From Interest to Decision: A Comparative Exploration of Student Attitudes and Pathways to Co-op Programs in the United States and the United Kingdom*

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Cooperative education programs (co-op) play a vital role in developing engineering and computing students' applied technological skills and professional self-confidence. Nevertheless, not all students choose to participate in co-ops. Through empirical data collection undertaken at two universities, this article explores students' perceptions about co-op programs and why some students do not participate in optional co-op programs. Because students' backgrounds may play a role in their choice. The 408 participants were in one of three groups: (a) co-op participants, (b) interested applicants and non-applicants, or (c) those not interested and/or did not apply. Using Rational Choice Theory as an interpretive framework, quantitative and qualitative analyses of surveys and interviews were used to compare and contrast experiences, approaches, motivations and attitudes across student groups in the United States and the United Kingdom. Results show that US and UK students who identified as not being interested in co-op shared similar perceptions, including the perceived cost of additional time to graduation. Students also expressed concern that taking time away from campus to complete a co-op would affect social interactions with their peers. The results of this work can be used to inform co-op program processes and policies, highlighting ways in which programs can increase participation. The study also shows how key stakeholders can learn cross-cultural 'best practices' to make co-op education accessible and effective.

Keywords: cooperative education; perceptions; student pathways; computing; engineering

1. Introduction

In the United States (US) and the United Kingdom (UK), there has been considerable interest in the employability of engineering and computing students upon graduation, and an acknowledgement of the value of students gaining professional experience during their academic study to improve their prospects for post-graduation employment. Since the creation of the first cooperative education (co-op) program in the US at the University of Cincinnati in 1906, programs have been affording students the opportunity to gain industry experience before graduation. The University of Cincinnati program served as one of the most widely accepted innovative teaching and instruction techniques in engineering education [1, 2]. Co-op programs thus represent a rich implementation of an experiential learning approach [3], yet participation in these programs have been shown to vary by discipline and demographic factors in the US [4, 5].

In the UK, universities have similarly provided students with opportunities to gain industrial experience through programs featuring periods when students put their skills into practice in the workplace. Unlike the US model, which requires students to alternate work and study, the UK model is typically comprised of only one period when the student goes into industry; however, this 'placement' period can last as long as one calendar year. As in the US, the driver for UK co-op programs has been to produce industry-ready graduates. Computing Science (CS) in the UK has seen a particular need for approaches that support student transition into the workplace, given data suggesting that a higher percentage of computing graduates are unemployed than the overall average. In the UK 11.3% of CS graduates are unemployed 6 months after graduation compared to the overall average of 6.5% [6]. Meanwhile, 7.7% of engineering and 7.9% mathematics are unemployed 6 months after graduation [6]. Although completing a co-op program has been found to enhance employability [7, 8], a recent report in the UK highlighted the dwindling number of computing students undertaking a yearlong placement, with participation dropping from 30% to 26% in 2012–13 [9]. While less is known about the number of students engaging in shorter placements, the decline of students participating in yearlong co-op programs in the context of the rate of CS graduate unemployment is a cause for concern.

While the structure of co-op programs is similar, institutions have different policies regarding eligibility requirements. Furthermore, employers place selection and recruitment criteria on the students they accept. The factors that affect co-op participation are therefore multi-faceted, including student attributes, differing program requirements and employer preferences, factors that inter-relate and affect outcomes in non-linear ways. From the student perspective, however, it is clear that students consider distinct benefits and drawbacks when choosing to participate in a cooperative education program.

With co-op education of importance in both the US and UK, this study was designed to explore factors embedded within students' perceptions at two different institutions, and in particular, why students chose to participate or not. For both institutions, co-op is well-established and promoted extensively. By considering student attitudes and approaches in the US and the UK it is possible to compare the benefits and drawbacks cited by different groups of students to explore approaches and pathways with the overarching aim to improve uptake and ensure accessibility of opportunity.

We therefore address the following research questions:

(1) Why do some students choose not to apply for a co-op program?
(2) Which factors explain why students do not enroll in a co-op program, after submitting an application or indicating an interest in participating?
(3) What are the pathways to participation in co-ops?

2. Literature review

The benefits to students of participating in co-op education have been established in a number of studies, since its first introduction in 1906. Student co-op education offers work-based learning opportunities, which in turn have been found to be an effective way to provide relevant employment skills, experience and awareness of employer culture. The evidence that co-op is valuable to students both in terms of employability and academic achievement is strong in several UK based studies [10–13]. Similarly, researchers in the US found that students experience benefits related to their academic performance, learning outcomes, and subjective well-being [14–16]. For example, Blair, Millea and Hammer [14] found that students who completed a three-term co-op program had a higher GPA than their non-participant counterparts while Parsons, Caylor and Simmons [15] found that students who

exhibit proactive behavior during their first co-op term were found to experience a significant positive impact on learning outcomes.

Improved academic performance and higher post-graduate salary have been found to be significant positive outcomes of co-op participation. In terms of subject discipline, research suggests that co-op enhances student skills, knowledge and competence [11, 17–19]. Student motivations for taking a placement include to improve job prospects, support their career decisions, and to earn money [18]. Early socialization experiences, including social and content aspects, have been shown to positively affect students' non-technical skills [15, 20]. Ingram, Friesen and Ens [21] showed that co-op participation enabled students to develop social and cultural capital in the workplace. Students who have completed a co-op are at a distinct advantage over non-co-op students when applying for work after graduation [22]. Additionally, co-op students report greater certainty about career choice (increased career identity) and are more likely to obtain a job related to their major at graduation [23] and attract higher starting salaries. These are all positive reasons for students to apply. However, participation in co-op programs varies, and little is known about the reasons behind students who are eligible but do not apply and the factors that students believe act as barriers to successful applications. A recent study in the UK confirmed that student engagement with co-op has declined in recent years and while this may be largely due to varying employer demand, there is some evidence from industry that there is not enough demand from students, leading to fewer applicants [9]. This is a problem both because of the established benefits to be gained by students but also because it is clear that employers benefit from student placement too, and cite advantages including students bringing new skills into an organization and having specific tasks completed [24]. Blair, Millea, and Hammer [14] found that completing the three-term co-op increased students' time-to-graduation on average by two terms, and the time dimension may be a relevant component negatively affecting student decision making. Exploring why student demand for co-op has declined, Docherty [10] suggested that students in the UK are less geographically mobile than they were 20 years ago and are often unable to take placements that are too far away from their abode. Docherty goes on to cite other reasons for a lack of student demand including that students are reluctant to move away from their cohort and may need to maintain their part-time paid employment and thus cannot risk a placement. In a study of higher education institutions in the UK, Banga and Lancaster [25] found that placement staff cite a lack of motivation

amongst students as the most significant factor (23% of respondents) in students not applying for placement, followed by students not feeling prepared to apply (21%) and lacking confidence or fearing rejection (21%). Likewise, Balta et al. [23] found a lack of confidence acting as a barrier to student participation. What is largely missing from the research is the student voice, leaving the reasons behind students making decisions about co-op participation underexplored.

3. Theoretical framework

Rational Choice Theory was identified to provide a theoretical framework for the study. Rational Choice Theory, or Choice Theory, has historically been used in economics; however, in recent decades it has been applied to sociology, political science, and anthropology research [26]. This framework considers individual behavior, and then examines how individual choices interact to produce outcomes. The theory starts with a phenomenon considered to be the effect of individuals' actions and decisions; followed by an acceptance that action can be understood; action is caused by reasoned decisions; these reasons are based on consequences, largely to the individuals themselves, of the action; individuals can weigh up alternative courses of action and finally, select the most favorable outcome [27].

Choice Theory has been used in educational research to model student decision-making. Breen and Goldthorpe [28], for example, used Choice Theory to model decisions made by students and their families. In their study, students and family members made decisions by evaluating the costs and benefits of various educational options. More recently, Barg [29] used Rational Choice Theory to examine the effect of social class on students' educational decision making. Using data on students' decisions, she explored various secondary school tracks in French schools to suggest that both students and their families evaluate the ability of a student to succeed in a particular educational track when weighing costs and benefits. That work relates to Breen and Goldthorpe's [28] model of risk aversion thereby adding likelihood of success as a factor in decision-making. The authors aimed to explain differences in educational attainment by evaluating the choices made by individuals, assuming that those choices were influenced by expectations about the likelihood of succeeding in a particular option.

Rational Choice Theory, although compelling for many sociologists, has many critics who point at, for example, its use simply to consider monetary transactions, i.e. approaching studies believing that individuals 'maximize only material goods and money' [30]. It also focuses mainly on individual action that involves an 'impossible calculating agent' who is able, often in time-constrained environments, to weigh up all possible costs and benefits [31]. While there are some concerns about methodological artifacts [32], the framework has been used to design and analyze survey data. In their study, Kroneberg and Kalter [33] used survey data to explore how European researchers use Choice Theory. According to their findings, researchers evaluate choices either directly or indirectly: researchers can evaluate choice directly by surveying individuals about expectations and perceived advantages and disadvantages; or indirectly by measuring individuals' actions.

This study explores the decisions of students to participate in co-op and how their interactions with co-op programs and employers affect outcomes. We also take into account how students perceive the costs and benefits, or advantages and disadvantages, of co-op participation. Scott [34] posits that individuals are motivated by wants and goals that express their preferences. It is recognized however that agents are situated within a context that frames their considerations before selecting the action most promising for implementing their preference [35]. For example, a student may consider co-op by evaluating the advantages and disadvantages of participation and also consider the outcomes of co-op participation compared to the consequences of alternative activities, such as internships, steady part-time work or study abroad. This study evaluates students' choices both indirectly and directly using survey techniques.

4. Data

The study draws upon data collected across two institutions, a large Midwestern research university in the US and a UK university with a sizeable undergraduate student population. The US university offers a co-op program in 5-session and 3-session plans. Formally initiated in 1954, the program now serves over 1,100 students and more than 300 active employers from private industry and government agencies. The program is currently available to the students in the colleges of Agriculture, Engineering, Health and Human Sciences, Liberal Arts, Management, Pharmacy, Science, and Technology. The College of Engineering has the highest rate of student involvement with 539 new applicants, 246 new placements, and 645 active participants during the 2013–2014 academic year. There are several preparatory activities, including career fairs, interview days, and informational sessions. Additionally, there are several recruiting

efforts ranging from freshman orientation, classroom visits, and a student-led organization that spreads awareness of the program.

The program is non-compulsory, offering plans in which students can elect to participate after their first or second year at school. The program also requires that students have at least a 2.3 (out of 4) grade-point average (GPA); some employers have a higher GPA requirement. Faculty Coordinators screen potential employers to assure quality job assignments and refer interested students for job interviews typically in the spring. Once a co-op job is accepted, students alternate sessions of academic study with sessions of work with a qualified employer. Students are expected to stay with the same company throughout their rotations. Although students do not receive academic credit for participating in co-op, they do receive a certificate of completion. Additionally, students remain enrolled in a zero-credit course during their work term and are required to attend a co-op seminar course upon their return to school.

The second university in this study is in the UK. It has a mature co-op program where students undertake a yearlong, paid placement in industry. Students completing the co-op program earn academic credit equivalent to six months of study and therefore graduate 6 months after the non-co-op students. The co-op application process is competitive and not all students are successful. Approximately 40 students every year apply successfully, constituting around a third of the eligible student cohort. The university has recently formalized a series of stand-alone preparatory sessions into a formal timetabled program designed to encourage student participation in co-op, titled 'Placement Academy.' Placement Academy takes students through the main stages of placement preparation from Curriculum Vitae (CV) development to interview practice and assessment center training. In addition, the university leads a Scotland-wide paid placement project, e-Placement Scotland, which is designed to work with employers to create placement opportunities and advertise them across all Scottish universities and colleges [36]. These placements are commonly three-month summer placements and do not in themselves attract academic credit, but can be taken by students at universities that have a co-op program. The project team arranges for presentations at each university with a view to promoting placements and explaining the application process. Project resources include an application website, CV advice and interview preparation techniques.

These universities, each with established co-op programs and processes designed to support student participation and success, are appropriate research sites to investigate the factors associated with student decisions to pursue or not to pursue a co-op program. The international dimension of a study across the US and the UK additionally offers a valuable opportunity to explore whether the factors affecting uptake are convergent or divergent across these different contexts.

5. Methods

A questionnaire was designed in the US and then adapted for the UK institution to ask students about their co-op experiences and attitudes to co-op. Three groups of students were identified at each institution: (1) co-op participants, (2) interested applicants and non-applicants, and (3) those were not interested and/or did not apply.

The survey instrument was initially developed using input from the co-op program coordinators. In the US the survey was emailed to 1,938 students who completed the second course of the foundational engineering sequence, consisting of 136 co-op participants and 1,802 non-participants. Generally, students were part of the sophomore class and would have been eligible to apply for co-op Spring 2014. The rationale for this population was that they would be the most recent cohort of co-op students who have completed one rotation. This population also contained students who were eligible to apply for the program Spring 2015. Of those, 286 students responded to the survey (15% response rate). In the UK a smaller population of potential placement students in the year group (122) enabled the survey to be deployed via one-to-one interviews between members of the research team and research participants. The survey instrument was adapted for use with the UK participants to allow for differences in terminology, to specifically mention recognizable pre-application activity, known potential interactions with support teams and to recognize differing student journeys into and through academic stages. All second-year students attending computing classes were invited to participate in an interview. In total, 71 interviews were conducted (n=71). This constituted 58% of the entire cohort of students eligible to apply for co-op. The structured interview protocol followed the US online survey instrument with adjustments to account for the context. Of those interviewed, 19 had secured a co-op, 18 had applied but had not yet secured a co-op, and 34 students had not applied.

The survey itself consisted of closed- and open-ended responses, including questions about perceptions of co-op, the process of obtaining a placement, and demographic information. The deployment of the survey through interviews in the UK provided additional opportunities for qualitative data collec-

tion, and students were encouraged to expand on closed questions by providing narrative detail to contextualize choices.

6. Results

6.1 Student categories

Six groups of students were identified based on their survey responses and their location. Groups 1A-1C were students at the university in the US, while Groups 2A-2C were studying at the UK university. Groups 1A and 2A were students who self-identified as co-op participants. Groups 1B and 2B consisted of students who were not yet co-op students, but were interested in the program (students in Groups 1B may or may not have applied for placement). Finally, Groups 1C and 2C consisted of students who expressed no interest in the program.

Table 1 shows the number of students in each group and the percentage of the total number of respondents per group.

In the US, the composition of survey respondents was disaggregated by citizenship, gender, and race/ethnicity. Approximately 30% of respondents were female, while the engineering population proportion is ordinarily around 20% [37]. Underrepresented minorities, including Black and Hispanic students, had the lowest response rate. Of those surveyed, there were varying proportions of co-op participants by engineering major discipline. The proportion of Electrical and Computer Engineering participants versus non-participants was among the lowest. In the UK, all students participating in the study were on a computing course. Female students made up 15% of the undergraduate student population; 16% of the successful applicants; 11% of those applying but not yet placed; and 9% of those not applying.

6.2 Pathways into co-op and student perceptions

A student may make several decisions on their way to participating in co-op based on how they perceive the program, the information they receive, how or whether they choose to fill out an application, and how they interview for positions. Ultimately, choices students make along the way affect whether they become co-op participants. Based on student answers and survey logic, five phases reflecting different pathways into co-op emerged – (1) interest; (2) information; (3) application; (4) interview; and (5) participation. Figures 1 and 2 (see Appendix) illustrate the various pathways students took in practice, highlighting the student progress through each stage. The UK data did not include an interview stage as all interviews are conducted by employers.

In terms of co-op intention, the UK participants were asked if they had originally wanted to do a co-op as part of their course. The results are given in Table 2. In spite of institutional promotion not all students surveyed were aware of the program; however, 85.4% of survey respondents were aware of co-op. Of the students who knew about the program, more than half indicated they were not interested in co-op (Groups 1C and 2C) and they did not enter the pathway model.

In the US, the information phase shows that 78% of co-ops attended an informational session, while only 48% of non-participants who expressed interest attended one of the sessions. There was greater engagement with information sessions and pre-co-op activity in the UK where all participants were asked about their level of engagement with the co-op preparation activity; 90% of participants in Group 2A had attended co-op presentations and the co-op academy program; 83% in Group 2B; and 38% in Group 2C.

Table 1. Percentage of students in each category

Category description	US Percentage (Group 1)	UK Percentage (Group 2)
A. Current co-op participant	20.3%	26.8%
B. Interested, but non-participant	20.6%	25.3%
C. Not interested	47.9%	47.9%
Total (n)	**286**	**71**

Note: Remainder of students in US group either did not know about co-op or chose not to answer.

Table 2. UK student responses reflecting their co-op preference through response to the statement "I wanted to do co-op as part of my course"

Group	Total (n)	Strongly agree/ agree	Neither agree nor disagree	Strongly disagree/ disagree
2A (Co-Op Participant)	19	79%	21%	0%
2B (Interested Non-participant)	18	94%	0%	6%
2C (Not interested)	34	41%	35%	24%

Table 3. Perceived advantages of co-op among co-op participants

US Co-op Participants (Group 1A)	UK Co-op Participants (Group 2A)
1. Work Experience	1. Future job prospects
2. Money	2. Work experience
3. Competitive edge in the job market	3. Money
4. Job training	4. Other
5. Networking	
6. Career exploration	

Table 4. Perceived disadvantages of co-op among co-op participants

US Co-op Participants (Group 1A)	UK Co-op Participants (Group 2A)
1. Disconnect with peers on campus	1. No drawbacks
2. Time to graduation	2. Time to graduation
3. Missed opportunities on campus	3. Time to apply
4. Off-schedule in classes	4. Off-schedule in classes

Table 5. Perceived disadvantages of co-op among those not participating in co-op

US Non-participants (Groups 1B, 1C)	UK Non-participants (Groups 2B, 2C)
1. Time to Graduation	1. No drawbacks
2. Prefer Internship over co-op	2. Time to graduation
3. Missed opportunities on campus	3. Missed taught classes
4. Commitment to one employer	4. Lose study skills

Table 6. Group 2C—UK student responses for not applying

Reason for not applying for co-op	Percentage citing this reason
Prefer to concentrate on degree	44%
Length of time taken to complete the course	29%
Co-op roles advertised not relevant to course	23%
Location of co-op unsuitable	12%
Did not know about co-op	12%
Not interested	12%
Unsure how to apply	9%
Value social interactions at university	9%
Financial reasons	6%

Total (n) = 34.

Open-ended responses from co-op participants and those who are not interested in the program were coded and are summarized in the tables above. Table 3 lists the responses from the students who had successfully applied for co-op when asked about their perceptions of the advantages of co-op. These are placed in rank order because of the different sample sizes between the US and UK. This group of students was also asked what they thought the disadvantages of co-op were and their responses are given in Table 4. Similarly, those students who were not yet participating in co-op or not intending to apply for co-op were asked what they thought the drawbacks to co-op were and their responses are given in Table 5.

Through the interviews, the students in the UK who had not applied for co-op were asked their personal reasons for not applying, rather than their perceptions of drawbacks/disadvantages. The reasons are given in Table 6.

Overall, survey responses revealed several pathways into co-op. While those pathways differ among co-op participants, they also differ for those who ultimately do not participate in the program. There was a large group of students who were not interested in the program, citing time to graduation and a preference to do a summer internship instead of co-op. Some of the main advantages perceived by co-op students were work experience, money, and wanting to be competitive in the job market after they graduate. Those same students cited a disconnection with peers on campus and time to graduation as the top drawbacks of the program.

7. Discussion

The discussion is framed by returning to Rational Choice Theory's proposition of analysis based on cost, benefits and likelihood of success [29]. Given the same co-op proposition, students made different

decisions and so expectations about the consequences of their decisions were found to differ [33].

7.1 In consideration of cost

The foremost cost identified by participants in the US who did not participate in co-op was the additional length of their course of study, while in the UK the main cost cited as the reason they had not applied was associated with being distracted from their degree (44%) and the length of time taken to complete the degree was a secondary consideration (29%). UK students who did not apply for placement were asked what they thought the perceived drawbacks of taking a placement were and the most cited drawback (35%) was the length of time to complete the course. The main reason not to apply was the indirect cost of being distracted (with the possibility then of not being successful in their overall goal of completing their degree) while the question about drawbacks was more abstract and less personal. As a consequence, the rational choice was more likely to have been influenced by the overarching cost of missing out on their degree, reflecting agency in student decision making [33].

In the UK, students also cited having to sacrifice existing paid part-time work as a cost to taking up a placement (29%), with other considerations including co-op not being relevant and geographical location of placements as cost factors. In the UK only 12% believed losing out on social interactions was a cost. However, in the US, the students successful in securing a co-op perceived the greatest cost to be the disconnection with peers on campus. This group of students had recognized this indirect cost associated with participating in co-op but the benefits had outweighed the costs in their approach to decision-making. Other costs they believed were outweighed by benefits included the increased time taken to graduate, missed opportunities on campus and finding themselves off schedule with classes.

In Rational Choice Theory when agents are observed not making a rational choice consideration should be given to constraints, opportunities, and unattractive alternatives [30]. In the US one of the significant costs identified by the non-participating students was losing the opportunity to work with other employers, both through an expressed preference for internship and the perceived disadvantage of a co-op tied to one specific employer. By contrast, students participating in co-op (Group 1A) viewed career exploration as a benefit to co-op. Both types of students have the same desire surrounding career exploration but differ in their views of how co-op fits this role. There are opportunity areas here for co-op programs in communicating the role co-op can play in exploring career options.

In the UK, direct entry students, who had joined the university part way through the course after studying elsewhere, either felt they were not yet ready or were concerned about leaving the course just as they had settled in to a study routine. So while the co-op proposition was identical, the perceived benefits for this group of students did not outweigh the cost associated with disrupted study.

Finally, although not explicitly mentioned, students may also perceive the cost associated with the time taken to apply for co-op, prepare for and attend interviews as outweighing the benefits. In the UK those successfully applying for co-op had on average applied for 4 placements. Those who had applied but were not yet successful had applied for, on average, 6.5 placements. The cost is not solely associated with the time spent, but also with the more difficult to measure potential cost of losing self-confidence.

7.2 In consideration of benefits

In the US, the co-op participants, Group 1A, recognized the financial advantages of co-op participation both in the short and longer term, citing training, networking and work experience all associated with gaining graduate employment. The students were observed to overcome the cost in terms of time commitment associated with pre-co-op preparation activity, weighing this against the benefits to be gained by securing a co-op. Empirically explored benefits such as improved degree outcomes were not mentioned in the participants' responses (for example, [13, 38]).

Overall, long term benefits acted in the main as a motivator for co-op participation. In the UK, students in all three groups had participated in the co-op preparation activity and in all three groups over 40% of students had wanted to do a co-op as part of their course. The students who expressed the biggest commitment to doing a co-op (94%) were those in Group 2B, who had been applying without success. Through relatively high engagement rates, students appeared to identify the benefits of preparation activity, including attending information sessions, even when they did not then apply for co-op.

7.3 The likelihood of success

The perceived likelihood of success has been considered when approaching educational decisions (for example, previously cited studies by Boudon and by Breen and Goldthorpe [27, 28]) and found to act alongside cost and benefits in determining a rational choice. In this study there were two factors: the likelihood of success in applying for co-op; and the overarching likelihood of attaining a degree. Students' decisions were made by selecting the best

route to reach their overarching goal, or preference [35]. In the UK, groups were found to have a good level of engagement with the co-op preparation activity (90% for placed students, 83% for those applying and 68% for those that were not applying). The six-week Placement Academy course was significant in enhancing positive views of the likelihood of success. This preparation work included CV workshops, presentations from former placed students and mock interviews. The mock assessment center had been perceived by some as having replaced a more stressful live activity with an enactment-based activity that allowed for exploration of how success could be achieved. The group interviewed in the UK had shown commitment to attending these events, even when they had decided not to apply for a co-op. As a result, future preparation activity will be embedded in courses rather than offered as optional extra-curricular events to ensure that some of the benefits in participating in co-op can be realized without incurring the perceived costs associated with co-op. However, in spite of co-op application preparation activity and support, anxiety was expressed about the nature of the work that might be expected of them in the workplace. There were concerns expressed by a few students about their ability to return to study after a period of work, reducing the likelihood of success with their academic program.

Returning to the question of access to opportunities, this study shows that timing of the co-op on a course is critical to student uptake and echoes findings in the US [5]. It is clear from student responses that the one-year co-op following on from two years of study was a good model for students: they had consolidated knowledge and were more confident in their approaches to co-op, experiencing a greater likelihood of success. In terms of a student's situation with respect to program structure the benefits were more likely to outweigh the costs at this transition than if the students were new to the program. This finding is significant for curriculum designers who can look to position co-op education to improve the balance between costs and benefits in order to create new, more accessible routes to co-op for those at present under-represented.

The study has found that co-op students prioritize advantages and disadvantages of the program differently than students who are not co-ops, however, overall, the findings contradict the perceptions of co-op staff that students are not motivated, as reported by Banga and Lancaster [25]. Instead there was anxiety about leaving the course and seeing co-op as a distraction from concentrating on their studies with only 12% saying they were just not interested in a co-op.

7.4 The limitations of the study

The main limitation of the study is the focus on two single institutions; however, this was useful in terms of exploring the attitudes to the co-op preparation interventions. Policies for co-op may differ by institution and even discipline. Self-selection bias is another limitation to consider since students elected to take the survey voluntarily.

8. Conclusion

This article was designed to explore student attitudes toward co-op focusing on the reasons students did not take a co-op program using Rational Choice Theory as an underlying theoretical approach. Survey respondents fell into three groups: those who had successfully applied; those who registered an interest and applied for co-op but had not managed to secure a co-op; and finally those who did not apply for co-op and/or did not register an interest in the program. The study revealed that both UK and US students who had not applied for co-op had encountered both real and perceived barriers, including a preference to concentrate on their degree studies and, for the one-year co-op, the length of time taken to complete the course. The experiences of students who registered an interest varied. Some students had not undertaken the extensive preparation required for often quite complex and demanding application processes, while others were unsuccessful through the selection process due to competition for co-op roles. In both the US and UK co-op informational sessions serve as gateways to participation; students shared concerns about the length of time taken to complete their programs. However, in the US, missing opportunities on campus was important to students, while, in the UK, there was concern about missing taught classes and retaining study skills.

By capturing student perspectives, this study uncovered insights into increasing participation in co-op education by paying attention to the perceived benefits and drawbacks to co-op. Two key elements are defined which can play an important role in increasing participation: communication of the benefits of situationally appropriate co-op and models may emerge that reconsider the timing of co-op opportunities; contextual pre-application preparation to ensure students recognize their skills and are offered specific targeted activity with a view to increasing students' awareness of the likelihood of success associated with the decision to participate in co-op or not. Insights gained from the theoretical approach include the importance to participations rates of uncovering perceived costs used in decision making and surfacing benefits while aligning insti-

tutional resources to increase the likelihood of success. The article shows that there is an opportunity to learn cross-cultural "best practices" to make co-op education accessible and effective. There is a future for co-op education which would see at its heart both employer and student ideals and an infrastructure to facilitate the alignment of both.

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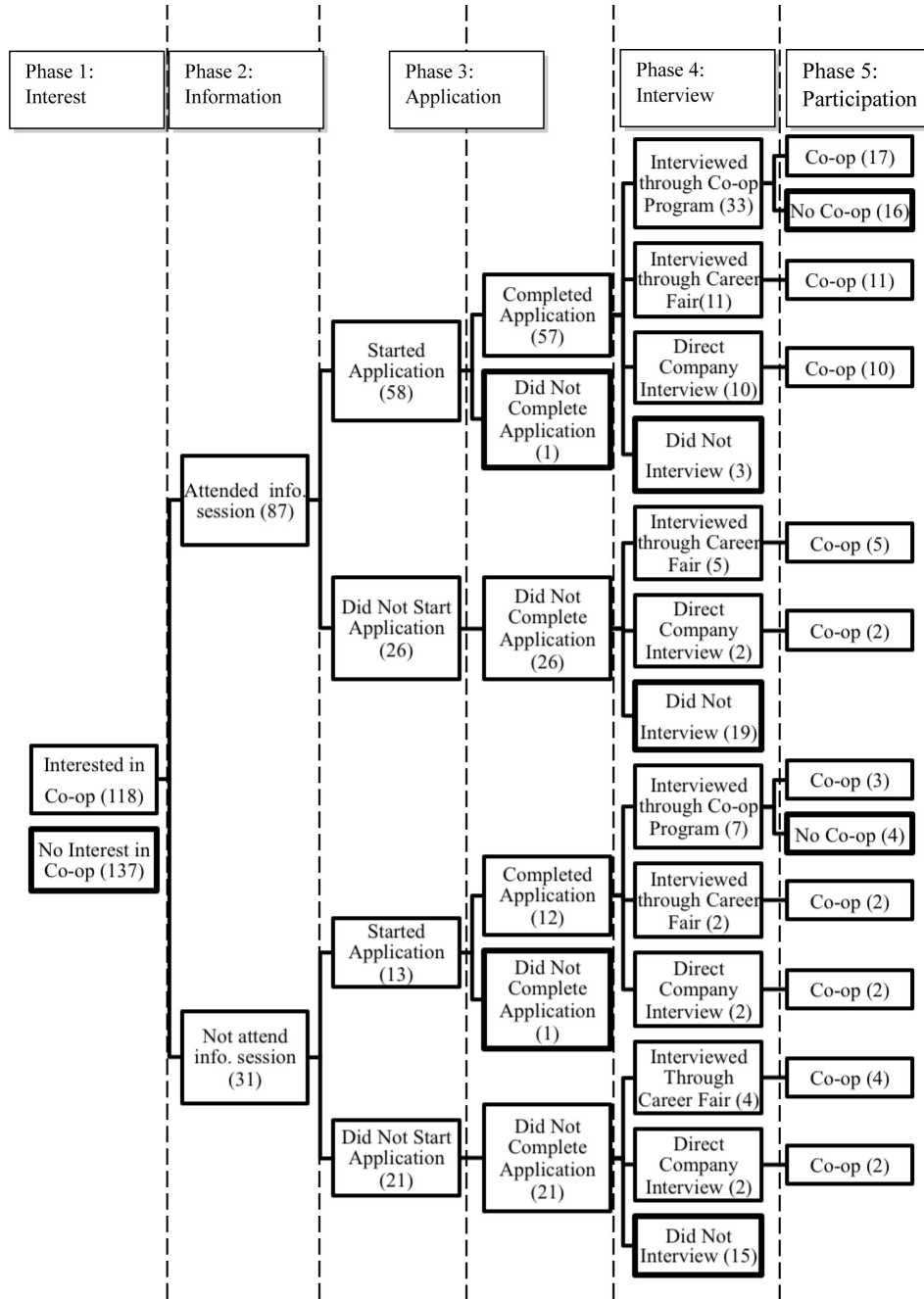
Appendix

Fig. 1. US Data. Based on survey responses of co-op participants and non-participants, five phases from initial interest to final co-op decision were identified. It is evident that there are multiple paths into co-op, and the figure illustrates specific points at which students decide not to do co-op.
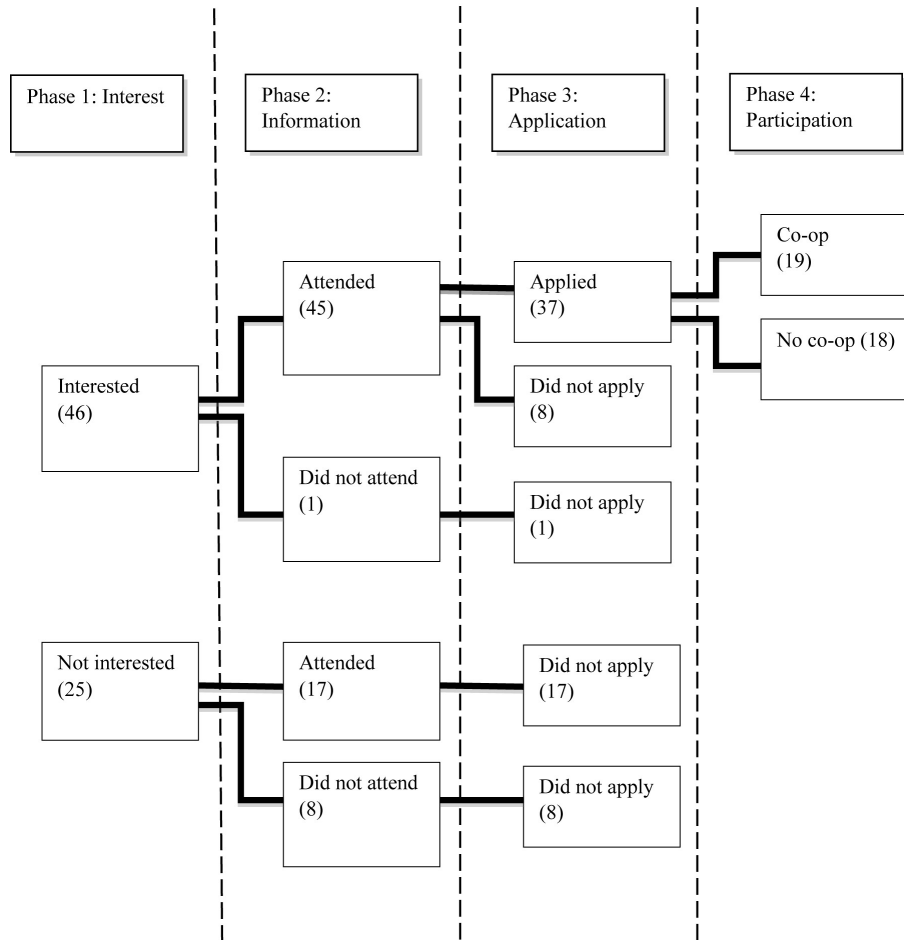
Fig. 2. UK Data. Based on survey responses of co-op participants and non-participants, four phases from initial interest to final co-op decision were identified in the UK participants. All interviews were conducted by employers, denoted as Direct Company Interview in the US data.

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