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Developing students' resilience during the crisis: A moderated model linking college support, study demands, student resilience, and students' change-oriented behaviours

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Abstract

This study focuses on student resilience during the COVID-19 crisis, a key factor for students' progress, and future careers. It does so by introducing the job demands and resources (JDR) model, and the social exchange theory (SET), widely adopted in the management literature in the education field to better understand student experience management in the higher education context. In past research, limited attention has been given to student resilience through the lens of management theories such as JDR and SET, and college support as a factor that develops student resilience has been scarcely observed. Data were collected from 1435 students in a large Irish university during the lockdown period due to COVID-19 in 2020. The findings reveal that college support, as a resource, develops students' resilience (even in the presence of higher study demands), which in turn decreases their affective response to crisis, and increases their adaptive study performance, and commitment to the move to online learning. This research suggests that colleges need to balance their support and demands towards students during the crisis in facilitating students to develop their own resilience and provides valuable insights for higher education sector to develop students' resilience during crisis.

1 | INTRODUCTION

The uncertainty of the pandemic has highlighted the implications of unexpected and unprecedented global occurrences on the academic progress, resilience, and well-being of students. COVID-19 struck during an era which is witnessing an increase in demand for higher education and in which student enrolment figures have been rising dramatically. For example, in 2021 alone, 2.66 million students were enrolled in higher education programs in the UK (source: https://commonslibrary.parliament.uk/research-briefings/cbp-7857/). This is a demographic group which should not be ignored when it comes to discussions of the impact of COVID-19 on all areas of life and society in general and specifically in the context of education. The main goals of higher education are not only focused on students' academic achievements but also on individual capabilities and skills to be resilient in challenging times (Cassidy, 2015). Students' resilience, for example in being able to grow in positive ways by dealing with these difficult situations (Vaughn & Schumm, 1995), not only enables students to adapt quickly to the new study environment (e.g. moving to online study due to the pandemic) but also enhances students' employability (Ma, 2021; Maree, 2017). Student resilience has also been found to be positively associated with student study progress (Backmann et al., 2019). What remains unknown, is how higher education institutions build, develop, and maintain students' resilience for their overall well-being, continued progress in education, and a sustained commitment towards achieving the collective goals of the college and the students (e.g. the successful transition to online learning during a crisis).

In order to answer the above question, this study draws on the job demands and resources (JDR) model (Bakker & Demerouti, 2007) and social exchange theory (Blau, 1968) which are widely used in business management and organizational psychology fields. These theories serve to establish the link between college support and student resilience, which is linked to their change-oriented behaviours such as affective response to crisis, adaptive study performance, and commitment to the move to online learning. Conway et al. (2016) explain the JDR model as a framework that 'examines the differential relationship between demands and resources and both engagement and burnout' (p. 905). College support is a valuable resource which can help students to better understand the status of the crisis, and the environment we were all in, and adjust themselves into the new learning environment, developing their resilience to cope with the crisis. Similar to job demands, the study demands perceived by students are expected to weaken the positive impact of college support on student resilience. However, the prerequisites for the development of resilience are challenges, adversities, or demands. Despite the notion that study demands can weaken the impact of college support, we explore the possibility that when college support is provided to students in challenging times, in the presence of higher demands, the students can develop and exhibit greater resilience. Social exchange theory refers to the interaction that takes place in a setting between two entities, where both are expecting a certain value to be delivered in an arrangement from the other in the relevant context (Blau, 1968; Eisenberger et al., 1986). In the context of education and the crisis, higher education institutions provide support to students (e.g. timely, clear and sufficient communication). Such support indicates responsibility and exhibits concern for students. To reciprocate, students are more likely to contribute their efforts to give back to their institutions, for example, by commitment in moving into the online learning space.

This study focuses on student resilience and explores the relationship between a key resource – college support and student resilience as well as between student resilience with students' affective response to crisis, adaptive study performance, and commitment to the move to online learning. Demands from students' study are proposed to moderate the impact of college support on their resilience, and the mediated impact of college support on students' change-oriented behaviours via resilience. By doing so, this study makes three main contributions to higher education and student experience management during uncertainties and crises. Firstly, this study focuses on students' resilience in coping with the global health crisis during their study, via studying its driver (college support), condition (study demands), and impact (change-oriented behaviours). Doing so extends existing research on education and student experience which has been focused on academic

performance only (Iglesias-Pradas et al., 2021) and draws attention to the impact of the role of the college in students' affective outcomes and commitment to change. It also extends student experience research in the general context (de la Fuente et al., 2017) as well as during the pandemic context (Di Giacomo et al., 2021), by extensively exploring the process and conditions for student's experience development. Secondly, this study draws on social exchange theory and the JDR model, both well-documented in employee experience management, but not previously well-explored in relation to student experience during the crisis. Doing so enables this study to advance education research via a multiple disciplinary perspective. This is consistent with existing research which used management theories and frameworks in education (Elstad et al., 2011; Fan et al., 2019; Martin et al., 2021; Robins et al., 2015; Salmela-Aro & Upadyaya, 2014). However, it varies from previous research by gauging the effect of demands on psychological capital and focuses on how this relationship is positive, given the condition that adequate college support is provided, to contribute to the development of resilience. Our model (Figure 1) emphasizes the value of psychological capital in times of crises and uncertainty, to achieve personal and organizational goals, highlighting the transferability of this research model to other areas of research in education, management sciences and organizational behaviour. Lastly, this study provides timely and actionable recommendations for higher education management. This study was conducted in 2020 when we did not know much about the virus and were surrounded by uncertainties. Today, we are living with COVID. The lessons revealed from this study will help future educators, managers, and decision-makers in education, and also students to be more prepared for the dynamic future challenges they may face via building the resilience to help them deal with future challenges.

2 | LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 | Research context: The importance of student resilience during crisis

During the pandemic, the global community was deeply influenced by the uncertainty caused by the sudden lockdown and closure of schools, colleges and universities (Carmichael et al., 2022; Fotheringham et al., 2022; Oliveira et al., 2021). The educational landscape was disrupted by an abrupt shift to online learning and emergency remote teaching (Bond et al., 2021). This had several implications for universities, colleges, faculty members and students, as all were exposed to various stressors in the environment. Lockdowns and digital communication were the new norm and continuation of education became a struggle. Colleges needed to be innovative not just in the implementation of the appropriate technology for delivery of curriculum, but also to ensure that students continue to

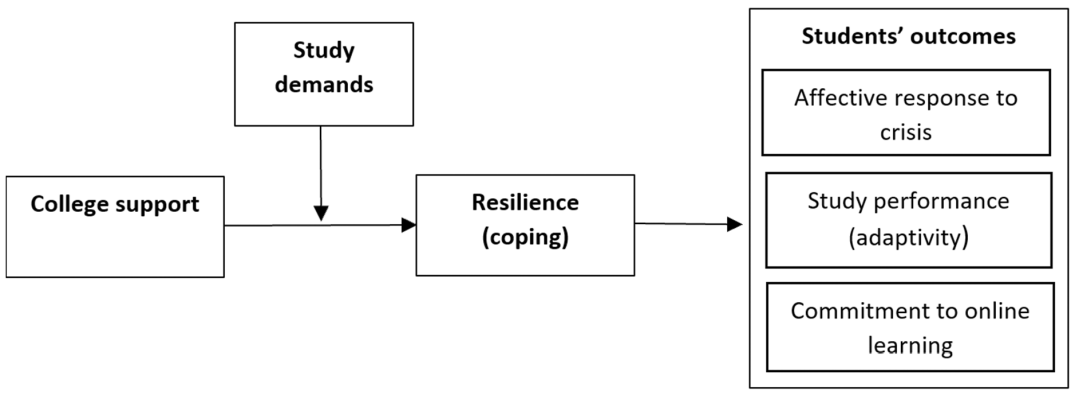

FIGURE 1 Theoretical model.

thrive irrespective of the circumstances. This involved the alignment of college support being given to students with the objective of the development of students' psychological capital such as resilience.

Luthans (2002) defines resilience to be the 'positive psychological capacity to rebound, to "bounce back" from adversity, uncertainty, conflict, failure, or even positive change, progress and increased responsibility' (p. 702) and 'when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success' (p. 388). Tedeschi and Kilmer (2005) explain resilience to be as 'effective coping and adaptation in the face of major life stress' (p. 231). Fletcher and Sarkar (2013) refer to resilience with coping as 'strategies employed following the appraisal of a stressful encounter' (p. 16). Theoretically, the development of resilience with coping is an outcome of the risk, stress, and uncertainty faced by the students during this period.

Resilience is an essential resource for the optimum functioning of individuals, teams, and organizations particularly during change and crisis. Given its relevance, resilience has attracted growing interest in psychology and organizational management. The importance of resilience also applies to students and education institution management. However, research is scarce in terms of the role of colleges and universities in the students' individual development of the resilience with coping. In Ireland, higher educational institutions displayed a collaborative, response as 21 presidents of higher educational institutions, with the support from student unions, disseminated information and communication to all students providing guidelines and support for navigating the pandemic and shifting to online learning platforms (Crawford et al., 2020). This response is a classic example of how the college support was actively aligned with the overall collective objective of ensuring that the transition to online learning was a success for the college, as well as the student. Furthermore, resilience with coping can have several outcomes for the student: reduced effective response to the crisis, enhanced academic performance and a greater commitment to change (shifting to online mode of learning).

2.2 | College support and student resilience to cope

Borup et al. (2020) propose that for a student to have independent engagement in a virtual learning environment, the student should have relevant support from the course community (teachers and administrators as formal support role) and the personal community. Their Academic Community of Engagement framework categorizes three types of engagements: cognitive, behavioural, and affective. This framework indicates the relevance of college support in student experience management and acknowledges behavioural outcomes such as the development of individual resilience with coping. 'Students' mindsets can be changed' (p. 303) leading to the development of individual resilience, and efforts should be made by educators to foster these mindsets (Yeager & Dweck, 2012). Dunn et al. (2008), in their research of medical students' resilience, propose resilience as a 'coping reservoir' with negative input (stress, internal conflict, time and energy demands) and positive input (psychosocial support, social/health activities, mentorship and intellectual stimulation) highlighting the potential role of the college in building individual resilience. As Starobinski (2003) cites Newton (every action has an equal and an opposite reaction) to describe psychological behaviour, it is safe to assume that the support a student receives would result in reciprocation by the student towards the fulfilment of the overall goals of the college. In this study, we explore this relationship through the application of the social exchange theory.

The social exchange theory is based upon the premise that interactions amongst social actors are interdependent (Blau, 1968) and these 'interdependent interactions have the potential to generate high quality relationships' (Cropanzano & Mitchell, 2005; p. 875). Reciprocated exchange can produce trust and commitment (Molm et al., 2000) which enables social actors to achieve their goals, however, the social exchange has to take place within 'structures of mutual dependence' (p. 1398). In this research, we observe the relationship between the college and the student through the perspective of social exchange theory, to relate the student's outcome of reduced affective response, increased commitment to shift to online learning and improved adaptive performance as an outcome of the obligation the student would feel towards the college as a reciprocal response to the support

being provided from the college. The college management also shares the goal with the student (which is the successful transition to online learning) and hence is motivated to continue providing quality support. Perceived organizational support can lead to 'felt obligation' (p. 42) and affective commitment in formal organization (Eisenberger et al., 1986). Therefore, we propose the following hypothesis:

Hypothesis 1. *College support is positively associated with students resilience with coping.*

2.3 | Students' resilience to cope and students' outcomes

Brewer et al. (2019), in their scoping research of resilience in higher education, assert that the majority of the literature reviewed emphasized the positive role of resilience in mental health and academic success in university. Cognitive development plays a pivotal role in academic progress, success and adaptation. Leipold and Greve (2009) associate coping with development to suggest that development is not only dependent on external factors but also on internal dynamic processes such as resilience and coping. During COVID-19, resilience had a positive effect on the psychological well-being of university students (Tan et al., 2021). Resilience influences performance, and well-being and has an 'indirect effect on state anxiety' (Etherton et al., 2022). Therefore, it is proposed that:

Hypothesis 2a. *Students' resilience with coping is negatively associated with affective response to crisis.*

In past research, authors have acknowledged the role of resilience in better academic performance (Ayala & Manzano, 2018; Martínez et al., 2019; Trigueros et al., 2019). Miraj et al. (2021) observe the relationship between resilience capabilities and academic performance. Ang et al. (2021) conclude in their qualitative research on undergraduate Generation Z students that resilience is an 'enduring' and 'withstanding trait' (p. 10) necessary for academic success in higher education. In our research, we empirically confirm the positive relationship between resilience with coping and academic performance through the following hypothesis:

Hypothesis 2b. *Students' resilience with coping is positively associated with students' adaptive study performance.*

Brewer et al. (2022) emphasize resilience as a capability required by university students and staff to navigate 'volatile times'. In organizational behaviour theories, commitment to change is affected by the organizational climate (Rogiest et al., 2015) and affective commitment to a change is associated with a higher level of individual support for the change (Herscovitch & Meyer, 2002) amongst various other factors. It can be proposed, that because resilient students have positive perceptions about their learning climates (Dyrbye et al., 2010), they can exhibit more commitment to change during the shift to online learning. Hence the following hypothesis:

Hypothesis 2c. *Students' resilience with coping is positively associated with the commitment to shift to online learning.*

2.4 | The mediating role of students' resilience to cope

Past research has confirmed the role of resilience as a mediator between employee resources (organizational support) and employee performance outcomes (Cooke et al., 2019; Lu et al., 2023; Malik & Garg, 2020) and employee psychological health (Bernabé & Botia, 2016). Additionally, employee resilience as a mediator, has a positive relationship with employee engagement during crises such as COVID-19 (Blaique et al., 2022). Similarly, we argue that in the educational

context, student resilience mediates the relationship between college support and student outcomes. The preceding hypotheses link the relationship between college support, resilience to cope and student's outcomes which are effective response to crisis, academic performance and commitment to change. Resilience mediates the relationship between college support and students' outcomes and this relationship is represented by the following hypothesis:

> **Hypothesis 3.** *Students' resilience with coping mediates the relationships between college support with students' affective response to crisis (3a), adaptive study performance (3b), and commitment to the move to online learning (3c).*

2.5 | The moderating role of study demands

Bakker and Demerouti (2007) suggest that in an organization, 'every occupation has its own specific risk factors' (p. 312) known as job demands (social, psychological, organizational or physical aspects of the job which require an individual's effort and have an associated psychological cost) and job resources (the social, psychological, organizational or physical aspects that are associated with high functionality, reduced job demands and sustained individual growth and development). The job resources can be categorized into organizational, social and interpersonal. Job demands-resources model has been applied in educational research conducted on the relationship between individual psychological capital variables and outcomes such as student engagement and affective response. At school level, adolescents were more prone to burn-out (negatively related to engagement) associated with study demands (Salmela-Aro & Upadyaya, 2014). Robins et al. (2015) investigated burnout and engagement in health profession students through the lens of job demands-resource model to hypothesize a relationship between study demands, study resources and personal resources, where psychological flexibility was positively related to engagement and negatively related to burnout. Adaptability is another personal resource that was investigated through the job demands-resources in the high school students' online learning experience during the COVID-19 pandemic (Martin et al., 2021) with online learning self-efficacy mediating the relationship between personal resources (adaptability), job resources (online learning support) and performance. Based on the interest in job demands-resources model in the field of education, Lesener et al. (2020) proposed the study demands-resources framework, exploring the study demands as 'bad things', and study resources as 'good things' in university life, that can impact student health, well-being and academic progress.

Resilience is a protective factor (Chen et al., 2016), relational in nature (Hernandez-Martinez & Williams, 2013) and can be conceptualized as an adaptive process which is a response to risk in the environment (Tusaie et al., 2007). As resilience is a personal resource which, as per the definition, should develop when an individual is faced with risk, pressure (job demands/study demands), the role of demands as a moderator in this relationship needs to be re-investigated. In prior organizational research, job demands have been known to moderate the relationship between resources and employee outcomes (Hu et al., 2011; Ng et al., 2008). In extant literature, it is proposed that job demands are negatively related to the outcomes. However, 'not all demands are same' (Schilbach et al., 2021; p. 155) and challenges can lead to positive adaptation (Luthar et al., 2000) and the building of resilience (Crane & Searle, 2016). In the educational context, we question that if the pre-requisite for the development of the resilience with coping (personal resource, and a mediator in the model) is the presence of the 'risk' (study demand), what impact would an increase in study demands have on resilience and the overall outcome, in the presence of college support (organizational resource)? Based on this argument, the following hypothesis is proposed:

> **Hypothesis 4.** *Study demands moderate the impact of college support on students' resilience with coping such that the impact would be stronger when study demands are high rather than low.*

As hypothesized above, college support would have a positive relationship with resilience, further having an impact on the outcomes for the students. However, it is also proposed that study demands moderate the relationship

between college support and resilience. According to the notion that resilience with coping has a negative relationship with students' affective response to crisis, and a positive relationship with adaptive academic performance and commitment to shifting to online learning, it is logical to suggest that study demands also moderate the strength of the mediating relationship between college support and student's outcomes leading us to the following hypothesis:

> **Hypothesis 5.** *Study demands moderate the mediating effect of college support on students' affective response to crisis (5a), adaptive study performance (5b), and commitment to the move to online learning (5c)* via *resilience with coping such that the indirect effect would be stronger when study demands are high rather than low.*

Figure 1 presents the moderated mediation model with hypotheses.

3 | METHODOLOGY

3.1 | Sample

An online survey was sent to all students in a large national university based in Ireland. Ethics approval was received for the study from the university prior to data collection. A total of 1435 responses were received, generating an overall response rate of 8%. The overall response rate was low. According to Fosnacht et al. (2017), the online surveys' response rates in colleges are generally low and response rates between 5% and 10% in a college setting can be considered acceptable. Thus, the response rate of 8% in this study was acceptable. There were 541 responses with <30% completion of the survey and were excluded from the analysis. The valid sample size was 894 (5%). The reasons for non-response in the case of online surveys include: computer illiteracy, lack of access to technology, transmission errors, and technical glitches that prevent otherwise willing participants from completing and submitting their responses (Foster Thompson & Surface, 2007). Another reason for the low response rate in this study could be due to the timing of survey distribution in July 2020 when most of students finished their classes.

Table 1 presents the information about the sample profile. In terms of gender, 69% were female, 29% were male and 2% were other or prefer not to say. The average age was 26 years old (SD = 10), where 36% were between 18 and 20 years old, 42% were between 21 and 25 years old, 13% were between 26 and 30 years old and the rest (9%) were above 30 years old. Among the participants, 70% were undergraduates, 11% were taught postgraduates, 16% were research postgraduates including PhD students, and the rest (3%) were visiting students and students for diploma and certificate. In terms of subjects, 40% were studying Arts, Humanities & Social Sciences, 34% were studying Engineering, Mathematics & Science, 23% were studying Health Sciences and the rest (3%) were studying joint programmes across these subjects. 55% were based in Dublin, 34% were based outside Dublin and in Ireland and 11% were outside of Ireland.

3.2 | Measurements

For *change-oriented behaviours during this crisis*, students' affective response to crisis, adaptive study performance, and commitment to the move to online learning was measured. For measuring *affective response to crisis*, four items were adopted from Oreg (2003). Respondents were asked to indicate their agreement on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) on the items of affective responses. Example items included: 'In these uncertain times, I try not to think about the crisis because when I do, I get too stressed out' and 'I'm overwhelmed by all the things that need to be done because of the crisis'. The Cronbach's α was .82.

TABLE 1 Sample profile.

Items		Sample distribution (%)
Gender	Male	29
	Female	69
	Other or prefer not to say	2
Age	Between 18 and 20 years	36
	Between 21 and 25 years	42
	Between 26 and 30 years	13
	31 years or more	9
Student types	Undergraduates	70
	Taught postgraduates	11
	Research postgraduates including PhD students	16
	Visiting students and students for diploma and certificate	3
Subjects	Arts, Humanities & Social Sciences (AHSS)	40
	Engineering, Mathematics & Science (EMS)	34
	Health Sciences	23
	Joint programmes	3
Location	Dublin	55
	Outside Dublin, Ireland	34
	Outside Ireland	11

3.2.1 | Adaptive study performance

Three items were adopted from Griffin et al. (2007) and adjusted from the working context to the study one. Responses were based on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Example items included: 'I have adapted well to changes in core learning tasks (e.g. assignments)' and 'I have learned new skills to help me adapt to changes in my core learning tasks'. The Cronbach's α was .78.

3.2.2 | Commitment to the move to online learning

Five items were adapted from Herscovitch and Meyer's (2002) commitment to change scale. Responses were based on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Example items included: 'I am motivated to learning online' and 'I think online learning is a good idea'. The Cronbach's α was .87.

3.2.3 | Resilience with coping

Four items were adopted from Vaughn and Schumm (1995) to measure student resilience with coping. Responses were based on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Example items included: 'Regardless of what has happened to me, I believed that I could control my reaction to it' and 'I believed I could grow in positive ways by dealing with these difficult situations'. The Cronbach's α was .65.

3.2.4 | College support

There are many ways to measure college support. In this study, the context was shifting from classroom teaching towards online teaching in the middle of crisis. At this time, sufficient, timely and clear communication was important. Therefore, college support was assessed via the communication from the college. Three items related to communication were adopted from VBBA, Questionnaire on the Experience and Assessment of Work, (Van Veldhoven & Meijman, 1994) and adjusted to the study context. Responses were based on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Example items included: 'I heard enough about how everything is running in the College' and 'I was adequately kept up to date about important issues'. The Cronbach's α was .89.

3.2.5 | Study demands

In searching literature on study demands, the authors failed to find the validated scale and adjust work demands scale into this learning context. Based on the discussion with multiple departments in the sample organization, one item was proposed and used to ask students to evaluate their experience of the demands of their study. It was 'I felt the demands of my study/research increased'.

3.2.6 | Control variables

Individual differences could influence the key variables in this study, for example, student resilience with coping, affective response to crisis, adaptive study performance, commitment to the move to online learning, and study demands. Individual characteristics controlled in this study include age, gender, and subject. Age was coded as the actual age of the students. Gender was coded as 1 = female, 2 = male and 3 = other or prefer not to say. Two dummy variables (gender female and gender other) were created to be entered in the analysis, using male as the baseline group. Subject was coded as 1 = Arts, Humanities & Social Sciences (AHSS), 2 = Engineering, Mathematics & Science (EMS), 3 = Health Sciences (HS) and 4 = other. Three dummy variables were created to be entered in the analysis, including AHSS, EMS and others, using HS as the baseline group.

3.3 | Common method bias

Given all variables were collected from a single source, common method bias may exist. To address this concern, this study followed several recommendations made by Podsakoff et al. (2012). For instance, before launching the survey, it was piloted with a group of educators, student offices, student union representatives, and students. The survey was revised and retested several times. Changes made as a result included the wording and order of the questions.

In addition, we checked the common method biased by carrying out a series of confirmatory factor analysis (CFA) to establish the validity of the studied variables. Table 2 presents these results. A CFA was conducted with all multi-item scales (i.e. college support, student resilience with coping, affective response to crisis, adaptive study performance and commitment to the move to online learning) with items loaded onto their respective factors. The five-factor model showed a good model fit (χ^2/df = 412.12/141 = 2.92, $p < .001$; CFI = 0.95; TLI = 0.95, RMSEA = 0.05, SRMR = 0.05). We then carried out χ^2 difference tests that compared this CFA model to other six alternative factor models as shown in Table 2. The comparison results reveal that the model fit of the five-factor

TABLE 2 Fit Statistics from measurement model comparison.

Models	χ^2/df	CFI	TLI	RMSEA	SRMR	$\Delta\chi^2$	Δdf
Full measurement model	412.12/141	0.95	0.95	0.05	0.05		
Model A[a]	1057.00/145	0.85	0.82	0.08	0.09	644.88***	4
Model B[b]	641.27/145	0.92	0.90	0.06	0.06	229.15***	4
Model C[c]	933.69/145	0.87	0.84	0.08	0.09	521.57***	4
Model D[d]	1381.81/148	0.79	0.76	0.10	0.10	969.69***	7
Model E[e]	1002.43/145	0.86	0.83	0.08	0.09	590.31***	4
Model F[f] (Harman's Single Factor Test)	3424.80/151	0.45	0.38	0.16	0.14	3012.68***	10

Note: $N = 868$, ***$p < .001$. In all measurement models, error terms were free to covary to improve fit and help reduce bias in the estimated parameter values. All models are compared to the full measurement model.

Abbreviations: CFI, Comparative Fit Index; df, degrees of freedom; RMSEA, Root Mean Square Error of Approximation; SRMR, Standardized Root Mean Square Residual; TLI, Tucker-Lewis Index; Δdf, difference in degrees of freedom; $\Delta\chi^2$, difference in chi-square; χ^2, chi-square discrepancy.

[a]Adaptive study performance and commitment to the move to online learning combined into a single factor.

[b]Resilience with coping and adaptive study performance combined into a single factor.

[c]Resilience with coping and commitment to the move to online learning combined into one factor.

[d]Resilience with coping, adaptive study performance, and commitment to the move to online learning combined into a single factor.

[e]Resilience with coping and college support combined into a single factor.

[f]All factors combined into a single factor.

model was significantly better than the alternative models (all at $p < .001$), suggesting that the study's variables are distinct, and there is no serious concern about the common method bias.

4 | RESULTS

Table 3 shows the descriptive statistics including means, standard deviations, reliability coefficients, and correlations between variables. The results of the regression analysis are shown in Table 4.

Hypothesis 1 proposed a positive link between college support and resilience with coping. The results in Table 4 indicate that college support was positively and significantly linked to resilience with coping ($\beta = .18$, $p < .001$) after controlling for age, gender, and subject. Therefore, Hypothesis 1 was supported.

Hypothesis 2 proposed that students' resilience with coping would be negatively associated with affective responses to crisis (2a), and positively associated with adaptive study performance (2b) and commitment to the move to online learning (2c). As shown in Table 4, the coefficients were significant for resilience with coping with affective response to crisis ($\beta = -.12$, $p < .001$), with adaptive study performance ($\beta = .40$, $p < .001$) and commitment to the move to online learning ($\beta = .17$, $p < .001$). Therefore, Hypothesis 2 was supported.

Hypothesis 3 proposed that students' resilience with coping would mediate the relationships between college support and affective responses to crisis (3a), adaptive study performance (3b) and commitment to the move to online learning (3c). The mediation test followed the four conditions described by Baron and Kenny (1986). These are: (1) that the independent variable is directly related to the dependent variables (college support à affective responses to crisis, adaptive study performance and commitment to the move to online learning); (2) that the independent variable should be related to the mediator (college support à resilience with coping); (3) that the mediator should be related to the dependent variable (resilience with coping à affective response to crisis, adaptive study performance and commitment to the move to online learning) and (4) that the direct relationship between the independent and dependent variables should become non-significant or weaker when accounting for the effect of the mediator. The results in Table 4 show that college support was negatively linked to affective responses to crisis ($\beta = -.21$, $p < .001$), and positively linked to adaptive study performance ($\beta = .34$, $p < .001$) and commitment to the move to online learning ($\beta = .19$, $p < .001$), supporting the first condition. Regarding the second condition, it was met as support was found for Hypothesis 1 in relation to the positive impact of college support on the mediator of resilience with coping. The third condition was met based on the support for Hypothesis 2 in relation to the significant impact of resilience with coping on affective responses to crisis, adaptive study performance and commitment to the move to online learning. Table 4 also showed that the coefficients for the independent variable of college support on the dependent variables became weaker after the mediator of resilience with coping was included (from $\beta = -.21$, $p < .001$ to $\beta = -.19$, $p < .001$ for affective response to crisis; from $\beta = .34$, $p < .001$ to $\beta = .27$, $p < .001$ for adaptive study performance; and from $\beta = .19$, $p < .001$ to $\beta = .14$, $p < .001$ for commitment to the move to online learning), satisfying the last condition. We used a bootstrapping test to further examine the significance of the mediation (Hayes, 2009). Based on 5000 bootstrapping samples, the 95% confidence interval for the mediating effects of resilience with coping was between −0.0317 and −0.0055 for affective responses to crisis, between 0.0338 and 0.0854 for adaptive study performance, and between 0.0147 and 0.0635 for commitment to the move to online learning, thus excluding 0. Our results showed that resilience with coping mediated the relationships between college support with affective response to crisis, adaptive study performance and commitment to the move to online learning. Therefore, Hypothesis 3 was supported.

Hypothesis 4 proposed that study demands would moderate the impact of college support on students' resilience with coping such that the impact would be stronger when study demands are high rather than low. In order to examine the moderation model, we carried out hierarchical moderated regression analysis. Specifically, we carried out the following three steps: We first entered the control variables, then we entered the predictor – college

TABLE 3 Descriptive statistics and correlations of study variables.

Variables	Mean	SD	*a*	1	2	3	4	5	6	7	8
1. Affective response to crisis	3.85	0.93	.82								
2. Adaptive study performance	3.65	0.96	.78	−.24**							
3. Commitment to the move to online learning	3.46	1.08	.87	−.19**	.45**						
4. Resilience with coping	3.86	0.68	.65	−.16**	.47**	.21**					
5. Study demands	3.63	1.22	–	.29**	−.18**	−.15**	−.03				
6. College support	3.19	1.21	.89	−.021**	.32**	.18**	.20**	−.13**			
7. Age	26.19	10.28	–	−.05	.05	−.01	.012**	.16**	.19**		
8. Gender	1.33	0.51	–	−.20**	−.12**	−.01	−.02	−.05	−.03	−.04	
9. Subject	1.81	0.85	–	−.07*	.06	.07	.01	−.02	−.05	−.14**	−.02

Note: $N = 465–891$ (pairwise).

*$p < .05$. **$p < .01$.

TABLE 4 Regression results.

Variables	Resilience with coping				Affective response to crisis			Adaptive study performance			Commitment to the move to online learning		
Control variables													
Age	0.11**	0.07	0.08	0.07	−0.09*	−0.05	−0.04	0.07	0.00	−0.03	−0.02	−0.04	−0.04
Dummy gender (female)	−0.04	−0.04	−0.04	−0.04	0.20***	0.20***	0.19***	0.07	0.06	0.08*	0.02	0.01	0.02
Dummy gender (other)	−0.11**	−0.11**	−0.10**	−0.10**	−0.02	−0.03	−0.04	−0.10*	−0.09*	−0.04	0.03	0.03	0.04
Dummy subject (AHSS)	−0.09	−0.09	−0.09	−0.09	0.18***	0.17***	0.16***	−0.15**	−0.14**	−0.10**	−0.11	−0.10	−0.09
Dummy subject (EMS)	−0.08	−0.08	−0.08	−0.08	0.05	0.05	0.04	−0.07	−0.07	−0.04	−0.04	−0.05	−0.03
Dummy subject (other)	−0.04	−0.02	−0.02	−0.02	0.08*	0.07	0.06	−0.06	−0.03	−0.02	−0.06	−0.05	−0.05
Predictor													
College support		0.18***	0.17***	0.17***		−0.21***	−0.19***		0.34***	0.27***		0.19***	0.14**
Mediator													
Resilience with coping							−0.12***			0.40***			0.17***
Moderator													
Study demands			−0.03	−0.03									
Interaction term													
College support X study demands				0.10**									
Adjusted R^2	.02	.05	.05	.06	.06	.10	.11	.03	.14	.29	−.00	.03	.05
ΔR^2		.03	.00	.01		.04	.01		.11	.15		.03	.03
ΔF	3.49**	21.58***	0.70	7.08**	8.52***	32.35***	11.05***	4.20***	92.26***	152.13***	0.80	15.82***	13.11***
N	686				703			702			461		
Indirect effect [95% CI]					−0.02 [−0.0317, −0.0055]			0.06 [0.0338, 0.0854]			0.04 [0.0147, 0.0635]		

*$p < .05$. **$p < .01$. ***$p < .001$.

support, the moderator – study demands separately, and finally entered the interaction term into the regression equation. All variables were standardized to avoid multicollinearity (Aiken & West, 1991). As shown in Table 4, the coefficient for the interaction term of college support and study demands was significant in predicting the resilience with coping ($\beta = .10$, $p < .01$). Figure 2 plotted the interaction. It indicated that the link between college support and resilience with coping was stronger in the high level (one SD above the mean) of study demands than in the low level (one SD below the mean) of study demands. We then examined the moderating effect by conducting a simple slope analysis. The results provided further support for Hypothesis 4 (Gradient of simple slope = 0.16, $t = 4.41$, $p < .001$ in high level of study demands; Gradient of simple slope = 0.03, $t = .86$, n.s. in the low level of study demands). Therefore, Hypothesis 4 was supported.

Hypothesis 5 proposed a moderated mediation model whereby the strength of the mediational model, that is, the relationships between college support with affective response to crisis, adaptive study performance and commitment to the move to online learning, mediated by resilience with coping, would be moderated by study demands. Put simply, the mediating effect of resilience with coping would be stronger in the high level of study demands than in the low level of study demands. To assess moderated mediation (Fu et al., 2019; Muller et al., 2005; Preacher et al., 2007) we examined five conditions: (1) significant effects of the independent variable on the mediator (college support à resilience with coping); (2) significant effects of the mediator on dependent variables (resilience with coping à affective responses to crisis, adaptive study performance and commitment to the move to online learning); (3) significant indirect effects of the predictor with dependent variables via the mediator (college support à resilience with coping à affective responses to crisis, adaptive study performance and commitment to the move to online learning); (4) significant interactions between the independent variable and the moderator in predicting mediator (college support X study demands à resilience with coping) and (5) a different conditional indirect effect of the independent variable on the dependent variables, via the mediator, across low and high levels of the moderator. Moderated mediation is assessed through the last condition when the conditional indirect effect differs in strength across low and high levels of the moderator (Preacher et al., 2007). Support was found for Hypothesis 1–4 satisfying the first four conditions. To test the 5th condition regarding the differential indirect effect of college support via resilience with coping on affective responses to crisis, adaptive study performance and commitment to the move to online learning for high (one SD above the mean) and low (one SD below the mean) levels of study demands, we used Hayes'

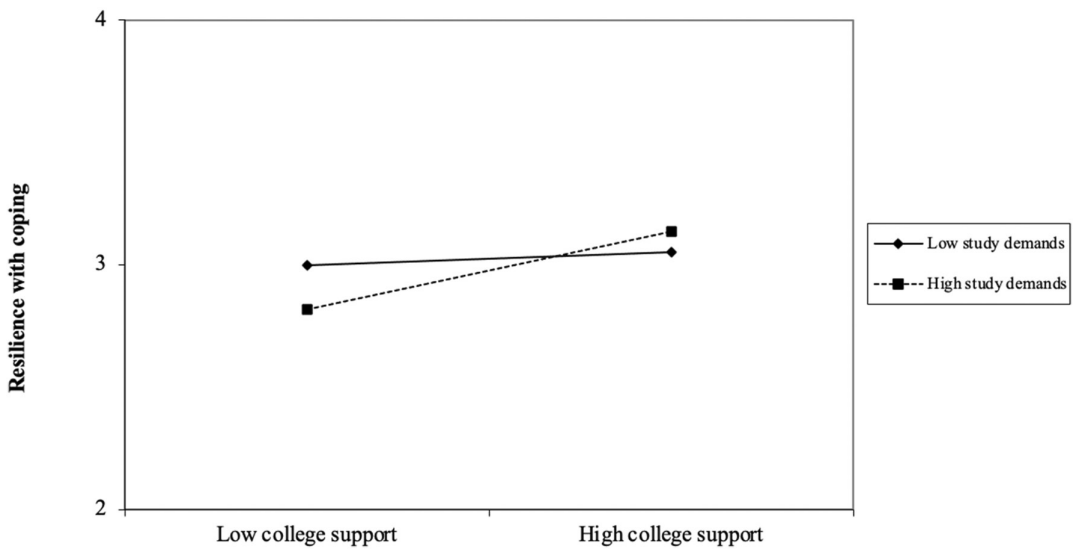

FIGURE 2 Interaction chart between college support and study demands on resilience with coping.

(2009) PROCESS 3.0 (Model 7) using 5000 bootstrap samples. The results revealed that the indirect effect with the 95% confidence intervals was 0.02 [0.0005, 0.0459] with the low level of study demands; and 0.05 [0.0222, 0.0913] with the high level of study demands. Overall, the index of moderated mediation (difference between conditional indirect effects) was .01 with a 95% confidence interval of [0.0024, 0.0282]. Therefore, Hypothesis 5 was supported.

5 | DISCUSSION

This study explored the relationship between the support a student receives from the college leading to the development of individual resilience, the study demands as a variable moderating this relationship, and the student's outcomes: academic performance, commitment to change in the form of transition to online learning and affective response to crisis in an Irish public sector college. We presented a moderated mediation model positioning resilience as mediating the relationship between college support and the student's above-mentioned outcomes with the study demands moderating the effect. All hypotheses were supported. In particular, Hypothesis 1 was supported where college support was found to be positively linked to student resilience. This finding is consistent with existing research by Pires and Chapin (2022) and Zhang et al. (2018). Hypothesis 2(a, b and c) were confirmed by our findings, extending the discussion on the role of resilience in student outcomes as suggested in the past research by Brewer et al. (2019), Cho et al. (2017), Kalaitzaki et al. (2021), and Tan et al. (2021). Hypothesis 3(a, b, and c) were also supported by our findings, confirming resilience with coping as a mediator in the relationship between college support and student outcomes. This is similar to the past management research by Bernabé and Botia (2016), Blaique et al. (2022), Cooke et al. (2019). However, our study observes the phenomenon from the higher education online learning perspective. Hypothesis 4 was supported by the findings, where study demands moderate the impact of college support on students' resilience with coping such that the impact would be stronger when study demands are high rather than low. Similarly, Hypothesis 5(a, b and c) were supported where the impact of the moderating effect of the study demands on resilience with coping had an indirect effect on student outcomes. These findings resonate with earlier management research by Schilbach et al. (2021) in the context of job demands, but our study is conducted in the context of study demands in a higher education setting. The hypotheses were supported to suggest that in the presence of college support, study demands had a positive relationship with resilience with coping which further led to reduced affective response to crisis, better academic performance and an increased commitment to change of the student. However, in the absence of college support as an organizational resource for the student, the study demands had a negative relationship with the personal resource (resilience with coping).

5.1 | Theoretical implications

Our research focused on student resilience during the crisis, and the outcomes through the lens of job demands-resources model and the social exchange theory. O'Toole and Prince (2015), in their study of the psychological contract between university students and the university, validate the operationalization of the management theories in a higher educational setting by suggesting that 'the knowledge gained in management and organizational literature has currency in the university/student setting' (p. 169). Scholars have commented on how and why universities are not viewed as formal organizations (Gross, 1968) and in writings where their identity as organizations is acknowledged, the focus is primarily on the organizational structures, routine, hierarchy and systems and thus the relevant management theories (Peterson, 2007). In order to fully understand the university/college as an organization, and to create opportunities for further transferable research, it is necessary that the student experience be observed, measured and analysed. Wainwright et al. (2020)

state in a reflection of the boundaries of educational research 'within a subject area as diverse as education sits a range of identities in terms of institutional, organizational and disciplinary location' (p. 3). One of the objectives of this study was to integrate management theories, in particular, job demands-resources and social exchange theory, with student experience through data collected from an Irish higher educational institution during COVID-19. Job demands-resources have been applied in the field of education in previous research, at the school level (Salmela-Aro & Upadyaya, 2014), at high schools (Martin et al., 2021), and at higher education and professional degree levels (Robins et al., 2015). An extended model of job-demands and resources model, specific to education has also been developed (Lesener et al., 2020). Despite the research already conducted, limited attention has been given to resilience with the lens of job demands (study demands) resources, in the context of higher education.

The application of social exchange theory to higher education settings with the student and the institution itself as social actors is a unique concept. Research has been conducted on teacher behaviour in universities (Elstad et al., 2011) and between students and faculty members (Fan et al., 2019). Information-sharing behaviour and social exchange amongst students in online programs have also been observed (Hall & Widén-Wulff, 2008) through the lens of the social exchange theory. However, the reciprocal exchange between college/university and the student, especially in times of uncertainty and risk, had not been explored and empirically investigated.

5.2 | Practical implications

The application of management theories to the student experience in higher education can enable colleges and universities to better gauge and enhance the student experience resulting in higher student retention and increased commitment to learning and achievement of objectives shared by the student and the institution. In times of crisis the, colleges need to be geared towards providing timely support and communication to balance the possible adverse effect on students' resilience and hence the students' outcomes from our research above. As evident in Figure 2, if the college support is low during the crisis, the increased study demands would result in reduced resilience with coping and enhanced affective response to crisis, lower adaptive performance and decreased commitment to the change. Students of any college or university are the most relevant stakeholders. As this study suggests, resilience can have a strong impact on student outcomes. Hence, it is critical that the colleges' planning in times of uncertainty should be student-centric with focus on development of students' psychological capital factors, such as resilience, by offering college support through timely communication, technical support, and guidance. Our findings also confirm that the study demands can moderate students' resilience development given the fact that college support is present. Therefore, any shift or change in curriculum delivery or use of technological tools should be accompanied by adequate support from IT teams, administration, and teachers. Additionally, students should be exposed to appropriately rigorous and challenging tasks embedded within the curriculum during their study tenure in college, in order to develop their resilience which can be a useful personal resource throughout their lifetimes.

5.3 | Limitations and future research

Despite the implications for research and practice, this study has limitations. This study is limited in research method in terms of low response rate, single organization sample from one country. This study focused on student resilience during the COVID-19 crisis, in particular, how and when college support influences student resilience, which is linked to their change-oriented behaviours such as affective response to crisis, adaptive study performance, and commitment to the move to online learning. In this regard, the sample selected in this study was deemed to be appropriate to test the research model, for example, college students during the lockdown.

However, the relatively low response rate and the fact that data collection was from one institution in one country may limit its generalisability. Additionally, this was a quantitative study which can be followed by an in-depth qualitative approach to further understand the relationship between the variables. Furthermore, how the proposed model can address student experience and academic life, beyond COVID-19, should be explored. Thus, we call for future research to extend this study and test the model in more institutions and other countries.

In addition, this study is limited in the single-source and cross-sectional nature of the data collection. All data were collected from the same source at the same time, which may cause common method bias and disable the researchers to test for the causality. A number of actions were taken to reduce common method bias during the research design and analysis stage. Nonetheless, future research is encouraged to further test this model using multi-source data collection from multiple time points to reduce common method bias and to establish the causality.

Lastly, this study drew on the JDR model and found that college support as one type of resource and study demands as one type of demands, interactively influence student resilience. It shed valuable insights to better understand how and when students' resilience can be enhanced during the crisis, leading to positive behaviours in change. Indeed, other resources and/or demands would exist to influence students' resilience and change-oriented behaviours during the crisis. For example, support and/or demands from family, lecturers and peers may also have an impact on students' resilience. Thus, we encourage future research to pay attention to enrich our understanding of how we can help students to further develop and sustain their resilience during the challenging times by investigating further resources and demands.

6 | CONCLUSION

Our research is intended to elucidate the impact of college support on students' adaptive performance, their commitment to change, and their affective response to crisis, when faced with the study demands. We found that the study demands, in the presence of support from college, led to the development of the resilience with coping, and better student outcomes for the students. This research emphasizes that the colleges have an opportunity to draw commitment to change from the student in the pursuit of collective goals, by ensuring that relevant and timely support is given to students. There is a need for the colleges and universities to focus on continuous development of students' psychological capital in order for the students to navigate challenging circumstances during their course of study at a higher educational institution and exhibit sustained academic progress.

AUTHOR CONTRIBUTIONS

Ammara Awais: Conceptualization; methodology; writing – original draft. **Na Fu:** Data curation; methodology; resources. **Sara Jones:** Supervision; writing – review and editing.

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