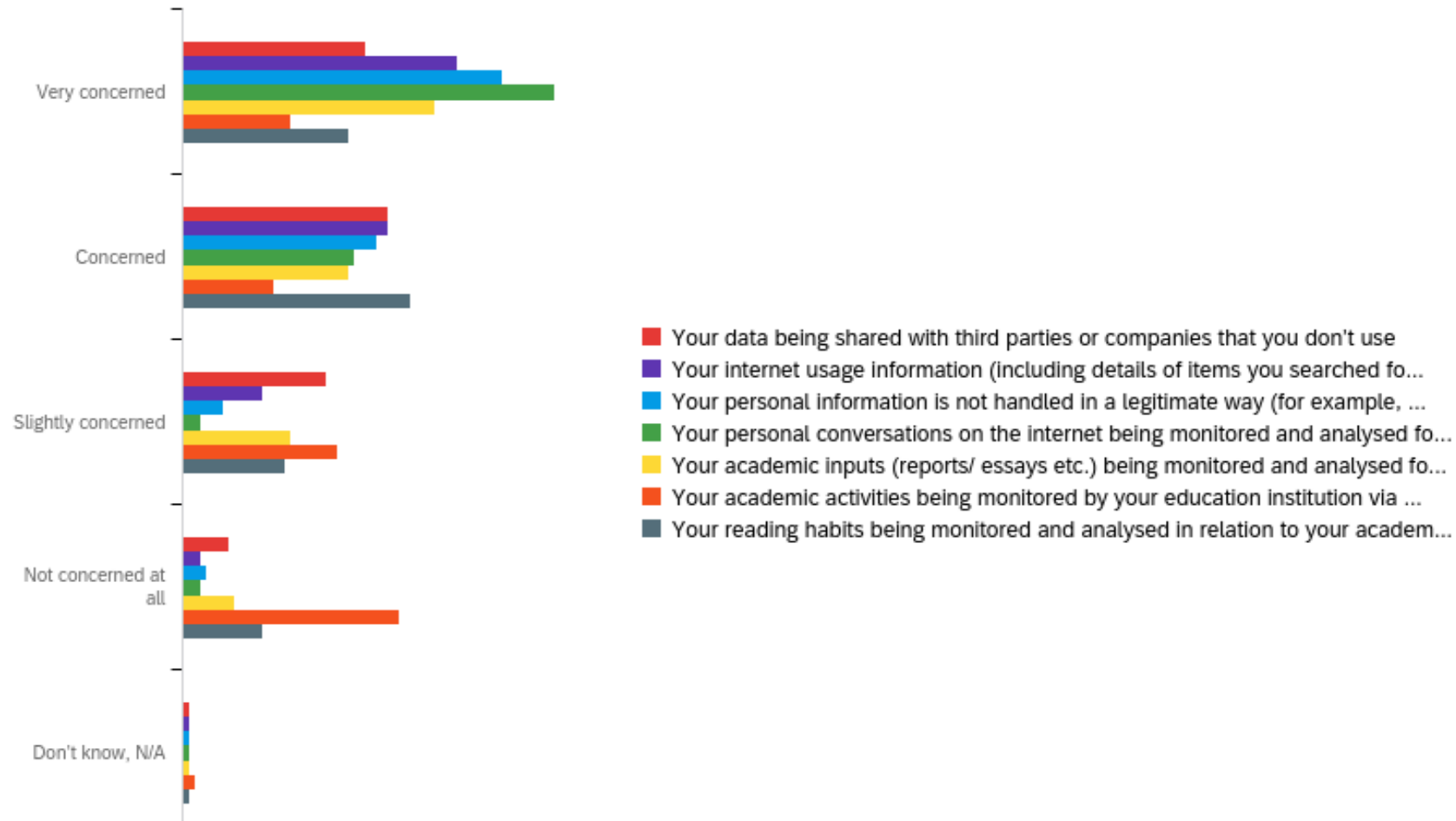
User Awareness of Data Protection and Privacy Concerns (2)

- ▶ A combined percentage of 96.50% of respondents reported that explicitly informed consent should be adopted by HEIs with regards to the collection and use of their personal data.

Variable	Answer	Percentage
How important is it to you that your education institution explicitly informs you about the purpose for which your personal data is being collected?	Very important	54.39%
	Important	22.81%
	Somewhat important	19.30%
	Not at all important	3.51%
	Don't know, N/A	0.00%

Levels of Concern about use of Personal Data

- ▶ Both staff and students reported to being very concerned about the ways in which their personal data is being used



Awareness of ‘Terms and Conditions’

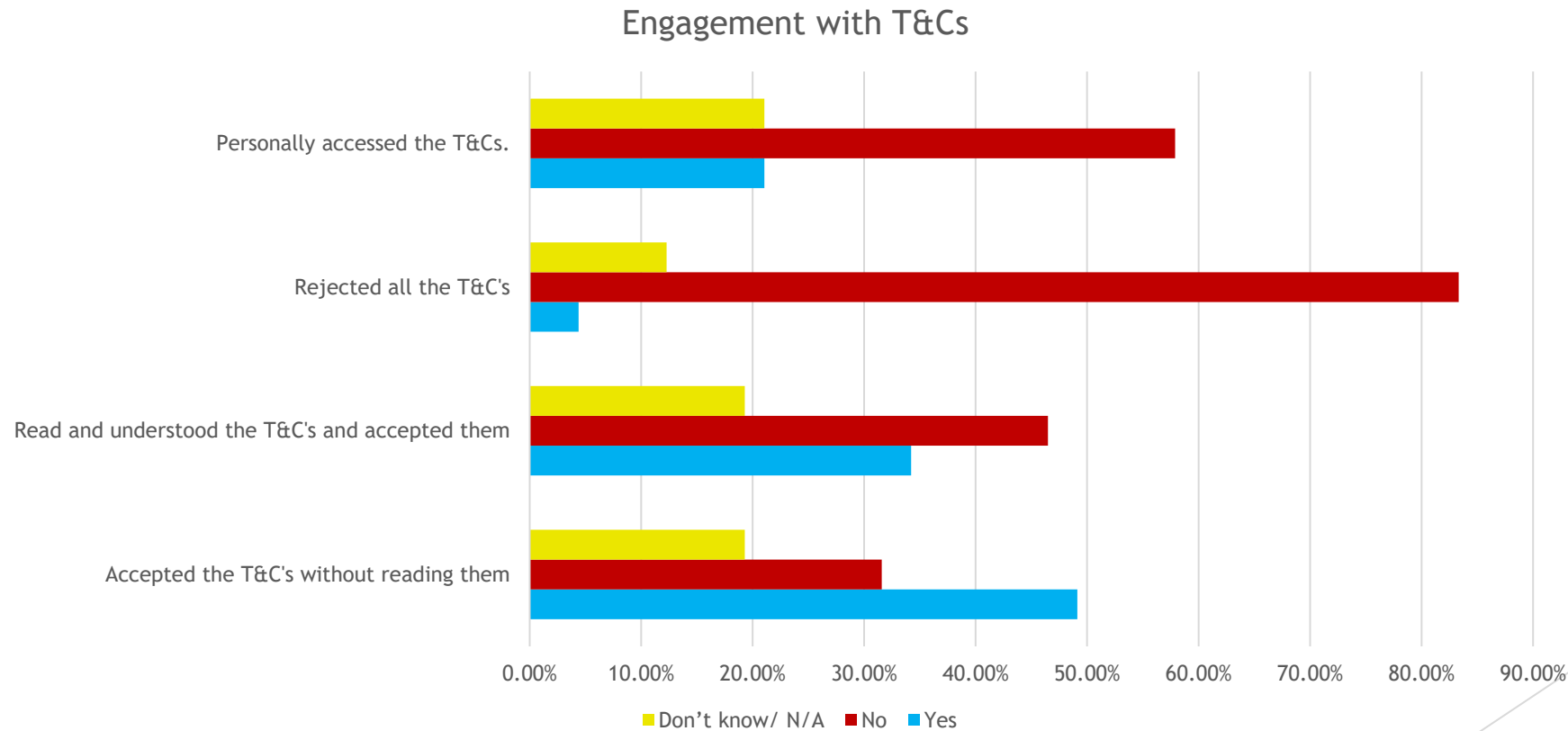
- ▶ A high percentage 51.75% of respondents reported not being aware of their HEI’s T&Cs relating to the use of personal data
- ▶ 63.16% of participants reported being ‘somewhat concerned’, ‘concerned’ or ‘very concerned’ by the T&C’s relating to the HEI’s use of personal data

	Answer	%
Awareness on education institutions Terms and Conditions (T&Cs)	Yes	24.56%
	No	51.75%
	Don’t know/Not sure	23.68%

	Answer	%
Level of concern with education institutions T&Cs	Very concerned	10.53%
	Concerned	22.81%
	Somewhat concerned	29.82%
	Not concerned at all	29.82%
	Don’t know, N/A	7.02%

Engagement with HE T&C's

- ▶ 49.12% of respondents have accepted HEI T&Cs without reading them, 34.21% have read, understood and accepted them, 4.39% have rejected the T&Cs, while 21.05% have accessed the T&Cs for further reading



Attitudes Towards HEI T&C's

- ▶ 56.86% strongly agree that the T&Cs are too long to read, followed by 43.14% indicating that they do not read the T&Cs as they have no choice but to accept the T&Cs whether they agree with them or not.

	Strongly agree	Agree	Disagree	Strongly disagree	Don't know, N/A
The T&Cs are too long for me to read	56.86%	30.39%	6.86%	0.00%	5.88%
I do not fully understand the legal language used in those T&Cs	34.31%	34.31%	20.59%	2.94%	7.84%
I do not read the T&Cs, because I trust my education institution to use my data responsibly only for the purpose of learning analytics	25.49%	38.24%	27.45%	1.96%	6.86%
I do not read the T&Cs as I have no choice but to accept them if I want to progress with my studies	43.14%	31.37%	13.73%	1.96%	9.80%

Attitudes Towards Learning Analytics

- ▶ Most students reported that they were keen to receive receiving feedback from learning analytics and believe it will help them with their performance

	Strongly agree	Agree	Disagree	Strongly disagree	Don't know, N/A
Personalized learning analytics will help me improve my academic journey	16.67%	59.80%	12.75%	3.92%	6.86%
Personalized learning analytics will make me more anxious	15.69%	36.27%	29.41%	11.76%	6.86%
I prefer not receiving any feedback on personalized analytics	9.80%	13.73%	46.08%	16.67%	13.73%
I am aware that such learning analytics are used to judge my academic progress	9.80%	42.16%	15.69%	12.75%	19.61%

Awareness of Surveillance and Data Sharing

- ▶ Most respondents reported that they were not aware which of their online activities were being monitored by their HEI

	Strongly agree	Agree	Disagree	Strongly disagree	Don't know, N/A
I explicitly know which of my activities on e-learning platforms are being monitored by my education institution	3.64%	7.27%	40.91%	26.36%	21.82%
I explicitly know which of my activities on e-learning platforms are being monitored by third party organisations (e.g., developers of the software) with agreement of my education institution	2.73%	4.55%	38.18%	36.36%	18.18%
I find it disturbing that my education institution monitors my online activity so closely	20.00%	27.27%	30.00%	7.27%	15.45%
Explicitly knowing that my teaching/learning activities via e-learning platform is being monitored, has affected, or would affect my learning/teaching experience	11.82%	28.18%	33.64%	12.73%	13.64%

Some Additional Comments...

- *'I'm happy for my data to be collected and used to improve my learning, however this should be disclosed clearly and access to personal information held provided easily online.'*
- *'This survey has been eye-opening, as a number of the areas discussed are quite alarming!'*
- *'I didn't know my University had T&C's?'*
- *'E-learning done well can be great. I have no issue with my data being used for my benefit and to help improve the service of education, but I am not happy if it is used for a third party's commercial benefit without my explicit authorization'*
- *'The T&Cs are non-negotiable, it's a take it or leave it situation. I wanted to do the course'*

Concluding Comments

- ▶ Participants are aware of and have frequently engaged with eLearning
- ▶ Participants fully recognise the benefits and limitations of eLearning
- ▶ The majority of respondents were not fully aware of how their personal data was used for learning analytics. However, the majority were willing to share their data for learning analytics
- ▶ There is a need for greater transparency around the personal data flows embedded in eLearning and the digitized HEI
- ▶ HEI's need to do more to ensure that they are compliant with regulations governing the use of personal data. This is especially pertinent in relation to informed consent
- ▶ Surveillance practices embedded in contemporary eLearning may be acceptable to staff and students where there is greater transparency around purpose, where awareness is encouraged and where individuals have some control over their data.
- ▶ User awareness is needed to empower students/staff to opt into data surveillance activities knowingly