26th EISIC – University of the West of Scotland

The academic integrity-artificial intelligence nexus: An institutional and personal normative risk to quality of learning and teaching at higher education institutions

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Purpose of the paper: Generative artificial intelligence software such as ChatGPT has brought forth challenges to assessing and assuring individual learning artefacts. Complicating matters is how some disciplines and professions are adopting ChatGPT as a 'must have' skill because of its ability to improve performance and output artefacts in these disciplines and professions. The combination of both developments has highlighted highlight the normative challenges universities face in providing learning experiences for students.

Methodology: This article is primarily based on a transdisciplinary literature review of academic integrity, decision-making under uncertainty, learning and teaching, quality and quality assurance, risk, and student development.

Main findings: Normative challenges leading to institutional risk are found in the student-as-consumer literature (e.g., Bunce et al., 2017; Bunce, 2019, 2022). The clash between the student-as-consumer, buttressed by students paying most/all of the costs of education at a university, and traditional intrinsic values as indicated in the values supporting academic freedom (Padró, 2022a), shows there are conflicting values requiring reconciliation to ensure desired student outcomes as legitimized by certificates and degrees.

Practical implications: There are ethical and legal considerations embedded into academic integrity processes and findings that generate risk for

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students within the university and potentially in professions where adverse findings against the students can preclude them from entering those professions. There are also institutional risks associated with a paradoxical problem of balancing assurance and pedagogical practice, i.e., assuring the work is that of the student while also allowing for development in the fields that are adopting ChatGPT as an accepted aspect of professional practice (cf. Cotton et al., 2023). The paradox lives within institutional policies and procedures, particularly their capacity to remain aligned given the speed of technological development. The challenge is for university policy and procedure formation and updating to maintain their agility under a fast-changing environment so that policies and procedures do not favour academic integrity issues over subject matter and practice currency.

***Originality/value**:* This is a fast-evolving field. There has been little time to develop long-standing approaches to the academic integrity (AI)-artificial intelligence nexus. What has occurred is an attempt to update existing practices; however, a paradoxical situation has developed where artificial intelligence provides challenges to assuring the integrity of student-generated artefacts while also becoming a new skill set in certain disciplines and professions. Thus, concerns have developed from a detection-prevention-behaviour mitigation perspective alongside curricular and pedagogical concerns. Yet, there has been little or no analysis from a risk-based perspective, which is what this paper begins to provide.

***Type of paper**:* Conceptual paper

Keywords: academic integrity, artificial intelligence, policies and procedures, quality assurance, risk, risk registers, uncertainty

Introduction

Risk, broadly speaking, refers to deviation of outcomes or processes; yet it can be positive, negative or both "and can address, create or result in opportunities and threats" (ISO 31000:2018, p. 1). A few studies like Abercrombie et al. (2022) present academic risk taking as an opportunity to improve, based on student willingness to actively and deeply engage with course requirements and subject matter as a means of reducing errors and avoiding failure. This paper discusses the threat aspect of risk – that fear of failure and uncertainty – resulting from incorporating artificial intelligence in the learning and teaching environment. The risk itself is derived from the conflicting outcomes of assuring system integrity (in this case academic integrity) and avoiding failure brings to both, university students and higher education institutions (HEIs).

Academic integrity (AI) is used "as a proxy for the conduct of students, notably in relation to plagiarism and cheating", even though it is also about the broader view of the values and conduct of academics in their actual practice (Macfarlane et al., 2014, p. 340). Concerns from students frequently relate to a utilitarian or useful view of academic culture *vis à vis* benefits of attaining an academic credential. These concerns often are based on how individual students value the educational process – and often the reasons for wanting a university education – and the degree of alignment between academic values and current prevailing social mores (Mazur, 2021). Utility, as defined by Bentham (1789), is perceptual, emphasising benefits and happiness of individuals and community. Like Fishburn (1968) noted, risk from a utility perspective is primarily concerned with choices and decisions based on internally consistent assumptions; Utility Theory theorems are based on these assumptions. Risk comes to the fore when biases held and the effects of confirmation bias by both individuals (staff and students) and organisations, in this case universities, misread, misunderstand or overlook ambiguous threats to students and the universities themselves (Kaplan et al., 2012).

Risk has become part of quality assurance schemes within higher education in the early part of the 21st century (Maciejczak, 2016). Deming's *System of Profound Knowledge* [SPK] (1994) suggests looking at quality from four perspectives: [1] appreciation of a system, [2] knowledge about variation, [3] theory of knowledge (comparison between theory of practice and what actually happens) and [4] psychology (motivation). Academic integrity challenges exemplify the need to understand the interactions between academic affairs and student support in pursuance of policy and procedure requirements from a systemic point-of-view; understand variation from the points of AI and professional skill development; demonstrate awareness of the changing environment pertinent to the rapidly evolving artificial intelligence development and oversight bodies or regulatory concerns regarding student performance, and the reasons why students may be tempted to take risky shortcuts and academics look favourably or unfavourably to artificial intelligence. Academic integrity challenges also highlight Padró's (2009) suggestion to add [5] intrapersonal emotional intelligence and interpersonal

relationship[4] and [6] policy-steering[5] as an additional two perspectives within the SPK because of the need to understand the various psychological aspects behind motivation and the extent of government intervention in external environment expectations and requirements from HEI performance. All six perspectives are required to understand the AI-artificial intelligence nexus. These perspectives are implicit at a rudimentary level in the risk registers generated by most HEIs, not addressed directly. The challenge is whether the AI-artificial intelligence nexus can be clearly identified in terms of the nature and type of academic and enterprise risks represented. However, there is an additional dimension of risk that exists, that of risk to the student, specifically reputational risk that can exist beyond the time at an HEI or the higher education and broader post-secondary sectors. These do encompass the widest aspect of higher education as a system. The subsequent points presented in this paper discuss risk from a student point-of-view, regarding how risky decisions can come about and risk from an HEI perspective. Also discussed is the shared challenge of cultural culture clashes amongst the accepted standards of HEI practice, culture norms which prioritises the 'student-as-customer' model over traditional academic values of the pursuit of study for personal and professional benefit (a major operational and strategic risk that is the gravamen of the situation presented here), and the policy drivers at play promoting the culture clash the AI-artificial intelligence nexus represents.

Methodology

[4] Intra- and inter-personal relationships in the higher education environment focuses on the interplay between individuals (potential students, actual students and alumni) and 'their' university as subsets of motivation. Intrapersonal effects allow for insights about the dyadic processes resulting in social connection or disconnection (the handling of stress) and the personal emotional costs leading to social connection or disconnection linked to sustaining a willingness to perform in accordance with the defined standards of practice (Chan, 2008; Okwuduba et al., 2021; Pietromonaco et al., 2017: Rimé et al., 2020). Scholtes (1999) proposed that paying attention to interdependence, separate from the psychological aspects of human behaviour as proposed by Deming, allows for an understanding of how people interact with the organisational environment and complex change. One of the important student development outcomes is "moving through autonomy toward interdependence… [so as] to function with relative self-sufficiency, to take responsibility for pursuing self-chosen goals, and to be less bound by others' opinion" (Chickering et al., 1993, p. 47). Specifically, this transition involves three components: "(1) emotional independence – freedom from continual and pressing needs for reassurance, affection, or approval from others; (2) instrumental independence – the ability to carry on activities and solve problems in a self-directed manner…; (3) interdependence – an awareness of one's place in and commitment to the welfare of the larger community" (p. 117).

[5] Ferlie, Musselin and Andresani (2008) defined policy steering as "the externally derived instruments and institutional arrangements which seek to govern organisational and academic behaviours within higher education institutions" (p. 326). Steering within educational systems is a complex proposition because of the role the state and other stakeholders play, with these stakeholders representing different interests and levels of influence requiring HEIs (and other organisations) to adapt governance processes to meet these external requirements (Beunen et al., 2021; Theisens et al., 2016). Steering has been influenced by TQM through the adoption of the New Public Management mindset and reforms undertaken by governments (Ferlie et al., 2008; Padró et al., 2020). Guba (1984) pointed out that policy means different things for different writers in the field of policy. Knoepfel et al.'s definition of public policy is the one used for this paper: "a series of intentionally coherent decisions or activities taken or carried out by different public – and sometimes – private actors, whose resources, institutional links and interests vary, with a view to resolving in a targeted manner a problem that is politically defined as collective in nature" (p. 24). Three broad variables shape implementation: [1] the tractability what is being addressed, [2] the extent to which statutes structure a process leading to a favourable outcome, and [3] "the net effect of a variety of political variables on the balance of support for statutory objectives" (Mazmanian et al., 1989, p. 21). However, the influence of those 'elite' stakeholders on policy formation and steering – and hence their beliefs and values – are something that does come into play (Hofferbert, 1974).

Literature reviews allow researchers to synthesise research findings and other scholarly writings to provide evidence and rationale for topics requiring disparate and interdisciplinary research (Snyder, 2019). An ad hoc literature review was used rather than a systematic literature review (SLR) because of the complexity and newness of the topic of artificial intelligence in relation to AI concerns in higher education from the lens of risk identification and management. SLR requires a process based on research questions to frame questions for a review, identification of relevant published artefacts, assessing the quality of the artefacts, summarising of the evidence and interpreting the findings (Han et al., 2003; Snyder, 2019), items difficult to establish given the newness of the subject matter and the transdisciplinary elements of the topics that can be part of a review.

This paper is primarily based on Snyder's (2019) integrative review approach because the aim is to assess, synthesize and integrate the different literature streams on what the authors saw as relevant to the topics related to the emergent topic of the AI-artificial intelligence nexus "in a way that enables new theoretical frameworks and perspectives to emerge" (p. 335). The use of the literature review here is to create a starting point for research in the topic discussed (Paré et al., 2015). The approach taken toward initiating and pursuing topics for the literature review was based on an autoethnographic premise (Ellis et al., 2011) of accrued personal experiences based on the various roles the authors currently have at their university (a regional Australian university with long-standing online teaching experience): the primary author as overseer of the University's student academic appeals process for five years and now Chair of the Academic Board; the second author as the current the academic integrity officer for the pre-university pathways College responsible for the handling of the College's AI matters; and the third author who has had an ongoing interest on AI matters relating to English as a second language instruction. The first two authors were part of an internal institutional grant about assessment design and AI. Sensemaking (Weick, 1995) was utilised as a means of looking at author and student experiences, although a formal analysis of sensemaking through student experiences is outside this paper's scope.[6] The use of sensemaking in combination with other methodologies is based on how Kimmins (2022) combined sensemaking with phenomenography as part of understanding how peer instructors benefitted and learned from their experiences assisting students and academic staff in different course subjects.

Student view of risk

From a student perspective, a view of risk is based on the presumption that advantages are gained when something is at stake (Luhmann, 1993). If a higher education credential is treated by a student as an investment with the view of enhancing personal capabilities (Padró, in press), risk of students presents similarities with investors and why looking at the investor decision-making and risk literature is appropriate. There are numerous costs, direct and indirect students have to absorb under the general heading of affordability (Padró, 2023). Decisions made are thus from the perspective of minimaxing, i.e., minimising the extent of your maximal regret, the extent of loss in a worst-case situation, what one does not want to happen (Natural Immunology, 2004).

[6] Weick's (1995, p. 17) sensemaking model has seven properties: grounded in identity construction, retrospective, enactive of sensible environments, social, ongoing, focused on and by extracted cues, and driven by plausibility rather than accuracy. Weick's notion of retrospectiveness has been modified and expanded by later researchers to signify looking backwards as part of looking forward (e.g., Padró, 2022a).

Risk taking occurs when a student "engages in behavior associated with some probability for an undesirable result" (Abercrombie et al., 2022, p. 2/10) like cheating or plagiarism. Decision-making is set on choosing "among alternatives that differ, among other things, in the degree of risk to which the individual will be subject" (Friedman et al., 1948, p. 279), in this instance, student engagement with learning opportunities and completion of assessment artefacts in accordance with institutional policies and procedures for framing assessment practices (and expectations) and student conduct. How students treat errors and feedback received regarding errors they make as part of their learning experiences can influence their pursuit of what can be considered academic risks (Hübner et al., 2022), potentially inclusive of wilful breaching academic integrity through different means such as cheating off someone else's work, collusion, fabrication or falsification of data, contract cheating or use of artificial intelligence software like ChatGPT (Padró et al., under review). However, as can be inferred from Friedman and Savage (1948), uncertainty regarding future outcomes also makes career choices and decisions in pursuit of career decisions beyond the university experience a risk proposition.

Epstein (1999) distinguished between risk and uncertainty (or ambiguity in the economics literature), with risk being able to be treated in terms of probabilities whereas uncertainty cannot be ascertained as probabilities because of the information being too imprecise, indeterminate or lacking. Utility or ambiguity aversion proposes that individuals prefer known risks over unknown risks (Ellsberg, 1961). However, there are some individuals who are comfortable with and are willing to seek ambiguity. Context, framing and personal reference points play a major role in a choice to embrace ambiguity or uncertainty (Kahn et al., 1988; Kahneman et al., 1979; Roca et al., 2006). Brown (2020) developed a series of 2 x 2 contingency tables based on Prospect Theory originally developed by Kahneman and Tversky (1979) that became the basis of Behavioural Economics. These are useful for the purposes of this paper because students tend to exhibit behaviour patterns not that dissimilar to investment given that the decision is based on the investment of effort and time, i.e., whether the payoff is sufficient to effort and time constraints when it comes to engaging with course materials and completion of assessments under the regime of competing life demands.

Brown used the affective behaviours of optimism/pessimism and patience/impatience in relation to the utility function of the outcome in question – in this case taking the risk proposition of cheating (in whatever form) versus the maintenance of academic integrity. Table 1 shows preferences in regard to loss aversion. Kahneman and Tversky (1979) noted that the pain of losing is about twice as much as that for gains. The key point here is that student choices should represent a balance of known risks and how these are prioritised in terms of:

- other competing demands (e.g., family dynamics and obligations, personal and social obligations to the community and/or others, work commitments);

- appropriateness of and degree of difficulty of course content, assessments (design, implementation, feedback loops) and delivery modes – as measured by satisfaction instruments like student evaluation of teaching (SET) surveys[7];

[7] SETs are controversial instruments in higher education (Spooren et al., 2013). Construction design, items being rated, and validation are fraught propositions as many HEIs simply use a third-party instrument (usually validated) or copy-and-paste from other HEIs without undergoing a validation process. In addition, a developing

- satisfaction with and perceived value of current learning experiences within their degree program;

- overall future benefit of the degree in achieving career and personal goals; and

- sense of self-identity as a student (sense of belonging).

Uncertainty – in terms of lack of clarity regarding university policies and procedures, clear and unambiguous course specifications/syllabi information – adds to the above considerations that reflect the preferences seen in Table 1.

Table 1. Fourfold pattern under risk

	Gains	**Losses**
Ambiguity averse	Risk averse	Risk seeking
Ambiguity seeking	Risk seeking	Risk averse

source: adapted from Brown, 2020, p. 10.

Optimism is based on the belief that the individual will achieve a positive outcome. Optimism from this perspective is usually linked in the literature with overconfidence in the knowledge the person possesses (the 'status quo' bias) that propels decisions made (Gervais et al., 2002; Roca et al., 2006). Pessimism, as an antithetical proposition, is when an individual "revises down the probabilities of favourable events and revises up the probabilities of unfavourable events" (Hey, 1984, p. 183). Pessimism, as a result, can limit the educational achievement of a student while a student and afterwards (Mazur, 2021). Brown's Table 2 below indicates that students who are averse to uncertainty tend to be more concerned about the possibilities of getting caught and thus more pessimistic about succeeding when committing AI breaches (cf. Martin et al., 2003, 2018). However, when there is lack of clarity in terms of expectations and processes within the classroom itself and the HEI in general, as already noted, a more optimistic approach can prevail. The benefit to the HEI is the overconfidence factor. The benefit to the student can come from the possibility of not getting caught because it will not be detected (where detection artificial intelligence software is in place this becomes more difficult but it is bounded by how these are set up, utilised and interpreted) or because the HEI may make errors in investigative and decision-making due process embedded within AI and student conduct policies and procedures (cf. Padró et al., 2022).

Table 2. Fourfold pattern under risk and ambiguity affective mood: optimism

	Risk averse	**Risk seeking**

practice is to simply ask one or two overall view items that are not or cannot be validated. This last point adds fuel to the criticism that students are not disciplinary experts and can only express a judgement on what their in-class experiences in terms of personal expectations as well as that SETs can be nothing more than popularity contests and can have a deleterious effect on minority and women academic staff (e.g., Hou et al., 2017). All of these are, by default, academic risks too granular to be included as part of an academic risk register as noted in Australia's Tertiary Education Quality and Standards Agency's (TEQSA) *Risk Assessment Framework* (2019 – https://www.teqsa.gov.au/sites/default/files/teqsa-risk-assessment-framework-v2-3-4-horizontal-layout-web_2.pdf). Sometimes, nevertheless, as in Australia, these potential risk data points can be part of a broader sector-wide student evaluation of experience scheme where these points are aggregated and made part of external accreditation or regulatory registration matters (e.g., Australia's Quality Indicators for Learning and Teaching [QILT], https://www.qilt.edu.au/) that come to the fore under the broader remit of reputational risk).

Ambiguity averse	Pessimistic preferences	Pessimistic preferences
Ambiguity seeking	Optimistic preferences	Optimistic preferences

source: adapted from Brown, 2020, p. 10.

Patience and impatience relate to an individual's time preferences. These also have references to the type of benefit in question. For this discussion, decisions to commit AI transgressions are noted to be a short-term gain proposition rather than a mid- to long-term benefit gain – mid-term gains being progression toward completion and completion of the sought higher education credential while long-term benefits are career and personal capability preference attainments. A study by Bucciol, Cicognani and Montinari (2019) found that cheating is more prevalent among students focusing more on the present and overconfidence. In other words, cheating aligns with impatience, possibly due to a lack of valuing the importance of ascertaining the veracity of the learning attained in the classroom setting through an assessment and/or questioning the relevance or value of the assessment process and possibly the throughput process learning experiences represent. Parenthetically, patience, at least from a policy perspective, strongly correlates to improved test scores whereas risk-taking has a strong negative association with test scores (Hanushek et al., 2021). Committing AI is often treated as a 'short-cut' students take for whatever reason; it is therefore worthwhile to surmise that impatience is a risk proposition. Brown's Table 3 below suggests the unknown unknowns surrounding whether or not to pursue an AI strategy are short-term focused, indicating the emphasis is on passing the next hurdle rather than the longer-term implications of progression and credential completion. In this regard, for better or ill, student decisions echo a reverse 'small wins' strategy (Weick, 1984)[8] in their problem-solving approach toward their learning experiences within an HEI. This 'small wins' strategy presents a double-edged sword to HEIs because on the one hand it represents a successful coping plan for students (as proposed by Weick) while on the other hand it represents a risk proposition if inappropriate decisions emanate from it and some successes are achieved (the reverse 'small wins' strategy).

Table 3. Fourfold pattern under risk and ambiguity affective mood: patience

	Risk averse	**Risk seeking**
Ambiguity averse	Impatient preferences	Impatient preferences
Ambiguity seeking	Patient preferences	Patient preferences

source: adapted from Brown, 2020, p. 10.

Higher education institution view of risk

AI is a problem for higher education institutions (HEIs) because it represents a challenge to standard practices such as assessment design and implementation, curriculum design and delivery mode. AI also represents a culture clash between accepted social norms espousing student-as-consumer expectations and traditional academic values espoused in the tenets of academic freedom for staff and students (Padró, 2022a). Developments in artificial intelligence present a Janusian conundrum to HEIs because of the presence of opportunity and risk. There is the fake aspect from the view of verification that assessment artefacts are those in fact created by the student claiming ownership (Mason et al., in press) and the ensuing technological 'arms race" to mitigate and outright eliminate the submission of artefacts assisted

[8] According to Weick (1984), "[a] series of wins at small but significant tasks, however, reveals a pattern that may attract allies, deter opponents, and lower resistance to subsequent proposals. Small wins are controllable opportunities that produce visible results" (p. 43).

or created by a third party rather than the student (Eaton, 2022). The former places an emphasis on detection because of the ease of finding online sites assisting students in accessing information needed for and assisting in the writing of assessment artefacts. The latter highlights the importance of institutional agility to establish an up-to-date deontic framework within policies, procedures, and actual practice providing clear guidance on what is permissible and what is not when it comes to the use of artificial intelligence at a university.

Risk identification, prioritisation, management and mitigation are about establishing an understanding and subsequent strategic and operational response to determine the extent of risk aversiveness or risk tolerance, to balance out differences between intended strategies and emergent possibilities, to identify a 'plan B' alternative to mitigate negative impacts (Padró, 2014). ***What*** to include in the institution's risk register and ***how*** to do identify and manage risk remain problematic in the risk literature (Gould, 2021). One reason for the hardships of what and how is that not all risks are easily identified and/or quantified due to context and organisational culture (Tierney, 1999). Identification, decisions and subsequent actions about risk tend to follow the infamous Rumsfeld matrix[9] of known knowns (existing institutional knowledge), known unknowns (extent of impact of strategy implementation), known unknown (true risk), unknown unknowns (uncertainty – Kim, 2012). Broad risk types include preventable risks (internal, controllable that can be avoided or eliminated), strategic risks (risk mitigation in pursuit of organisational strategies to achieve desired results) and external risks (circumstances beyond the control of the HEIs – Kaplan et al., 2012). Covid-19 is an example of a fourth type of risk, novel risk, true unknown unknowns because of anomaly- or random-based improbability (also known as 'black swans' and/or wicked problems)[10] that are difficult

[9] "Rumsfeld did not refer to the unknown-known. From the perspective of logic, however, there is no reason to exclude this option if his statement is thus rearranged in a matrix, it results in the next composing elements:

Table 1: The Rumsfeld matrix

Retrieval / **Data**	*Known*	*Unknown*
Known	Known-Known	Known-Unknown
Unknown	Unknown-Known	Unknown-Unknown

(de Valk, 2018, p. 19).

[10] Talib (2007) defines black swans as having three characteristics. The first characteristic is that these are outlier events, lying "outside the realm of regular expectations, because nothing in the past can convincingly point to its possibility" (p. xvii). Secondly, they have an extreme impact. Thirdly, these need to be explained *after the fact* to make the black swan predictable, i.e., explained in a "retrospective (though not prospective) predictability" (p. xviii) manner.

Camillus' (2008) view was that wicked problems can be tamed but not solved, which seems to be an appropriate way to look at HEI responses to the AI-artificial intelligence nexus. He identified five characteristics of wicked problems affecting organisational strategy (pp. 100-102) that seem to apply to this discussion:

- The problem involves many stakeholders with different values and priorities (which are discussed throughout the paper).
- The issue's roots are complex and tangled.
- The problem is difficult to come to grips with and changes with every attempt to address it.
- The challenge has no precedent.
- There's nothing to indicate the right answer to the problem.

to identify, monitor or predict (Brown, 2020; Kaplan et al., 2020). Less global types of risk include financial risks, legal risks, major project risks, operational risks, reputational risks (value-add, value-loss – Summers et al., 2009), and regulatory compliance risk (TEQSA, 2023).

Where does artificial intelligence sit as a type of risk, especially in its challenge to AI in the higher education sector? It can be argued that it is an external risk, in that most developments come from outside HEIs and from the technology companies whose applications do not focus on academic use but industry and general populace ease of use and need to advance products and productivity. However, it can also be argued that the advent of ChatGPT provided applications, with ethical and legal challenges ranging from inappropriate use to intellectual property concerns to misrepresentation issues to false diagnoses that could not have easily been foreseen, making the AI-artificial intelligence nexus a novel risk among other recently identified challenges. The issue is how to proceed now that the 'genie has been let out of the bottle'. In sum, the AI-artificial intelligence nexus presents HEIs with more than operational and legal risks. The nexus is a reputational risk as well, based on [1] how and [2] the extent of success from the perspectives of external accreditation, regulatory compliance and public perception (showing that HEIs are doing what is expected of them – cf. Padró, 2023).

Risk registers as a risk

Risk registers are used by many organisations as instruments to identify, manage, mitigate or eliminate risks. However, these themselves can become risks in themselves because of the conundrums faced in the *what* and *how* challenges institutions face when it comes to identifying risk and control/mitigation/elimination. They can become risks if the register is set up in a way that all it does is provide an illusion of control because it codifies one way of looking at risk as the only way to look at risk (Drummond, 2011; Rothstein, 2013). Who provides input as well as manages the risk register become elements of the effectiveness of the register in doing what it is supposed to do. A concern, and thus another potential risk, is the extent to which participants in the setting of risk registers are prone to not question the underlying assumptions on which the analysis, evaluation and preferences are based (Al-Makssoossi, 2022; Martin, 2014). Nevertheless, risk registers can achieve desired results if they are a conduit and consensus of a discourse between experts and managers in the planning, prioritisation and use of resources specific to issues determined to be of importance (Budzier, 2011).[11] Regardless, the risk of risk registers themselves is that of acceptance as well as appropriateness of what the register includes and indicates (Rodrigues et al., 2014). Risk

The fourth bullet point may not be the case per sé but given the intractability of AI issues in higher education and the rapidly developing advances in artificial intelligence, this point may be more feasible with this line of reasoning than preferred. The fifth bullet point is very much on target.

[11] Wildavsky (1973) noted that the actors within processes such as planning – risk should be seen as part of planning – steer the perception of issues and problems, with these views guiding solution preferences. Hansson and Aven (2014) provided a schema wherein subject matter experts (in the case of higher education this should mean staff with disciplinary/professional subject matter expertise or professional practice expertise) are part of the fact-based evidence of context framed by the knowledge base of the field and current situation within their units and are part of the broad risk evaluation. Decision-makers (managers) are also part of the broad risk evaluation process that is in addition to the decision-makers fact-based review process. Both broad risk evaluation and decision-makers fact-based review of organisational events and decisions are value-based – these often reflect the vertical integration focus of central administrators that can vary, clash and/or reconcile with the expert-based horizontal representation of interest based on function and role (Padró, 2004).

registers, like HEI strategic planning processes, are bounded by the often-seeming anarchic organisational environment these have; namely, vague and at times contradicting goals, uncertain and/or imprecise technology, fluid participation, and solutions looking for problems (Birnbaum, 1988; Cohen et al., 1972). Thus, risk registers are prone to internal politics surrounding institutional governance regarding involvement in the formation of the risk register.

Risk registers within the higher education sector in one way or another distinguish between enterprise and academic risks.[12] Some may add compliance (regulatory) risk as a third element; however, in reality, compliance either for accreditation or regulatory oversight purposes are embedded as part of both academic and enterprise risk for many HEIs. Enterprise risks represent the institutional (vertical) integration aspects of an HEI as an organisation led by a central management element overseeing the various academic units, student support units and the other operational areas within the HEI (e.g., finance, facilities maintenance, human resources, IT, security, etc. – Padró, 2004). Academic risks emphasise the quality of learning and teaching and quality of research output created by the staff. They are difficult to clarify from a regulatory point-of-view (Huber, 2011). Academic risks are technically the representation of interests of the various academic and student support service units providing co- and extra-curricular programs for students (Press et al., 2022), the horizontal representation of the HEIs' somewhat flat organisation structure. Academic risks from the institutional integration perspective are also present in the documentation or course and program approval. In higher education sectors like Australia where universities self-accredit, documentation of processes and decisions is critical to demonstrate to the regulator the rigour and appropriateness of decisions. Both academic and enterprise risks have embedded within them strategic risks because of the governance-management-corporate board dynamic that defines institutional strategies and operational decision approvals. Academic risks provide more of the daily, business-as-usual perspective of reputation based on the oversight of staff and student activities related to learning, teaching and research.[13] In contrast, enterprise risks provide a more integrated, strategic view of outcome preferences and ensuing reputational impact of these decisions.

Planning occurs within units as well as at the institutional level as part of ongoing annual rituals of, among other things, budget allocation versus enrolment projections and staff performance output expectations. QA, in the form of external and internal accreditation, new and existing program reviews and review of SETs, are also part of the planning process.

[12] In line with risk type identification in the previous section, the purpose of this paper is to place those risks identified into enterprise and academic risks categories as noted below. Some of the risk types cross-over both categories because there are risk possibilities from these types that have particular points of singular concern in assisting HEIs adapt to environmental changes (cf. Miles et al., 2003).

Enterprise risks: financial, legal, major project, operational, regulatory (not discussed but another type of enterprise risk somewhat related to regulatory risks stakeholder relation risks [Jäckli, 2019]), strategic.

Academic risks: financial (primarily program-level sustainability), legal (policies-procedures, practice-based), operational (program-based, services-based), strategic

[13] "In identifying and responding to academic risk, self-assurance needs to be embedded in the business-as-usual operations of providers. This should have strong oversight by the primary body responsible for academic governance, typically an academic board. This is because effective self-assurance is key to protecting the integrity of a provider's core higher education activities" (TEQSA, 7 July 2023, *Guidance note: Academic governance*, https://www.teqsa.gov.au/guides-resources/resources/guidance-notes/guidance-note-academic-governance).

Operational internal risk analysis is an additional component to the unit-level planning process. These risks are limited to indicators similar to those on the TEQSA (2019) *Risk Assessment Framework*: student load, attrition rates, progression rates, completion rates, other available student satisfaction data, student employability success, *student:teacher* ratio, *full-time:casual staff* ratio, cost per teaching unit, etc. In contrast, institutional and sectoral concerns, if Australia is any indication, have centred on student growth, student experience, social inclusion, workforce development (inclusive of employability and work integrated learning [WIL]), and financial viability to allow for an alignment of growth with institutional infrastructure, physical and staff resources (Shah, 2012). Risk registers have to somehow combine these elements that straddle both operational and strategic elements.

Ideally, planning activities come together to provide HEIs a strategy that allows them to effectively compete in the open market (Peterson, 1980). This integrated approach to planning allows for the linkage and coordination of what happens within the units with the overall HEI processes to determine what needs to be done and how within the scope of institutional mission and priorities (Stack et al., 2011). Risk should be and has now become an additional element to these processes as a general proposition. As already indicated, that the professional norms of what happens regarding academic and professional curricular, co- and extra-curricular programs that are the basis of HEIs' credential providing and research generating activities are based within the units, grounded by their professional networks outside the institution (Maasen et al., 2019). This applies to accepted standards of practice and how these frame risk.

HEIs have had mixed responses to external mandates to implement risk management techniques within their operational schemes (Huber, 2011). The top-down approach mandate and the discomfort in the creation and management of a risk register has created a political dynamic that exhibits a tension between senior leadership and institutional experts (risk specialists and staff from the various institutional units as previously discussed), according to Summers and Boothroyd (2009). The tension becomes mainly triadic in nature involving governance (corporate boards and academic boards), management, and staff within units – reflecting the loosely coupled, flat organisation structure of HEIs (Birnbaum, 1988; Cohen et al., 1972; Huber 2011). Student concerns tend to be subsumed by governance entities and student support units reporting to senior leadership. Why the tension exists was probably best explained by Huber (2011):

> [R]isk registers are not one integral record but rather a series of documents that span from registers produced by the various level of administration… A comprehensive picture of risk management is available – if at all – only to specialised risk officers of the individual university (p. 6).

Policy and procedure formation, implementation and update processes are insufficiently nimble to keep up with the rapidly changing developments in artificial intelligence

Zahariadas (2007) observed that ambiguity is a pervasive backdrop to policy formation from the perspective of establishing government policies. However, ambiguity applies to internal organisational policy and procedure setting as well if, for no other reason, internal policy and procedure formation is a culmination of contextual differences, experiences, practices and values representing a 'soup' of ideas that have to be distilled into organisational purpose, strategy and action (Zahariadas, 2007). As a process, the earlier policy theoretical framework of policy as stages – agenda setting, policy (and procedure) formation and legitimation, implementation and evaluation (Sabatier, 2007) – helps describe the formation process absent causality concerns (as described in this paper). The legalistic approach critique against the stages framework (Sabatier, 2007) very much applies to HEI policy formation simply because these implication of most HEI policies and procedures tend to have legalistic implications linked to enterprise agreements or other legal or regulatory mandates (Padró, 2022b, 2023).

The problem is that the making of policies and procedures is not an agile or nimble process. It takes time, time that HEIs may not have, given the rapid changes in artificial intelligence technology and the need to integrate artificial intelligence use skills within disciplines to meet the goals of employability and workforce development. Hoffebert (1974) noted that single issue policy in the government political arena can take a short time, meaning at least a matter of weeks to a couple of years. This timeline tends to apply to institutional policy formation because criticality may propel the timeline forward but there has to be consultation within the HEI with critical units (academic, enterprise and student-facing), sometimes institutional legal offices because of legal and regulatory implications to make sure policies and procedures conform to applicable regulations and statutes, and then there are the various loops at the formation stage to ensure these are written to pass scrutiny by the different governance entities within the HEI, which only meet on a periodic basis within a year (cf. Padró et al., 2018). The rapidity of artificial intelligence and technology-enhanced learning (TEL) capacity over the past couple of decades (Mason et al., in press) challenges the Hoffebert timeline prognosis. A couple of weeks is something experience has shown is not realistic; therefore, the probability that institutional policies and procedures may be out-of-date or even inappropriate are more than negligible. The lack of agility in policy and procedure formation, approval and implementation results in a heightened potential for these policies and procedures to enshrine counterproductive practices regarding AI oversight, deliberation processes and student engagement expectations in classes and courses of study.

Artificial intelligence represents a new external variable affecting policies about higher education and individual HEIs, one different yet similar to the broader TEL developments (Kek et al., 2022; Padró, 2023). This now in-place reality reflects Leydesdorff's (2012) assertion that there can be more elements impacting the knowledge-based economy and the relationship HEIs has within this economy than government, HEIs and industry. Kek, Padró and Huijser (2022) saw HEIs as a four-helix relationship giving HEIs purpose between government, HEIs, industry and community. To show how the effects of ChatGPT as an advancement in artificial intelligence have come across so quickly, even if Kek et al. did suggest that artificial intelligence could generate a paradigm shift (p. 897), the shift is now here. Now the question is how fast can HEIs keep up so as to not risk inappropriate responses adversely impacting student learning and pedagogical progress.

Reputational risk to HEIs and students

Reputation of organisations is perceptually generated, based on the aggregate views of all stakeholders and is comparative in nature (Fombrun, 1996, as cited in Lemke et al., 2013). HEIs have more or less been interested in reputation, but in the past the focus was more on individual academics and – as some international ratings agencies use – notable alumni rather than the institution as a whole (Power et al., 2009). Reputational risk is different from other types of risk "by being a purely 'man-made' product of social interaction and communication" (p. 302). And reputation can also be internal as well as external (Suomi et al., 2013). More to the point, internal reputation issues can be attributed to student perceptions of course content and assessment design, learning and teaching quality, engagement with campus services, and the networks student form with fellow students – Suomi et al., 2013). In addition, how the HEI manages the AI investigation, adjudication and appeals processes can impact student perception *vis à vis* institutional reputation based on institutional fairness (cf. Padró et al., 2022).[14] This reflects the identity construction reputation risk is based on and the sensemaking performed by students as well as HEI administrators and staff (Power et al., 2009).

Complicating matters is that reputational risk is transient, thus less predictable (Huber, 2011; Suomi et al., 2013). As Huber (2011) pointed out, reputational risk reflects the peculiarities of individual HEIs. There is an ephemeral, qualitative nature to reputational risk that makes it harder to determine rationale, making causal determination a priority regardless of the difficulty in accurately determining the source of risk, capturing its meaning and its mitigation. 'Managing by the numbers' reputational risk may create acceptance and interpretation issues because it may obfuscate causality due to the quantitative analytic preferences organisations in general have to the setting of risk registers and the handling of institutional risks in general (Craig et al., 2014; Hillebrandt et al., 2020).

Huber (2011) argued that reputational risks are legitimate academic risks, although it is one that cross-cuts with other forms of risk.[15] A number of these risks relate to student engagement dissatisfaction and employer dissatisfaction with graduates (as collected in Australia through an employer survey that is part of the Quality Indicators for Learning and Teaching (QILT) instruments). Reputational risk from the student side also comes from the international student sector as well (Padró et al., 2021). A lucrative field for HEIs, prospective international students frame perception from a set of expectations that have to be met (Al-Makssoossi, 2022). If perceptions through word-of-mouth or available data present a challenge

[14] This includes the attitudes and values exhibited by academic and professional staff involved in these processes. The approach of "presumed innocence" is preferable to a "guilty as charged" viewpoint during the investigative phase to avoid prejudice that raises concerns over procedural fairness and due process and adds to a negative view of how an HEI handles the AI-artificial intelligence nexus. There is an underlying concern that the appearance of justice is more valuable to the HEI that the actual justice meted through the process (Vojak, 2006) that can generate a negative perception by students of how the HEI treats them. As Dworkin (1977) argued regarding the right to be treated equally, it is at a minimum about the perception of international students receiving concern and respect equal to domestic students. To place in the context of HEIs, their processes "must not distribute … opportunities unequally on the ground that some [students] are entitled to more because they are worthy of more concern" (p. 273).

[15] According to TEQSA's (2019) *Guidance note: Academic integrity* (https://www.teqsa.gov.au/guides-resources/resources/guidance-notes/guidance-note-academic-integrity), there is a "need for providers to control risks to the credibility of their qualifications and institutional reputation… A provider that does not address such breaches with due care or attention, or that mishandles the processes, may inflict further reputational damage on itself. (pp. 4/8, 5/8)"

to those expectations, international students may go elsewhere, diminishing institutional attractiveness and hence reputation. On the other hand, there is evidence that AI issues (cheating, contract cheating, plagiarism) have led to dismissals or at least exclusions (suspensions) of international students at HEIs in Australia (Bretag et al., 2019) and the USA (Fass-Holmes, 2017; WholeRen Education, 2023).

One of the possible reasons for reputational risk issues is a cultural clash that is partially the making of HEIs themselves.[16] The culture clash is based on a student-as-customer viewpoint taken up by HEIs as a means of competing for students in the open market that has seriously impacted student perceptions and performance (Bunce et al., 2017; Bunce, 2022) and for regulatory compliance issues. This byproduct of New Public Management (NPM), where private industry-based quality notions have been made part of the administration of public entities like HEIs as well as government agencies, clearly clashes with the traditional notions of academic values like academic freedom (Bleiklie, 1998; Padró et al. 2020; Padró, 2022a,b; Tolofari, 2005).[17] The traditional view of HEIs is as a *community* or *republic* of scholars; in

[16] According to Hamedani and Markus (2019), culture clashes represent "the meaning and nature of social group differences, as well as the ways in which these differences are more often than not constructed as forms of inequality and marginalization" (p. 1/7). The clash occurs because HEIs are responding to what is, in effect, a different market based on institutional reputation (van Vught, 2008).

[17] In general, [17] NPM, in the name of public sector efficiency, is influenced by contractualism, principal-agent theory, public choice and transaction cost economics, which is why public policy making and steering reflects a preference for customer service, fee payments, performance-based contracting, competition, market incentives and deregulation (Kaboolian, 1998; Lane, 2000). NPM has a hands-on and entrepreneurial focused public administration, based on standards and performance measures, emphasising outputs, disaggregation and decentralisation of services while promoting competition and private sector styles of management along with parsimony in resource allocation (Osborne et al., 2002). According to Ferlie, Musselin and Andresani (2008), evidence of NPM within higher education are:

a) Market based reforms: stimulation of competition for students and research funding between higher education institutions; role of the state is to develop the thin higher education market; policy stress on diversity and choice rather than integration and planning; encouragement of private sector providers to enter the market; market exit of failed public providers is acceptable;
b) development of real prices for teaching fees and research contracts as a basis on which trading in this market can take place;
c) a hardening of soft budgetary constraints: stress on financial control, recovery from budget deficits, efficiency and value for money;
d) introduction of higher student fees to empower students as consumers and drive up teaching quality levels;
e) elaboration of explicit measurement and monitoring of performance in both research and teaching; development of audit and checking systems (auditisation variant of NPM);
f) concentration of funds in the highest performing higher education institutions (incentivisation of the supply side);
g) the Ministry and its agencies attempt to steer the system vertically, through setting explicit targets and performance contracts;
h) development of *strong rectorates* and non executive members drawn from business; move to appointed rather than elected senior posts; reduction in the representation of faculty and trade unions in higher education institutions' governance; reduction in influence of local government …;
i) development of stronger and more overt managerial roles by senior academics at vice
j) chancellor and the head of department level …; development of 'management must manage' doctrines and practices (liberation management NPM subtype);
k) (j) growth of performance related pay for faculty and private sector style Human Resource Management (p. 336, italics in original).

contrast, NPM – and many of the tenets of neoliberalism – see HEIs as a *corporate enterprise* where:

> institutional autonomy is seen as a basis for strategic decision making by leaders who consider satisfying the interests of major stakeholders as their primary task within institutions where the voice of academics is but one among several interested parties. Academic freedom is therefore circumscribed by the interests of other stakeholders as their primary task within institutions where the voice of academics is but one among several interested parties (Bleicklie, 2018, p. 2/7).

The clash between the student-as-customer (consumer) expectation and traditional academic values can undermine key elements of the latter because of the risk of assimilation by the former given its broader normative acceptance by external stakeholders (cf. Marks et al., 2014; Vojak, 2006). The end goals of individual students of receiving an academic credential and subsequent initial or improved employment opportunity override the individual student identity process[18] because the end-goals are valued from a transactional perspective, i.e., paying for a service that leads to employment opportunities. This outcome is partially encouraged by institutional graduate attributes not aligning with or encouraging student identity development due to the focus being work-readiness (Daniels et al., 2014). Commodification can therefore be unlikely to "produce high quality, flexible graduates" (Naidoo et al., 2013, p. 227). Herein lies another risk, that of HEIs imitating the "customer sovereignty ethos of service hospitality industries" (Tomlinson, 2017, p. 465). Bunce (2022) noted that there is evidence that "students explicitly identify as consumers… These potential impacts of treating students as consumers appear to conflict with the methods of effective pedagogy that require students to be engaged and take a meaningful or "deep" approach to learning" (p. 37). Her earlier study co-written with Baird and Jones (2017) found that this clash between traditional academic values and the student-as-consumer (or customer) mindset negatively correlates with the student's identity as a learner.

Knight (1964/1921) famously distinguished risk from uncertainty based on the ability to measure the probability of occurrence. For him, risk is measurable while uncertainty is not. This bias, as it were, is reflected in risk registers. The issue for HEIs is the extent to which some of these risks are identifiable and measurable. An argument has been made in this paper regarding the identification of a number of risks within the AI-artificial intelligence nexus; however, how these can be stated in a measurable manner fitting the different types of risks is a major dilemma that HEIs should address.

Further perspectives on risks within the AI-artificial intelligence nexus

Risks of expectations for higher education in the knowledge economy are tacitly fashioned by three related concepts: *immanence*, *instrumentality* and *intentionality*. The presence of (enrolment), diversity and choices made by students reflect the *immanence*

[18] Field et al. (2010), termed this learner or student identity in higher education as studenthood, "the ways in which student identities are related to participation and retention" when "people are required to undergo prescribed procedures which clearly designate them as being students" (p. 1/6). This is based on Bordieu's (2013/1977) idea of *habitus* as an agent's (in this case student's) system of dispositions that consists of "internalized structures, schemes of perception, conception, and action common to all members of the same group or class and constituting the precondition for all objectification and apperception" (p. 86). *Habitus* provides the validity – legitimacy – of how students engage from an institutional point-of-view (Bordieu et al., 2000).

(embedded elements of the social system)[19] of HEIs as part of the transformation of an individual through disposition and skill acquisition to become active participants in the community as well as attractive, high skilled members of the workforce (cf. Noble et al., 2010; van Vught, 2008). In other words, higher education is part of the preparation pipeline in the knowledge economy (Padró, 2012). Institutional risks emanate from institutional actions that adversely challenge the attraction of HEIs to potential students, employers and governments. Individual risks arise from how choices made by students can negatively impact persistence, progression, completion and/or employability factors regarding learning opportunities and overall engagement with the various elements of the campus community.

Instrumentality

HEIs are instruments of current neoliberal[20] policy espoused by many governments (Szkudlarek, 2020). *Instrumentality* represents an outcome-outcome *quid pro quo* relationship based on attaining (future) results meeting expectations (Miner, 2005; Vroom, 1964), which in the case of HEIs has implications for HEIs and students both related to neoliberal norms underlying numerous social values due to the commodification of higher education.[21] The clash of values represented in the student-as-customer (consumer) approach to engaging with students and those traditional academic values espoused by academic freedom, for example, reflects a rift in how instrumentality affects the learning process. Simons et al. (2004) view of the temporality interests of instrumentality for both HEI and students is appropriate because of the motivation behind current student engagement within HEIs:

> Learning and achieving are not only intrinsically motivated by immediate task and ego goals that are inherently associated with those activities. They are also future-oriented. For many tasks and to many people, not only the immediate consequences are important but also those in the future. As such, the present activities have an instrumental value for reaching valued goals in the future (p. 345).

Risk for both HEIs and students emanates from this temporality that provides the motivation for pursuing higher education. Risk for HEIs is strategic as well as academic. Strategically, risk emanates from HEIs not meeting the expectations set by the triple helix compact regarding widening participation of traditionally underrepresented groups and bringing them into the workforce development pipeline for social as well as economic reasons. Educational sectors fall under regulatory policy, with regulation operating as a coercer to achieve political outcomes through a deontic framework of obligations premised by permissibility, prohibition

[19] Immanence provides consistency and order of thought processes (Deleuze et al., 1994).

[20] There are different definitions of neoliberalism, with the prevalent general definition being minimal government intrusion and allowing individuals to freely participate in self-regulating markets (Thorsen et al., 2006). A useful definition of neoliberalism is "a loosely demarcated set of political beliefs which most prominently and prototypically include the conviction that the only legitimate purpose of the state is to safeguard individual, especially commercial, liberty, as well as strong private property rights" (p. 14/21). According to Mudge (2008), neoliberalism's philosophy emphasises the market as source and arbiter of freedoms; its bureaucratic perspective frames state policy based on "liberalization, deregulation, privatization, depoliticization and monetarism" (p. 704); and politically demonstrates a preference for bounded state authority and responsibilities as well as an orientation towards business, finance and white-collar professionals.

[21] Instrumentality and neoliberalism are bedrock conditions of the current triple helix relationship between government, HEIs and industry (Leydesdorff et al., 1996) regarding knowledge creation and to a lesser extent knowledge dissemination. The triple helix model is a means of explaining the mechanisms of how governments, universities and businesses innovate towards solving socio-economic challenges, although the focus is primarily on global economic challenges (Smith et al., 2014).

and/or inactivity (Lindahl, 1977; Lowi, 1972; Padró et al., 2018). The bottom-line institutional instrumental strategic risks are associated with the disruption of this *instrumentality*. Institutional *instrumental* academic risks tend to be in the retention, progression and completion rates. Additional underlying risks that impact these indicators are assessment design and appropriateness of assessment alignment with course content and outcomes, student engagement and satisfaction with interactions with units and individual staff members, class and program content relevance, fairness of policy and procedures regarding allowable student conduct and implementation (including investigative and appeal procedures), and currency of policies and procedures to ensure HEIs are not inhibiting the teaching of new skills because of potential conflict in practice. Another institutional *instrumental* academic risk is the unintended outcome of engagement opportunities and institutional practices adversely impacting academic performance (Bunce et al., 2022; Cruwys et al., 2020). For example, improper interventions (approach and timing) to support learning within the classroom or more broadly within the discipline can act as barriers to motivation (Harackiewicz et al., 2018). Simply, practices based on the promotion of surface learning like a preference for large student number lectures can lead to negative academic performance (Bliuc et al., 2011). As Pascarella and Terenzini (2005) noted, "changes begun in college shape postcollege development … [highlighting] the interconnections among the intellectual, intrapersonal, and interpersonal aspects of development" (p. 256) that are the basis of a transition to a graduate identity. This new identity is buttressed by enhanced employability prospects resulting from the capacity to think critically because skill development may not be enough (Jackson, 2016; Hinchliffe et al., 2010).

Is there such a thing as strategic *instrumental* student risk? The answer is yes, specifically in professions (e.g., law, nursing, teaching) where licensure or registration is required and one of the stipulations is a 'clean' AI record as part of ethical/professional responsibility stipulations. Risk comes from forgetting the instrumentality behind the pursuit of the desired academic credential to overcome immediate issues to avoid the adverse effects of failure.[22,23] Cheating behaviours are influenced by how students perceive, evaluate and prioritise competing motivations (Waltzer et al., 2023). Risks come from

- prioritising the immediate, short-term concerns over the longer-term effects on employment based on non-qualification from having an AI record while a student;

- missing out on an employment opportunity because the AI charge, investigation, decision and possible appeals processes have extended the graduation date;

[22] When it comes to dealing with failure, students can be categorised into those who over-strive through hard work or those who try to avoid fear by "counterproductive activity that is aimed more at self-protection than attaining success - the *self-protector*" (Martin et al., 2003, p. 31, italics in original). Although Martin and Marsh do not discuss AI as part of this self-protection, it can be argued that AI behaviour fits this view because one?? it is done 'to get ahead' (Simkin et al., 2010).

[23] Using Weick's (1984) concept of small wins – the breaking down of the larger problem or, in this case, process into "a series of concrete, complete outcomes of moderate importance build a pattern that attracts allies and deters opponents" (p. 40) – works as an analogy in that rather than treating the assessments as a series of smaller immediate and intermediate steps that lead to the desired dual outcome of academic degree attainment and employment, the opposite happens. The focus is on assessments as hurdles with contextual ramifications that seem insurmountable, and decisions are made in crisis mode and the sensemaking that happens under stress and uncertainty is less adequate, leading to a worse outcome (Weick, 1988); in this case, a breach of AI .

- slower progression and additional fees that have to be paid for failing a course due to cheating; and/or

- "[e]ven students who get away with cheating may suffer consequences, such as missing out on foundational information that they need to learn and apply in higher-level classes … [or] may find themselves starting their career unprepared and lacking the skills they need to succeed" (Moody, 2021).

Instrumental student academic risks primarily revolve around getting caught through HEI detection software and investigative procedures. Student risks range from not receiving full grade results on artefacts which students were suspected and accused of committing AI – or actually found to have committed AI – to failing the course to exclusion/suspension for a period of time or possibly expulsion for egregious or multiple charges. An instrumental risk for students is also being charged and found to commit AI violations in spite – in the student's view – of not committing AI violation(s). While this provides an onus on the accuracy and fairness of the investigative and deliberative aspects of AI processes, the reality is that the preponderance of the evidence that the violation(s) more likely than not occurred places the burden on the student to show that the evidence is either incorrect or insufficient to overcome reasonable doubt, which is something that students may find difficult to do (Padró et al., 2022).

Intentionality

Intentionality refers to what Husserl (1983/1931) termed the "consciousness of something" (p. 75). Intentionality needs to be seen as part of the totality of a person's (and by extension, organisational) thinking process(es). Looking forward to the future is an element of *intentionality* (de Roo, 2011), a "going-forth" with an aim for the consciousness to "be transformed into meaning and expression" (Derrida, 1973, p. 33), influenced by pre-predicative experience about the properties and practical usefulness of the articulated end-result (de Roo, 2011; Husserl, 1983/1931). As Merleau-Ponty (2005/1945) noted, the consciousness behind intentionality is "not a matter of 'I think that' but of 'I can'" (p. 159), based on the rationale that there are courses of action to be taken and avoided (Ellerton, 2015).

Intentionality-based risks are both institutional and personal. These risks are asymmetrical in relation to one another based on perspective and purpose (Ellerton, 2015). HEI risks fall under two general quality assurance dedicated categories*: fitness FOR purpose* and *fitness OF purpose* (cf. Padró et al., 2019). *Fitness FOR purpose* is linked to customer satisfaction perception of quality performance in the attainment of purpose (Harvey et al., 1993). But, as Harvey and Green (1993) also pointed out, *fitness FOR purpose* is challenged by the difficulty in ascertaining what the purposes of higher education (and HEIs) should be. *Fitness OF purpose*, on the other hand refers to doing the right thing (Swan, 1998), that the purpose is the correct one. The focus of *fitness OF purpose* is based on the HEIs mission and defined objectives without consideration of the appropriateness of processes specific to external expectations or objectives (Vlăsceanu et al., 2007): "*Fitness of purpose* evaluates whether the quality-related intention of an organization are adequate" (p. 72, sic, italics in original).

Institutional risks under *intentionality* are academic and strategic. Academic risks include the appropriateness of policies and procedures in achieving intended outcomes (*fitness FOR purpose*) and assuring and ensuring that the policies and procedures are adequate to the

purpose (*fitness OF purpose*). The principal strategic risk is one of alignment of mission, students served, and triple-helix expectations. There are regulatory implications as well as normative referencing congruence. Basically, herein rest the concerns over whether academic norms prevail over student-as-customer (consumer) norms currently prevailing in the community-at-large along with government policy regarding higher education. A risk that can be both academic and strategic is the capacity to avoid the Janusian aspect of the AI-aritifical intelligence nexus that constrains disciplines to incorporate artificial intelligence and ChatGPT in particular as a skill set that has to be taught for employability reasons (*fitness OF purpose*).

There is a duality under *intentionality* in the realm of academic student risk. There is the matter of students committing intentional or unintentional AI breaches. Prosecution of unintentional breaches should consider the balance between educational interests (as part of the assessment feedback process) and enforcement lest students become discouraged and/or fearful of further adverse effects on their academic record due to overenforcement of policies and procedures, especially when students may not have the requisite skill set to ensure they do not do 'the wrong thing.' Detection, feedback, subsequent interactions (between the student, teacher and HEI processes) and decisions under these conditions each become potential academic risks. This is a particular concern for the authors as they teach in an enabling program. This type of widening participation program allows potential students from traditionally underrepresented groups who either left school for a prolonged period of time and/or lack the academic skill preparations expected of students wanting to pursue higher education studies to become proficient in skills necessary to succeed as students at HEIs.

When AI breaches are intentional, the second perspective at play is that *intentionality* presents a strategic risk to students as well as academic ones. The strategic risk to students comes from forgetting their end-goals of academic credential attainment and employability to improve their quality of life. The potential effect of not qualifying for employment becomes a major obstacle upon graduation. So too does the potential lack of necessary skills that may hinder progression within the employment field. This, although not previously discussed, becomes a reputational risk for HEIs because employers do not rate graduates from these institutions highly and become less inclined to hire them. Using the reverse 'small wins' analogy discussed above, the risk comes from focusing on the assessment as an end-goal rather than a step in a longer road toward achieving intermediate and ultimate outcomes.[24] Academic risks occur when detection leads to an AI breach finding and conversely when an AI breach finding is given when, from the student point-of-view, they did not commit. Regarding the former, the adverse finding can lead to a higher attrition rate or transfer rate to other HEIs or other post-secondary educations (e.g., vocational schools). If remaining within the HEI, adverse findings can lead to slower progression, an extended graduation date, a lower grade point average (GPA) and additional fees due to the potential of having to retake courses due to receiving a failing grade.[25] As to the latter, no system is infallible and, as already indicated, students often have difficulties in defending themselves against AI charges. This means a track record that follows a student for the whole of their academic experience at that HEI and potential problems attaining employment.

[24] Hare (1961, p. 57) noted that decisions made are not as affected by the immediacy or remoteness of an effect but more by certainty or uncertainty.

[25] Most of these effects also apply to those students who transfer to other HEIs or vocational schools or equivalents.

Immanence, instrumentality, intentionality and their effects on risk registers

Risk registers themselves fall under the three rubrics of *immanence*, *instrumentality* and *intentionality*: *Immanence* because risk registers are supposed to be embedded within units and their processes throughout individual HEIs as evaluative elements of planning and implementation; *Instrumentality* because they are in themselves institutional instruments implemented to ensure best possible outcomes, for the reason that they are part of the monitoring process assuring and ensuring that institutional goals and mission outcomes are being met and accreditation, oversight or regulatory compliance assurance and *Intentionality* because it is "intended to give an overall '*perception*' or '*feel*' that the users have for each of the identified risks" (Patterson et al., 2002, p. 369, italics in original). More to the point as Budzier (2011) wrote, "risk registers are a boundary object between experts to identify, analyze and address risks and between managers to prioritize and focus attention and resources" (p. 3).

Risks in risk registers emanate from various fronts. One front is the layering (or lack thereof) of risk registers at the different levels of HEIs enterprise bureaucracy. Ideally, the system of risk registers should be integrated in order to "direct attention to salient risks to enable managers to prioritise accordingly" (Drummond, 2011, p. 265). The bottom-line concerns are the sophistication and accuracy of each risk register at the different levels of HEIs and the extent of integration that allows them to inform each other. Who makes up the register risk also is a peripheral risk. From a similar but different front is the capacity of identifying the risks themselves and their implication. This is where who is involved becomes important, the question being: 'is there sufficient involvement from the '*experts*' at the different levels in the identification process?' Coordination (or lack thereof) is also a potential concern. Just as important is the extent that the identified risks are the salient ones (hence the need for an ongoing review process). A third front from where risk can emanate is the extent to which accreditation/oversight/regulatory compliance requirements overshadow institutional mission and goals premised in pursuit of the mission. A fourth front is the ability of these risks to be captured and monitored as a risk within risk registers. Fifthly, time in setting and updating risk registers is a potential risk. In sum, there are three mainly parallel developments that are in place that must be considered. One is a set of events: [1] the speed of change and improvement in generative artificial intelligence software, [2] the ensuing arms race with AI detection capacity improvement, [3] the need to include generative artificial software usage skills as part of disciplinary skill set acquisition. The second event is the speed required to generate and/or modify internal HEI policies and procedures. The third event is the effects of government policy steering regarding the effects of AI-artificial intelligence nexus.

There is a fourth 'i' in risk possibilities: integration

Tinto (1975, 2012), in his seminal article on higher education dropouts noted the importance of student capacity to establish institutional (structural) as well as social (normative) *integration* within the classroom setting, the campus environment in general and the online space (Lakhal et al., 2020). While his focus was within-HEI experiences for students, extending this thought to include the HEI-external environment integration aligns with the expectations universities face due to the triple-helix compact between governments, HEIs and industry. Key for both students and HEIs is forming an integration based on "structural pattern consistency… [plus] functional adequacy of motivational balance in a concrete situation" (Parsons, 1991/1951, p. 10) with their surrounding environment. Just as important arethe

processes of exchange between students and HEIs in this instance (Blau, 1960). For Parsons (1991/1951), this includes consistency of a cognitive system and value-orientation *vis à vis* motivation.[26] The concern for both is achieving cultural goals overshadowing institutional preferences (Merton, 1938). HEIs should be uneasy about their traditional values getting overrun by current external cultural values. Students are faced with finding an equilibrium between cultural values specific to the AI-artificial intelligence nexus and the traditional academic values represented in the deontic definition of acceptable and unacceptable actions in the submission of assessment items, engagement within classrooms, HEIs as a whole and comfort with HEIs' ways of doing things.

Social and student integration are about establishing a sense of belonging. These types of integration can also be conceptualised as a form of embeddedness of the interdependent interrelationships between individuals and their surrounding environment(s) (Alpert, 1941; Berkman et al., 2000). Expanding on Schwinn's (2023) comments on social and student integration, "integration is not identical to a stable and well-organized order. It has value references that set standards for successful integration" (p. 1/33 – see footnote 26). Shared norms help establish reciprocity of perspectives (Luhmann, 1995). The extent of reciprocity, however, is bounded by the degree of coordination that persons establish between the cultural, institutional and personal – i.e., there are different degrees of integration that are possible (Merton, 1957) based on the four-function paradigm of adaptation, goal-attainment, integration and pattern maintenance (Parsons, 1977) done through careful attention and active, timely communication (Luhmann, 1995).

AI-artificial intelligence nexus risks and risk registers as integration instruments: the intra- and extra-institutional

Risk registers are used as instruments to integrate risk management with other managerial processes and organisational strategic planning (cf. Baccarini, 1996; de Araújo

[26] Durkheim (2005/1897) began to talk about the effects of social integration, a concept that has been picked up sporadically, especially during the 1950s. For Durkheim the extent to which individuals feel integrated with the surrounding environment influences the degree of belonging, comfort and identity. Motivation is a result of the personal and the social systems establishing recognised commonality (Parsons, 1991/1951).

The inability to integrate socially is based on the concept of *anomie* or as Durkheim (2005/1897) also called, *normlessness*. There are two types of approaches to anomie, one from Psychology and another from Sociology (Manrique de Lara et al., 2009). According to MacIver (1950, as cited in Merton, 1957), *anomie* "is a *state of mind* in which the individual's sense of social cohesion … is broken or fatally weakened" (p. 162). Srole (1956, p. 711) saw social integration as a continuum, with one side being 'self-to-others belongingness' (belonging) and the other being 'self-to-others distance' or 'self-to-others alienation' (anomie). He then identified three forces shaping the 'self-to-others distance' 'self-to-others alienation' that is part of *anomie*: [1] broad societal reference groups whose "acceptance and ultimate integration are sought"; [2] decisions based on life goal(s) choices, choices on how to achieve life goal(s) and extent of success in achieving these goals; and [3] prior socialisation experiences shaping interpersonal expectations.

Interest in social integration has received recent interest due to the narrative surrounding recent social problems like the role of religion in modern society, political cohesion and populism, inequality, etc. as a means of figuring out how to address these different issues (Schwinn, 2023). Successful student academic and social integration are related to student well-being and success and should therefore be in the spotlight because the attitudes held by students and staff make a difference (De Bryun et al., 2023; Lakhal et al., 2020) – as do the attitudes held by external stakeholders.

Lima et al., 2021). This is particularly the case when the environment is a complex one (as discussed in the project management literature), one in which organised entities face complexity from their structural makeup and size (cf. Dewar et al., 1978), uncertainty, systemic dynamics within and outside institutions, the pace of unfolding change and events, and socio-political dimensions (Geraldi et al., 2011). Integration, however, cannot just be seen in terms of bringing together the different organisational elements in identifying, managing and planning for risk. There is also a need for integration to occur in the socio-cultural and socio-political milieus to best achieve mission goals and strategic objectives while maintaining institutional autonomy and sense of identity (academic freedom – Padró 2022c; Smidt et al., 2022).

Landecker (1952) wrote that organisations do not exist in a vacuum and their presence in societal structures presupposes "some degree of integration" (p. 56) that varies according to the extent organisations are tolerated. In turn, the capacity to achieve a strong degree of integration can lead to an organisation acquiring a status that allows it to exert its own integrative influence – in the case of HEIs, it would be the prevalence of traditional academic values over the 'student-as-customer (consumer) mindset. "The problem then is how to construct the building so that it will solidify its own foundation" (p. 56).

A means of analysing the capacity of HEIs through their risk registers to integrate their missions and values with stakeholders in the socio-cultural and socio-political milieus is the use of Landecker's (1951) *Types of Integration* framework. His framework is based on four types of social integration: cultural, normative, communicative and functional.[27] "Each type… [refers] to one particular respect in which some degree of integration may exist in a group" (p. 332). Defining the term culture is not an easy proposition because it has multiple meanings based on agenda, discipline and ideological viewpoints (Spencer-Oatley, 2012).

Tables 4 and 5 below provide a summary of risk concerns previously identified or implied for both HEIs and students through the lens of Landecker's integration framework. While communicative and functional integration are easy to discern based on Landecker's (1951) definitions (see footnote 27), distinguishing between culture and norms is not quite as clearcut as expected. Differentiating the 'cultural' from the 'normative' provides challenges in

[27] According to Landecker (1951):

Cultural integration – "varies along a continuum ranging from extreme consistency to a high degree of inconsistency among standards within the same culture" (p. 333).

Normative integration – "the degree to which the standards of the group constitute effective norms for the behavior of the members" (p. 333). "[I]t varies with the degree to which conduct is in accord with… [established] norms... [T]he need for further contributions to the measurement of normative integration is greatest with regard to social groups other than the community as such" (p. 335).

Communicative integration – an exchange of meaning based on the "extent to which communicative contacts permeate a group… and the integration of conduct with… [cultural] standards" (p. 336). "One way in which barriers to communication may interfere with the communicative integration of the group is by isolating the person" (p. 337).

Functional integration – represents a continuum between interdependency and self-sufficiency based on "the degree to which the functions exercised by the members of the group constitute mutual services" (p. 333), "the degree to which there is mutual interdependence among the units of a system of division (p. 338)."

placement of risks within the Landecker framework because norms are, in a sense, a subset of culture and thus care in remembering the technical differences between the two is essential.[28]

These two tables summarise the type of risk that the authors have identified through the literature review and personal experience in dealing with the AI-artificial intelligence nexus at both the unit and institutional levels. No attempt was given on how to provide a risk register item, if for no other reason, institutional context naturally provides variation on approach, scope and terminology. There is also the issue of whether risk registers are global or granular in approach based on the focus of the strategic rather than on specific practices. This does not mean that the issues raised in this paper are not embedded within risk discussion; rather, it is a case of the preference to articulate these from the 'birds-eye' global concern perspective rather than a more inductive approach toward risk identification.

Risk types as discussed here are often either expressly or tacitly[29] identified by academic and professional staff involved in AI and/or the developments in artificial intelligence and their application in higher education environments. Some of these types are embedded within policy and procedure rather than in risk registers; however, the authors are proposing that some of these types should be treated within risk registers to assure these concerns are on the forefront of academic and enterprise decision-making from both, operational and strategic perspectives. Using Landecker's framework provides a sense of the myriad concerns the risks based on what the paper has termed the AI-artificial intelligence nexus bring to the table and how these can/should be addressed in terms of legitimising institutional practice from within HEIs themselves and from the different elements of the external environments within which HEIs find themselves.

Table 4. Risks for HEIs

Type of integration (Landecker (1951)	**Risk type**	**Included in a risk register? If yes, organisational level risk register**	**Risk(s)**
Cultural (consistency between HEI and communal attitudes)	Enterprise, External, Strategic	Yes/Institutional (stakeholder relations)	Capacity to adapt to changing socio-cultural mores impacting triple-helix relationship,

[28] To begin with, defining the term culture is not an easy proposition because it has, at times, complex, contradictory multiple meanings based on agenda, discipline, temporal and ideological viewpoints (Spencer-Oatley, 2012, Straub et al., 2012). A useful definition for the purposes of this paper is one given by Liu, Lapinski, Kerr, Zhao, Bum and Lu (2022) that refers to culture as "communities of people with uniquely shared communication characteristics, perceptions, values, beliefs, and practices" (p. 3/15). It is an individual and social construct (Spencer-Oatley, 2012). Culture represents accumulated collective knowledge influencing individual behaviours and outlook, noticed by how individuals interact with their environment (Kluckhohn et al., 1953). Like Kluckhohn and Murray (1953) indicated, culture provides a degree of "regularities in human events" (p. 58). Norms reside within culture. Distinctively, social norms, as defined by Cialdini and Trost (1998), "are rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws" (p. 152).

[29] Polanyi (1966) referred to tacit knowledge as an awareness of something that is not immediately recollected. Waters and Sternberg (1985) defined tacit knowledge in a similar way, one that is reflective of this paper's approach: "knowledge that is usually unverbalized and not explicitly taught… Such knowledge is typically not directly taught or spoken about, in contrast to knowledge directly taught in classrooms" (pp. 437, 438-439).

			especially with government (political) and employers.
	Academic, Enterprise, External, Operational, Regulatory, Strategic	Yes/Institutional and potentially Unit (regulatory compliance, stakeholder relations)	Culture clash between accepted social norms espousing student-as-consumer expectations and traditional academic values espoused in the tenets of academic freedom for staff and students.
	Academic, Enterprise, Legal, Regulatory, Reputational	Indirectly (composition, use and review of risk register items)	Fitness *for* purpose.
	Academic, Enterprise, Legal, Regulatory, Reputational	Indirectly (composition, use and review of risk register items)	Fitness *of* purpose.
Normative (conformance to/with prevailing social standards)	Academic, Enterprise, External, Operational, Regulatory, Strategic	Yes/Institutional	HEI performance and practice standards consistent with external perceptions of acceptable practices (usually articulated in accreditation and/or regulatory standards).
	Academic, Enterprise, External, Legal, Operational, Regulatory, Strategic	Yes/Institutional and Unit (latter specific to accreditation, former to regulatory requirements)	External scanning capacity to ensure approach is consistent with accreditation and/or regulatory standards; ability to generate alternative strategies that fit within accreditation and/or regulatory standards constraints.

	Academic, Enterprise, Legal, Regulatory, Reputational	Indirectly (composition, use and review of risk register items)	Fitness *for* purpose.
	Academic, Enterprise, Regulatory, Reputational	Indirectly (composition, use and review of risk register items)	Fitness *of* purpose.
	Academic, Enterprise, Regulatory, Reputational	Yes/Institutional and Unit (employment rates, employer satisfaction, starting salaries (first job in field and/or improvement on prior full-time position within field)	Employer interest in and satisfaction of HEI graduates.
	Academic, Enterprise, Regulatory, Reputational	Yes/Institutional and Unit	[1] Higher attrition rate, [2] slower progression rate, [3] extended graduation date, [4] lower grade point average (GPA), [5] additional fees due to retaking courses from receiving a failing grade due to AI.
Communicative (ability to legitimise role within the socio-political system environment)	Academic, Reputational	Yes/Institutional	Accuracy and consistency of detection practices.
	Academic, Enterprise, Reputational	Yes/Institutional	Procedural fairness and appropriateness of consequences from investigation, decision-making and appeals processes.
	Academic, Enterprise, Regulatory, Reputational	No (however, indicative risk register items addressing this point can be disseminated to demonstrate appropriateness)	Appropriate strategic and tactical notions of risk aversiveness or risk tolerance parameters surround the AI-artificial intelligence nexus.

	Academic, Enterprise, Regulatory, Reputational, Strategic	Indirectly (composition, use and review of risk register items)	Alignment with external and internal accreditation plus regulatory requirements; alignment of mission, students served, and triple-helix expectations.
	Academic, Enterprise, Regulatory, Reputational	Yes/Institutional and Unit (risk register itself/themselves)	Fitness *for* purpose.
	Academic, Enterprise, Regulatory, Reputational	Indirectly (composition, use and review of risk register items)	Fitness *of* purpose.
	Academic, Regulatory, Reputational	Yes/Institutional and Unit (employment rates, employer satisfaction, starting salaries (first job in field and/or improvement on prior full-time position within field)	Employer interest in and satisfaction of HEI graduates.
	Academic, Enterprise, Reputational	Yes/Institutional and Unit (new student enrolments; ability to replace graduating cohort numbers)	HEI attractiveness to potential students, especially from strategically identified target population groups.
Functional (demonstration of meeting *de facto* socio-economic and political expectations or compliance with policy requirements)	Academic, External, Enterprise	Yes (external environment scanning)	HEI capacity for identifying key developments and the nimbleness of policies and practices (academic and enterprise) to keep up with technological advances in artificial intelligence that can impact HEI.

	Academic, Enterprise, Strategic	Yes/Institutional and Unit	Balanced (opportunity/risk) approach toward artificial intelligence technology.
	Academic, Reputational, Strategic	Yes/Institutional and Unit	*Balance Opportunity*: Identification and inclusion of artificial intelligence software and skill use (e.g., ChatGPT) in disciplines where the skill enhances employability prospects.
	Academic, Enterprise, Legal, Regulatory, Reputational	Yes/Institutional	*Balance Risk*: Accuracy and consistency of detection practices.
	Academic, Enterprise, Legal, Regulatory, Reputational	Yes/Institutional	*Balance Risk*: Procedural fairness and appropriateness of consequences from investigation, decision-making and appeals processes.
	Academic, Reputational, Strategic	Yes/Institutional and Unit	Overfocus on the 'arms race' between detection; balancing the educative and adjudicative components of AI practice.
	Academic, Enterprise, Legal, Regulatory, Reputational, Strategic	No	Capacity for institutional and/or unit risk register(s) to balance academic, enterprise, legal, regulatory, reputational and strategic risks associated with the

			AI-artificial intelligence nexus.
	Academic, Enterprise, Strategic	No	Alignment between unit and institutional risk registers and their capacity to inform each other.
	Academic, Enterprise, Reputational (internal to HEI)	No	Within HEI credibility of risk register and risk register items.
	Academic, Enterprise, Legal, Regulatory, Reputational, Strategic	No	Accuracy of risk register items; capacity to capture difficult or non-measurable risks.
	Academic, Enterprise, Regulatory, Reputational, Strategic	Yes/Institutional and Unit (SET results per each item)	Student perceptions of [1] curriculum design, [2] course content, [3] assessment design, [4] learning and teaching quality, [5] engagement with campus services.
	Academic, Enterprise, Legal, Regulatory, Reputational, Strategic	No	Unintended outcome of engagement opportunities and institutional practices adversely impact academic performance.
	Academic, Legal, Regulatory, Strategic	Yes/Institutional and Unit (policy and procedures specific to these practices).	[1] Curriculum design, [2] course content, [3] assessment design, [4] learning and teaching pedagogical practices informed by AI and AI-artificial intelligence nexus opportunities and risks.
	Academic, Enterprise		

	External, Legal	Yes/Institutional (resourcing) No	Staff support provided specific to AI and AI-artificial intelligence nexus issues. Intellectual property appropriation (assessment artefacts, research)

Table 5. Risks for students

Type of integration (Landecker (1951)	**Risk type**	**Included in a risk register? If yes, organisational level risk register**	**Risk(s)**
Cultural (consistency between HEI and communal attitudes)	Strategic	No	Capacity to establish a student identity leading to a change in value valences and motivation.
	Enterprise, Financial, Reputational and Strategic	Yes/Institutional	Cost of degree commensurate with enhanced personal and professional capability expectations.
	Academic	No	Keeping the 'long-view' in mind regarding success and the value of HEI enrolment.
	Academic	Yes/Institutional	Balancing HEI obligations with personal circumstances and the obligations these impose on the student.
	Academic and Strategic	No	Aligning (balancing) cultural values specific to the AI-artificial intelligence nexus and traditional

			academic values; comfort with HEIs' ways of doing things.
Normative (conformance to/with prevailing social standards)	Academic	No	Not using a 'small wins' mindset to avoid short-term temptations based on expediency and fear of failure.
	Academic	No	How students treat errors and feedback received regarding errors committed they make as part of their learning experiences.
	Academic and Regulatory	Yes/Institutional and Unit (SET tolerance levels, accreditation requirements)	Satisfaction with class-level and course (program)-level content, assessment, level of difficulty.
	Academic	No	Student overconfidence or lack of confidence.
	Academic	Potentially Institutional through well-being factors/indicators	Ability/inability of student(s) to manage failure.
	Academic	No	Extent of risk tolerance/aversion in pursuit of learning, approach to composing assessment artefacts and learning from failure.
	Academic, Operational and Enterprise)	Yes/Institutional (policy-procedure)	Fairness of AI and artificial intelligence use detection, decision-making processes, appeals processes.

Communicative (ability to legitimise role within the socio-political system environment)	Reputational/Strategic	Yes/Institutional (Employability-related; professional advancement related [long-term])	Inability to use attained academic credential to achieve professional employment goals.
	Academic	Yes/Institutional and Unit (Student engagement, course syllabi, policy-procedure)	Extent of student engagement with learning opportunities and completion of assessment artefacts in accordance with institutional policies and procedures for framing assessment practices (and expectations) and student conduct.
	Academic	Yes/Institutional and Unit (class syllabi, policy-procedure, unit practices)	Extent of clarity of expectations and processes within the classroom itself and the HEI in general.
	Academic, Enterprise and Strategic	Yes/Institutional and Unit (policy-procedure)	Extent to which legitimacy given to student concerns.
Functional (demonstration of meeting *de facto* socio-economic and political expectations or compliance with policy requirements)	Reputational and Strategic	Yes/Institutional (Employability-related)	Insufficient GPA (poor academic record due to AI breaches) to attract desired employment opportunities (interviews, job offers).
	Reputational and Strategic	Yes/Institutional (Employability-related; professional advancement related [long-term])	Inability to demonstrate required competencies/skills to prospective employers or once employed because of incomplete knowledge and mastery of subject matter.

	Academic	Yes/Institutional and Unit	Lack of active engagement with staff that leads to incomplete, lack of or mis-understanding of subject matter content within a class subject and/or expectations on class conduct and/or approach toward assessment completion.
	Academic	Yes/Institutional and Unit	Lack of focus on progression and subject matter mastery.
	Academic	Yes/Institutional and Unit	Slow progression and completion of academic credential.
	Academic, Enterprise and Reputational	Yes/Institutional	Accuracy of AI-artificial intelligence breach detection instruments.
	External, Legal	No	Intellectual property appropriation (assessment artefacts, research)

Concluding comments

British moral philosopher R.M. Hare (1961) articulated the dilemma found within AI and the AI-artificial intelligence nexus:

> There are two factors which may be involved in the making of any decision to do something… The major premiss is a principle of conduct; the minor premiss is… what we should in fact be doing if we did one or other of the alternatives open to us (p. 56).

There's the 'what *ought* to be done' aspect of individual decision-making and the 'what actually occurred'. This brings to the fore the question, 'is motive irrelevant in committing an AI breach through traditional forms of cheating or by using generative artificial intelligence software?' (cf. Norrie, 2001). Ireland's National Academic Integrity Network's [NAIN] recent *Framework for Academic Misconduct Investigation and Case Management* (2023) answers this question as a no:

> The investigation of academic misconduct is based on the actions of the learner rather than their submission of a defence of not intending to engage in academic misconduct (p. 40).

Intent, therefore, is treated as an irrelevancy from a procedural (legal) perspective (cf. Binder, 2002), even though from an educative point-of-view, intentional conduct, echoing some legal scholars, "constitutes the paradigm of self-determined action" (Lacey, 1992, p. 622). A second question emerges at this point, 'is risk-taking in the AI-artificial intelligence nexus a reckless behaviour or an intentional act (cf. Ohlin, 2013) for both HEIs and students?'

Power (2010) noted that risk analysis represents a hybrid of different elements. Moreover, the warranty provided by HEIs through their academic credentials is a formal assurance to employers, government and society as a whole that students have been provided with and ostensibly acquired the expected skillsets to function within the knowledge economy. It is the capacity of HEIs to provide this guarantee – to the extent possible – that places the emphasis on verification of student work, especially in their submission of artefacts that are used to assess performance and, again, ostensibly, mastery of the subject matter. Assessment, therefore, acts as an integrative element regarding demonstration and verification of student learning because assessments have been an intentional, immanent part of the learning and teaching experience at HEIs. The challenge or paradox inherent within the AI-artificial intelligence nexus is the need to balance detection and avoidance of AI practices with the ability of programs to integrate artificial intelligence use (and this does include generative software like ChatGPT) as a skillset in those disciplines where it is becoming a required skill. The need for this balance is articulated in TEQSA's (2023) recently released initial report, *Assessment Reform for the Age of Artificial Intelligence*. The report has two guiding principles (p. 2):

1. Assessment and learning experiences equip students to participate ethically and actively in a society pervaded with AI.

2. Forming trustworthy judgements about student learning in a time of AI requires multiple, inclusive and contextualised approaches to assessment.

Its Proposition 1 provides an approach toward the pursuit of the balance:

> Assessment should encourage students to critically analyse AI's role in, and value for, work and study, aligned with disciplinary or professional values. Assessment tasks should be designed to foster responsible and ethical use of AI in ways that are authentic to both the task and the discipline. Such engagement should be: meaningful, supported through explicit teaching across a program of study, and aligned with the program learning outcomes (p. 3).

Some of the commentary in Proposition 2 (*a programmatic/systemic approach aligned with discipline and qualification values*) supports some of the comments already made about the benefits of balancing the paradox inherent to the AI-artificial intelligence nexus:

> A programmatic approach to assessment provides multiple means for educators to make judgements about student progress, without losing the emphasis on feedback and dialogue. These judgements can be captured or tracked over time as student knowledge and skill develops. This in turn promotes the trustworthiness of the overall award rather than relying on a series of singular, uncoordinated judgements (p. 3).

The initial report also articulates the importance of making sense of learner learning processes. Proposition 3 commentary states:

> Evidencing the process of learning over time and in context can support a better understanding of learners' sense-making processes, what they ultimately know and can do. Learning tasks should provide opportunities to reveal thinking, competencies and other qualities embodied in learning outcomes. Assessment tasks should provide opportunities for feedback on artefacts that reflect critical thinking, judgement, decision-making, including ethical decision-making, and reflection on the process; components of the process that AI is less able to simulate (p. 4).

Additionally, the authors would expand that the sensemaking processes of staff within HEIs and the organisational sensemaking that occurs within HEIs need to be understood to help inform risk identification and management within this context.

It is important to remove obstacles to AI and safeguard the integrity of the assessment process (Padró et al., under review). Obstacles can be found in disciplinary programme development, assessment design and implementation, pedagogical approaches, relationships with learners, supports for learners and robust administrative systems for record-keeping (National Academic Integrity Network, 2021, p. 14). Non-removal of these obstacles means potential risks based on fitness *FOR* purpose considerations. Assessment, however, should not be the only focus in discussing AI, artificial intelligence or the AI-artificial intelligence nexus. Assessment should be treated as part of the students' *third space* (Padró et al., under review) "that *merges* the "first space" of people's home, community and peer networks with the "second space of the Discourses they encounter in more formalized institutions such as work, school, or church" (Moje et al., 2004, p.41, italics in original). Such a perspective brings into light the cultural and normative integration issues between students' view regarding their academic experiences and motivation (rationale) for pursuing an academic credential. Risks emanate from how HEIs respond to the variability between traditional academic values on student performance between government policy as represented by law and regulatory standards, employers, society at large and HEIs. These risks represent, at the most basic level, an understanding that HEI assessment practices are consistent with the perceived fitness *OF* purpose *vis à vis* cultural values and normative references.

Are the risks identified in this paper exhaustive? No. These are what the authors were able to identify based on their experiences and sensemaking abilities. However, these potentially represent a baseline for consideration of risks, especially within the AI-artificial intelligence nexus. Can all these risks be treated through risk registers? Realistically, probably not. Some are too granular in scope to make them risk register items. Measurability is another challenge. Some of them are contextual and too personal to be able to be appropriately treated within risk registers. This is partially what makes risk registers potential risks unto themselves. Because of the behavioural, deontic aspects of some of these risks, these are better treated within the realm of policy and procedure; yet agility and nimbleness, in keeping current with external developments and their effects on institutional learning, teaching, research and support practices, become additional risk factors. Using the Landecker (1951) framework to identify risk types was a useful practice because it places them in different contexts, emphasising the different perspectives and challenges from a broader systems perspective from the viewpoint of a system within a system. More critical to the rationale of this paper, these represent many of the different means through which to consider HEI fitness within the larger system sphere

in terms of *OF* and *FOR*. The reader will note that a few of the risks in Tables 4 and 5 are repeated for both HEIs and students, although sometimes written in a slightly different manner. These instances represent different aspects of these risks. The same goes for some of the risks identified within the two tables that are not found in both.

This paper is based on an exploratory review of the literature in a number of fields that can shed light on some theoretical as well as practical understanding on some of the dynamics involved in identifying different characteristics of risk within AI and, in particular, what the authors have termed the AI-artificial intelligence nexus, the linking between concerns over how artificial intelligence usage by students challenges HEIs' capacity to warrant that student work is their own. As indicated throughout the paper, there is no direct literature looking at AI and the impact of artificial intelligence on HEI practices from the lens of risk, although it is implicit in much of the literature. Consequently, the literature review was based on authors' experience and tacit understanding of the issues that make up the AI-artificial intelligence nexus. This limitation means the points made here are a starting point for discussions from different perspectives, potential practices and studies on this area that will remain a wicked problem for, at the least, the short- and middle-term future.

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