# Occupational health and safety (OHS) and integrated management

## A desktop-based review across higher education OHS, business and general management courses in Australia

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Apart from the regulatory compliance required by the law, the literature suggests that genuine occupational health and safety (OHS) management that cares for workers can bring tangible benefits that extend to several business objectives. Also, studies demonstrate promising gains from adapting an integrated management concept to enable different management systems to share and exchange information and practices and mutually realise the overall organisational mission and vision. The desktop review of 34 OHS and 177 business and management courses in Australia revealed none-to-little reference to integrated management in these degrees and considerable under-representation of OHS in business and management courses. Although further research is warranted to investigate reasons for the findings of this study and extend it to other countries, its results can raise awareness of the opportunities to enrich curricula and arm future generations of OHS professionals and business managers with the knowledge and skills of an inclusive and balanced consideration of various organisational objectives.

*Keywords: occupational health and safety, integrated management, business management, health and safety management*

## Introduction

Occupational health and safety (OHS) or work health and safety (WHS) refers to the wellbeing of individuals within the working environment with an emphasis on recognising, evaluating and controlling the risks and hazards that may cause harm to those in the workplace (Alli, 2008). Without adequate implementation of OHS measures, workers are at risk of injury (e.g. falling), physical and psychological stress, illness (e.g. infections, musculoskeletal or mental health disorders), or in extreme cases, death (Safe Work Australia (SWA), 2021b).

Although Australia's workplace fatality rate has decreased by 50 per cent from its peak in 2007 and the serious claim frequency rate has decreased by 23 per cent from 2009-10 to 2018-19, statistics still reflect a deficit in effective OHS risk controls, with 194 fatalities and 120,355 serious claims for work-related injuries or illness in 2019-2020 (SWA, 2021b). Measures to ensure physical safety often focus on immediately visible problems (e.g., injuries) whilst the risks causing health damage over a longer duration of time can be underestimated. This is evident, for example, when considering asbestos, its carcinogenic properties, and the effects improper OHS management had on those who worked with this toxic material in the past, including mesothelioma and other lung diseases (Pira *et al.*, 2018).

Psychological safety is equally important as a condition in which workers feel included and safe to learn about, contribute to and challenge the status quo concerning OHS without fear of being embarrassed, marginalised, or penalised

(Clark, 2020). Psychological safety is correlated with and dependent on the social and organisational environment in the workplace. Nevertheless, although under OHS legislation, health extends beyond the physical, to the psychological wellbeing of individuals, mental stress was the fourth most frequent mechanism of serious injury claims between 2019 and 2020 (SWA, 2021b). Businesses must attend to the control of the individual, interpersonal and organisational hazards threatening the mental wellbeing of workers, such as job stress, lack of support, or poor workplace relationships, to meet ethical and legal safety obligations adequately (SWA, 2014).

Two principal groups of actors in ensuring OHS are (senior) management and OHS professionals. Regarding the latter, the OHS professional capability frameworks issued by the Australian OHS Education Accreditation Board (AOHSEAB, 2013) and International Network of Safety and Health Practitioner Organisations (INSHPO, 2017) consider the necessity for OHS professionals to consider and understand business processes, environment and commercial factors and contribute to sustainable business practices, integration of safety into operations and overall business performance, besides necessary OHS-specific knowledge and technical expertise. As such, these frameworks suggest OHS should not be an add-on to organisational strategies and operations. OHS experts must consider not what could seem ideal from an OHS perspective, but what is feasible and in harmony with the overall business aims and priorities.

On the other hand, OHS is not always visible in the Australian business management context. For instance, in an earlier report from a global benchmarking project about Australian management practices and productivity, OHS is not mentioned, although there are references to general worker management aspects such as culture and engagement (DIISR, 2009). Similarly, a 2017 report by the Australian Government on management and organisational capabilities of businesses refers to several key performance indicators (e.g., financial measures, production targets, inventory amounts, delivery time, energy consumption and quality) but misses any reference to OHS (ABS, 2017). Nevertheless, the crucial role of managers' and leaders' commitment to safety has been consistently covered in the literature (Daniel, 2018; De Boer, 2021; Lloyd, 2020), as is the concept of integrated business management (Lee, Shiba, & Wood, 1999; Noble, 2000; Sroufe, 2018).

## Study motivation and objectives

Over time, the literature about OHS and higher education has focused principally on internal university operations (Griffin, 2015; Jabbari et.al, 2019; Liu, 2015; Wenham, 1996) and on specific areas such as laboratories (Breysse, 1966; Lestari *et al.*, 2019; Orr & Ghee, 1985; Schenk, Taher,

& Öberg, 2018), fire safety (Ibrahim Yakubu et.al, 2018) and campus accommodation (Ma *et al.*, 2019). A few studies have investigated the inclusion of safety management in higher education degrees, mainly patient safety in healthcare (Flanagan, Nestel, & Joseph, 2004; Kiesewetter *et al.*, 2016).

Regarding the construction sector, the research by Cameron and Fairlie (2004) in the United Kingdom identified a lack of direction within accredited construction degree programs regarding OHS education of undergraduates, with only half of the British universities recognising its importance and the other half viewing OHS education as an ad hoc study area when necessary. In the same sector, Smallwood (2004) concluded that tertiary construction OHS education should be shaped and steered through the active participation of the various regulatory and industry stakeholders.

However, the OHS literature reviewed in the following sections shows that, apart from the regulatory compliance required by the law, genuine OHS management that cares for workers can bring tangible benefits that extend to several business objectives. Also, the literature indicates promising gains from adopting an integrated management (IM) approach. Under this approach, different management systems would come closer to each other, share and exchange information and practices and mutually realise the overall organisational mission and vision. Consequently, IM suggests that there must always be consultation about quality, security, production, etc. in the context of OHS functions and vice versa.

The above means that, on the one hand, business managers and leaders must know their ethical and legal responsibilities for OHS, and, on the other, they must have the knowledge and skills to foster a collaborative environment towards integrated instead of siloed management systems. Similarly, OHS professionals should be aware of other management areas, which could be achieved by understanding the contributions of other business functions to organisational success and actively support IM-like approaches.

Nevertheless, the authors of this study could not locate in the literature any research in Australia or internationally that maps the extent to which universities offering business and general management degrees, which prepare future organisational leaders, and OHS courses, that offer necessary knowledge and skills to OHS professionals, encompass what the literature suggests. Therefore, this research focused on the Australian context as a case study and aimed through a desktop-based data collection and analysis to offer a first exploratory picture about the degree to which:

- OHS and integrated management are included as topics in the publicly available information of business and general management courses in higher education.
- Integrated management is included as a topic in the publicly available material of OHS higher education courses.

## The Australian OHS legal landscape

Amongst various OHS initiatives and programs, the reduction in rates of workplace injuries, illnesses and fatalities may be partially attributed to government interventions, such as the complete banning of asbestos in 2003 or introducing the model Work Health and Safety Act 2011 (SWA, 2011), adopted by most of Australia's jurisdictions. The WHS Act 2011 supplies governments with a legislative framework to ensure and promote OHS for all those involved in the work environment. The Acts and Regulations, supported by Codes of Practices, outline the responsibilities of those running a business and undertaking paid or voluntary work. Safe Work Australia is the national government organisation that assists in the development of OHS policies and best practices through collecting and analysing data and evaluating the effectiveness of legislation.

In general, each person conducting a business or undertaking (PCBU) has duties under WHS laws, including maintaining a safe workplace environment, providing staff with adequate facilities, monitoring the safety and health of workers and ensuring safe systems of work are in place (SWA, 2021a). Similarly, officers, meaning those individuals that have major sway over part or whole of the business, inclusive of financial decisions, have responsibilities under WHS laws, most prominently due diligence to ensure their business satisfies the requirements outlined by WHS laws (SWA, 2020). To demonstrate and maintain legislative compliance, officers must keep up to date with WHS legislation, have current knowledge of the dangers within their business, ensure adequate protocols and controls to manage risks and create reporting processes for WHS issues and incidents (SWA, 2021a).

The implications of failing to meet OHS standards go beyond the immediate effects of workplace incidents and accidents on workers, their families, and the community. PCBUs, officers and workers can face legal sanctions in cases of negligence (i.e. Common Law) or breaches of the Acts and respective Regulations (i.e. Statute Law). Besides the different categories of charges foreseen in legislation based on the severity of an offence, in several Australian states and territories, industrial manslaughter has been added. For example, conviction for industrial manslaughter in Queensland might lead to up to 20 years imprisonment for individuals and a $10 million fine for PCBUs (Queensland Government, 2019).

## OHS and other business objectives

When considering WHS legislative requirements and ethical responsibilities, one must also account for additional business objectives (e.g. productivity, efficiency, security, and quality), which are also important for business viability. Therefore, organisations must contemplate how these objectives can affect OHS management and vice versa, as all those objectives often share the same pool of resources (e.g., humans and infrastructure). For instance, safety and productivity might compete, particularly when the prioritisation of one objective overrides the focus on the other in the workplace. The trade-offs involved in meeting productivity goals through a decreased emphasis on safety create hazardous working environments (Dekker, 2011). The following paragraphs of this section refer to indicative studies on the relationship between OHS and other business objectives.

Karanikas, Melis, and Kourousis (2018) surveyed two Australian aircraft manufacturing facilities and found that workers could put production requirements over the safety of themselves and others. However, the researchers concluded it is possible for safety and productivity to be balanced, possibly through further awareness and training to establish and promote such an equilibrium. Kodithuwakku Arachchige *et al.*, (2021) analysed the impacts of poor OHS standards on productivity and found a correlation between occupational injuries and poorer productivity because of prolonged worker absence, financial loss from employee pay-outs, and impaired performance of workers upon returning to work because of long-term effects of injuries.

Furthermore, Steel, Godderis, and Luyten (2018) performed a systematic review of the economic values of OHS interventions from 2007 to 2017 and revealed an economic attractiveness to the investment in OHS because of increased productivity. In an earlier study, researchers found that an emphasis on safety in the workplace can save money through staff retention, heightened productivity, and less expenditure on workers' compensation (Miller & Haslam, 2009). Similarly, Sousa *et al.* (2021) reviewed 36 studies from 1945 to 2018 and established that in the cases of optimal OHS implementation and investment, businesses that properly addressed OHS responsibilities had a higher probability of producing better financial outcomes than those that neglected or failed to address OHS optimally.

Efficiency in the workplace is another objective. It refers to the business's ability to use resources such as time, materials, or labour without waste or, from a different angle, produce more or create something of higher value, with the same or lower amounts of resources (Girón Blanco & Dederichs, 2018). (Note: https://dictionary.cambridge.org/dictionary/english/efficiency).

Sexton *et al.* (2018) investigated efficiency in the high stress environment of an operating room and identified cognitive workload as a factor that influences performance. The researchers suggested training in areas of anticipation and team building to reduce the cognitive workload and pressures

on individuals. Those recommendations were based on their findings that further knowledge about processes and familiarity with other staff created a more supportive environment with higher perceived psychological safety, which improved the efficiency of the operating room team. Gausvik *et al.* (2015), in the healthcare setting, determined that a healthy working environment that includes collaboration, communication and shared decision making, assists with maintaining a maximally efficient working space by protecting the psychological safety of employees, increasing job satisfaction, and providing staff support.

When researching the interlinks between quality and safety, quality of work-life (QWL) is a common subject of discussion. QWL encompasses job satisfaction, hours, job security, and working environment, and has been tied to staff performance and the standard of business and services (Elizur & Shye, 1990). From the perspective of work outputs, Koy, Yunibhand, and Turale (2021) compared the practices of staff working 12-hour shifts versus those working 24-hour shifts. The results showed higher patient satisfaction, better quality of care, decreased missed care and fewer adverse events for staff rostered for only 12 hours when compared with the 24-hour shift workers. Although Koy *et al.* (2021) also considered the financial benefits to extended shifts beyond 12 hours, their study findings confirmed that a lack of attention to the safety and health of staff could negatively impact the quality of their performance.

Similarly, the survey by Motalebi, Sal Moslehian, and Hasanzadeh (2021) found that low noise levels, exposure to natural light and adequate physical space can contribute to the wellbeing of staff and their job satisfaction and, therefore, their performance. Misiurek and Misiurek (2020) expanded on the relationship between safety and quality in the workplace in the construction industry, suggesting that when including safety as a vital element in the 5S system, a workplace of higher quality is created. The 5S system (i.e., Standardise, Sort, Shine, Set and Sustain) is an approach to improving workplace quality that aims to elevate productivity and reduce non-value time by optimising the organisation of the workplace (Omogbai & Salonitis, 2017).

Regarding security, Karanikas (2018) discussed its relationship with safety, highlighting their common goal to protect and enhance the system's integrity, including hardware, software, infrastructure, intangible, capital and human assets. The review by Salama and Gangwani (2021) concluded about the necessity for security in the workplace for women in the hospitality industry, particularly in hotels that often involve solitary work hours at night. The researchers emphasised the threats on physical and psychological safety and highlighted the need for OHS training and programs to ensure that businesses maintain their responsibility in maintaining both the security and safety of their staff.

M. J. Smith (2018) concurred with the need for security to increase worker safety in his analysis of workplace violence events in the United States. The particular study considered violence by strangers, most explicitly robbery, violence by clients or customers, violence from co-workers and violence by personal relationships, meaning domestic situations that flow into the workplace. Furthermore, Blando *et al.*, (2013) investigated how the invoking of security programs influenced the perceived safety of nurses. Their research revealed that even with the presence of security programs and guards, it was the capabilities and response time of the security staff that largely contributed to the nurses' perceptions of safety. Also, there was increased perception of physical safety when equipment, such as metal detectors, had been integrated into the hospital's security program, reflecting a pertinent allocation of finances to OHS.

## Towards integrated management

Based on the literature presented above, it can be claimed that the separate consideration and management of the various business objectives might negatively impact organisations and their employees. Productivity, efficiency, quality, security, safety and other objectives are all interrelated, with each one affecting and influencing the others. Nevertheless, management systems might fail to consider the relationship between the various objectives, and privilege some over others, which can decrease the safety of employees or limit the quality, efficiency or productivity of a business (Marilena, Oana, & Stefan, 2018).

Integrated management system (IMS), or multiple management systems (MMS) as it is sometimes called, is a managerial approach that encompasses all business objectives. IMS promotes the integration of environmental, quality, occupational health and safety, and social responsibility management systems to increase the competitiveness of a business by improving its sustainability, maximising efficiency and minimising profit loss, while protecting the physical and psychological safety of staff (Sousa *et al.*, 2021). Zuluaga, Albert, and Winkel (2020) addressed the need for an IMS with a focus on the construction industry, concluding that focusing centrally on one element of management, for example productivity, other elements like safety and efficiency suffer. Moreover, Zeng *et al.* (2011) identified several other benefits of adopting an IMS, including a decrease in paperwork, lower management costs and less complexity of internal management.

Additionally, the simpler certification processes associated with integrating management systems (e.g. ISO 9001 on Quality Management with ISO 45001 on OHS Management) were found to be a major benefit in addition to the market competitiveness of certified businesses. Arguably,

the most important asset identified by Zeng *et al.* (2011) was the IMS's ability to promote continuous improvement within the business even after the initial systems' integration process. Abad, Dalmau, and Vilajosana (2014) concur with this finding, highlighting the greater capacity to achieve multiple objectives under an IMS and emphasising its benefits on workers as the latter build greater competence and demonstrate higher motivation.

One challenge of IMSs is the lack of a shared definition of integration and what it means to implement an IMS appropriately (Silvestri *et al.*, 2021). However, the systematic guidelines and proposed frameworks outlined by standards such as the ISO 45001 and the ISO 9001 are similar in methods, structure and implementation process, which facilitates their integration (Heras-Saizarbitoria & Boiral, 2013). Furthermore, there has been no definite guidance on which of the two avenues for introducing an IMS, sequentially or simultaneously, is most appropriate and viable for specific business contexts (Domingues, Sampaio, & Arezes, 2015).

Ikram, Sroufe, and Zhang (2020) identified several other barriers to IMSs, categorising them into six main groups: implementation, social and legal, resources and management, cultural, economic and people. Implementation barriers refer to the lack of guidelines and a misunderstanding of how to enact an IMS. Social and legal challenges refer to the deficiency and/or absence of legislation and the lack of support schemes. Under the culture category, Ikram *et al.* (2020) identified lack of communication and poor teamwork as major issues when attempting integration. Economic barriers included training, audit and certification costs, whilst the resource and management category identified the lack of time and managerial support as heavily weighted issues. Furthermore, the challenges falling under 'people' were the lack of employee motivation for change and an absence of staff awareness of IMS, which ties back into the lack of education and training, which illustrates the confounding effects of these barriers (Ikram *et al.*, 2020).

## Methodology

This study involved an online search to collect and analyse data available on Australian universities' websites in December 2021. The list of all universities (N=42) was retrieved by the Study Australia website. For each university, we first located the webpage with the list of all undergraduate and postgraduate courses. Then we used the keywords 'safety', 'business' and 'management' to identify OHS, business and general management courses, respectively. We did not use the term 'health' in the search as it would return numerous results outside the scope of this study (e.g., health management), and health and safety are always mentioned together in the

context of OHS/WHS. However, we included the Health, Safety and Environment degrees as they include OHS.

Also, we considered all general business and management degrees regardless of any additional terms used in their titles (business administration, business management, etc.), and we excluded degrees labelled as 'international' as this research's scope was the Australian context. Moreover, to avoid duplicate entries, executive degrees were included only when other 'non-executive' courses were not offered under exactly the same course title (e.g. Executive MBA was included when there was no MBA). Furthermore, we focused on the main business degrees (i.e. no double or specialised degrees) and we excluded non-general management courses (e.g. project management, human resources management, public management) and any research degrees on OHS, business and management. Also, we excluded honours bachelor courses if there were regular courses available (non-honours) as the former are extended courses of the latter, mainly complemented with research components.

Regarding OHS/HSE courses, we first checked whether there were individual units dedicated to integrated management. Then, we visited the webpages of all management units (e.g., OHS management) and searched their information/outline content by using the term 'integr'. For the units that included this term and referred to integrated management/objectives, we recorded the unit code and type (i.e., core or elective/major/minor/restricted choice). This variable was used to assess whether the opportunity to learn about integration is offered to all students of each course. Also, we recorded the Faculty under which each course was nested. As the OHS academic discipline, in general, falls either under the (Public) Health or the Business domain, we classified the hosting Faculties under these two domains even when they included other disciplines (e.g., a Law and Business Faculty, was classified as Business). We did not find any cases where those two domains were under the same Faculty, and we recorded separately cases where OHS courses were nested in other disciplines (e.g., Social/Humanities). This variable was used to:

- Indicate whether the inclusion of integrated management would be found with different frequencies across different disciplines.
- Gain an understanding of the discipline/domain (i.e. Health, Business or other) to which each university had nested each OHS course. This would possibly indicate how the higher education sector in Australia views OHS.

For the business and general management courses, we first identified any units explicitly about IMS or OHS. Then, we also visited the webpages of targeted units and searched their information/outline content by using the terms 'integr' (management units) and 'safety' (management and human resources units) as, historically, OHS activities interlink with

*Table 1: Distribution of the courses surveyed*

| Study area | Total | Bachelor's | Graduate certificates | | | Graduate diplomas | | | Master's |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | Nested | Not nested | Total | Nested | Not nested | |
| OHS | 34 | 4 | 9 | 9 | 0 | 11 | 8 | 3 | 10 |
| Business | 69 | 30 | 19 | 10 | 9 | 12 | 6 | 6 | 8 |
| Business administration | 77 | 9 | 17 | 17 | 0 | 13 | 12 | 1 | 38 |
| General management | 31 | 4 | 9 | 8 | 1 | 2 | 2 | 0 | 16 |
| Subtotal of all business and management courses | 177 | 43 | 45 | 35 | 10 | 27 | 20 | 7 | 62 |
| Grand total | 211 | 47 | 54 | 44 | 10 | 38 | 28 | 10 | 72 |

human resources areas (Boyd, 2003). We note that the search for human resources units included the ones referring to people/human management in general (e.g., managing human capital) but excluded units focusing on other related areas, such as organisational behaviour and leadership.

For the units that included the terms above and referred to integrated management/objectives and OHS/WHS respectively, we recorded the unit code and type (i.e., core or elective/major/minor/restricted choice) for the same reasons stated above. Additionally, we recorded the title/type of the unit referring to OHS (e.g., health & safety, human resources or law). We excluded business and management courses which offered an OHS path/unit but required prior studies in OHS such as a diploma or certificate.

The last variable recorded was whether any graduate certificate or graduate diploma degrees were expectedly nested under a master's course. A 'nested' value was decided when the master's, diploma and certificate courses had exactly the same study area title as, typically, such postgraduate diploma and certificate courses offer a subset of the units of their parent master's degrees. All collected data were transferred to SPSS v. 28 and then analysed descriptively to calculate frequencies. Depending on the distribution of the values, we conducted Chi-square or Fisher's Exact tests to explore statistically significant differences with a level of $\alpha=0,05$.

## Results

The distribution of the 211 courses surveyed across 40 Australian universities is presented in Table 1. Two universities (i.e., Carnegie Mellon University and the University of Divinity) offered no OHS, business or general management degrees.

None of the outlines of the management units of the 34 OHS degrees referred to the concept of integrated management (IM). When considering the whole sample (i.e., nested and not nested courses), most of the degrees were offered by a health-related faculty/school (n=20, 58.8 per cent), ten courses were hosted by a business-focused faculty/ school (n=10, 29.4 per cent), and four degrees were delivered by the social sciences faculty/school of the University of Wollongong (n=4, 11.8 per cent). When excluding nested degrees, the percentages reported above remained unchanged, as exactly half of the OHS courses were nested under a higher qualification degree. The Fisher's Exact test did not reveal statistically significant differences of the distributions of OHS course level (i.e., bachelor's, postgraduate diploma, postgraduate certificate and master's) across the types of hosting faculties/schools (n=34, p=0.995).

Across all 177 business and management degrees, IM was mentioned in the outlines of only six units across five degrees (three bachelor's, one postgraduate certificate and one master's) delivered by only three universities. In those five courses, most of the IM-mentioning units were core (n=5), and one unit was included in a major study area of an undergraduate course. Out of the 40 universities offering the 177 business and management courses of any qualification level, ten universities (25 per cent of all universities with business and management courses) and 126 courses (ca 71 per cent of all business and management courses reviewed) had no unit referring to or specifically about OHS. In the rest 51 business and management degrees, 81 units were OHS-specific or mentioning OHS. More specifically, in the particular subset, there were 16 OHS-dedicated units (ca 20 per cent), 46 Human Resources units mentioning OHS (ca 57 per cent), 17 Law units referring to OHS (21 per cent) and two units from other areas (i.e., Managing professional sport and Managing risk and opportunity) mentioning OHS in the Master of Management course at the University of Technology Sydney.

Only nine out of the 81 OHS-related units were core while the rest 72 OHS units (dedicated or related) were optional (e.g., part of a major, electives, restricted options). All 13 universities that offer OHS courses also offer business and management degrees. In the specific subset, when excluding the University of Wollongong as the only institution hosting

the OHS degrees under a School/Faculty other than Health or Business, the universities had more dedicated or related OHS units in at least one business and management course, regardless of qualification level, when their OHS degrees were hosted by a business rather than a health faculty/school (100.0 per cent vs 62.5 per cent, respectively).

Overall, Chi-square tests revealed significant differences of the distribution of OHS units (dedicated and related) across the course level, with business and management bachelor's hosting such units more frequently, followed by master's degrees (N=208, df=3, X=37.219, p<0.001). When clustering the OHS units, business and management master courses recorded the most dedicated OHS units (ca. 69% of all OHS-dedicated units in business and management courses), followed by undergraduate degrees (ca 31 per cent of these units); no OHS-specific unit was found for postgraduate diplomas and certificates. The picture was different for OHS-mentioning units, which were more frequently found in bachelor's degrees (ca 52 per cent), followed by master's courses (ca 23 per cent). Also, nested postgraduate certificates and diplomas in business and management were the same likely to refer to OHS as non-nested courses (n=78, p=0.321).

## Discussion

The complete lack of reference to integrated management (IM) in OHS degrees signals that their graduates might be unaware of its benefits (Abad *et al.*, 2014; Sousa *et al.*, 2021; Zeng *et al.*, 2011; Zuluaga *et al.*, 2020). Moreover, OHS graduates could develop a mindset of OHS being the ultimate organisational priority if courses do not highlight the interdependencies of various organisational objectives. Although, from a moral responsibility perspective, there have been advocates of a 'safety first' approach (Healy & Dugdale, 2009; Pearson, 2003; Sneddon, 2016; Zhu, 2018), research suggests that this is rather unfeasible within dynamic organisational environments, especially under resource constraints (Karanikas & Hasan, 2022), and can also generate negative effects on other important business decisions and outcomes (Levy & Levy, 2009; S. D. Smith, 2019).

Therefore, instead of promoting a balanced approach to the various organisational objectives, OHS courses could unintentionally exacerbate the competitiveness between such objectives for resources, funding and priorities and encourage local trade-offs at the work floor with possibly adverse consequences (Dekker, 2011). However, the literature suggests that safety personnel must pursue win-win situations by reconciling management and workforce needs and co-designing 'balanced' solutions through honest engagement and active participation (Provan, Dekker, & Rae, 2017). Furthermore, our findings suggest the expectations set by the Australian OHS Education Accreditation Board

(AOHSEAB, 2013) and the International Network of Safety and Health Practitioner Organisations (INSHPO, 2017) regarding the business-oriented OHS professional capabilities are not visibly met by the Australian OHS courses reviewed.

Someone could partially attribute the above to the fact that most Australian OHS degrees are hosted in health-focused Faculties/Schools; still, IM is entirely missing from OHS degrees delivered by business-focused Faculties/Schools and largely missing from business and management courses. Nonetheless, the nesting of OHS courses by Faculties/Schools with different focus indicates the diversity to which OHS is viewed in the Australian educational context. On the one hand, a health or social focus might suggest a more human-centred approach to OHS, and, on the other hand, a business focus might promote the consideration of OHS as a 'value-adding' and/or 'compliance-mandate' organisational aspect.

However, we should consider that OHS professionals rarely have authority over operations and strategic business decisions, meaning that, according to Australian laws, they do not bear the duties of officers and directors. Overall, OHS staff contribute to identifying hazards in the workplace and assist employers and employees with risk elimination and mitigation (NAP, 2000). Thus, the concept of integration becomes more important for business managers who are tasked with steering organisations towards success and sustainability. The literature encourages a focus on general management practices (Bloom *et al.*, 2012) and additional benefit analyses based on non-financial gains, including employee engagement, achievement of business objectives, productivity improvements, quality and the value of safety goodwill and reduced employee turnover (Allen, Bryant, & Vardaman, 2010; Tappura *et al.*, 2015). Therefore, the very low representation of IM in business and management courses means there might be missed opportunities regarding IM, as mentioned for the OHS degrees above.

Even more interestingly, business and management graduates might be completely unaware of the role and significance of OHS along with their legal obligations as approximately three quarters of these courses mention nothing about OHS and only less than 10 per cent of the degrees offer a unit dedicated to OHS. Although it is a positive sign that OHS is mentioned as part of human resources and law units, still this may reduce the perceived importance of OHS and render it as just 'another' area amongst other topics covered in such units. Furthermore, the inclusion of OHS only in a human resources unit promotes a focus on managing workers, which again might downplay or obscure the organisation-wide responsibilities for OHS (Daniel, 2018; De Boer, 2021; Lloyd, 2020) and the effects of the poor design of work systems on staff (Karanikas *et al.*, 2021). As might be expected, the law units that refer to OHS, emphasise legal compliance without considering the multifaceted elements of

effective and sustainable OHS management (e.g., social and engineering aspects).

Even more alarmingly, as the distribution of OHS-dedicated and OHS-mentioning units across the study plans showed, most of these units are optional. Therefore, it cannot be guaranteed that graduates from these business and management courses would ever hear anything about OHS if not enrolled in the respective major or choosing a relevant elective, etc. On the other hand, it could be encouraging that most of the OHS-relevant units were offered in undergraduate courses where foundational knowledge is built, with the caveat that these units were mostly discussing OHS as part of other areas covered and were not OHS-specific. Nonetheless, when considering that business and management degrees rank highly and their graduates are in high demand, according to the Australian Business Deans Council, it is imperative to revisit their focus on OHS amongst other knowledge areas.

## Study limitations and future research

The findings of this research cannot be generalised to the international sphere as we only considered the Australian higher education sector. Extension of such exploratory research to other countries could allow comparisons and stimulate discussion and studies about any international similarities and differences. Additionally, the specific research was limited to desk-based review and focused on explicit or evident references to OHS or IM in the courses reviewed and the outlines of the units targeted. As such, during our study, we have possibly missed cases in which OHS and/or IM are mentioned during the delivery of other units, despite not being included in the respective outlines, or without any synonyms of the term 'integration' being used. However, we believe it is unlikely that there are other units, missing from our dataset, that mention OHS in their outlines, as we were intentionally relaxed when deciding which unit outlines to review. Also, 'integration' is the common term used in the literature for systems and business objectives, as shown in the studies presented above in the respective section of the paper. Nevertheless, this and similar desk-based analyses should be followed up by research involving course and unit coordinators to shed light on the reasons for including/excluding OHS and IMS as dedicated or relevant topics in the curricula and, possibly, examine the use of different terminology.

Furthermore, due its nature, our desk-based research did not include the examination of the content and directions provided by the units currently dedicated or referring to OHS and IM. Hence, future research could engage education providers to reveal what exactly is delivered in these areas and through what pedagogical approaches, whether and how respective knowledge and skills are evaluated and how any feedback from students is actioned. Also, future studies could engage experienced OHS professionals and business managers to collect data about the perceived value of including IM and IM/OHS, respectively, in higher education courses.

Moreover, as we excluded specialised management courses (e.g., human resources and project management), future research could include such degrees to acquire a more holistic picture of the degree to which OHS and IM are covered in specialised degrees. This could also extend to the courses offered in other disciplines (e.g., engineering, health) as OHS and IM constitute broad and global concepts, and business managers and leaders can emerge from any specialisation, regardless of individuals holding business and management degrees. This is highly important as reportedly only about 40 per cent of principal managers in Australia have management/business specialist skills (ABS, 2017).

## Conclusions

The literature repeatedly points to the need for abandoning siloed management systems and transitioning to more integrated management (IM) concepts under which various organisational objectives run symbiotically to ensure business viability and sustainability. Occupational health and safety (OHS) is one major organisational area, which apart from social and moral mandates, produces organisation-wide benefits and is subject to various laws and regulations, the breach of which can inflict severe consequences for organisations and their officers and directors.

Our desk-based review of Australian university courses and unit outlines revealed significant gaps in mentioning IM approaches in OHS and general business and management degrees and under-representation of referring to OHS as a topic in the latter courses. This suggests that the respective tertiary education degrees might not have capitalised research on the benefits of IM systems, while also OHS might not be consistently considered as a principal organisational area in business and management studies.

Although further research is warranted to examine the degree to which the findings of this study reflect actual practice in universities, investigate respective reasons and extend such studies to other regions, the results of this research can raise awareness of the opportunities to incorporate IM and OHS in higher education courses to arm future generations of OHS professionals and business managers with the knowledge and skills of an inclusive and balanced consideration of various organisational objectives.

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