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Factors Inhibiting Higher Education Institutions from addressing Industry driven change in Irish Construction Management Programs

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ABSTRACT

With Construction Management being a relatively new discipline, the relationship between academia and industry is underdeveloped. Studies have identified the gap between academia and industry, with recommendations made as to how this gap may be closed. However, little research is done into what is restricting Higher Education Institutions from acting on these findings. The aim of this paper is to address this. Five key themes emerge in the literature: Human, Resources, Organizational Structure, External Influences, and Administrative Factors. To complement this, semi-structured interviews are undertaken with 12 Construction Management representatives from each of the 11 Higher Education Institutions offering a Construction Management program in the Republic of Ireland. Using the five themes that emerged in the literature, each of the interviews is thematically coded. The results indicate key factors inhibiting the change implementation processes within construction management departments. These include difficulties in the number of boards and committees involved in change, a lack of incentive for lecturing staff undertaking what is considered additional work, disparity in the definition of a "successful program" within the Higher Education Institutions, extensive amounts of reports required for change proposal, lecturing staff being largely overworked, and organizational structures that do not facilitate collaboration between departments.

KEYWORDS

Change management; curriculum development; HEI; Institute of technology

Introduction

The relationship between industry and academia is critical in ensuring Higher Education Institute programs meet industry expectations. However, Chan et al. (2002) highlights a discrepancy in this relationship. Construction is an ever-changing, complex industry, and for this reason, demands and expectations of construction management graduates have transformed, particularly over the last 20 years. As a result, Higher Education Institutions are tasked with producing graduates to meet these ever-changing demands. Love et al. (2003) states that the construction industry relies on third-level institutes to provide competent construction management graduates. McArdle et al. (2012) argue that there needs to be a closer working relationship between both academia and practitioners, with McClements et al. (2017) highlighting the

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benefits of shared knowledge between both parties. Sinnott and Thomas (2012) furthered this by arguing for the need for curriculum development in Ireland, in line with industry, to ensure that graduates are drivers of our future. However, an ever-increasing gap has begun to develop between industry and academia, as Higher Education Institutes struggle to keep pace with industry requirements. In contrast to the high paced changes occurring in the industry, Higher Education Institutions are slow to implement change (Caruth & Caruth, 2013). Many academics consider Higher Education Institutions as conservative and in need of change (Maassen & Gornitzka, 1999).

More specifically, Construction Management is a discipline requiring a level of knowledge and expertise in various aspects, creating a disparity in the areas in which Higher Education Institutes focus. Burgett et al. (2018) argue that Higher Education Institutions must adapt curricula, to accurately reflect the needs of industry, and curriculum management and development should be a critical and continuous process. Bhattacharjee et al. (2013) highlights industry exposure to be a powerful educational tool, which should be used more by Higher Education Institutes. Pereira and Gheisari (2019) also emphasize the importance of experience-based learning from site visits, but acknowledge some of the constraints related to this approach, such as safety concerns, time, and resource limitations, along with busy site management. McKendry et al. (2012) furthered this by indicating the difficulties construction management programs face, when teaching construction fundamentals, in addition to finance, law, information technology, and project management, among other subjects. One response to a survey conducted by Ahmed et al. (2014) argued that "no university education can prepare a graduate for all aspects of the industry;"; thus, illustrating the level of diversity of subjects that potential graduates need to be exposed to. Construction management employers require graduates with both soft and hard skills, coupled with the necessary technical skills (Mahasneh & Thabet, 2015). McArdle et al. (2012) also make recommendations of potential change to construction management programs, based on key skills required by such graduates. However, McArdle et al. (2012) did not focus on the feasibility of implementing these changes in Higher Education Institutions. For Higher Education Institution programs to remain valuable, they must attempt to meet industry requirements and, therefore, must work to close the gap between academia and industry, a factor that has been highlighted by academics globally (King, 2003; McClements et al., 2017; Yunus & Li, 2005). Of note, financial support directly from industry to Construction Management programs would not be the norm in Ireland. Support may be provided in the form of guest lectures, and/or awards for the best student in a cohort/year; however, financial support beyond this would be an exception.

This paper aims to address the above and why Construction Management Higher Education Institutions in the Republic of Ireland are adverse and/or slow to adopt industry-driven change, particularly where directed by prospective employers of their graduates. For the purposes of this study, industry-driven change is defined as being prepared, and responding, to rapid industry demands, through flexible and readily accommodating change, to keep apace of dynamic requirements, similar to that proposed by Warren and Fuller (2011). The primary objective of this research is to investigate the barriers Higher Education Institutions (HEIs) must overcome, to tailor their construction management programs to suit the dynamic construction industry's needs. Subsequently, factors that impede change at Higher Education Institution level must first be identified. Without a comprehensive understanding of these inhibiting factors, implementing industry-driven

change will remain elusive. Consequently, this research will contribute to Higher Education Institutes' ability to implement strategic plans to overcome the factors that hinder change enactment in Construction Management programs across the Republic of Ireland.

Curriculum development in higher education institutions: A review

To gain insight into the subject of Higher Education Institutions and published literature on the subject, an open, critical review of peer reviewed sources is undertaken. Sources such as peer-reviewed journal papers, international conference proceedings, and associated literature, are the focus. Subsequently, five key themes emerge and are the basis for the development and contextualization of this paper, prior to moving to interview.

Resources

Higher Education Institutions are often under scrutiny for increasing graduation rates, lecturing staff efficiencies and attracting research funding, all while reducing the costs associated with doing so (Benhartt & Shaurette, 2014). The effects of the 2007 economic crisis on Higher Education Institutions have been dramatic, with core state expenditure declining steeply (Pritchard & Slowey, 2017). As a result of cutbacks and increased student numbers, there has been at least a 20% reduction in funding per student and a 30% decline in the lecturing staff-to-student ratio (Bekhradnia, 2015). In the context of the Republic of Ireland, the public higher education funding model has three major components: institutional, capital, and research funding. Capital funding is allocated for infrastructure and facility development, while research funding is provided for buildings, equipment, and research programs, all of which are allocated on a competitive basis (Boer et al., 2015). Both increase in student contributions and state funding reductions have contributed to a decrease in the proportion of Higher Education Institution funding provided by the State, from 78% in 2008, to 64% in 2016 (Expert Group on Funding for Higher Education, 2015).

With this, there is a marked transition from a once heavy reliance on public funding, to greater input from private sources. Hedley (2010) states that increased involvement with the private sector is usually seen in Ireland as a liberating move, freeing universities from government oversight and generating funds not subject to rigorous public accountability standards. The distribution of resources is, of course, also a contributing factor. In a case study by Anakin et al. (2018) on influencing factors of change in two universities, the lack of resources allocated to the process of curriculum innovation is cited as an inhibiting factor in one instance. Whereas, in the other, investment in the process is signal of the university's urgency and intent toward change, highlighting the disparity in key areas of focus between Higher Education Institutions. With a steady decline in the availability of resources, this too results in a compromise in the ability to attract competent lecturing staff. Lee (2019) argues that Higher Education Institutions, in attracting, developing, and retaining lecturing staff, will underpin and improve organizational effectiveness and performance.

Administrative

The available literature is limited concerning administrational barriers and their impact on the change implementation process seen in Irish Higher Education Institutions. However,

these administrational barriers have been highlighted by academics in other countries. Hurlimann et al. (2013) identifies an eleven-month process that includes extensive proposals, reports, meetings, and committees, to instigate changes to programs at the University of Melbourne. This study recommends that the university-wide curriculum development process be streamlined and improved, to shorten timeframes, and clarify communications. According to Rosser (2004), administrative staff are frustrated by the influence of bureaucratic red tape, with the increased workload resulting from government policies, reporting, and accountability, being largely unproductive. Norton (2018) has created a three-hundred page "Quality Enhancement handbook for Technological University, Dublin," outlining much of the administrational requirements of implementing change in Higher Education Institutions, providing just one example of the administerial burden evidenced in Higher Education Institutions in Ireland.

External influences

According to Enders et al. (2013), autonomy in Higher Education Institutions refers to their ability or capacity to act independently and their level of freedom from external control. It is important to note that factors influencing curriculum change go beyond the lecturer, departmental, and institutional levels within an organization. Industry, professional bodies, and government policies are all considered additional forces (Anakin et al., 2018). Business and industry interact with Higher Education Institutions, both directly and indirectly, as providers of work placement, sponsors of student events, collaborative research, investors and funders, advisors on program content, and guest lecturers, among other aspects (Lee, 2019). Chinowsky and Songer (2011) point out that industry-academic collaboration has become an exception rather than the norm in construction for many reasons, citing lack of trust, lack of respect for respective experience and knowledge and a lack of recognition of corresponding roles. For many universities, professional accreditation is a powerful marketing tool; however, such accreditation tends to govern many Higher Education Institution programs, with accreditation being the key driver of program content (McArdle et al., 2012). However, Hurlimann et al. (2013) argue that the need to satisfy accreditation provides a beneficial stimulus for curriculum development, whilst providing a bridge between academic and industry concerns. Lee (2019) also outlines the importance of Higher Education Institutions aligning their programs with these standards, while also stating that many syllabi are determined by or subject to these accrediting bodies' approval (Hedley, 2010). According to Hedley (2010), the extent to which the Higher Education Authority (HEA) in Ireland can directly control universities is unclear, with their role, for the most part, being to encourage, advise, and warn universities, but not to direct. However, even without direct influence, government bodies still have much power, as Higher Education Institutions rely heavily on public funds, subsequently having little choice but to comply with recommendations.

Human

In a study by Davis (2003), it identifies a lack of lecturing staff motivation as a driving factor in the absence of change seen in Higher Education Institutions. The research argues that the de-motivation of lecturing staff occurs due to several reasons, including academics being

overworked, and a lack of appreciation for the additional work they are tasked with. The commitment of lecturing staff is noted to be instrumental in stimulating change. This is furthered by an underlying lack of awareness of the need for change, which is also noted by Verhulst and Lambrechts (2015). In conjunction with a lack of awareness, researchers accredit the failure of change implementation directly to a resistance to change by lecturing staff (Smith, 2005). Bryman (2007) suggests that academics have an underlying loyalty to their discipline, which overshadows their commitment to their institute. Recommendations made by Gautreau (2011) include that the first step in the process should be to identify lecturing staff's needs through a formal assessment. It continues by arguing that on completion of a formal needs assessment, the factors identified should be incorporated into the completion of a faculty development program.

Organizational structure

The complexity of the internal structures of Higher Education Institutions cannot be overstated. Meister-Scheytt and Scheytt (2005) describe change management in universities as the "management of paradoxes under turbulent circumstances." Kezar and Eckel (2002) suggest that when implementing change, focus must be placed first on understanding institutional context and culture. Implementation of change in organizations can take two approaches. The first is known as "top-down," and research suggests that Higher Education Institution focuses on this method (Kezar, 2012). Although this change implementation method is used by universities (Higgins & Thomas, 2016), research shows that it is not the most desirable. Brownlee (2000) also identify "mandating change from the top" as a factor that generates resistance to change. The "bottom-up" approach to change stems from lower-level employees. The challenge with this is to effectively evolve the curriculum often involves influencing the institutes' policy (Katayama & Gough, 2008). Brownlee (2000) suggests that the organizational structure of education institutes does not facilitate cooperation between departments. The relationship between research and teaching within Higher Education Institutions can create internal competition, with many viewing these two activities as competing with one another (Lauder & Mayhew, 2020). Many universities are research focused and Amaratunga and Senaratne (2009) claim that research and teaching are loosely coupled activities that may not have a necessary or automatic link.

Based on the literature review under the five themes highlighted above, Table 1 provides a list of the corresponding factors identified, in conjunction with the respective sources.

Methodology

Having completed a comprehensive critique of the literature, a qualitative approach is adopted, to gain further insight from academics who work in the various Higher Education Institutions throughout the Republic of Ireland, all of whom manage and deliver on their respective Construction Management programs. As a result, semi-structured interviews based on, but not limited to, the key themes highlighted in the literature, as the basis for developing and verifying the initial factors identified, but also to highlight any further factors that did not emerge. This study is inclusive of all Construction Management programs in the Republic of Ireland, delivered at both level 7 and level 8, as set out in the Irish National Framework of Qualifications (Undergraduate Degree and Honours Degree

Table 1. Themes, factors, and sources that inhibit curriculum change in higher education institutions

Theme	Factor	Source
Human	Lack of lecturing staff motivation	Davis (2003)
	Loyalty to their discipline over the Institute	Bryman (2007)
	Resistance to change by lecturing staff	Smith (2005)
	Lack of incentive for additional work	Davis (2003)
	Overworked lecturing staff	Davis (2003)
	Needs of lecturing staff not identified	Gautreau (2011)
	Lack of awareness of the need for change	Verhulst and Lambrechts (2015)
Organizational	Top-down change	Kezar (2012)
	Structure which does not facilitate collaboration	Brownlee (2000)
	Focused on public image which does not reflect reality	Harpe and Thomas (2009)
	Lack of attention to cultural context	Gibbs et al. (2008)
	Complex organizational culture	Meister-Scheytt and Scheytt (2005)
	Researched focused structure	Lauder and Mayhew (2020)
External Influences	Industry's involvement in education	Lee (2019)
	Poor industry-academic collaboration	Chinowsky and Songer (2011)
	Conflicting perceptions of both sectors	Chinowsky and Songer (2011)
	Competitive need for accreditation	McArdle et al. (2012)
	Curriculum determined by accrediting bodies	Lee (2019)
	Requirement for accrediting body approval when changing syllabi	Lee (2019)
	Alignment with national objectives set by government in return for funding	Boer et al. (2015)
	Monitoring role and power of HEA	Hedley (2010)
Resources	Declining state funding	Pritchard and Slowey (2017)
	State funding restrictions	Boer et al. (2015)
	Need for increased private funding	Pritchard and Slowey (2017)
	lecturing Staff: Student ratio	Bekhradnia (2015)
	Allocation of resources	Anakin et al. (2018)
Administrative	Various boards and committees involved in change	Hurlimann et al. (2013)
	Extensive proposals and reports required for change approval	Hurlimann et al. (2013)
	Long lead-in times for change	Hurlimann et al. (2013)
	Increased workload of administrative staff	Rosser (2004)

programs respectively). This allows an insight into both University-based Construction Management programs and their counterparts based at the Institutes of Technology. Twelve semi-structured interviews are conducted with a representative of each Higher Education Institution in Ireland currently offering a Construction Management program, at Bachelor of Science and Bachelor of Science (Honors) level (level 7 and 8 respectively). In total and at the time of writing, 11 separate institutes currently deliver a Construction Management program in the Republic of Ireland, with a minimum of one interviewee from each institute participating in the study. Given that at least one representative from each Construction Management program participates in the study, the justification for the inclusion of a small sample size is founded on the work of Lakens (2022) who justifies the sample size, due to collecting data from a significant representation of the population, in this instance, each Construction Management program in Ireland. Also, the sample size is chosen, based on resource constraints, that is, there are a limited number of full-time lecturing staff on such

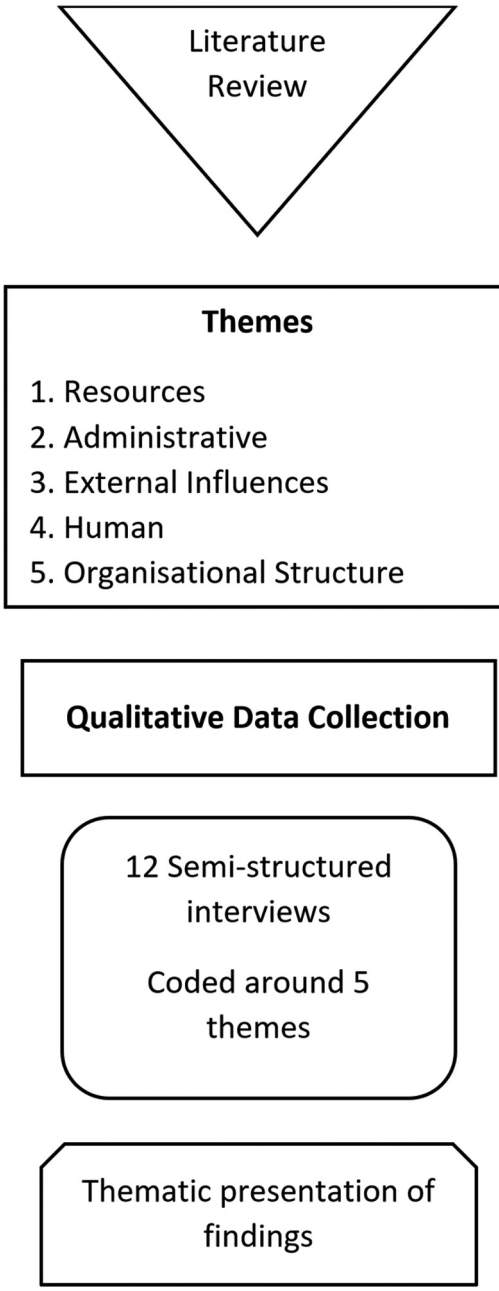

Figure 1. Research design.

programs in the Republic of Ireland. This is further evidenced whereby Vasileiou et al. (2018) argues that a small sample size is negated, where data saturation is achieved, as is the case in this study, where in the final two interviews, no new factors are identified. To garner a broad spectrum of factors, any full-time lecturing staff member delivering on their Construction Management program is invited to participate. The selection criteria for

this study are broad, due to the limited data population size, as a result of only 11 Higher Education Institutes offering Construction Management programs in the Republic of Ireland. To provide clarity regarding the position of Course Director/Program Chair, individuals occupying this role are Lecturers, similar to others who deliver on the program, albeit with responsibility for overseeing the administrative aspects of the program (presenting at exam boards); however, all lecturing staff on such programs are also requested to attend to such matters (log module results, attend exam boards, oversee curriculum development, among other aspects), be they a Course Director/Program Chair or not. Each interviewee is in the position of full-time tenure at their respective Institute, with no part-time lecturer or non-tenured faculty member taking part. Study participants academic experience ranges from 3 to 37 years. Due to the limited pool of full-time lecturing staff on Construction Management programs in the Republic of Ireland, the disclosure of any distinguishing characteristics of participants would allow for the deduction of the identity of participants. Subsequently, no further delineation of the participants will take place.

The interviews are undertaken to address two core aspects. First, to build on factors highlighted in the literature, thereby enabling the establishment of an exhaustive list of barriers currently hindering Construction Management curriculum development in Higher Education Institutions in the Republic of Ireland. Secondly, to gain the perspective of program representatives on why academia may not be able to implement change in their respective programes to address industry needs.

At the time of writing, two universities and nine Institute of Technology were included. To note, several Institute of Technology are in the process of merging and transitioning toward Technological University status; however, at the time of interview, such transitions had not been finalized nor enacted; therefore, for the purposes of this paper, are identified as being an Institute of Technology.

Using the themes and subsequent factors identified in the critique of the literature as a basis for discussion, interviews probed the various topics, while also unearthing further factors. The semi-structured interviews are all conducted online using voice over internet protocol, which revolved around the themes identified previously. Interviewer involvement is minimal, using a semi-structured approach, where interviewees are given the freedom to express their own experiences and opinions. Interviewees are also encouraged to highlight any barriers they feel are significant, which may fall outside of the five themes highlighted. A key focus of the interviewer is to create an environment in which participants feel comfortable to express their true feelings on the subject. No audio and/or visual recordings are undertaken, to support the findings of Harvey (2011), where interviewees are more at ease where not recorded. Interviewees are informed of the nature of the research, the purpose, and what the data would be used for, via an information sheet provided in advance of all interviews. On average, interviews take approximately 30–40 minutes. To facilitate this, interviewee comments and subsequent findings are recorded through shorthand notetaking. This is done to allow participants to communicate openly and honestly about issues they may have otherwise been reluctant to highlight, particularly where interviews are recorded digitally. Rutakumwa et al. (2019) demonstrate that by adopting shorthand note taking and subsequently developing the notes further, post interview, the quality of data capture and subsequent accuracy of record between shorthand notes taken and audio-recorded transcripts, are comparable in the details obtained.

Once all interviews are completed, thematic coding is conducted, to verify and assign each of the factors identified by the interviewees, into one of the respective themes identified earlier. Thematic coding organizes and classifies qualitative data through predetermined themes, in this instance, those identified in the literature, to segregate and organize the respective interview data (Vaughn & Turner, 2016). Fereday and Mui-Cochrane (2006) furthered this by highlighting that one can achieve rigor using thematic analysis, whereby researchers classify the various factors through careful reading and re-reading of the dataset, and subsequently cross-checking the coded information with a coauthor, to ensure accuracy and verification of the coded dataset, as is done in this instance. Krippendorff and Craggs (2016) further this by highlighting that cross-checking by two observers provides further reliability to the coding of data. Furthermore, and to mitigate potential bias among the researchers, author cross-checking and text-only notetaking is adopted; thus, avoiding mis-interpretation and errors due to assuming body language and/or hand gestures, among other non-verbal indicators, which have the potential to introduce bias when working with datasets (Griffin et al., 2020). The data is gathered through qualitative means but is then quantified, based on the frequency with which interviewees highlight each barrier documented. In summarizing the above, the following flowchart Figure 1 is included, to illustrate the research design adopted in this study.

Results and analysis

Interviews begin by gaining general background information and context from each participant, including their role within their respective Construction Management programs. A discussion ensues around the five themes, in no order, identified in the literature. An exhaustive list is created, combining both the factors identified in the literature and those of the interviewees. A thematic analysis is carried out, and each factor is ordered by the frequency of occurrence throughout the interview process.

In total, over the 12 interviews, 288 factors are identified. Once repetitive factors are combined, 78 distinct and individually unique factors emerge and are distributed as follows: Resources (23), Organizational (13), Human (11), Administrative (11), and External Influences (20). Table 2 documents each of the respective themes, the factors identified, and the frequency in which they occurred within the respective 12 interviews conducted.

Table 2. Themes, factors, and frequency of occurrence

Resources	Frequency
Lack of funding for technology	7
High lecturing staff to student ratio	7
Wages in Higher Education Institutions not as attractive as industry wages	7
Lack of time due to pressures of teaching	6
Insufficient lecturing staff numbers to focus on teaching and research/industry links	6
Poor allocation of resources	6
Lack of core Construction Management team in the department	6
Cyclical availability of lecturing staff, depending on economy and industry demands	5
Difficult to find competent lecturing staff who are available when hiring	5
Additional funding is based on research output and not programme performance	4
Common modules between Construction Management, QS, and Engineering	3

(*Continued*)

Table 2. (Continued).

Resources	Frequency
Hiring policy focused on PhD requirement	3
Declining state funding	3
State funding restrictions	3
No funding to hire new lecturing staff to teach niche subjects	2
Lack of lecturing staff experience in industry	2
Difficult to obtain private funding within Construction Management discipline	1
Impossible to keep up with technological advancements in industry	1
Poor standard of academic facilities	1
Limited funding for travel to conferences	1
Only able to hire part-time lecturing staff while recruitment is ongoing	1
Need for increased private funding	1
No Head of Program/Program Leader appointed	1
Organizational	
Organizational structure which does not facilitate collaboration	9
Program success determined by student numbers not quality of output	9
People assessing change with no knowledge of the industry/discipline	8
Limited research time due to significant teaching commitments	7
High level management do not initiate change if the program is profitable	7
Construction Management relies on multidiscipline collaboration for delivery	6
Research-teaching balance difficult to create and maintain	5
Complex organizational culture	4
Construction Management program not prioritized	3
Research focused structure	3
Top-down driven change required but not supported by upper management	1
Focused on public image which does not reflect reality	0
Lack of attention to cultural context	0
Human	
Lack of incentive for additional work	10
Overworked lecturing staff	9
Lack of lecturing staff motivation	7
Lack of awareness of the need for change	6
External lecturing staff not inclined to drive change	6
Lack of industry experience	5
Resistance to change by lecturing staff	4
Needs of lecturing staff not identified	3
lecturing staff responsibilities increase if initiative is taken	2
Change can only be encouraged but not mandated	1
Loyalty to their discipline over the Institute	1
Administrative	
Various boards and committees involved in change	10
Extensive proposals and reports required for change approval	9
Significant lead-in times for change	8
Opportunity for substantial change only occurs at five-year programme review	8
Long process of obtaining new lecturing staff	5
Increased workload of administrative lecturing staff	3
Changes proposed get diluted during the administrative process	2
Internal Review Board and External Review Board make/recommend changes	2
Change may be approved on a conditional basis	2
Administrative staff only "box ticking" to ensure responsibilities fulfilled	1
Inability of management in Higher Education Institutions to manage meetings	1

(*Continued*)

Table 2. (Continued).

External Influence	Frequency
Poor or no industry involvement and input in education	5
Lack of accrediting body involvement and input	5
Requirement for accrediting body approval when changing syllabi	4
Poor industry-academic collaboration	4
Competitive need for accreditation	4
External Examiners assess change	3
Difficult to cater for needs of industry, as every company operates differently	2
Academic papers/content lacking practicality for industry	2
Disparity between accrediting body representatives in expertise and input	2
High fees for membership to professional bodies with little benefit	1
No formal industry link, so recommendations have less bearing	1
Industry may make recommendations for personal gain to fulfil their needs	1
Industry change proposals and make recommendations	1
Absence of public board to drive research in construction industry in Ireland	1
Standard of basic skills (Math, English, etc.) lacking within the student cohort	1
Industry selectively interested in research findings, depending on subject	1
Conflicting perceptions of both education and industry sectors	1
Curriculum determined by accrediting bodies	0
Alignment with national objectives set by Government in return for funding	0
Monitoring role and power of Higher Education Authority	0

Factors which also emanate from the literature, but not referenced by any of the interviewees are also included, with a frequency of zero.

In consolidation of the above, the top 15 factors are summarized in Table 3, which highlight the most referenced inhibiting factors, as identified by the interviewees across all 11 Higher Education Institutions surveyed.

Table 3. Top 15 inhibiting factors as identified in interviews

Rank	Theme	Factor	Frequency
= 1	Administrative	Various boards and committees involved in change	10/12
= 1	Human	Lack of incentive for additional work	10/12
= 3	Organizational	Program success determined by student numbers not quality of output	9/12
= 3	Administrative	Extensive proposals and reports required for change approval	9/12
= 3	Human	Overworked lecturing staff	9/12
= 3	Organizational	Structure which does not facilitate collaboration	9/12
= 7	Administrative	Lead in times for change significant	8/12
= 7	Organizational	Opportunity for substantial change only occurs at five-year programme review	8/12
= 7	Administrative	People assessing change with no knowledge of the industry/discipline	8/12
= 10	Resources	Lack of funding for technology	7/12
= 10	Organizational	High level management do not initiate change if the program is profitable	7/12
= 10	Human	Lack of lecturing staff motivation	7/12
= 10	Resources	Limited research time due to teaching commitments	7/12
= 10	Resources	High lecturing staff to student ratio	7/12
= 10	Resources	Wages in Higher Education Institutions not as attractive as industry	7/12

Discussion

When implementing change in Higher Education Institutions, there is a strong human element that must be considered. A lack of incentive for additional work among lecturing staff is prevalent, with 91% of interviews citing it as a key factor for the stagnancy seen the implementation of change in Construction Management programs. It is evident in the interviews that this factor correlated strongly to a complex organizational structure and the misalignment of goals and responsibilities seen at each level of the Higher Education Institutions hierarchy. Senior management's responsibilities are more aligned toward strategic goals and the business element of the organization. This results in their focus not being on work done by those at the program level. Subsequently, any initiative taken by lecturing staff to implement positive change into the curriculum often goes unnoticed and adds to their, in most cases, already unrealistic workload. Congruently, one interviewee states "the time I spend simply responding to student e-mails and filling out administrative paperwork fulfills the majority of what my contractual hours are meant to be." This resonates with 82% of participants expressing the belief that lecturing staff are already overworked. While many program leaders reinforce that they see it as their duty to put in the additional work required for continuous improvement, there is no tangible benefit for them to do so. A strong correlation between interviewees also emerges, with many interviewees citing a "lack of incentive for additional work," while also highlighting "overworked lecturing staff." This further exacerbates the apparent disconnect present between Higher Education Institution senior management and their lecturers. The lack of tangible benefit lecturing staff experience from any extra work or initiative taken can be demoralizing for lecturing staff, with 62% highlighting an underlying lack of lecturing staff motivation, as a key inhibiting factor. The study participants had many similarities to the results of Davis (2003), which also highlights "lack of lecturing staff motivation," "academics being overworked" and a "lack of appreciation for additional work"; thus, giving further validity to the findings.

It becomes apparent in the interview process that Higher Education Institutions' internal organizational structure throughout the Republic of Ireland varies substantially. This presented itself where what one interviewee would deem as a core responsibility of their position at one institution, another would see such responsibility to be that of the senior management at another institution. However, this did not prevent commonality amongst key inhibiting factors being identified. Eighty-two percent of the interviewees cite that the organization's general structure did not facilitate collaboration between faculty; thus, further hindering program development. It is noted that program success is often determined by numbers and not the quality of output, while high-level management is hesitant to initiate change, if the program is profitable. Interviewees highlight the disparity in what is deemed a "successful program" between themselves and their respective institutions. This is articulated by one interviewee who states, "providing a justification for change or investment in a program is difficult when there is often no alignment in what is deemed value or success between organizations and lecturing staff." Interviewees refer to the multiple layers of management and faculties, who are expected to collaborate through administratively heavy channels. Hurlimann et al. (2013) reiterates this accurately with "various boards and committees involved in change," "extensive proposals and reports required for change approval," and "lead-in time for change," all common inhibiting factors noted by

interviewees at 92%, 81%, and 72%, respectively. This type of time-consuming laborious collaboration acts as a deterrent for lecturing staff to initiate any change that is not all but essential to the survival of their respective programs. One interviewee describes Construction Management as a "unique and multi-disciplinary program," relying heavily on collaboration from multiple faculties. As many of the interviewees who participate in this study only deliver a single module in their respective Construction Management programs, they are often not fully invested in its holistic development. Literature in this area is not abundant and did not demonstrate consensus with the results found in practice.

Interviewees spoke of a level of flexibility amongst module learning objectives. This allows a level of control and the ability to implement less significant changes with relative ease. However, if any sustainable change is to be made, 72% of the interviewees state that it would be done at a programmatic review, which is conducted every three-to-five-year cycle within the Higher Education Institutions. These programmatic reviews act as the only vehicle academics have to introduce any substantial change into modules. It is a common occurrence for senior management and faculty from other disciplines to be the ones assessing change in Construction Management programs. They can do so without any prior knowledge or experience of the discipline. However, this lack of knowledge seems to be offset by external influences, such as professional bodies, external examiners, and external review boards. The impact of "external influences" in Construction Management curriculum development was resoundingly positive. Many interviewees cite professional bodies as a "means of quality assurance" within their program and see them as setting a standard, to ensure consistency within the construction management field. Of note, one interviewee believes there is a lack of engagement from accrediting bodies and feels they should be more proactive and provide higher input levels, to further this agenda. Interviewees highlight that the availability and distribution of resources in Construction Management programs across the Republic of Ireland are lacking. Many cite the 2008 financial crisis as the beginning of the pressure being applied by Higher Education Institutions, to produce a high-quality program in the most "cost-efficient" manner. Resource-related factors have been highlighted a total of eighty-two times across the 12 interviews, making it the most referred to theme discussed. Although there is a commonality in the reference made to a lack of resources by interviewees, as supported by Anakin et al. (2018), the area in which they feel these resources are needed often differed significantly. One interviewee feels that an extra lecturing staff member is a key driver for development, while the next suggests that an investment in new surveying equipment is the most important next step. The disparity is evident in what lecturers feel are "key success drivers" for a Construction Management program. However, what is clear is the impact a lack of resources has on a Construction Management program. Simple tasks such as equipment demonstrations become complex when the available equipment is outdated or obsolete; "I have to teach how to use a total station without having access to a total station," states one participant. Interviewees often refer to a lack of resources when discussing "poor or high lecturing staff-to-student ratio," as too does Bekhradnia (2015). Furthermore, interviewees note a "lack of funding for technology," and "their inability to attract the correct lecturing staff." Funding, or a lack thereof, is often referred to as a key inhibiting factor in curriculum development. However, program directors and those involved in Construction Management program development are rarely directly involved in managing the source or the finances used to run their respective programs.

Conclusion

This paper aims to help understand the factors inhibiting industry-driven change in Construction Management programs in the Republic of Ireland, as per the viewpoint of those directly involved in their delivery. It is noted that, although there are numerous works, as outlined, delving into the need for change within such programs, particularly to keep pace with an ever-changing industry, studies about what inhibits such change materializing are lacking; hence, the gap that this study aims to address. This is of importance not just to the development of the sector and its academic counterparts, but more importantly, so our Higher Education Institutions produce graduates that are not only of value but a fulcrum to the further development of construction management.

In summarizing, 78 factors emerge under five core themes: Resources (23), Organizational (13), Human (11), Administrative (11), and External Influences (20). Of these, the leading factors (top 15) relate to Resources (Lack of funding for technology, Limited research time due to teaching commitments, High lecturing staff-to-student ratio, and Wages in Higher Education Institutions not as attractive as industry), Organization (Program success determined by student numbers not quality of output, Structure that does not facilitate collaboration, Opportunity for substantial change only occurs at five-year program review, and High-level management do not initiate change if the program is profitable), Human (Lack of incentive for additional work, Overworked lecturing staff, and Lack of lecturing staff motivation), and Administrative (Various boards and committees involved in change, Extensive proposals and reports required for change approval, Lead in times for change significant, and People assessing change with no knowledge of the industry/discipline).

The findings of this study ultimately will benefit academic practitioners in addressing the potential and many barriers that currently exist, in implementing change within their respective Construction Management programs. Furthermore, this will result in positive change where it is deemed beneficial for their students, their lecturing staff, and subsequently, their prospective employers and the industry. What must be acknowledged is the complexities that lecturing staff in Construction Management departments around the Republic of Ireland face, in their attempt to develop a "successful" program, cannot be overstated.

The administrative burden, unrealistic workload placed on lecturing staff, the misalignment of goals between various levels of management, and high administrative burden due to complex organizational structures that do not facilitate collaboration, are all key factors in the lack of haste seen in Construction Management programs in meeting changing industry demands. There is also disparity evident between Construction Management academics as to what the "key success drivers" of a program are. These challenges are extremely complex and cannot be negated by the team alone, as many of them are tightly linked with organizational policy. Furthermore, this alludes to this being a challenge that must be dealt with on an institute-by-institute basis. Construction Management is a multi-disciplinary practice that relies heavily on effective collaboration from multiple faculties within a Higher Education Institution.

A dynamic program structure that allows seamless integrations of new technologies, managerial practices, and construction methods, is vital to the effective delivery of future Construction Management programs. Higher Education Institutions in the Republic of

Ireland deliver high-quality Construction Management programs and this study is not aimed to highlight the contrary. This research should instead be seen as a gateway to understanding Construction Management faculty's constraints, which inhibit the further development and strive to expand and increase the quality of the content and experience delivered, as they continue to develop these high-quality programs. This research will allow Construction Management programs to strategically plan for any changes required, by highlighting and mitigating the barriers present at their respective Higher Education Institutions. There is also scope to further this research, by developing a framework that allows programs to fast track the implementation of change, while still adhering to organizational policy.

As at the time of writing, 9 of the 11 Higher Education Institutions offering Construction Management are Institutes of Technology; many of which are either now looking to combine or are in the process of executing change, to form Technological Universities. This will undoubtedly affect many Construction Management programs in future throughout the Republic of Ireland. However, such changes can only be welcomed, where this now provides an apt opportunity to revisit such programs, with a view to instigate positive and long-lasting changes, both to the programs, but also to the administrative frameworks on which they are managed. This will aid further refinement and timely reaction to both prospective student need, but more so, their future employers' everchanging requirements, which we must strive to address, with a view to fulfilling.

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