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Distance education students' satisfaction: Do work and family roles matter?

Philippa Waterhouse ⓘ, Rajvinder Samra ⓘ, and Mathijs Lucassen ⓘ

School of Health, Wellbeing and Social Care, The Open University, Milton Keynes, United Kingdom

ABSTRACT

The perceived flexibility of distance education, whereby students can juggle their multiple life roles, is often cited as the predominant reason for enrolling in this mode of study. Nonetheless, for distance learners their multiple roles often have a significant impact on their study experience. This study had three objectives: (1) to explore whether the paid worker role or family role predict distance learners' satisfaction; (2) to examine the relationship between role conflict and role facilitation regarding distance learners' satisfaction; and (3) to investigate the role of sociodemographic characteristics as potential moderators in this relationship. The analyses drew on data from 318 online distance learners. Students who reported living with children were less likely to report satisfaction with their educational experience, even after controlling for sociodemographic characteristics. The experience of role conflict and role facilitation was significantly associated with student satisfaction, although patterns differed according to students' prior educational attainment.

Introduction

Students' perceptions of quality and institutions' academic reputation have been considered core determinants in applicants' selection of institutions for their studies (Wilkins & Huisman, 2011). In this context, highly favorable student satisfaction scores have become an important marketing tool in the competitive environment of student recruitment in a global marketplace. Issues to do with the attrition rates of distance education compared to face-to-face courses (Simpson, 2013) have prompted concerns about perceived quality, which by extension impacts upon student satisfaction. Furthermore, the global COVID-19 pandemic has transformed the online educational marketplace whereby traditional higher educational institutions, which previously offered face-to-face learning, have had to rapidly adapt to online education (Karadag et al., 2021). Therein, students who may have expected to study on campus may have found themselves distance learning. It is also plausible that the near future of

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educational course delivery may not clearly be demarcated between distance and campus-based, and "a systemic rethink and reengineering of educational and institutional choreographies" (Naidu, 2021, p. 1) may be required for longer-term institutional survival. Post-pandemic, traditional campus-based educational providers may continue to employ distance learning strategies. Campus-based providers are likely to continue using approaches or strategies which they have had to develop over the course of the pandemic if they find there are financial, educational, or experiential benefits for themselves and/or students. Consequently, the near future may offer increased interest in dynamic forms of educational experiences (e.g., using a blended learning pedagogy, which mixes face-to-face instruction with online learning). For example, Almuraqab (2020) called on the United Arab Emirate's Ministry of Education to develop guidelines around blended learning after students' satisfaction with distance education at the University of Dubai during COVID-19 indicated almost half of the student sample were in favor of a combination of online and face-to-face learning. These findings have demonstrated how students' satisfaction with online education is an important and timely topic not only for distance education providers to explore but also for campus-based universities.

Student satisfaction has been shown to reflect attitudes of contentment or displeasure arising from students' evaluation of services and their experience relative to their expectations (Grace et al., 2012). Bolliger and Martindale (2004) have demonstrated that student satisfaction influences a student's level of motivation, and researchers have also shown that students' motivation is associated with retention in the online distance education context (Gorky, 2014; Herbert, 2006; Joo et al., 2011; Lee & Choi, 2013). Consequently, research into the predictors of online distance education student satisfaction can provide important insights into and help identify areas for quality improvement in course design and service provision, which go on to affect retention. Satisfaction with online distance education, by its very nature, differs in some ways from campus-based courses. For example, technology-related availability, accessibility and skills may have been assumed or required in the instructional design of online distance learning courses (Xie et al., 2021), and therefore technology can be an affordance central to the online distance education experience and by extension can promote satisfaction (Henderson et al., 2017) but, naturally, can also be a constraint. For example, Karadag et al. (2021) found that students expressed dissatisfaction when they missed learning due to having limited internet access, Wi-Fi, or data packages where they were located, or had problems with the technological tools (personal computers, tablets) they used to access learning. The importance of interactions between learners and their instructors, learners and their peers as well as learners interactions with their course materials has long been reinforced (Moore, 1989). These interactions are then mediated by the technological interface. This technological interaction can increase the transactional (psychological) distance felt by online distance education students. Furthermore, Ahmed et al. (2020) and Karadag et al. (2021) noted that students' personal and social factors impacted upon the availability and access to the technological tools or time and resources to engage in online distance learning, factors which go on to affect students' satisfaction with their distance study experience.

Research on the determinants of student satisfaction in online distance education has predominantly focused on students' perceptions of their interactions with their

learning materials, their peers and their tutors (e.g., see Alqurashi, 2019; Chang & Smith, 2008; Eom & Ashill, 2016; Kuo et al., 2013; Parahoo et al., 2016; Weidlich & Bastiaens, 2018) as well as their own skills in navigating these environments and the associated interactions (e.g., see Alquarashi, 2019; Eom & Ashill, 2016; Kirmizi, 2015; Kuo et al., 2013; Wei & Chou, 2020). Less attention has been directed to the association between students' personal circumstances and student satisfaction. While Karadag et al.'s study of online distance education in higher education institutions in Turkey included some student background factors relating to demographics and previous study, they did not explore students' work or family factors that form a key aspect of their role identity (such as being a working student or being a parent). This may be because Karadag et al.'s study explored the experience of students who had adopted distance learning due to the pandemic, rather than self-selecting distance education, and therefore the number of working and parent students in this population may not have represented a large proportion of the sample. However, research has indicated that students choosing distance education are often older, with existing work and family responsibilities, when compared with students who are entirely campus-based (Harris & Gibson, 2006; Ortagus, 2017). As a result, there is a knowledge gap in the research literature around student satisfaction in the online distance education context, particularly around how students' work and family responsibilities may be associated with their satisfaction with their educational experience. Our study sought to explore this topical area.

Literature review

The work-study conflict and facilitation model (Butler, 2007) has offered a theoretical lens through which the work-study interface can be understood in relation to academic achievement and satisfaction. The mediating constructs of role conflict and facilitation can also be applied to assist us in understanding the linkages between the family-study interface and an individual's satisfaction with their studies. Role conflict refers to perceived incompatibility between two roles (Greenhaus & Beutall, 1985). This concept is underpinned by a conservation of resources approach (Hobfoll, 1989), which assumes that time, energy and attention are always finite. Consequently, engagement in one role may result in challenges in the fulfilment of a second role, with the depletion of resources such as time, attention or energy causing the perceived conflict. For example, an increased workload in a person's paid job may result in their needing to work overtime; this then reduces the time available for the person to engage with their studies. Increasingly, however, research has found that the combination of multiple roles can have a potential positive effect, for example, engagement in one role may enhance the performance of a second role or engagement in multiple roles can result in an expansion of resources such as self-esteem (Greenhaus & Powell, 2006). Additionally, paid employment may result in the development of skills, such as enhanced time management, that can be used in the student role. The concept of role facilitation is underpinned by a resource expansion perspective (Marks, 1977), which does not view time, energy and attention as limited resources, but ones that can potentially be manipulated.

The transactional model of stress and coping (Lazarus & Folkman, 1984) can be used to provide insights into how students' occupancy of work and family roles may be linked to student satisfaction. This model theorizes that stress is an outcome of individual-environmental transactions and emphasizes the importance of meanings that individuals attribute to various situations. Consequently, when considering the combination of their student role with their work and/or family roles, it may not be whether or not they fulfil these roles which is important, but an individual's appraisal of the combination of these roles (i.e., whether an individual perceives there to be conflict or facilitation).

Difficulties or conflict in balancing work and/or family roles with studying among online distance education students are well documented in the literature (e.g., see Kara et al., 2019). Time (or the lack thereof) appears to be the predominant source of the conflict between roles. For example, Moore and Greenland's (2017) in-depth interviews with 226 students who had recently withdrawn from online distance education courses revealed that the inability to complete assignments due to unforeseen and unavoidable employment responsibilities was the main factor influencing a student's decision to drop out. Samra et al. (2021) have demonstrated that the determination of students to continue with their studies can result in difficult trade-offs in which reducing their working hours to have more time to devote to studying can potentially have major economic consequences. However, there is also evidence of the possible facilitation between work and/or family roles with their studies for distance education students. Families have been cited as a source of motivation for studying, in terms of wanting to be a role model for the student's children or younger siblings, or when education is seen as a means to improve a family's future financial prospects (Buck, 2016). Families have also been shown to be a source of emotional and practical support for students, for example when family members take on additional domestic responsibilities or provide strategic help with assignments such as proof-reading (Samra et al., 2021). Nonetheless, negotiations with family members around additional support may sometimes result in an internal psychological struggle, particularly for women who may experience guilt if they feel they are not spending enough time with their family (Rockinson-Szapkiw et al., 2018; Samra et al., 2021). A growing body of literature has pointed to the importance of students' emotions in the learning process due to their potential links to student engagement (e.g., D'Errico et al., 2016), motivation and self-regulation of learning (e.g., Pekrun et al., 2011). Emotions and emotional responses, such as anxiety, frustration, disappointment, pride, enthusiasm, and excitement, which might arise from the experience of role conflict or role enhancement are considered likely to influence student satisfaction.

The experience of role conflict and role facilitation is not unique to online distance education students and is also experienced by students studying in face-to-face or blended learning contexts (Giancola et al., 2009; Hammer et al., 1998; Nicklin et al., 2018). However, there are several reasons why the relationship between perceived role conflict and facilitation and student satisfaction may be different, or even more pronounced, for online distance education students. The first relates to expectations. Perceived flexibility in allowing students to manage their pre-existing work and family commitments is frequently cited as a rationale for adult learners opting to enroll in

distance education, rather face-to-face education (Ashton & Elliot, 2007; Cinar & Torenli, 2010). However, in circumstances when conflict is experienced, and this is contrary to the student's original expectations, this may result in less satisfaction with their educational experience. In their research, Kahu et al. (2014) argued that the notion that distance education removes time and space barriers to education is misleading and instead distance education just changes the nature of these barriers. Their research with first-time distance education students in New Zealand found that new students bought into the marketing of distance education as possible to do "when, where and how you want to" (p. 528). But Kahu et al.'s research revealed that the reality of distance education was not so straight-forward, and students often went through a trial-and-error process. This involved negotiations with others, in order that students were able to find the temporal and spatial conditions that allowed them to study. Limits to flexibility have also been suggested by Bourdeaux and Shoenack's (2016) qualitative research among adult online learners in which participants recommended that university staff need to be more "mindful" and "respectful" (p. 158) of the reality of many students who were balancing multiple responsibilities, and that universities should adjust courses based on students' particular external commitments. By contrast, among students engaged in face-to-face education, conflicts related to time could already be anticipated, and in some circumstances scheduled time for classes on campus may provide students with clearer boundaries that then in turn assist them in managing their work and/or family commitments (if they have any).

The different nature of online distance education, compared to face-to-face education, can pose additional challenges for online distance learners. These challenges can then be compounded by the time pressures already experienced by those with intensive work and family commitments, and consequently this will have a sizeable impact on student satisfaction. Based on their in-depth study of five online distance learners, Wozniak and McEldowney (2015) argued that while all new students who are transitioning to higher education must adapt to the academic expectations of universities, online distance learners are also required to circumnavigate additional levels of transition. In particular, the transition to an extensive and often complicated online environment and systems—with updates and changes to online systems making this adaptation an ongoing process during their studies. Those with work and family commitments may also have less available time for interactions in the online environment, which may add to feelings of a psychological distance from their peers and tutors. For example, a dominant theme in Stein et al.'s (2009) study on adult learner experiences of reducing transactional distance was creating time for interaction whereby a student's other commitments sometimes resulted in distance education-related interactions becoming a lower priority. Furthermore, while asynchronous interaction provides greater flexibility, Wozniak and McEldowney (2015) in their research argued that online distance learners had to adjust to the distance that this format creates, and students may have to more proactively seek out and build supportive peer relationships.

The online and distance education literature points to the potential conflicts between study, work and family commitments, but also the potential for benefits arising from a student's combination of their multiple roles. Differences in the nature of online distance education compared to face-to-face education, in addition to possible

differences in expectations of students by mode of study, mean that context-specific research into student satisfaction is required. This study aimed to explore the association between distance education students' characteristics in terms of their work and family roles and their satisfaction with their educational experience. There were three research objectives:

1. To explore whether the paid worker role or family role (i.e., parenthood, partnership, or unpaid caregiver) predict online distance education students' satisfaction.
2. To examine the relationship between role conflict and role facilitation in regard to online distance education student satisfaction.
3. To investigate the role of sociodemographic characteristics as potential moderators in the relationship between both role conflict and role facilitation in regard to online distance education student satisfaction.

Methods

Procedure

A self-report online survey was administered using Jisc Online Surveys (Jisc, 2020). The survey consisted of closed questions related to students' work and family roles; the conflict and facilitation between both work and family with university study; and the Depression, Anxiety and Stress Scale/DASS (Lovibond & Lovibond, 1995), a non-clinical standardized self-reported assessment of mental distress; and a question on satisfaction with their educational experience. The survey also consisted of four open-ended questions on students' strategies to combine studying with their work and/or family roles; perceived effectiveness of university support; and recommendations for the university.

The survey, the associated participant information sheet and the consent statement were pilot tested with five individuals, consisting of current students and graduates of The Open University. An invitation to participate, including a weblink to the survey, was emailed to eligible students in April 2019. The survey was open for a 3-week period and was estimated to take no longer than 15 minutes to complete. The study received ethical approval from The Open University's Human Research Ethics Committee (HREC/3165/Waterhouse). Previous analysis of qualitative data generated from the four open-ended questions on students' management of their multiple roles are reported in Samra et al. (2021). A quantitative analysis of distance education students' mental distress has been reported in Waterhouse et al. (2020).

Participants

The survey invitation was sent to a sample of 1,436 students from third year undergraduate modules. These modules were delivered by two schools, one in health and social care, and the other in education, childhood and youth studies and sports at The Open University. This study examined final-year undergraduate students' reports given that they have considerable experience of university study and were able to reflect in greater depth upon their experiences and by extension satisfaction with online

distance education. The response rate was 24% ($n = 348$). Among respondents, there was missing data for 2.3% ($n = 8$) of students with regards to their ethnicity and 6.6% ($n = 23$) for prior educational attainment. Those with missing data were excluded from the analyses, resulting in a final sample of 318 individuals.

Measures

Work status

A question adapted from the 2011 UK Census (Office for National Statistics [ONS], 2011), "Over the past month, were you (tick all that apply include any paid work including casual or temporary work, even if for one hour)" was used to capture whether respondents were engaged in economic work. Possible responses were "working as an employee," "on a government sponsored training scheme," "self-employed or freelance," "working paid (or unpaid) for your own or your family's business," "doing any other kind of paid work," or "away from work ill, on holiday or temporarily laid off," "on maternity or paternity leave" and "none of the above." Those replying "none of the above" or "on maternity or paternity" leave ($n = 2$) were classified as not working. All those who responded had been away from work ill, on holiday or temporarily laid off in the past month also ticked a further category of work activity, so were classified as working.

Family responsibilities

In terms of family responsibilities, coresidence with children, partnership status and unpaid care responsibilities were considered using questions adapted from the 2011 United Kingdom census (ONS, 2011). Individuals were identified as unpaid caregivers based on their response to the question "Do you look after, or give any help or support to family members, friends, neighbors or others because of either a long-term physical disability or mental ill health or problems related to old age? (Do not count anything you do as part of your paid employment). How many hours per week on average do you spend on these tasks?." In the multivariate analysis a binary variable (unpaid caregiver, not an unpaid caregiver) was used which did not consider the amount of time spent as an unpaid caregiver. Partnership status was determined by response to the question "Are you currently married, in a civil partnership or cohabiting with a partner? (yes/no)". Presence of children in the household was reported in response to the question "Do you have children 18 years or younger living in the same household (for at least three days a week)? (yes/no)."

Role conflict

Participants self-reported work-study conflict and family-study conflict were determined in response to two scales. Each scale was formed of five items which were adapted from Netemeyer et al.'s (1996) work-family conflict and family-work conflict measures. For example, the item "The demands of my work interfere with my home and family life" was changed to "The demands of my work interfere with my university studies." Each scale was accompanied by a 5-point Likert response (plus a "not applicable" response option) which ranged from *strongly agree to strongly disagree*.

Higher scores on the conflict measures indicated greater perceived conflict. The Cronbach alpha for the work-study conflict scale was 0.93. The Cronbach alpha for the family-study conflict scale was 0.91. Both Cronbach alpha scores indicated high internal consistency for these scales with this specific sample.

Role facilitation

Participants self-reported work-study facilitation and family-study facilitation was determined in response to two scales. Each scale was formed of five items adapted from Grzywacz and Marks' (2000) measure of positive spillover from work to family (i.e., "The skills that I use in my job are useful for my university studies" and "The skills that I use when I am with my family are useful for my university studies"). Each scale was accompanied by a 5-point Likert response (plus a "not applicable" response option) which ranged from *strongly agree* to *strongly disagree*. The Cronbach alpha for the work-study facilitation scale was 0.89. The Cronbach alpha for the family-study facilitation scale was 0.81. Both Cronbach alpha scores indicated high internal consistency for these scales with this specific sample.

Satisfaction

Student satisfaction was measured in response to the statement "In general, I am satisfied with my educational experience at The Open University". Participants were required to select a response to this statement on a 5-point Likert scale which ranged from 1 (*strongly agree*) to 5 (*strongly disagree*). Due to small cell sizes for the purpose of the analyses, the five categories were collapsed to create a three-category student satisfaction variable indicating whether individuals (1) *strongly agree* with the statement, (2) *agree* with the statement, or (3) were in *non-agreement* with the statement (which collapsed the *neither agree or disagree*, *disagree* and *strongly disagree* responses).

Sociodemographic variables

Sociodemographic information was drawn from administrative data collected centrally by the university from all students, and this included information about their gender, ethnicity, age, and prior educational attainment when they first registered with the university. Their prior educational attainment was classified as less than A levels or equivalent, A levels or equivalent and higher education. By way of context, A levels (i.e., advanced-level qualifications) are subject-based qualifications for those aged 16 years and over in the United Kingdom (except for Scotland) (UCAS, 2021). Equivalent qualifications included Scottish Highers and the International Baccalaureate (UCAS, 2021). The *higher education* category included previous study at a university, for example, certificates of higher education, diplomas of higher education, degrees or any postgraduate study.

Data analysis

Ordinal regression was used to analyze the relationship between the independent variables and student satisfaction. Ordinal regression is used where the categories of the

dependent variable have a meaningful order. In our analysis, student satisfaction was coded as (1) *strongly agree*, (2) *agree* and (3) *non-agreement*, and we modeled being more likely to report lower levels of agreement with the statement "In general, I am satisfied with my educational experience at The Open University".

A key assumption in ordinal regression is that the variable effect (i.e., the odds ratio) is the same across the levels of the outcome (the proportional odds assumption). This assumption was tested using the omodel command and the resulting chi-square tests were not significant (p values > 0.05), which indicated that the criteria for this assumption was met for all models run. All statistical analysis were conducted using STATA software version 14 (StataCorp, 2015).

In the first stage of the regression, the relationships between student satisfaction and work and family roles were explored (Model 1). In the second stage, the sample was restricted to those who reported that they were working at the time of the survey, and the relationship between work-study conflict and work-study facilitation and student satisfaction was examined (Model 2). Interactions between both the work-study conflict and facilitation scales and sociodemographic variables were added into the model to assess whether the effect of perceived work-study conflict or perceived work-study facilitation differed by prior educational experience, ethnicity, age, or gender. Interactions were added into the model independently. Whether interactions significantly improved the fit of the model to the data was considered using the likelihood ratio test. Only interactions which significantly improved the fit of the model were retained and shown in the final output (Model 3). In the last step, the sample was restricted to those who reported having a parent, partner and/or caregiver role and the relationship between family-study conflict and family-study facilitation and satisfaction was analyzed (Model 4). The interactions between the family-study conflict and facilitation scales and sociodemographic variables were then added into the model and improvement to the model fit was assessed (Model 5). All models controlled for the sociodemographic characteristics that related to gender, age, ethnicity, and level of educational attainment when students first registered with the university.

Results

Descriptive statistics

Table 1 displays the descriptive statistics of the variables included in the analyses. The majority of the sample was female (87.7%) and White (84.9%). Reflecting the open access approach employed at The Open University (where for most courses there are no prerequisite educational qualifications), approximately one quarter of the sample reported having less than A levels (or equivalent) as their highest level of educational attainment upon registering with the university. Of the 1,436 students the survey was sent to, the characteristics of those who completed the survey differed significantly by gender and age, with females and older students being more likely to participate in this study.

The majority of the sample (89.3%) had engaged in economic work in the month preceding the survey. Approximately one third of the sample reported unpaid care responsibilities in terms of providing support to others because of long-term physical

Table 1. Sociodemographic characteristics, work and family roles, and reported satisfaction with their educational experience of students in this study.

Variable	n	%
Worked in past month		
Yes	284	89.31
No	34	10.69
Currently married, in civil partnership or cohabiting		
Yes	214	67.30
No	104	32.70
Children aged 18 years and younger living in same household		
Yes	167	52.52
No	151	47.48
Unpaid caregiver		
No	215	67.61
Yes, 1–19 hr per week	63	19.81
Yes, 20–49 hr per week	16	5.03
Yes, 50+ hr per week	24	7.55
Sex		
Female	279	87.74
Male	39	12.26
Ethnicity		
White	270	84.91
Non-White	48	15.09
Highest educational attainment at time of registration to university		
Less than A levels	75	23.58
A levels or equivalent	130	40.88
Higher education attainment	113	35.53
Age (years)		
19–24	33	10.38
25–29	48	15.09
30–34	52	16.35
35–39	54	16.98
40+	131	41.19
Satisfied with educational experience		
Strongly agree	90	28.30
Agree	152	47.80
Neither agree nor disagree	50	15.72
Disagree	20	6.29
Strongly disagree	6	1.89
Total	318	100

disability, mental ill health or problems related to old age. In response to the statement "In general, I am satisfied with my educational experience at The Open University," approximately three quarters of respondents indicated some form of agreement with 28.3% stating they strongly agreed with the statement and 47.8% that they agreed. However, 15.7% of respondents indicated they neither agreed or disagreed with the statement, and 8.2% indicated some level of disagreement.

Regression results

Table 2 reports the results of the analysis into the relationship between student satisfaction and work and family roles and controlled for students' sociodemographic characteristics (Model 1). Only the presence of children in the household was significant. The odds of students with coresident children reporting lower levels of satisfaction with their educational experience was 1.90 times (95% confidence intervals 1.21–1.93) the odds of students without coresident children.

Table 2. Odds ratios for the relationship between work and family roles and students' satisfaction with their educational experience.

	OR	95% CI	
		LL	UL
Working			
No (Ref)			
Yes	1.450	0.731	2.875
Unpaid caregiver			
No (Ref)			
Yes	1.295	0.825	2.033
Children			
No (Ref)			
Yes	**1.901**[*]	**1.201**	**3.008**
Partnership			
No (Ref)			
Yes	0.914	0.570	1.465

Note. Models also include age group, White/non-White, educational attainment at registration to the university, and sex.
Ref: reference group category; OR: odds ratio; CI: confidence intervals; LL: lower limit; UL: upper limit.
Working defined in response to paid, including temporary and casual work, engaged in the 4 weeks preceding the survey.
Unpaid caregiver defined as spending on average more than 1 hour a week on the provision of unpaid help and support to others due to long-term disability or mental ill health or problems related to old age.
Presence of children in the household measures as "Do you have children aged 18 years or younger living in the same household (for at least three days a week)?"
Partnership role defined as being married, in a civil partnership or cohabiting with a partner.
Bold denotes significant at the 1 or 5% level, *denotes $p < 0.05$, **denotes $p < 0.01$.

In the next step of analysis, the sample was restricted to those who reported being engaged in economic work in the month preceding the survey. Table 3 displays the results of the ordered logit models that considered the relationship between work-study conflict and facilitation and student satisfaction. In terms of all the interactions considered, only the interaction between work-study conflict and highest level of prior education at registration was significant and retained (Model 3). Figures 1–3 plot the predictive probabilities of strong agreement, agreement and non-agreement with the statement "In general, I am satisfied with my educational experience at The Open University". Figure 3 shows that among respondents whose level of educational attainment at registration with The Open University was A levels or equivalent, with each unit increase in the work-study conflict scale the predicted probability of non-agreement with the satisfaction statement remained constant. In contrast, amongst those whose previous level of education was less than A levels, or who had undertaken prior university level study, with each unit increase in work-study conflict score there was an increase in the predicted probability of non-agreement.

In the final step of the analysis, the sample was restricted to those who reported coresidence with a child, unpaid care responsibilities or being married, in a civil partnership or cohabiting with a partner (Table 4). Model 4 shows the model without significant interactions included, and Model 5 with the significant interactions included. In Model 5 higher family-study conflict scores were significantly associated with being more likely to report lower levels of satisfaction with their educational experiences at The Open University (odds ratio 1.49, 95% confidence intervals 1.18–1.87). The association between family-study facilitation and student satisfaction was found to differ according to the level of previous educational attainment at registration with The

Table 3. Odds ratios for the relationship between work-study conflict and facilitation and students' satisfaction with their educational experience, among students who reported working at the time of the survey.

	Model 2			Model 3		
Variable	OR	95% CI		OR	95% CI	
Work-study conflict	**1.526**[**]	**1.210**	**1.925**	1.056	0.739	1.508
Work-study facilitation	**0.701**[*]	**0.533**	**0.923**	0.710	0.539	0.935
Sex						
Female (Ref)						
Male	0.677	0.342	1.339	0.615	0.307	1.229
Age						
< 30 years (Ref)						
30–39 years	0.807	0.446	1.461	0.759	0.417	1.379
40+	0.669	0.372	1.202	0.644	0.355	1.167
Race						
White (Ref)						
Other	0.982	0.499	1.933	0.916	0.466	1.800
Education at registration						
A levels or equivalent (Ref)						
Less than A levels	1.621	0.884	2.972	0.166	0.019	1.427
University education	1.242	0.744	2.073	0.171	0.027	1.059
Interaction education & WSC						
WSC* $<$ A levels				**1.974**[*]	**1.072**	**3.635**
WSC* University				**1.812**[*]	**1.079**	**3.044**

Note. Models also include age group, White/non-White, educational attainment at registration to the university, and sex.
Ref: reference group category; OR: odds ratios; CI: confidence intervals; LL: lower limit; UL: upper limit; WSC: work-study conflict.
Working defined in response to paid, including temporary and casual work, engaged in the 4 weeks preceding the survey.
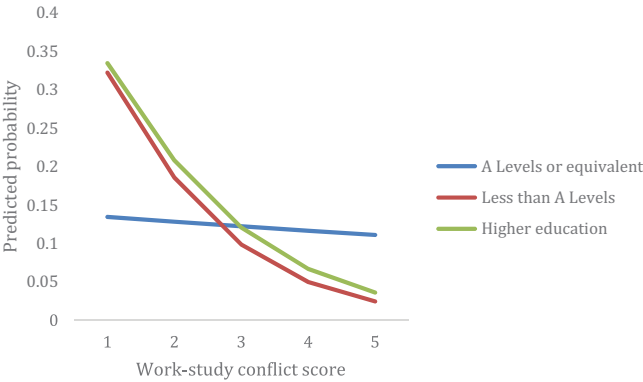Bold denotes significant at the 1 or 5% level; *denotes $p < 0.05$, **denotes $p < 0.01$.

Figure 1. Predicted probability of strongly agreeing with the educational experience satisfaction statement by work-study-conflict score and highest educational qualification at registration with The Open University.

Open University. Figures 4–6 plot the predictive probabilities of strong agreement, agreement and non-agreement with the statement "In general, I am satisfied with my educational experience at The Open University." Figure 6 shows among respondents whose level of prior educational attainment was A levels or equivalent, with each unit increase in the family-study facilitation scale the predicted probability of reporting
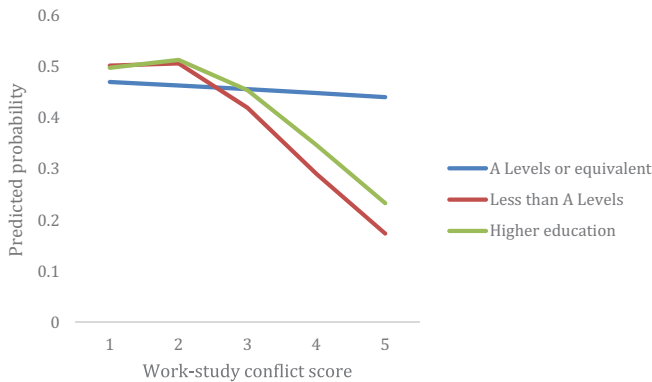
Figure 2. Predicted probability of agreeing with the educational experience satisfaction statement by work-study conflict score and highest educational qualification at registration with The Open University.

Figure 3. Predicted probability of non-agreement with the educational experience satisfaction statement by work-study conflict score and highest educational qualification at registration with The Open University.
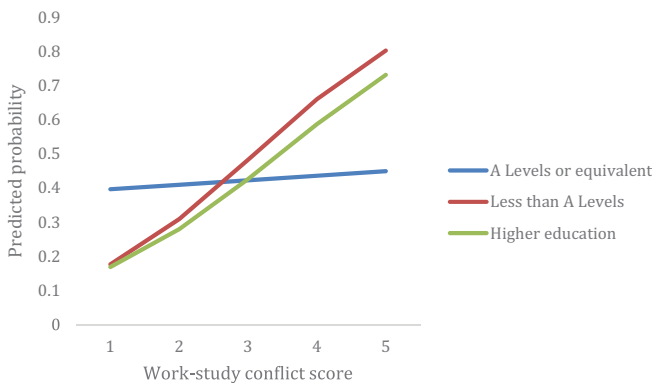
non-agreement with the satisfaction statement declined. This pattern did not hold to the other two categories of previous educational attainment at registration.

Discussion

The findings of this study indicate that most of the sample report satisfaction with their educational experience, with 28.3% reporting that they are very satisfied. In this study, being coresident with children (under the age of 18 years) was found to be significantly associated with student satisfaction which demonstrates the relevance of the family role context to student satisfaction. In addition, students' experience of conflict or facilitation between their various roles was found to be significant, which demonstrates the relevance of work and family roles to their study experience.

The findings presented here suggest that students living with children are less likely to report satisfaction with their educational experience, even after controlling for sociodemographic characteristics. Qualitative analysis of the survey's open questions

Table 4. Odds ratios for the relationship between family-study conflict and facilitation and students' satisfaction with their educational experience, among students who reported a parent, partnership, or caregiver role.

Variable	Model 4			Model 5		
	ORs	95% CI		ORs	95% CI	
Family-study conflict	**1.455**[**]	**1.161**	**1.822**	**1.488**[**]	**1.184**	**1.868**
Family-study facilitation	0.745	0.529	1.049	**0.399**[**]	**0.230**	**0.694**
Sex						
Female (Ref)						
Male	1.096	0.507	2.367	1.065	0.483	2.348
Age						
< 30 years (Ref)						
30–39 years	0.582	0.290	1.166	0.624	0.310	1.254
40+	**0.500**[*]	**0.255**	**0.980**	**0.503**[*]	**0.255**	**0.990**
Race						
White (Ref)						
Other	1.634	0.816	3.269	1.432	0.707	2.901
Education at registration						
A levels or equivalent (Ref)						
Less than A levels	**2.067**[*]	**1.063**	**4.018**	0.062	0.002	1.623
University education	1.278	0.745	2.191	**0.036**[*]	**0.002**	**0.550**
Interaction education & FSF						
FSF* < A levels				**2.722**[*]	**1.088**	**6.809**
FSF *university				**2.745**[*]	**1.286**	**5.859**

Note. Models also include age group, White/non-White, educational attainment at registration to the university, and sex.

Ref: reference group category; OR: odds ratios; CI: confidence intervals; LL: lower limit; UL: upper limit; FSF: family-study facilitation.

Bold denotes significant at the 1 or 5% level; *denotes $p < 0.05$, **denotes $p < 0.01$.
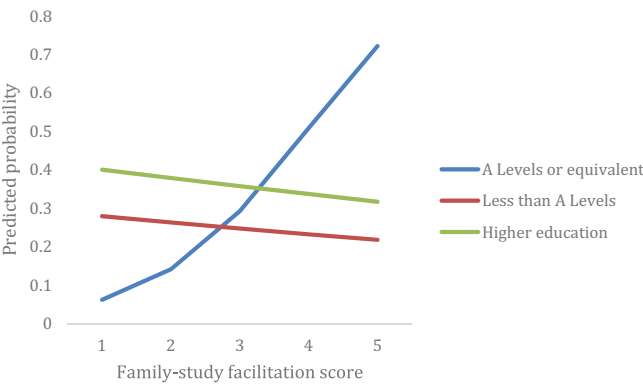

Figure 4. Predicted probability of strongly agreeing with the educational experience satisfaction statement family-study facilitation score and highest educational qualification at registration with The Open University.

(reported in Samra et al., 2021) revealed that the creation of boundaries and negotiation of expectations with family members was a management strategy utilized by students, but this could also lead to tensions, which included the experience of feelings of guilt. Lower student satisfaction of students with coresident children may be the result of matching domain effects. This is where the perceived conflict from student responsibilities relating to their family life and children causes dissatisfaction in their study domain. The link between household occupancy and student satisfaction
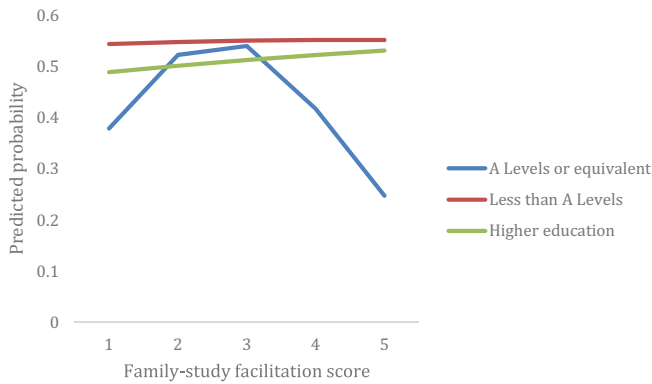
Figure 5. Predicted probability of agreeing with the educational experience satisfaction statement family-study facilitation score and highest educational qualification at registration with The Open University.

Figure 6. Predicted probability of non-agreement with the educational experience satisfaction statement family-study facilitation score and highest educational qualification at registration with The Open University.
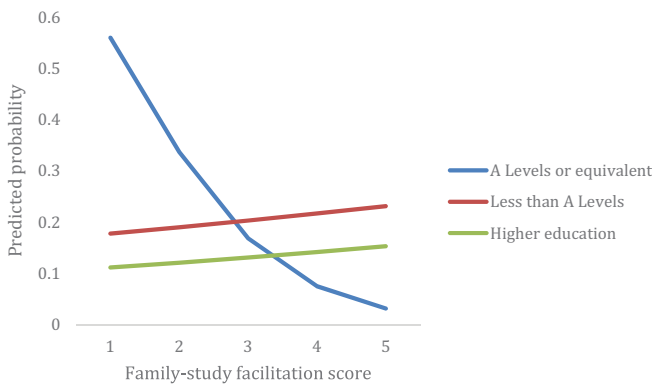
demonstrates the importance of universities considering students holistically, as students frequently need to carefully manage both their family and study lives, and as a consequence satisfaction with their studies cannot be divorced from the challenges of their private living sphere.

Interpreting our results in line with the transactional model of stress (Lazarus & Folkman, 1984), the occupancy of work and family roles may be less important than students' appraisal around coping with their multiple roles. In our study, while the presence of an economic work role in the month preceding the survey did not demonstrate significant association with student satisfaction, increases in perceptions of work-study conflict show significant association with reporting lower levels of satisfaction. As such, appraisals of perceived role conflict and inadequate coping resources may cause stress and dissatisfaction, rather than simply the fact that the student has a work role. This finding aligns to that of Hammer et al. (1998), who found work-study conflict was significantly associated with satisfaction with the educational experience among mature learners (average age 28.5 years) at an American university. It, however,

contrasts with Butler's (2007) study among undergraduates (average age 20.8 years) at an American university, which found work-study conflict did not have a relationship with satisfaction with 'school'. These differences could suggest that work-study conflict might have particular impacts on the satisfaction with the educational experience of mature learners—among whom on average the nature and significance of their work role (and possibly financial commitments) may differ to that of younger students. These findings highlight the relevance for universities to establish how working students, particularly mature students, are coping with their work demands. Universities should target support for those who feel they lack the resources to cope with these demands, particularly in a distance education context where the physical artefacts of conventional university support systems are not present (e.g., offices and buildings which provide services students can access, such as pastoral care and student support facilities). However, there is scope for the "digitalisation of student support systems" (van Rooijen, 2019, p. 206) to also address and reflect the needs of students with multiple roles studying at a distance. Our findings reinforce that the students judge and appraise their situation and the conflicts that are likely to arise. Therefore, it seems pertinent that universities make use of students' expertise regarding the expected challenges and coping appraisals to gather their perspectives, and perhaps include them in co-designing adequate ways to identify, signpost and provide support in a distance education context.

When considering the family sphere, the findings indicate that increased scores in the perceived family-study conflict scale are associated with being more likely to report lower levels of agreement with the student satisfaction statement. Family-study conflict may be especially pertinent for distance education students because they have to manage and navigate their household resources and responsibilities in order to find adequate time and space to study (Samra et al., 2021). These findings indicate the importance of distance education providers considering how students' family conflicts can hinder their perceived satisfaction with their studies. The onus is on universities to enquire how and why this happens in order to improve student satisfaction for students with a range of family backgrounds.

Our analyses show that the relationship between student satisfaction with both work-study conflict and family-study facilitation depends on students' prior educational attainment. Students who had less than A levels when registering with The Open University or had previously studied at university level were found to be significantly more likely to report decreased levels of satisfaction when levels of reported work-study conflict are higher. The results show levels of reported work-study conflict did not influence satisfaction among those whose prior educational attainment was A levels or equivalent. In terms of family-study facilitation, our findings show that students who had A levels at registration are more likely to report higher satisfaction when levels of reported family-study facilitation are higher—a pattern that does not hold for those with other prior levels of educational attainment. The finding that students whose prior educational attainment was A levels or equivalent show clearly different trends to other students raises the possibility that prior educational attainment may have important consequences, especially in terms of certain students' expectations of what their current university studies would be and expectations with regards

to the management of university studies with work and family commitments. For those with less than A levels, it is plausible that there is a need to consider the social and cultural capital that students draw on to form their expectations for university and ideas about their imagined futures while studying (Whitty et al., 2015). Students with lower levels of education may come from backgrounds where their parents and relatives also had low levels of participation in higher education. Therefore, the student may not have access to the cultural and social groups or networks which can assist them to form more developed ideas about what university education may entail and what can be expected. As a result, it may be harder for them to form realistic or appropriate expectations (Whitty et al., 2015), including in respect to conflict with other life domains. This may then play a role in students' satisfaction with their study. From the data available, it is unknown whether those whose prior educational attainment was a higher education qualification had also studied this qualification in a distance education context. However, these results concerning aspects of the prior educational experience on student satisfaction support Karadag et al.'s (2021) findings that students' previous experience of distance education was one of the predictors of their general satisfaction scores. Given the role of satisfaction in promoting student retention and academic success (Bolliger & Martindale, 2004), future research should explore how students' past educational experience contributes to the student satisfaction scores of their current experience of distance study. This is an area which may benefit from being explored via an in-depth qualitative methodology.

Limitations of the study relate to the measurement of student satisfaction used and the homogeneity of the sample. The measure of student satisfaction was based on a single item which asked respondents about their overall educational experience. A range of measures of student satisfaction exist, including those that capture satisfaction in multiple different dimensions (for example, teaching, assessment, support services) (Weerasinghe et al., 2017). In the design of the survey, we prioritized our questionnaire's brevity in order to maximize our response rate. Nonetheless, the level of satisfaction reported in the survey was lower than that reported for the institution as a whole as part of the annual National Student Survey (NSS) (Office for Students, 2021), an independent survey of final year students across publicly funded universities in the United Kingdom. In 2019, 87.2% of respondents from The Open University reported being satisfied with the quality of their courses in NSS, which was higher than both the sector average and that reported in this study (i.e., 76.1%). This difference in satisfaction reported in this paper and the NSS may result from the different measurements of satisfaction being used—the NSS measure asks about their satisfaction with their course, while in our study we asked about their satisfaction with their overall educational experience, which may have included experiences outside specific modules, such as interactions with wider university teams and availability and engagement in societies and clubs. The sample was homogeneous, being predominantly formed of older females and those who reported a White ethnicity. While there was an element of a non-response bias by gender (i.e., females being more likely to respond) and age (i.e., older students being more likely to respond), the sample still reflected the demographics of distance education students on the modules from

which the sample was selected. Nonetheless, the applicability of these results to other subject areas where the profile of students differ could be limited.

Conclusions and recommendations

We conclude that students' work and family lives, in terms of the experience of role conflict and role facilitation, impact student satisfaction. Our research re-emphasizes the importance of considering student characteristics in the development of online distance education services and courses. Online distance education providers need to ensure that students are knowledgeable about the demands, as well as potential benefits, of this mode of study so that they hold realistic expectations. However, the question of what expectations students with very limited prior educational experiences have of their university-level education and how this affects and plays into their student satisfaction has been largely overlooked. Online and distance education providers need to consider how they understand these students' expectations and the consequences it has for their student satisfaction. This is more pertinent to open-access universities where the students with limited prior educational attainment are readily accepted.

Disclosure statement

No potential conflict of interest was declared by the author(s).

Notes on contributors

Philippa Waterhouse is a senior lecturer in health at The Open University, United Kingdom. Her research interests include exploring the interface between work and family roles and their consequences in relation to health.

Rajvinder Samra is a senior lecturer in health at The Open University, United Kingdom. Her research interests include investigating and improving the mental wellbeing of individuals in educational and professional environments.

Mathijs Lucassen is a senior lecturer in mental health at The Open University, United Kingdom. His research interests include exploring child and youth mental health and supporting free and open learning via online platforms.

ORCID

Philippa Waterhouse http://orcid.org/0000-0001-5213-0593
Rajvinder Samra http://orcid.org/0000-0002-5255-4238
Mathijs Lucassen http://orcid.org/0000-0001-6958-3468

Data availability statement

The data that support this study are available upon request from Dr Philippa Waterhouse (phil-ippa.waterhouse@open.ac.uk).

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