# **Bond University**

# Legal Education Review

# Volume 34 Issue 1

2024

Student Attendance and Academic Performance

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# STUDENT ATTENDANCE AND ACADEMIC PERFORMANCE

# DR ALLAN ARDILL\*

# I INTRODUCTION

Attendance is regarded in the literature as an important predictor for learning outcomes. But is attendance necessary for academic performance, and is there a causal connection between attendance and academic performance?

This article interrogates the issue of student attendance and academic performance using 'relevant marks' as a proxy for performance. It commences with a review of the higher education literature concerning attendance and its relationship with academic performance. Next, I outline the methods and scope of a three-vear study involving 875 students. This is followed by the presentation of tabulated data showing enrolment patterns (in-person and online; and female/male) and attendance rates for a mandatory (core) law unit, and matching attendance with marks. The data is analysed using correlation and by juxtaposition with a critical assessment of the relevant literature. However, a degree of caution is warranted before extrapolating from this study, which is limited because it excluded attrition and attendance was voluntary. These and other potential limitations are considered below. Despite these limitations, this study found (1) a very weak positive correlation between greater attendance and higher marks, (2) attendance mattered more for students enrolled in-person than it did for students enrolled online, and (3) there were differences in enrolment patterns and the significance of attendance according to sex. These findings reinforce contemporary higher education literature which emphasises 'engagement' rather than attendance to improve performance.

# II CONTEXT FOR THIS STUDY

I often hear colleagues expressing frustration with student attendance. At a recent teaching and learning forum to discuss the problem of 'student attendance and participation in university events' the general sentiment was focused on changing students' expectations about attending classes and events. 'How do we get students to attend?'

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After 40 minutes of discussion, one colleague reflected on our collective frustration and suggested that 'maybe it's the teaching staff who need to reflect on our expectations.' That was a lightbulb moment for me because I realised perhaps, we as educators needed to rethink our desire for a return to the days when most students attended classes at university.

As a standpoint theorist<sup>1</sup> I should have been more attuned to the material conditions affecting the way students can engage with university and focusing on what I can do to make it easier for students to succeed. <sup>2</sup> Standpoint theory expects adherents to examine conflicts/systems by starting with those who have the least power in that situation. At a time when many universities are requiring a return to campus following the lockdowns associated with the global COVID-19 pandemic, we must be wary of policies that are not based on evidence and do not consider the experience and needs of students. Why is that we want students to attend? Is it for them or the university? Is there a causal connection between attendance and academic performance? Should attendance be mandatory? Is it possible to get students to attend classes? What about equity and universal design principles? To address these questions, it is necessary to review the academic literature and reflect on my attendance records together with student results.

# III ATTENDANCE AND ACADEMIC PERFORMANCE LITERATURE REVIEW

Given the extent to which the literature refers to 'correlation' between attendance and academic performance, it is necessary to have a basic understanding of the statistical term 'correlation'. Correlation is a statistical method used to see whether there is a linear relationship between two sets of data concerning individuals. <sup>3</sup> If there is a relationship, the correlation might be positive or negative according to a scale from +1.00 to 0 to -1.00, where zero represents the absence of a relationship. A positive relationship (+1.00) occurs when the two sets of data correspond on either high or low scores for each individual. A negative relationship (-1.00) occurs when individuals score low on one variable and high on the other. The closer the correlation is to either +1.00 or -1.00, determines the strength of the correlation. For example, if it is closer to +1.00 than it is to zero, it will be regarded as a stronger

Properly known as 'feminist standpoint theory'. See, eg, a good starting place for standpoint theory is the peer reviewed website: T Bowell, 'Feminist Standpoint Theory', *Internet Encyclopedia of Philosophy* (Web Page) <a href="https://iep.utm.edu/femstan/">https://iep.utm.edu/femstan/</a>>.

Allan Ardill, 'Sociobiology and Law' (PhD Thesis, Griffith University, 2008) <a href="https://doi.org/10.25904/1912/549">https://doi.org/10.25904/1912/549</a>; Allan Ardill, 'Critique in Legal Education: Another Journey' (2016) 26(1) Legal Education Review Article 7, 1-25; Allan Ardill, 'Deep Critique: Critical Pedagogy, Marxism, and Feminist Standpoint Theory in the Corporate Classroom.' in Bryant William Sculos and Mary Caputi (ed), Teaching Marx and Critical Theory in the 21st Century (2019, Brill) 143-163.

Richard Runyon and Audrey Haber, Fundamentals of Behavioral Statistics (Addison-Wesley, 3<sup>rd</sup> ed, 1977) 132.

correlation. By contrast if it is closer to zero, than +1.00, it will be a weaker correlation. The same is true for negative correlations.

Correlations between attendance and academic performance have been reported in the higher education literature since at least the 1990s. For example, in 1996 Devadoss and Foltz reported that attendance has a positive influence on the performance of economics students. 4 In 2002 Rodgers reported a correlation between attendance and academic performance but noted economics students 'did not perform better than students in the previous year's class who had the same observable characteristics and attendance levels'. 5 More recently, Hazaa et al claimed the literature 'consistently reported that in the US class absenteeism undermines students' academic performance' 6 citing several sources including Romer. Romer is often cited for a study that found a significant positive association for economics students between class attendance and academic performance. This is consistent with Marburger's study of economics students which found an enforced mandatory attendance policy significantly reduced absenteeism and improved exam performance.8

Positive correlations between attendance and grade performance have also been found in the medical sciences, albeit without statistical significance. However, in a study concerned with pharmacy students, a statistically significant correlation was observed between high lecture attendance and better grades. While Ippolito found that law 'students who choose to sit in the back of the classroom and occasionally skip class have a lower final grade point average', and these two variables were important as predictors of final grades. This fits with a study finding that 'the more a student attends classes, the less chance they have of failing academic assessments, and the more chance they have of attaining high grades.' Further, a review of 22 other studies

Stephen Devadoss and John Foltz, 'Evaluation of Factors Influencing Student Class Attendance and Performance' (1996) 78(3) American Journal of Agricultural Economics 499-507.

Joan Rodgers, 'Encouraging Tutorial Attendance at University Did Not Improve Performance' (2002) 41 Australian Economic Papers 255, 255 (Abstract).

Khalifa Al Hazaa, G Abdel-Salam, Radwa Ismail, Chithira Johnson, Rusol Adil Naji Al-Tameemi, Michael H. Romanowski, Ahmed BenSaid, Mohamed Ben Haj Rhouma, and Amal Elatawneh, 'The effects of attendance and high school GPA on student performance in first-year undergraduate courses' (2021) 8(1) Cogent Education 1956857, DOI: 10.1080/2331186X.2021.1956857: 1-19, 3.

David Romer, 'Do Students Go to Class? Should They?' (1993) 7(3) Journal of Economic Perspectives 167, 173.

Baniel Marburger, 'Does Mandatory Attendance Improve Student Performance?' (2010) 37(2) Journal of Economic Education 148, 148.

<sup>&</sup>lt;sup>9</sup> Tarig Fadelelmoula, 'The impact of class attendance on student performance' (2018) 6(2) *International Research Journal of Medicine and Medical Sciences* 47, 47.

Mariana Landin and Jorge Pérez, 'Class attendance and academic achievement of pharmacy students in a European University' (2015) 7 Currents in Pharmacy Teaching and Learning 78–83.

Richard Ippolito, 'Performance in Law School: What Matters in the End?' (2004) 54(3) Journal of Legal Education 459, 459.

Loretta Newman-Ford, Karen Fitzgibbon, Stephen Lloyd and Stephen Thomas, (2008) 'A large-scale investigation into the relationship between attendance and attainment: a study using an innovative, electronic attendance monitoring system' (2008) 33(6) Studies in Higher Education 699, 699 (Abstract).

published between 2007 and 2018 found that of the reported variables used to predict attainment, attendance featured as a predictor in fewer than 30% of those studies. <sup>13</sup> Nevertheless the authors claimed their review established a correlation between greater attendance and better attainment. <sup>14</sup>

Against this grain, in a study involving postgraduate economics students, Lucey and Grydaki found a negative correlation between attendance and grades although attendance improved the prospects of passing the 'quantitative module'. This suggests a need for nuance in the interpretation of reported correlations between more attendance and better grades which is in any case not necessarily causative. For instance, Hazaa et al were careful to observe that correlation is not a cause-and-effect relationship because higher academic achievement might be the reason for more attendance. Eisen et al also caution against relying on correlating attendance and performance:

In studies that found a positive relationship between attendance and performance, it is not clear whether the difference in performance resulted from the additional learning that occurred within class or whether there were simply differences in the calibre or motivation of students who attended in comparison with those who did not. It is also unclear whether the students who did not attend class would have performed better had they been required to attend. There is some evidence to suggest they may not have. <sup>18</sup>

In addition, 'attendance is not the whole picture, it is merely one indicator of a student's level of engagement with their studies', and it is possible that 'attendance rates are less important than active engagement in learning both inside and outside the classroom in terms of predicting success'. <sup>19</sup> A view shared by other researchers <sup>20</sup> while Corbin, Burns, and Chrzanowski qualified the significance of a

Siobhan Lucey and Maria Grydaki, 'University attendance and academic performance: Encouraging student engagement' (2022) 70(2) Scottish Journal of Political Economy 180, 192.

Sarah Alturki, Ioana Hulpuş, and Heiner Stuckenschmidt, 'Predicting Academic Outcomes: A Survey from 2007 Till 2018' (2022) 27 Technology, Knowledge and Learning 275.

<sup>&</sup>lt;sup>4</sup> Ibid 280.

Hazaa et al (n 6) 15; Tina McKee, 'Can't come, won't come, don't come: supporting better attendance and attainment of first year law students through an Early Intervention Pilot' (2022) 56(2) The Law Teacher 222, 223; Robert Summers, Helen Higson, and Elisabeth Moores, 'The impact of disadvantage on higher education engagement during different delivery modes: a pre- versus peri-pandemic comparison of learning analytics data' (2023) 48(1) Assessment & Evaluation in Higher Education 56, 57.

<sup>17</sup> Hazaa et al (n 6) 15.

Daniel Eisen, Clayton Schupp, Rivkah Isseroff, Omar Ibrahimi, Lynda Ledo and April Armstrong, 'Does Class Attendance Matter? Results from a Second-year Medical School Dermatology Cohort Study' (2015) 54(7) International journal Dermatology 807, 815.

<sup>&</sup>lt;sup>19</sup> McKee (n 16) 224.

Elisabeth Moores, Gurkiran K Birdi and Helen E Higson, 'Determinants of university students' attendance' (2019) 61(4) Educational Research 371, 372.

correlation in their study suggesting the influence of other possible variables such as engagement.<sup>21</sup>

Other variables and student engagement are emerging as more important predictors of academic achievement than attendance. A close reading of the earlier studies suggests this too. For instance, in 1996 Devadoss and Foltz found attendance was one of several factors considered to influence attainment including, 'motivation, prior grade point average (GPA), self-financing by students, hours worked on jobs, quality of teaching, and nature of class lectures.'<sup>22</sup>

The type of student and whether attendance is mandatory also have a bearing. In a study involving the random timetabling of mandatory classes for economics students, absences were reported as having a greater negative affect on better-performing students. Using quantile regression specification, they found, 'a causal effect of absence on performance for students: missing class leads to poorer performance.' While Lukkarinen, Koivukangas, and Seppälä found that in a unit where attendance was not mandatory, attendance did matter for students who chose to attend classes. By comparison, they found that for students who study independently, attendance was not as important. This fits with a recent study by Hazaa et al which found that attendance mattered most for the bottom cohort of students rather than those who were higher achievers.

In a frequently cited 2015 multivariate study of 101 medical students, Eisen et al concluded that there was no statistically significant link between attendance and final exam performance. <sup>28</sup> They were sceptical about the motivation behind other studies reporting a connection between attendance and academic achievement alleging, 'there is potential for bias in all past studies on this topic'. <sup>29</sup> They preferred the view that the 'identification of the true benefits or lack thereof of class attendance in medical school awaits the performance of a randomized controlled trial'. <sup>30</sup> Generally, based on more recent

Lillian Corbin, Kylie Burns, and April Chrzanowski, 'If You Teach It, Will They Come? Law Students, Class Attendance and Student Engagement' (2010) 20 Legal Education Review 13, 13-14.

Devadoss and Foltz (n 4) 499.

Wiji Arulampalam, Robin A Naylor and Jeremy Smith, 'Am I Missing Something? The Effects of Absence from Class on Student Performance' (Warwick Economic Research Paper No 820, November 2007, University of Warwick) ii <a href="http://wrap.warwick.ac.uk/1396/1/WRAP\_Arulampalam\_twerp\_820.pdf">http://wrap.warwick.ac.uk/1396/1/WRAP\_Arulampalam\_twerp\_820.pdf</a>>.

<sup>24</sup> Ibid

Anna Lukkarinen, Paula Koivukangas, Tomi Seppälä, 'Relationship between class attendance and student performance' (2016) 228 Procedia - Social and Behavioral Sciences 341 – 347.

<sup>26</sup> Ibid

<sup>&</sup>lt;sup>27</sup> Hazaa et al (n 6) 11.

Eisen et al (n 18) 815.

<sup>29</sup> Ibid

<sup>30</sup> Ibid.

literature, where correlations are found they tend to be weak<sup>31</sup> and/or less important than other variables such as past performance.<sup>32</sup>

Recent literature points to the need for further research using randomized controlled trials.<sup>33</sup> For instance, Büchele considers that the nexus between attendance and attainment has still not been answered conclusively, hypothesising instead that due to technological innovation in teaching and learning the importance of attendance is less likely to be important.<sup>34</sup> While earlier studies tended to assume or report a correlation between attendance and attainment, <sup>35</sup> later research emphasises engagement rather than attendance, and calls for more studies.

# IV FOCUS, METHOD, AND LIMITATIONS OF THIS STUDY

#### A Unit Characteristics

This study concerns the unit Property Law 1 which is necessary for admission to practice law. As a prerequisite Property Law 1 introduces students to different types of property, provides a context and history of property within western thought, and critiques property law in terms of inequality according to class, gender, and First Nations. The unit is interdisciplinary and features material on the social contract, Marxism, Feminisms, colonisation, Critical Race Theory and First Nations sovereignties.<sup>36</sup> At the heart of the unit is the teaching, learning, and assessment of critical reflection as a way of connecting the content with each student, and because critical reflection is an important academic and vocational 'skill'.

My university has a workshop teaching model that includes two hours of workshops per week per student. Property Law 1 workshops the focus of this study were 'strongly recommended' but 'optional'. However, at the time of writing, my university is shifting to a 'return to campus' model in 2024 where students will be expected to attend workshops in-person. This is consistent with the Legal Practitioners' Admissions Board which has requested confirmation following the end

Nur Hidayah Md Noh, Nor Aini Hassanuddin, Sarah Yusoff, and Nursyazni Mohamad Sukri, 'Continuous Assessment as a Mediating Variable Between Class Attendance and Students' Performance' (2018) 7 e-Academia Journal Special Issue -TeMIC18: 27-38, 27.

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Sheila Anne Doggrell, 'Differences between students in various programs in a biochemistry course in lecture attendance, engagement, and academic outcomes' (2023) 51(4) Biochemistry and Molecular Biology Education 377.

Sayeli Mitra, Paramita Sarkar, Suchetana Bhattacharyya, and Rivu Basu, 'Absenteeism among undergraduate medical students and its impact on academic performance: A record-based study' (2022) 11 Journal of Education and Health Promotion, Article 414, 1-5.

<sup>&</sup>lt;sup>33</sup> See eg Eisen et al (n 18) 815; Stefan Büchele, 'Evaluating the link between attendance and performance in higher education: the role of classroom engagement dimensions' (2021) 46(1) *Assessment & Evaluation in Higher Education* 132; Mitra et al (n 32); Doggrell (n 31).

<sup>&</sup>lt;sup>34</sup> Büchele (n 33) 132.

See Ardill, 'Critique in Legal Education: Another Journey' (n 2).

of the COVID-19 pandemic arrangements that attendance has returned to the pre-pandemic accredited arrangements.

For the term of the study, I provided in-person workshops at two campuses (Nathan and Gold Coast) and online workshops for students enrolled online from each campus. The unit content was available completely online to all students regardless of whether they were enrolled in-person or online at a particular campus, including workshop recordings.

The unit is designed around eleven online modules to be completed over 12 weeks. Two of those modules are self-paced and assessed by (1) a mid-trimester test using short-answer questions worth 20%, and (2) an online quiz completed any time worth 20%. The remaining 60% of assessment is designed to assesses nine lecture modules that must be completed sequentially across the trimester. This 60% is 'learning-oriented assessment' because it is designed as learning rather than just as a vehicle for grading students.<sup>37</sup> It comprises a critical self-reflection essay on class inequality worth 20% (which is both formative and summative) and a final exam worth 40% using critical self-reflection to assess essays on gender inequality and First Nations and property.

The nine workshops are designed to supplement the nine online lecture modules. Each workshop is for two hours and structured around a summary of the corresponding lecture module with the opportunity for debate, discussion, and questions about the content. The level of discussion in workshops determines the extent the workshop is either didactic or dialogic. Over the three-year period of this study the level of discussion varied according to the attributes of the attendees in each workshop. Otherwise, the unit content and assessment remained the same for the whole three-year period.

# B Student Demographics

For this study, the students were at Australian Qualifications Framework level 8 (LLB Hons). Some basic demographic data for each campus cohort during Trimester 1 2023 is presented in Table 1.

Table 1 Student Profile 2023

	Gold Coast	Nathan
Sex (female - male)	71% - 29%	70% - 30%
Socioeconomic status		
High	4%	46%
Medium	87%	33%
Low	9%	21%
<b>Domestic - International</b>	97% - 3%	97% - 3%
$Age \ge 24$	83.1%	74.5%
Disability requiring support	5%	4%

David Carless, 'Trust, distrust and their impact on assessment reform' (2009) 34(1) Assessment & Evaluation in Higher Education 78, 80-81.

This profile is indicative of enrolments for these campuses in the years 2021 and 2022 and the figures include students who may not have completed the unit.

#### C Method

The method involved a quantitative study matching individual student workshop attendance with individual marks for assessment items. Attendance was recorded each time the unit was convened across three years from 2021 to 2023. The unit is convened annually during trimester 1 synchronously on two campuses and online. I am the sole teacher and convenor of this unit. I recorded attendance at the beginning of each in-person workshop by walking around the room and checking-off a roll to record each student. If a student arrived late, I would ask their name and record their attendance. For online workshops the attendance was recorded digitally. If an online student stayed in the virtual class for less than 30 minutes, their attendance was excluded.

For marks, data was obtained from the learning management system (Blackboard 2021/22 and Canvas 2023). The unit administration platform (Faculty Centre), and a Planning and Statistics portal were accessed to discern sex (male/female) and to obtain generic demographic data, respectively. All data has been de-identified according to the human research ethics approval. There was no ability to correlate any relationship between student demographic and final grade (other than basing it on a sex binary) due to the separate information systems and privacy law. This sex binary reflects the self-identification of students within the university information systems.

### D Limitations

Several limitations apply to this study. Firstly, attendance was optional not mandatory, and all materials were available online including all workshop recordings. The availability of materials as online resources meant that workshop attendance and workshop recordings were not 'necessary'. Workshops and recordings were merely available for students who might choose or prefer to access the materials that way. Online workshop recordings captured both my voice and student voices, whereas in-person recordings only captured my voice. Recordings were only available to students enrolled in that specific workshop. In addition, no records were kept indicating the extent to which workshop recordings were accessed, despite recordings being available to students who attended workshops or not.

Secondly, the study excluded the attendance and marks of students who withdrew from the unit and is therefore silent in relation to attrition. Instead, the study only relates to students who completed the unit and were awarded a final grade.

Thirdly, another limitation includes the nature of the unit given that most core law units have a greater doctrinal emphasis and are unlikely to include as much interdisciplinarity or emphasise and assess critical reflection to the same extent. Therefore, it is possible that findings for this study are unique to the unit, the students, and the way I teach.

Fourthly, it is also limited because multivariate analysis has not been used to control for the array of other possible variables impacting on academic performance other than attendance. Other variables might include the student profile in terms of motivation/interest/commitment/choice of course, socioeconomic factors, family responsibilities, health, employment, past performance, and so on

Fifthly, because it was not possible to link any demographic data with marks or attendance other than the 'sex' of the student based on a male/female binary, the study is limited to that extent.

Sixthly, another limitation could be the Hawthorne effect because students were informed that their attendance was being recorded for this research. Hawthorne effects can occur in research where subjects adjust their behaviour because they are aware they are being observed. It is possible that some students modified their behaviour knowing I was recording their attendance for this research.

Lastly, none of the limitations ordinarily associated with paperbased attendance studies <sup>38</sup> apply here because online workshop attendance had a digital record, and for all in-person workshops I personally recorded and monitored attendance in relatively small classes. The attendance records are therefore reliable.

# V DATA AND FINDINGS

#### A Enrolments

Table 2 supplies the number of students who completed the unit and achieved a final mark for each cohort. In total this study involved 875 students across three years (females 583 and males 292).

Table 2(a)
Number of students completing with a final grade by enrolment mode

	2021		2022		2023	
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan
Online	56	48	43	67	38	54
In-person	111	92	97	85	94	90
Total	167	140	140	152	132	144

<sup>&</sup>lt;sup>38</sup> See eg Newman-Ford et al (n 11) 702-3.

Table 2(b) Number of students completing with a final grade by sex

	2021		2022		2023	
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan
Female	112	89	87	102	93	100
Male	55	51	53	50	39	44
Total	167	140	140	152	132	144

Table 2(c)
Number of students completing with a final grade by sex and enrolment mode

	2021		2022		2023	
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan
F in-person	74	59	60	52	66	59
F online	38	30	27	50	27	41
M in-person	37	33	37	33	28	31
M online	18	18	16	17	11	13
Total	167	140	140	152	132	144

What is interesting about these enrolment patterns is that male students had a slightly stronger preference for in-person enrolment compared with female students. Table 2(c) shows that the proportion of males enrolling in-person was on average 68% (ie 199 out of the 292 males across the three years). By contrast, of the 583 female students across the three years, 64% had enrolled in-person. Males also had slightly higher rates of attendance as the next section shows.

# B Student Attendance

Table 3 reveals by enrolment type (online or in-person) and sex (male or female) which cohort of student was more likely to attend their workshops. Attendance was better for students enrolled in-person but consistently low for all cohorts. On average, in-person students attended between three and four of their nine workshops while online students rarely attended more than two of their nine workshops.

Table 3(a)
Average number of workshops $(n = 9)$ attended by enrolment mode

	2021		2022		2023	
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan
Online	3.1	1.6	2.0	1.8	1.8	1.4
In-person	4.2	4.3	3.9	3.6	3.2	3.0
Total	3.8	3.3	3.3	2.8	2.8	2.4

Table 3(b)
Average number of workshops (n = 9) attended by each cohort by sex

	2021		2022		2023	
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan
Female	3.5	3.1	3.3	2.5	2.6	2.2
Male	4.5	3.7	3.2	3.3	3.2	3
Total	3.9	3.3	3.3	2.8	2.8	2.4

Table 3(b) above and Table 4 below show male students were more likely to attend workshops than female students.

Table 4
Average number of workshops (n = 9) attended by sex and enrolment mode with enrolments

	2021		20:	22	2023	
	Gold		Gold		Gold	
	Coast	Nathan	Coast	Nathan	Coast	Nathan
F in-						
person	3.9 (74)	4.1 (59)	3.8 (60)	2.7 (52)	3.0 (66)	2.7 (59)
F						
online	2.7 (38)	1.3 (30)	2.4 (27)	1.9 (50)	1.9 (27)	1.3 (41)
M in-						
person	4.8 (37)	6.6 (33)	3.9 (37)	4.2 (33)	3.8 (28)	3.5 (31)
M						
online	4.0 (18)	2.0 (18)	1.4 (16)	1.6 (17)	1.7 (11)	1.6 (13)
Total	3.8 (167)	3.3 (140)	3.3 (140)	2.8 (152)	2.8 (132)	2.4 (144)

Males enrolled in-person were more likely to attend their workshops than any other category attending on average 4.5 workshops across 3 years while in-person female students attended an average of 3.4 workshops. Least likely to attend workshops were online female

students (1.9 workshops) followed closely by online male students (2.1 workshops).

# C Student Marks

Recall from heading IV A Unit Characteristics that 40% of the assessment for this unit was unrelated to attendance. This is because that assessment related exclusively to two fully online self-paced learning modules. By contrast, another 60% of the assessment concerned nine online lecture modules that were supplemented by corresponding workshops. Therefore, the focus of the data presented below concerns the 60% of total marks where attendance might have been likely to make a difference – referred to here as 'relevant marks'.

There were small differences in performance (measured by average 'relevant mark') between online and in-person, and between campuses as indicated by Table 5. However, when the cohorts were made more specific by reference to campus, mode of enrolment, and sex, the differences in 'relevant marks' were magnified.

Table 5 Average 'relevant mark' by cohort

2021

Online or in-person Mark /60

111111111111111111111111111111111111111					2020	
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan
Online	43	38	42	39	42	41
In-person	42	41	42	42	43	41
Campus	43	40	42	41	43	41

2022

2023

Sex

Mark /60	2021		2022		2023	
	Gold	Nathan	Gold	Nathan	Gold	Nathan
	Coast		Coast		Coast	
Female	42	40	43	41	43	41
Male	43	39	41	39	43	42
Campus	43	40	42	41	43	41

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Mark /60	2021		2022		2023	
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan
F in-person	43	41	43	39	43	41
F online	42	40	42	44	43	41
M in-person	42	40	40	39	44	42
M online	45	36	42	41	39	43
Total	43	40	42	41	43	41

Based on 'relevant mark' a specific cohort might in one trimester be the highest achieving and, in another trimester, the lowest (eg male online). Despite some volatility across specific cohorts over the three years resulting in differences ranging between two to five marks, overall, there was considerable equivalence when averages are applied. Across the three years the average for any specific cohort ranged from a low of 41 marks for male online students to 42 marks for female online students with female and male in-person students falling in between at 41.7 and 41.2 respectively. In other words, differences in performance based on whether students were enrolled in-person and online, or results based on sex were negligible.

# D Relationship between Attendance and Marks

Positive correlations were observed, indicative of a relationship between more attendance and higher relevant marks. However, as shown in Table 6 in no instance did the correlation reach 0.5 with the strongest correlation being 0.454 (2021 Nathan, male students). Therefore, the correlations were positive but weak.

Table 6
Correlation between attendance and relevant mark

	2021		20	22	2023		
Correlation	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan	
All students (number) Mean mark/60	0.295 (n = 167) mean = 43	0.340 (n = 140) mean = 40	0.261 (n = 140) mean = 42	0.269 (n = 152) mean = 41	0.248 (n = 132) mean = 43	0.229 (n = 144) mean = 41	
Online students	0.087 (n = 56) mean = 43	0.279 (n = 48) mean = 38	0.173 (n = 43) mean = 42	0.209 (n = 67) mean = 39	0.103 (n = 38) mean = 42	0.075 (n = 54) mean = 41	
In-person students	0.395 (n = 111) mean = 42	0.395 (n = 92) mean = 41	0.297 (n = 97) mean = 42	0.290 (n = 85) mean = 42	0.321 (n = 94) mean = 43	0.293 (n = 90) mean = 41	
Female students	0.243 (n = 112) mean = 42	0.276 (n = 89) mean = 40	0.252 (n = 87) mean = 43	0.375 (n = 102) mean = 41	0.306 (n = 93) mean = 43	0.252 (n = 100) mean = 41	
Male students	0.384 (n = 55) mean = 43	0.454 (n = 51) mean = 39	0.271 (n = 53) mean = 41	0.166 (n = 50) mean = 39	0.166 (n = 39) mean = 43	0.147 (n = 44) mean = 42	

It is noteworthy that the positive correlation between greater attendance and higher relevant mark was consistently lower for students enrolled online compared with students enrolled in-person. For online students, attendance seems to be less important than it is for in-person students. When correlation analysis is applied to more specific cohorts as in Table 7 below, the relationship between attendance and marks becomes even less significant for students enrolled online.

Table 7
Correlation between attendance and relevant mark for specific cohorts

	2021		20	22	2023		
/60 marks	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan	
Female In-person	0.358 (n = 74) mean = 43	0. 279 (n = 59) mean = 41	0.267 (n = 60) mean = 43	0.433 (n = 52) mean = 44	0.327 (n = 66) mean = 43	0.335 $(n = 59)$ $mean = 41$	
Female Online	-0.009 (n = 38) mean = 42	0.334 (n = 30) mean = 40	0.178 (n = 27) mean = 42	0.307 (n = 50) mean = 39	0.323 (n = 27) mean = 43	0.040 (n = 41) mean = 41	
Male In-person	0.485 (n = 37) mean = 42	0.608 (n = 33) Mean = 40	0.355 (n = 37) mean = 40	0.315 (n = 33) mean = 39	0.263 (n = 28) mean = 44	0.169 (n = 31) mean = 42	
Male Online	0.217 (n = 18) mean = 45	0.314 (n = 18) Mean = 36	0.236 (n = 16) mean = 42	-0.108 (n = 17) mean = 41	-0.322 (n = 11) mean = 39	0.150 (n = 13) mean = 43	

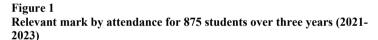
Importantly, in these more specific cohorts there were also negative correlations. Albeit very weak these negative correlations hint that marks might decline with more attendance or that marks might rise with low attendance. Negative correlations occurred with three cohorts (2021 Gold Coast female online; 2022 Nathan male online; and 2023 Gold Coast male online).

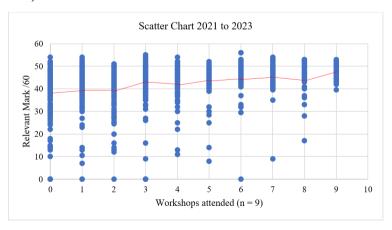
# VI DISCUSSION AND REFLECTION

To recap, this study found (1) a very weak positive correlation between greater attendance and better marks, (2) attendance mattered more for students enrolled in-person than it did for students enrolled online, and (3) male students tended to enrol more often in-person and attend more than their female peers.

# A Weak Positive Correlation between Greater Attendance and Better Marks

When the relationship between attendance and relevant mark was measured for all students across the three years (n = 875) the resulting correlation was 0.276 suggesting a significant but weak relationship. A finding consistent with recent studies reported in the literature indicating the correlation between attendance and performance is not as important as engagement. <sup>39</sup> Still, attendance has a bearing on performance as reflected by the scatter chart below in Figure 1.





Despite the absence of a straight line there is nevertheless a trend observable in Figure 1. The red line shows the average relevant mark relative to the number of workshops attended.

Gorbin, Burns, and Chrzanowski (n 21) 13-14; Lukkarinen, Koivukangas, and Seppälä (n 25); McKee (n 16) 224; Moores, Birdi, and Higson (n 20) 372.

This trend is presented in tabular form below.

Table 8
Average relevant mark by average number of workshops attended

Average Relevant Mark /60	39	40	40	41	43	42	45	46	45	48
Workshops Attended /9	0	1	2	3	4	5	6	7	8	9

As the average number of workshops attended increases, so too does the average relevant mark.

However, a degree of caution is needed here because although a correlation is discernible, it must be weighed up with the volatility in the spread of results at any particular level of attendance (eg consider the range of marks for students attending four workshops in Figure 1). For instance, Figure 1 also shows that students with very low attendance or no attendance can and often do achieve high marks. This should be expected for students who prefer to study independently. 40

An important 'lesson' from Figure 1 is that students who failed the relevant assessments tended to be congregated around lower attendance. This is consistent with the findings of Hazaa et al that attendance matters most for the bottom cohort of students rather than those who are higher achievers. 41 Regardless, this does not necessarily mean that low attendance caused poorer performance. Poor performance could be caused by many other factors which may also affect attendance. At the same time, there is evidence that higher performing students are inclined to attend classes more-often on average than other students. 42 This fits with the hypothesis that while attendance has some bearing on performance it is more likely that better performance often includes more attendance. The extent of this unknown interaction between variables requires more research especially in terms of causation for those performing poorly. This elusive relationship is complicated further because of the relationship observed in this study between attendance and 'final mark'.

Interestingly, when the 'final mark' is used instead of 'relevant mark' the correlation between attendance and performance actually increased despite the fact that 40% of the 'final mark' could not be affected by attendance.

Lukkarinen, Koivukangas, and Seppälä (n 25) 346.

<sup>&</sup>lt;sup>41</sup> Hazaa et al (n 6) 11.

<sup>&</sup>lt;sup>42</sup> Ibid 19.

	2021		20	22	2023		
	Gold Coast	Nathan	Gold Coast	Nathan	Gold Coast	Nathan	
Relevant Mark /60	0.295	0.340	0.261	0.269	0.248	0.229	
Final Mark /100	0.371	0.377	0.293	0.350	0.255	0.309	

Table 9
Attendance correlation comparison between relevant mark and final mark

Lastly, it is also possible that the findings here are unique to the unit and its assessment. In other words, in a fully flexible unit attendance may not be as necessary to efficacious learning. Or perhaps attendance does not matter for the type of assessment used here (constructed written responses using critical reflection). Otherwise, the evidence here seems to suggest that a plethora of other factors including student engagement are important. <sup>43</sup> This is consistent with the emerging literature in that attendance is likely to be less important than the interaction of ability and motivation, <sup>44</sup> teaching/unit, <sup>45</sup> past performance, <sup>46</sup> how that student engages with the course, <sup>47</sup> and the extrinsic circumstances (eg work, health, family etc) <sup>48</sup> bearing on the student's capacity to engage. <sup>49</sup>

# B Attendance Mattered More for In-Person Students than Online Students

In general, the mode of enrolment (in-person or online) made little difference to performance although the average across the three years was faintly better for in-person students (42/60) compared to online students (41/60). However, not too much should be read into this difference because of the extent of volatility within a campus cohort in a specific year on the basis of sex (male or female) and enrolment (in-person or online).

The correlation, albeit weak, between attendance and relevant mark for students enrolled in-person might be explained by engagement. In other words, although all the content was available online, there is the possibility in-person students do not sufficiently engage with the online materials when they do not attend a scheduled workshop. On this

Robert Summers, Adrian Burgess, Helen Higson and Elisabeth Moores, 'How you teach and who you teach both matter: lessons from learning analytics data' (2023) Studies in Higher Education DOI: 10.1080/03075079.2023.2245424: 1-17.

Arulampalam, Naylor, and Smith (n 23) 9-10; Corbin, Burns, and Chrzanowski (n 21) 30.

Moores, Birdi, and Higson (n 20) 373-4.

<sup>&</sup>lt;sup>46</sup> Alturki, Hulpus, and Stuckenschmidt (n 13); Mitra et al (n 32).

<sup>47</sup> McKee (n 16) 224.

<sup>&</sup>lt;sup>48</sup> Ibid 225; see generally Summers, Higson, and Moores (n 16).

Eisen, Schupp, and Isseroff (n 18).

assumption, students enrolled in-person might rely less on online materials making their attendance at workshops more important. Anecdotally, in-person students who achieved high marks and attended their workshops often reported supplementing attendance with online engagement.

A plausible explanation for the even weaker correlation between attendance and performance for online students might be that attendance becomes redundant when online students meet their learning needs through online content available at times convenient to them. <sup>50</sup> Again, this suggests that content whether online or in-person must be aimed at student access and engagement.

# C Male Students Tended to Enrol More Often In-Person and Attend More than Their Female Peers

Attendance mattered more for students enrolled in-person especially males. This is in contrast with two earlier studies by Woodfield et al (2006) and Lukkarinen, Koivukangas, and Seppälä (2016). <sup>51</sup> Woodfield et al found males were less likely to attend than females. <sup>52</sup> There it was speculated that for females, 'attendance looks to be a key part of the intervening mechanism linking the agreeableness trait with achievement.' <sup>53</sup> Woodfield et al essentialise sex difference specifically identifying 'agreeableness' as predicting attendance rates and academic performance for female students which they claim makes women 'advantageous for tertiary level study' (2006, 18).

By contrast the present study found males were more likely to attend than females. What both studies found in common is that attendance is more strongly predictive of academic performance for male students than it is for female students. Considering that here males were more likely to enrol in-person than online, and that attendance mattered more to their performance raises the vexed issue of mandatory attendance. For males a weak case might be made to require attendance because non-attendance has a correlation with poor performance. However, this would be at odds with the study by Lukkarinen, Koivukangas, and Seppälä which found that males who did not attend but engaged with the course had fewer exam failures and performed highly in assessment.

This finding led Lukkarinen, Koivukangas, and Seppälä to avoid treating students as a homogenous group. <sup>56</sup> Instead, they differentiated between sub-groups to target engagement in two respects. There is one sub-group of 'students for whom participation in teaching events is, indeed, a significant predictor of performance' and they need to be

Lukkarinen, Koivukangas, and Seppälä (n 25).

Ibid; Ruth Woodfield, Donna Jessop, and Lesley McMillan, 'Gender differences in undergraduate attendance rates' (2006) 31(1) Studies in Higher Education 1.

Woodfield, Jessop, and McMillan (n 51) 16.

<sup>53</sup> Ibid 18.

<sup>&</sup>lt;sup>54</sup> Ibid 19.

Lukkarinen, Koivukangas, and Seppälä (n 25) 346.

<sup>56</sup> Ibid.

motivated to attend.<sup>57</sup> For the other students, 'who cannot or do not wish to attend teaching' they may require direction so that they can effectively study independently which may require amongst other things 'considerable maturity' and 'planning'.<sup>58</sup>

There has been limited debate in the literature about the efficacy of forcing attendance. 59 The evidence for the efficacy of mandatory attendance is at best mixed and Moores, Birdi, and Higson recommend transparency about expectations and responsibilities rather than forced attendance. 60 They urge consideration to 'be given to possible arguments of inequity and to unintended side effects before allocating a proportion of marks for attendance or setting attendance policies'. 61 Based on their research and the study here it is likely that mandating attendance would disadvantage poorer students needing to work and those who are burdened with greater responsibility for unpaid work, typically women. It is well documented that females do more unpaid work such as caring/family responsibilities and housework. 62 By the same standard, mandatory attendance would seem to discriminate against females unable to attend in-person workshops due to work, family/caring responsibilities and because the correlation between their attendance and academic performance is so weak, and sometimes negative.

Regardless of the risk mandatory attendance poses to equity and the likelihood it could be discriminatory, it is doubtful whether students can be compelled to return to campus to attend like they did 30 years ago. A lot has happened in higher education since the early studies reporting a correlation between attendance and performance. Two key differences stand out both of which were driven by new technology and the neoliberal turn. <sup>63</sup> One is the capacity for students to attend university under contemporary material conditions and another the quality of flexible or blended learning. The former arguably renders attendance at a specific time increasingly unlikely, while the latter renders attendance anachronistic and perhaps redundant. <sup>64</sup>

#### D Material Factors Drive Attendance

The neo-liberal turn featuring the corporate university and broader neoliberal economic policies since the 1990s have transformed higher

<sup>57</sup> Ibid.

<sup>58</sup> Ibid

<sup>&</sup>lt;sup>59</sup> Moores, Birdi, and Higson (n 20) 374-76.

<sup>60</sup> Ibid

<sup>61</sup> Ibid 376.

Australian Government, Unpaid care work and the labour market (Workplace Gender Equality Agency Insight Paper, 9 November 2016) <a href="https://www.wgea.gov.au/publications/unpaid-care-work-and-the-labour-market">https://www.wgea.gov.au/publications/unpaid-care-work-and-the-labour-market</a>>.

<sup>63</sup> See Margaret Thornton, Privatising the Public University: The Case of Law (Routledge, 2012); Margaret Thornton, 'How the Higher Education 'Industry' Shapes the Discipline of Law: The case of Australia' (2017) 5(2) Griffith Journal of Law & Human Dignity 101.

<sup>64</sup> See eg Büchele (n 33) 132.

education. 65 The creation of a pseudo-market and the positioning of students as fee-paying consumers making rational choices has driven higher education policy for over 30 years. Despite the rhetoric of student choice, material circumstances drive individual learning decisions including whether to attend. The need to earn income and 'financial issues more generally' restrict the scope for choice whether to attend classes, affect the capacity for student engagement, and produce learning inequalities. 66

The need for students to undertake paid work is not really a choice. Paid work intersects with other variables acting on both attendance and engagement such as study load, scheduling/timetabling, and an array of other variables. Faid work also intersects with several marginalities failuding but not limited to class and financial precarity, family/caring responsibilities, family/caring responsibilities, family family family and internationality. These marginalities although not new are more profound under neo-liberal conditions which have privatised the costs of education and made housing costs increasingly unaffordable for students. Paying for housing, transport, other costs

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<sup>65</sup> See generally, Richard Hil, Whackademia: An insider's account of the troubled university (New South, 2012); Thornton, 'Privatising the Public University' (n 63).

<sup>66</sup> Moores, Birdi, and Higson (n 20) 377-8.

Alturki, Hulpus, and Stuckenschmidt (n 13) 280; Corbin, Burns, and Chrzanowski (n 21) 18; McKee (n 16) 225; Moores, Birdi, and Higson (n 20) 377-381.

Julia Coffey, Julia Cook, David Farrugia, Steven Threadgold, and Penny Jane Burke, 'Intersecting marginalities: International students' struggles for 'survival' in COVID-19' (2021) 28(4) Gender, Work & Organization 1337-51; McKee (n 16) 225-6.

Harsh Kumar Jha and Robin Wharton, 'Social mobility through higher education: exploratory analysis of ethno-racial, gender and class intersection in professional undergraduate programmes' (2023) 48(7) Studies in Higher Education 1052-1066; Summers, Higson, and Moores (n 16).

Nee Tim Moore, Helen Bourke-Taylor, Natalie Greenland, Stewart McDougall, Leah Bromfield, Luke Robinson, and Ted Brown, Young carers and their engagement with education: "No space in my brain to learn" (Australian Centre for Child Protection Report, 2019, University of Adelaide) <a href="https://doi.org/10.1111/hsc.13589">https://doi.org/10.1111/hsc.13589</a>>.

Corbin, Burns, and Chrzanowski (n 21) 26.

Elizabeth Bodamer, 'Do I Belong Here? Examining Perceived Experiences of Bias, Stereotype Concerns, and Sense of Belonging in US Law Schools' (2020) 69(2) Journal of Legal Education 455-490; Amy Soled and Barbara Hoffman, 'Building Bridges: How Law Schools Can Better Prepare Students from Historically Underserved Communities to Excel in Law School' (2020) 69(2) Journal of Legal Education 268.

Jane Dyson, Craig Jeffrey, and Gyorgy Scrinis, 'Missing Fruit: International Students' Food Insecurity in Australian Universities' (2021) *Items: Insights from the Social Sciences*, December 16, <a href="https://items.ssrc.org/covid-19-and-the-social-sciences/covid-19-fieldnotes/missing-fruit-international-students-food-insecurity-in-australian-universities/">https://items.ssrc.org/covid-19-and-the-social-sciences/covid-19-fieldnotes/missing-fruit-international-students-food-insecurity-in-australian-universities/</a>; Alan Morris, Luke Ashton, and Shaun Wilson, 'As international students flock back, they face even worse housing struggles than before COVID', *The Conversation*, 11 January 2023, <a href="https://itheconversation.com/as-international-students-flock-back-they-face-even-worse-housing-struggles-than-before-covid-195364">https://itheconversation.com/as-international-students-flock-back-they-face-even-worse-housing-struggles-than-before-covid-195364</a>.

Megan Nethercote, 'Build-to-Rent and the financialization of rental housing: future research directions' (2020) 35(5) Housing Studies 839, 842, 844; Hal Pawson, Vivienne Milligan, and Judith Yates, Housing Policy in Australia (Palgrave Macmillan, 2020) 94; C S Pereth, S Jagatap, V Baird, A Kos, K Di Nicola, and P

of living, and ironically for digital access to learning, requires contemporary students to increase working hours thereby limiting their availability for university attendance.<sup>75</sup>

Universities cannot control the broader neo-liberal conditions impacting on attendance. However, universities can control the extent to which units provide genuine choice for student engagement regardless of how they access education. This is consistent with student centred learning, universal design principles, and for me personally, a fundamental element of the accountability expected by standpoint theory. Standpoint theory expects that the most marginalised and disadvantaged voices are heard as the basis for a critical assessment of the structures instituting, participating in and or reproducing marginalisation or disadvantage. In higher education that means starting design with the needs of students. In particular, design based on student autonomy, empowerment and needs which are closely related to well-being. 76 As such in 2022, Blake et al identify what they call 'connectivism'. 77 Connectivism requires both staff and student satisfaction with the learning and teaching environment, and their 'key message is that there is an ongoing need for flexibility and adaptability' in learning, teaching, and assessments.<sup>78</sup>

# E Blended Learning, Engagement, and Universal Design

While earlier attendance studies tended to assume or report a correlation between attendance and performance, <sup>79</sup> later research identifies the importance of engagement because the entire teaching and learning context has changed. <sup>80</sup> Given the shift from in-person education in the 1990s to online and blended education, together with great improvement in these latter types of learning and teaching, <sup>81</sup> the

Sadler, A Safe Place to Call Home: Mission Australia's Homelessness and Stable Housing Impact (Mission Australia Report, 2023, Sydney) 7 <a href="https://www.missionaustralia.com.au/publications/submissions-and-reports/housing-and-homelessness">https://www.missionaustralia.com.au/publications/submissions-and-reports/housing-and-homelessness</a>.

Moores, Birdi, and Higson (n 19) 377-78; Sarah O'Shea, 'These 5 equity ideas should be at the heart of the Universities Accord', *The Conversation*, 19 May 2023, <a href="https://theconversation.com/these-5-equity-ideas-should-be-at-the-heart-of-the-universities-accord-203418">https://theconversation.com/these-5-equity-ideas-should-be-at-the-heart-of-the-universities-accord-203418</a>>.

Fiona McGaughey, Natalie Skead, Liam Elphick, Murray Wesson and Kate Offer, 'What have we here/ The relationship between law student attendance and wellbeing' (2019) 45(3) Monash University Law Review 698, 698-99, 707.

Meredith Blake, Aidan Ricciardo, Joseph Clare, Fiona McGaughey, Natalie Skead, Jani McCutcheon, 'Student and Staff Experiences of Online Learning: Lessons from Covid-19 in an Australian Law School' (2022) 32(1) Legal Education Review 129, 129.

<sup>78</sup> Ibid.

<sup>&</sup>lt;sup>79</sup> Noh et al (n 35) 27.

Moores, Birdi, and Higson (n 19) 372.

Natalie Skead, Liam Elphick, Fiona McGaughey, Murray Wesson, Kate Offer, and Michael Montalto, 'If you record, they will not come – but does it really matter? Student attendance and lecture recording at an Australian law school' (2020) 54(3) The Law Teacher 349; Yuchen Wang 'It is the easiest thing to do': university students' perspectives on the role of lecture recording in promoting inclusive education in the UK' (2023) Teaching in Higher Education, 1.

way students 'attend' has been transformed. What matters more than attendance is how students 'attend' in terms of engagement. Ref This is hardly new. For instance, a 2006 study by Massingham and Herrington reported 'a clear finding that engagement in the learning process is much more important to student performance than mere attendance. Similarly, in 2012 Baron and Corbin reviewed the literature finding that 'student experience as a whole is the key to engagement and, thus, efforts to re-engage students cannot be successful until a "whole-of-university" approach is adopted. Hurther, in 2018 Debiec found that a learner-centred teaching approach where attendance is an element of engagement contributed to better attainment.

Rather than forcing attendance, unit design must facilitate student engagement by embracing universal design principles. With its origin in accessible architectural design in the United States following World War II, universal design aimed to make physical structures both accessible and attractive to all regardless of ableness. 86 Australian universities have slowly been moving in this direction to meet statutory minimums and reduce attrition relying on what could be described as reactive procedures. This means students identify themselves as having a 'disability' which is assessed by a university department giving rise 'specific accommodations'. 87 These 'accommodations' subsequently recommended to a unit convenor to implement. Falling short of universal design this approach places responsibility on students to declare and unit convenors to react. 88 By contrast universal design pre-empts student accessibility and diversity by situating accessibility and attraction as foundational to course design. Universal design is not confined to 'disability', rather it anticipates and respects the heterogeneity of all students accessing education. This expansive approach to instructional design incorporates ableness, class, ethnicity, family responsibilities, gender, race, and sexuality and aims to attract and engage all students. In other words, design must be truly universal. For Pliner and Johnson this means 'the concept of universality as it is

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J M Cansino, Rocío Román, and Alfonso Expósito, 'Does Student Proactivity Guarantee Positive Academic Results?' (2018) 8 Education Sciences 62: 1-11, 7; Corbin, Burns, Chrzanowski (n 21) 14-15, 30; Marjolein Torenbeek, Ellen Jansen and Cor Suhre, 'Predicting undergraduates' academic achievement: the role of the curriculum, time investment and self-regulated learning' (2013) 38(9) Studies in Higher Education 1393, 1393.

Peter Massingham and Tim Herrington, 'Does Attendance Matter? An Examination of Student Attitudes, Participation, Performance and Attendance' (2006) 3(2) Journal of University Teaching & Learning Practice 82, 96.

Paula Baron and Lillian Corbin, 'Student engagement: rhetoric and reality' (2012) 31(6) Higher Education Research & Development 759, 759.

Piotr Debiec, 'Effective Learner-Centered Approach for Teaching an Introductory Digital Systems Course' (2018) 61(1) IEEE Transactions on Education 38.

Patricia Silver, Andrew Bourke, and K C Strehorn, 'Universal Instructional Design in Higher Education: An Approach for Inclusion' (1998) 31(2) Equity & Excellence 47 47

Susan Pliner and Julia Johnson, 'Historical, Theoretical, and Foundational Principles of Universal Instructional Design in Higher Education' (2004) 37(2) Equity & Excellence in Education 105, 106.

Silver, Burke, and Strehorn (n 86) 47.

applied to instruction is an approach that will benefit not only students with disabilities, but all students.'89

#### VII CONCLUSIONS

While earlier literature tended to emphasise attendance as a driver of academic performance, contemporary literature is more ambivalent about the significance of the relationship. The main reason for this is that learning and teaching have improved and the entire teaching and learning context has changed. New technology, together with the shift from in-person education in the 1990s to online and blended education have transformed the way we teach and the ways students 'attend'. Now the contemporary literature emphasises engagement and providing access to education for a more diverse range of students.

The study undertaken here leads to the conclusion that engaging students is more important than a concern with attendance. It adds to higher education literature by qualifying the significance of attendance for differences in marks between students enrolled online and in-person and based on female/male. It also found that forcing attendance might have deleterious effects on female students including discrimination. These findings must be understood in the context of the limitations identified in Part IV. Still, these findings have important implications for policy and practice in higher education and exhort the importance of universal design principles.

It is unlikely there will be a return to high rates of in-person attendance at universities. Most students cannot afford to attend university full-time without paid work which is likely to impair attendance. Universities can only take responsibility for what they can control. While it is not possible to control attendance, it is possible to design units to engage students based on universal design. Students have diverse learning needs and unit design must facilitate access and engagement. It should be expected there will be a mix of needs including online with no attendance, online with attendance, in-person attendance, and hybrids of these options. The challenge is to design units to engage students respecting their need for access.

### Disclosure Statement

No potential conflict of interest was reported by the author. This research was subject to ethical clearance by the Griffith University Human Research Ethics Committee (GU Ref No: 2023/855). The anonymised Dataset is available via Figshare <a href="https://figshare.com/">https://figshare.com/</a> (search "Student attendance and academic performance").

#### Acknowledgements

I thank the editor and anonymous referees for their feedback.

Pliner and Johnson (n 87) 105.