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Applying effective feedback principles to promote the ethics of care and justice during emergency remote teaching and learning in three chemical engineering modules.

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ABSTRACT

The COVID-19 pandemic lockdown disrupted higher education practices and forced students and lecturers to rapidly migrate to emergency remote teaching and learning (ERT&L). Initially, ERT&L robustly focused on teaching and assessment to complete syllabi, without fully considering care and justice to students who were no longer consolidated in one location. During the lockdown, students were exposed to socio-economic plights, and mental health challenges, among others. Hence, this article aimed to consider how the pedagogical tool of effective feedback could promote the ethics of care and justice to support students during ERT&L. The feedback practices implemented during the lockdown were maintained after contact lectures resumed, and their effects were quantified to determine the overall impacts on optimizing T&L and ensuring a conducive learning environment- regardless of whether T&L occurs at university or remotely. Effective feedback practices, recommended by the literature, were applied by two lecturers within three undergraduate chemical engineering modules. Lecturer 1 adopted a blended learning approach in modules 1 and 2 before the lockdown, while lecturer 2 functioned as a full contact module. A quantitative research approach was adopted in which module and teaching evaluations were used to quantify the effects of the feedback interventions on T&L in the three modules. The results indicated an overall positive effect, with significant student satisfaction with the feedback interventions adopted from the literature to promote the ethics of care and justice during ERT&L. Based on the methodology and results, an empirical model is proposed to optimize any pedagogical intervention that education practitioners may strive to use to improve their assessment practices.

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Introduction

During the COVID-19 pandemic, higher education institutions were compelled to rapidly migrate from traditional contact modes of teaching and learning to emergency remote teaching and learning (ERT&L). The pandemic created challenges that affected student learning, especially those from historically disadvantaged backgrounds (Themane & Mabasa, 2022). Considering that core pedagogical aspects, such as lectures, tutorials, and assessments, were afforded the highest priority during the rapid transition to ERT&L, it is plausible that these elements were the most significantly impacted, particularly with respect to the ethics of care and justice for students and their learning.

Feedback practices is one area that is especially beneficial in promoting the ethics of care and justice in higher education institutions. Effective and quality feedback is needed to help students self-correct and to facilitate further learning and engagement. When a lecturer is teaching, unfortunately, a complete 'knowledge transfer' to students does not occur . Instead, students must construct the knowledge within themselves (constructivism), guided by effective feedback from their lecturers. Through effective feedback, T&L can be improved as a means of showing care and justice to remote students who may very well be in environments that do not support their learning. When learning remotely, feedback from lecturers can provide a more personalized learning experience for students, and a stronger teacher presence in the course. However, our experiences suggests that Engineering lecturers tend to use limited feedback practices, thus creating potential gaps in the students' learning pathway. To overcome this perceived deficiency, this study examines the feedback practices within three Chemical Engineering modules (viz., Transfer Processes 2A [TRP], Process Design 2B [PRD] and Chemical Engineering Fundamentals 2A [CEF]) by two lecturers during the COVID-19 lockdown, that were aimed to maximize the ethics of care and justice. Considering that the lockdown deprived students of their physical social interactions with their peers, tutors, and lecturers, it was important to ensure that the ethics of care and justice were applied to foster a safe and conducive T&L environment.

According to Feldman (2020), developing an ethics of care within a higher education teaching and learning context is necessary alongside institutional structures that support students from a systemic point of view. In the context of this study, the rapid transition to ERT&L drove the need to adopt an ethics of care and justice approach through effective feedback interventions to provide a greater degree of support to students. Hence, the study reported on in this paper primarily aimed to incorporate effective feedback practices, as documented in the literature, in the online Chemical

Engineering modules. The secondary aim was to use these feedback practices to ensure pedagogical care and justice during the online module delivery, and to promote an effective learning environment for students who needed to rapidly transition to online T&L. It is argued that specific feedback theories can be encompassed within an overarching theory representing the ethics of care and justice to practically implement effective feedback practices to promote the ethics of care and justice within the modules' delivery, such that any shortcomings associated with the rapid transition from contact T&L to ERT&L can be minimized. The study thus has ongoing relevance as higher education institutions continue to explore online and blended learning approaches, where feedback practices may be embedded as a key mechanism for achieving an ethic of care.

Literature Review

i) The ethics of care in higher education.

According to Fisher and Tronto (1990), care is defined as: "... a species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible. That world includes our bodies, ourselves, and our environment, all of which we seek to interweave in a complex, life-sustaining web". Tronto's (2013) study perceives care as an undervalued activity mostly undertaken by the less powerful and which should instead underpin democratic political agendas. Considering that care is an active ethical practice, ethical behaviour should be influenced by care to solve ethical dilemmas (Tronto, 2010). Although Tronto's (1990) definition of care seems politically inclined, its fundamentals apply to higher education, especially as this sector actively prepares the future generation of leaders.

Tronto (2010) perceives care as a complex ethical relationship involving all participants as no one is solely responsible for decision-making in a caring relationship or web of relationships. Considering that it may be difficult to directly implement Fisher and Tronto's (1990) definition of care, it is useful that Tronto (2013) defined five moral elements of care and their respective phases to facilitate implementation (Table 1). It must be noted that Tronto's (2013) five moral elements of care are not exclusively applicable to contact learning. These five elements can also be applied during ERT&L.

Table 1: A summary of Tronto's (2013) five moral elements of care with potential implementation strategies in higher education

Moral element of care	Phase	Definition
Attentiveness	Caring *about*	The ability to notice unmet needs, to suspend one's judgements, and to see the world from the perspective of those in need.
Responsibility	Caring *for*	To take on the burden of responding to the observed need(s).
Competence	Care*giving*	To be competent to care.
Responsiveness	Care *receiving*	To listen to the response of the person/group that was cared for, which sometimes results in new unmet needs.
Solidarity	Caring *with*	To take collective responsibility, to think of people as receivers and givers of care, and to consider the nature of caring needs in society.

Sevenhuijsen's (2018) article examines attention and attentiveness. Attention, aligning with the first of Tronto's (2013) five moral elements of care, is gaining more prominence within higher education. Active attention is needed to understand academic development practices underpinned by the ethics of care and requires patience to first focus on our actions and reactions, to improve the quality of care we offer to others. Sevenhuijsen (2018) also outlines seven interwoven activities for practicing active attention: presence or being there for the other, seeing or discernment, active, careful listening, thoughtful speaking, honouring our intuition, reliability, and the recognition of plurality (Bozalek & Winberg, 2018). These activities offer additional implementation strategies for Tronto's (2013) attentiveness moral element of care.

Within the context of higher education, Nguyen, Zavoretti and Tronto (2017) speak about Cantini's (2017) study regarding the privatization of Egyptian higher education. Private universities cast themselves as caring institutions through practices such as performance ranking and quality assurance. These private institutions promise chances for good careers and life prospects. Hence, private education is packaged as a relatively good choice for the selected few, who are predicted to prosper from their intensive care, as opposed to the less caring public institutions. Notably, Cantini (2017) regards intensive care as a driving force to achieve student success. However, the notion that public higher education institutions are incapable of offering the same degree of care to students as their private counterparts is appalling. Drawing from Tronto's (2013) five moral elements of care, simply by employing the potential implementation avenues recommended in Table 1, a high degree of care can be achieved within public universities, thus ensuring that students have every possible chance to succeed in their studies and subsequent careers.

In addition, Cantini (2017) draws on the privatization of higher education in Northern Ireland (Lynch 2015), which demonstrates how new managerialism introduces corporate practices in universities to produce subjects in service of corporate needs (Nguyen et al., 2017). In this context, care functions

as a moral discourse that justifies privatization and masks the social division and exclusion induced by privatization. This example demonstrates how, without a clear definition of care, and what it should strive to achieve, care can be masked to achieve political agendas. Hence, standard operating procedures, aligning with the competence element of care (Tronto, 2013), regarding effective implementation of the ethics of care within higher education are required, such that new practices can be evaluated before being implemented.

Typically, higher education institutions perceive ethics and care as separate functions, rather than as an integrated practice, and tend to delegate these responsibilities (Bozalek & Winberg, 2018). Such delegation is unacceptable, as the ethics of care should be embedded in the teaching and development of students- by those directly responsible for the teaching and development of students. Naturally, academic development aligns with care ethics in higher education because of the nature of its practice and the concerns for human flourishing for both students and academic staff (Bozalek & Winberg, 2018). Notably, Bozalek & Winberg (2018) have stated that care ethics can provide a useful normative framework for examining the daily challenges faced by academic developers, and for making complex moral judgements about the well-being of academics and students (Bozalek, Watters & Gachago, 2015).

Having outlined Tronto's (2013) five moral elements of care, and relating these elements to the relevant literature, it may be argued that not many institutions have directly attempted to implement these elements. Hence, this article attempts to use the powerful principle of feedback to implement the ethics of care and justice in the context of ERT&L, drawing from Tronto's (2013) five moral elements of care in three undergraduate chemical engineering modules.

ii) Feedback to enhance the ethics of care in ERT&L.

Feedback refers to information regarding one's performance or understanding (typically after instruction) to provide knowledge and skills or develop attitudes (Hattie & Timperley, 2007). Following this definition and aligning with the seven principles of effective feedback recommended by Nicol & Macfarlane-Dick (2006), Hattie & Timperley (2007) proposed a detailed feedback model to enhance learning. The model functions in four interrelated levels. The first level compels students to consider the purpose of the assessment goal. If there are any knowledge gaps, these discrepancies can be reduced through interventions involving the student and the teacher concerning the assessment goals. In the third level, effective feedback in three major forms (feed up,

feed back, and feed forward) is used to guide the students toward effectively achieving the assessment goals. Three major feedback questions are linked to each form to decrease knowledge gaps and provide remediation through alternative steps. Such a model provides a framework to help lecturers implement effective feedback strategies to guide and support the learning of students. It is notable that during ERT&L, when students are deprived of meaningful interactions with their educators, effective feedback was the only means by which students could receive guidance to enable successful achievement of the learning goals. Hence, we can argue that the ability to provide effective feedback to students during ERT&L aligned with Tronto's (2013) five moral elements of care.

Feedback at the task builds cues regarding erroneous ideas, leading to effective strategies for processing and understanding the material. Feedback at the process level helps reject erroneous hypotheses and provides directions for searching and strategizing. These cues sensitize students to the task strategy and move from the task to the processes necessary to learn the task to regulation about continuing to more challenging tasks. This process results in higher confidence and effort, as students gain greater mastery (Hattie & Timperley, 2007), often leading to greater self-regulation, further task engagement, and enhanced self-efficacy. When feedback considers the regulatory processes for task engagement, the importance of effort and learning conceptions are important moderators in the learning process. Considering that feedback at the self-level is rarely directed at addressing the three feedback questions, it is rarely effective.

According to the model, feedback is given and received (by teachers and/or by students). Students construct their learning, in which feedback is only a part of the equation. Learning can be enhanced to the degree that students share their challenging goals, adopt self-assessment and evaluation strategies, and develop error-detection procedures to tackle more challenging tasks. Formative assessment tasks are specifically created to achieve this degree of learning. Feedback is only effective when it is related to learning accomplishments and students are committed to learning goals (Crocker & Wolfe, 2001). Hence, academic goals must be made salient for all students. Typically, assessment goals are created in the form of learning outcomes for each learning unit within a module as described in the course outline or learning guide. Using these broad goals, students can create their individual academic goals for each learning unit. Students who reflect on what they understand are more likely to seek confirmatory feedback that allows for the best learning opportunities. Hence, reflection must also be encouraged and formally incorporated into

the teacher's pedagogic strategy, with self-evaluation rubrics serving as useful tools to achieve such reflections.

Feedback has major implications for assessment design. Typically, assessments provide learning snapshots rather than information that can be used to address the three feedback questions. Hence, teachers need to seek and learn from feedback (such as from students' responses to tests). Only when assessment provides such learning is it of value. This notion strongly aligns with the suggestion of Nicol & Macfarlane-Dick (2006) regarding the use of formative assessment and feedback to facilitate self-regulated learning, especially considering that summative assessments do not provide adequate feedback to allow students to improve. For example, feedback in weekly tutorials (formative assessments) is more valuable than feedback in a marked test, as the weekly tutorial feedback can allow students to clear up their misunderstandings or fill their knowledge gaps in real-time, thus allowing them to improve their test performance (summative assessments).

Considering that feedback is a powerful learning influence, and too rarely occurs, Hattie and Timperley (2007) recommend more research by qualitatively and quantitatively investigating how feedback works in the learning process. Hence, this article demonstrates the degree to which Hattie and Timperley's feedback model was applied to promote the ethics of care aligned to Tronto's (2013) moral elements of care in three Chemical Engineering modules during the lockdown. Furthermore, the article also explores how the recommendations of the model were maintained in contact classes and assessments after the lockdown had been lifted.

The study also drew on the framework proposed by Carless and Winstone (2020) for developing teacher and student feedback literacy, comprising three dimensions: design, relational, and pragmatic. Regarding the design dimension, student feedback literacy development must be implemented within the curriculum by sequencing learning and assessment tasks, such that students are encouraged to seek, generate, and use feedback (Carless & Winstone, 2020). Technology can also be used to generate, store, access, and use feedback for continuous improvement, thus aligning with the feedback model proposed by Hattie and Timperley (2007). The relational dimension refers to feedback-literate teachers demonstrating trustworthiness and approachability to encourage continued dialogue with students. Honest and supportive feedback must be provided with students' best interests at heart. Notably, aspects such as trustworthiness, approachability, and continued dialogue resonate strongly with the ethics of care.

Regarding the pragmatic dimension, feedback-literate teachers overcome multiple competing feedback functions by focusing on practices that enhance student learning (Carless & Winstone, 2020). The partnership approaches to feedback enable reframing feedback processes as a partnership between staff and students (Carless & Winstone, 2020). Although such partnerships embody progressive thinking, their intention must be shared at the start of the semester to ensure that students can reciprocate per the Intentionality and Reciprocity criteria of Feuerstein's theory of mediated learning (Tan, 2003), thus linking to the solidarity moral element of care (Tronto, 2013).

However, in the same vein, such partnership approaches may present challenges (Carless & Winstone, 2020). Students may forget that feedback entails being told what to do to succeed. Students may also resist engaging in activities to develop their feedback literacy and may lack the confidence to commit themselves to peer feedback (Panadero, Jonsson & Strijbos, 2016). These challenges can be overcome by embedding partnership feedback processes coherently within the curriculum. Students require repeated opportunities to experience the value of active partnerships in assessment and feedback processes. Hence, these partnership feedback processes must underpin learning and assessment activities.

Aligning with the seven effective feedback and assessment principles recommended by Nicol (2007) and the feedback model to enhance learning by Hattie and Timperley (2007), the teacher and student feedback literacy model recommended by Carless and Winstone (2020) draws on the previous models to provide more modern feedback recommendations. Hence, the framework recommended by Carless and Winstone (2020), considered in conjunction with Hattie and Timperley's (2007) feedback model, was applied to promote the ethics of care aligned to Tronto's (2013) moral elements of care in three Chemical Engineering modules during the lockdown.

Description of feedback practices underpinned by an ethics of care that were implemented during Covid-19

As mentioned, it was realised and acknowledged early on during Covid-19 that the ERT&L conditions were unlikely to be very conducive for learning. Evaluations were therefore conducted over the two consecutive years of ERT&L, with changes made between years one and two to enhance learning through the promotion of the moral elements of care through feedback practices. Changes were also made in response to informal discussions held online, and surveys were conducted with the students via the learning management system to gauge the extent of the unmet needs of the

students. Outlined below are the various strategies that were implemented between the evaluations conducted in years one and two.

Feedback strategies

Hattie and Timperley (2007) proposed that feedback flows in chronological order of Feed up (Where am I going?), Feed back (How am I going?), and Feed forward (Where to next?). In the modules considered in this study, feed up was predominantly used to clarify the modules' main goals and the respective assessments, and to ensure that students understood the modules' scope. The learning outcomes to be assessed in the tests, assignments, and projects were made known to the students in their learning guide and discussed in lectures, with specific reference to the graduate attributes that were intended to be developed. The example below is a screenshot from the design project (Figure 1).

Per the Learning Guide, the following Graduate Attributes (GAs) will be developed through this assessment: 3, 5 and 8. The GA descriptions and range statements are indicated below.

Graduate Attribute 3: Engineering Design- Perform procedural and non-procedural design of broadly defined components, systems, works, products, or processes to meet desired needs normally within applicable standards, codes of practice and legislation.

Graduate Attribute 5: Engineering methods, skills, tools, including Information Technology - Use appropriate techniques, resources, and modern engineering tools, including information technology, prediction and modelling, for the solution of broadly defined engineering problems, with an understanding of the limitations, restrictions, premises, assumptions and constraints.

Graduate Attribute 8: Individual, Team and Multidisciplinary Working - Demonstrate knowledge and understanding of engineering management principles and apply these to one's own work, as a member and leader in a team and to manage projects.

Figure 1: Feed up strategies through explicit inclusion of graduate attributes as assessment goals

The project marking rubric was also adjusted to include descriptions of the graduate attributes that were being intended to be developed for each section of the project submission, thus adding to the feed up element.

Feedback practices were implemented by responding to the students' assessments via individual written feedback, digital feedback (announcements on Blackboard), and group and individual verbal feedback. Some sessions were held during the study breaks before forthcoming assessments to help students correct their mistakes. Feed forward was implemented based on the results achieved by students for projects (TRP and PRD) and semester test results (CEF). For the TRP and PRD modules, the lecturer attempted to create authentic question types concerning industrial operations, as opposed to textbook case studies; asking clearer questions; and adjusting marking rubrics to include which graduate attributes were being developed for every project section. Lecturer 2 (CEF) focused on using the performance of previous assessments as a basis for the next assessment, by adjusting section weightings while maintaining assessment standards. Focus areas included the length of questions, the number of questions, and the types of questions. The assessments for all three modules were designed to test the critical thinking of students and their ability to comprehend the problem and problem-solve with the information provided.

With respect to the implementation of the feedback dimensions proposed by Carless and Winstone (2008), the design dimension was addressed through study guide outlines that indicated when each summative and formative assessment would occur, how each assessment would take place, and what content would be tested. This information was accompanied by the respective contributions of each assessment to the final mark.

In TRP and PRD, past tests and project examples were provided, and peer discussions were encouraged during lectures. CEF focused on working through problems with students. Students were encouraged to discuss their answers with their peers and to use the textbook to work through examples. TRP and PRD formative assessments (tutorials and quizzes) and summative assessments (projects and tests) were conducted online through Blackboard, where automatic feedback was provided. The feedback was provided based on students' performance in the formative assessments before the summative assessments. The feedback was objective and sensitive, to encourage and support students to rectify mistakes and perform better in subsequent assessments. Students were also encouraged to consult the lecturer (online during the lockdown, and contact thereafter), either individually or in a group, to analyse the feedback outlined in the assessment. Audio feedback was provided via WhatsApp groups (during the lockdown), and recorded lectures were shared to Blackboard for students to refer to.

Teacher feedback literacy dimensions (Carless & Winstone, 2020) were also addressed through various scholarly engagements undertaken by the authors, including undertaking postgraduate studies in higher education, critical engagement with literature on feedback workshop and seminar attendance, as well as seeking guidance and mentorship from senior academics. Feedback practices were also refined and revised in response to module and teaching evaluations that were conducted to quantify student's satisfaction with the modules.

Evaluation of student satisfaction with feedback strategies

For modules 1 and 2 (TRP and PRD), the effects of the feedback interventions in promoting the ethics of justice and care were quantified over four terms by consulting the teaching and module evaluations. The data was sourced from module and teaching evaluation reports for the three modules that were subject to investigation. Only the responses relating to feedback in the module and teaching evaluation reports were considered in the quantitative study. Listed below are the evaluation statements that were considered.

1. The purpose of learning (assessment goals) was made clear.
2. Timeous feedback on assessments was provided.
3. Learning was supported through consultations (group and individual verbal feedback).
4. Feedback was provided to help achieve module outcomes.
5. Feedback on tasks supported learning.
6. Clear guidelines were provided regarding participation in assessment activities.
7. Clear guidelines were provided regarding assessment task submissions.
8. Tools and technology were used to explain concepts.
9. Tools and resources were used to support learning.

The lecturer scores for the above statements for term 1 (control), term 2 (first term of implementing literature feedback interventions), and term 4 (final term of implementing literature feedback interventions) were obtained from the evaluation reports. The percentage change (improvement or detriment) of the feedback-related statements was quantified and graphically depicted.

For module 3 (CEF), the effects of the feedback interventions in promoting the ethics of justice and care were compared over two years (in term 2 of semester 1). Year 1 was considered the baseline against which year 2 was compared. The statements relating to feedback practices were analysed from the teaching and module evaluations. The lecturer scores were obtained from the evaluation

reports. As with modules 1 and 2, the percentage change (improvement or detriment) of the feedback-related statements was quantified and graphically depicted.

Reflecting on student satisfaction with the feedback strategies implemented Modules 1 and 2 (TRP and PRD)

Based on the feedback results, Figure 2 graphically shows how the imposed feedback interventions in modules 1 and 2 influenced students' satisfaction ratings of each statement.

Figure 2: Graphical depiction of feedback improvements over one term and two terms of application.

According to Figure 2, after one term of applying effective feedback practices (term 2), statements 4 (Feedback provided to help achieve module outcomes), 5 (Feedback supported learning), and 8 (Tools and technology were used to explain concepts) showed the greatest improvements. In contrast, statements 3 (Learning was supported through consultation) and 6 (Clear guidelines were provided regarding participation in assessment activities) showed the least improvement, while statement 9 (Tools and resources were used to support learning) showed a detrimental effect. Both statements 3 and 6 had improved substantially by the fourth term, as interventions were implemented to make student consultations more accessible for group and individual feedback discussions, and the guidelines for assessment activities were made clearer through verbal and written communication.

Regarding statement 9 (Tools and resources were used to support learning), interventions such as exemplars and revision lectures were used to guide students to better prepare for assessments. Hence, an improvement was found by the fourth term. The practice of monitoring student responses and feedback to the applied interventions, and subsequently adjusting the aspects that required improvement, aligns with the feed-forward approach of Hattie and Timperley (2007). Such an approach ensures continuous improvement for the benefit of the students.

After two terms of applying effective feedback practices (term 4), statements 4, 5, and 8 showed the greatest improvements- which is consistent with the findings of term 2. Statements 4, 5, and 8 are significant as they relate to feedback being used to help achieve module outcomes, feedback supporting learning, and the use of tools and technology to explain concepts, respectively. These findings indicate that the application of the effective feedback principles recommended in the literature (Nicol & Macfarlane-Dick, 2006; Hattie & Timperley, 2007; Carless & Winstone, 2020) adapted to the five moral elements of care (Tronto, 2013) were increasingly effective over time. The increased improvement from semester 1 (baseline) to semester 4 demonstrates that effective feedback application becomes simpler and more natural with time, resulting in students experiencing the benefits more with the progression of time.

Module 3 (CEF)

Figure 3 graphically depicts how each of the teaching and module evaluation statements changed from year one to year two for module 3.

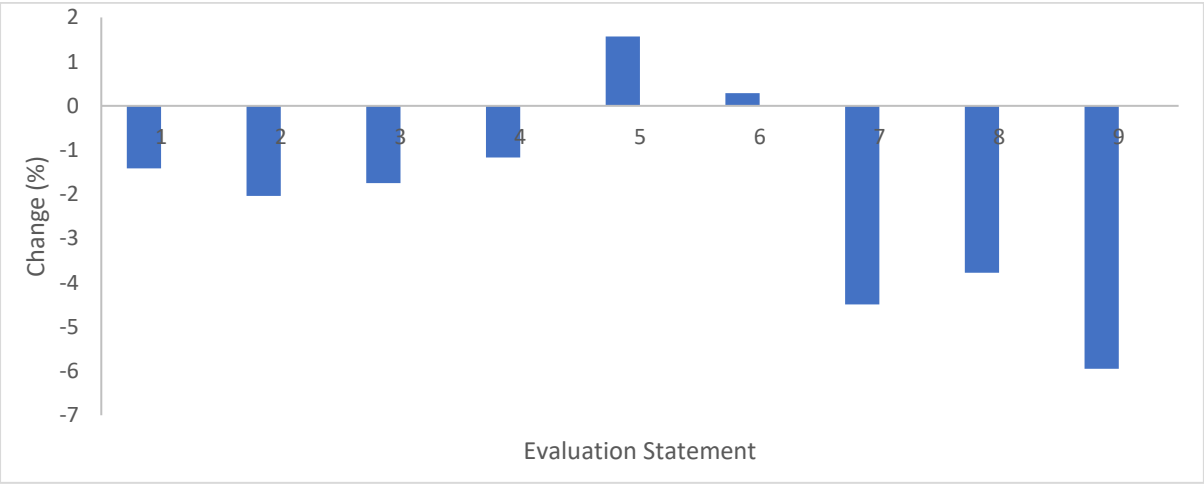

Figure 3: Graphic depiction of feedback responses over 2021 and 2022 from online to contact teaching

As illustrated in Figure 3, the overall response rate decreased from 2021 (semester 1, term 2) to 2022 (semester 1, term 2). The biggest change that occurred in this time frame was the transition from online teaching (ERT&L) to hybrid (online-contact) teaching approaches, where contact assessments were written in 2022 as opposed to completely online in 2021. As further shown, seven of the nine statements decreased significantly from 2021 to 2022, with statements 7, 8, and 9 showing the greatest deteriorations as compared to statements 1-4. These three statements were structured around task submissions and technological resources used in teaching practices, which drastically changed from 2021 (online teaching and assessment), compared to 2022, where contact T&L resumed on a rotational basis with online T&L and assessments being undertaken on university premises.

Statements 1 to 4 (centered around the module outcomes and feedback provided to students) exhibited minor decreases. During 2021 and 2022 consultations occurred either on MS Teams or Blackboard and additionally by contact in 2022, depending on student and lecturer availability and preference. Additional classes were also held online (after hours or during the study break to help students with challenging areas in preparation for upcoming assessments). As such, no massive difference occurred in the feedback practices other than the introduction of contact feedback (based on test performance and general consultations) over the two years being compared. This observation indicates that one of the potential reasons for the decrease would be the sample size of the participating students in the feedback evaluation, which increased from 51% in 2021 to 71% in 2022.

Statement 5 of 2022 was also compared to its corresponding departmental average, as statement 5 is a new evaluation statement only implemented in 2022. Nevertheless, the data indicates that students adapted well to ERT&L during the pandemic, and that these practices can and should be maintained if the world transitions once again to contact T&L practices. Many feedback comments received by students over both years indicated the desire for more online activities and the use of technological means rather than archaic teaching methods, demonstrating that students may respond better to the hybrid and online approaches in certain sections of the modules, depending on how they are conducted.

Discussion

The disruptions caused by the COVID-19 pandemic lockdown compelled lecturers to become more vigilant by adopting novel practices to ensure that students could maintain their traditional (if not improved) standard of learning and performance. Such vigilance is classified as “attentiveness” (caring about) by Tronto (2013). Although the COVID-19 lockdown caused major disruptions to every institution, it also presented a golden opportunity for lecturers to upskill and adjust their practices to better support student development. The action of taking responsibility for an unprecedented situation is classified as “caring for” (Tronto, 2013). Notably, these new skills can also be applied in non-ERT&L environments, thus ensuring sustainability in their continued application.

According to Tronto (2013), the notion that lecturers understood that students required additional interventions and guidance to succeed during ERT&L, and actively attempted to provide such guidance, is regarded as “competence” (caregiving). Furthermore, by structuring the interventions in a way that granted all students an equal chance of success, and using platforms, systems, and strategies that are equally accessible to all students, social justice was also ensured. Various pedagogical aspects can be used to promote the ethics of care and justice in ERT&L. However, this study focused on feedback as a powerful tool to support the learning and development of students. Traditionally, feedback was only issued to students after assessments. Typically, minimal test feedback was used to help students perform better in the final examination. In this sense, feedback worked linearly, as students could not evaluate themselves against their performance goals to optimize their test performances. Such practices were not conducive to optimal learning and achievement, especially with the added strain of ERT&L. Hence, additional feedback interventions were required. According to Tronto (2013), the additional interventions that were implemented in response to evolving student needs are regarded as "responsiveness" (care receiving).

The results showed a continuous and increasing improvement in lecturer scores relating to feedback implementations compared to the first term, in which no feedback implementations were made. Hence, the results validated the literature feedback principles of Nicol and Macfarlane-Dick (2006), Hattie and Timperley (2007), and Carless and Winstone (2020). Finally, the desire of the lecturers to share their feedback interventions, and the effects thereof, on student performance and satisfaction, can be considered as “solidarity” (caring with), as these practices can be used as a guideline for implementation by other lecturers (Tronto, 2013).

Aspects such as timeous feedback on assessments may have been previously overlooked. Despite Faculty guidelines recommending feedback timeframes, providing feedback at the earliest convenience can also be regarded as care toward student development. Timely guidance is also aligned with the design dimension of the feedback literacy model (Carless & Winstone, 2020). Although consultations are known to students and outlined in the learning guide, students tend not to use them unless they are reminded to do so. Making students aware of the benefits of individual or group consultations (for the more reserved students) also aided in creating a safe and supportive consultation system, in which students felt comfortable.

The nature and essence of feedback were adjusted using Hattie's and Timperley's (2007) feedback trifecta (feed up, feed back, feed forward) to truly support learning, and help students to achieve module outcomes. This trifecta is especially valuable, as feed up creates intentionality within the mindsets of students, to which they are more prone to reciprocate; thus aligning with the "intentionality and reciprocity" parameter of Feuerstein's mediated learning theory (Tan, 2003). Feed up aligned with the practices of clarifying assessment goals, providing clear guidelines for participation in assessment tasks, and subsequent submission thereof. Assessment task submission was often a cause of concern and anxiety for students during ERT&L as scanned PDF file uploads were required as opposed to simply having their scripts collected. Hence, many students greatly appreciated clear guidelines in this regard.

The feed-forward criteria are equally valuable, as they serve as a quality check by enabling adjustments, such that improved results can manifest. Feed forward applied equally to learning and assessment tasks, as adjustments were made in lecture delivery, and assessment practices based on student responses.

As expected, the relatively recent feedback dimension model of Carless and Winstone (2020) integrated technology to explain concepts and support learning in all three dimensions: design, relational, and pragmatic. Blackboard, as the learning management system used in this study, is capable of advanced functions used to support online and remote pedagogy, such as online teaching, learning, and assessments (Roopchund, 2022). As such, Blackboard's integrated functions were fully deployed in implementing the literature feedback principles, especially in providing supportive and sensitive feedback per the relational dimension and ensuring efficiency and portability per the pragmatic dimension (Carless & Winstone, 2020). Other resources, such as

exemplars, past assessments, and customized study guides, were also provided per the design dimension (Carless & Winstone, 2020).

Overall, this study linked the five moral elements of care (Tronto, 2013) to the literature feedback principles (Hattie & Timperley, 2007; Carless & Winstone, 2020). Through these links, the five moral elements of care (Tronto, 2013) were integrated into the mentioned feedback practices to illustrate care. During the extreme socio-economic circumstances created by the COVID-19 pandemic lockdown, students required effective feedback practices to support their learning, development, and achievement. This notion can be related to the ethics of care and justice, thus validating the hypothesis of this study. Overall, the application of the literature feedback principles contributed towards inclusive, contextually relevant, and sustainable outcomes through the reframing of feedback practices.

Conclusions

The manner in which selected literature feedback principles were implemented during ERT&L to ensure the continued learning, development, and achievement of students were aligned with the ethics of care, is novel and provides a case study that can be used as a baseline for such implementation within other modules, disciplines, and institutions.

The research methods (term-by-term and year-by-year data comparison, and quantification of survey data) were beneficial as they enabled quantification of the improvement in feedback aspects over the timeframe of the study for the three modules led by two lecturers. The teaching and module evaluation surveys were conducted anonymously, willingly, and ethically. Hence, the research methods were appropriate and beneficial to the context of the study. The findings are also relevant to different readership groups, as they fundamentally outline how effective literature practices can be implemented and applied in daily pedagogical practices. The literature base continues to grow as more cutting-edge research is undertaken. However, novel practices are seldom implemented, as education practitioners tend to resist change. This study demonstrates how selected parameters governing students' progress were quantitively demonstrated by implementing literature practices.

The different stakeholders to whom this study applies include students, lecturers, and department, faculty, and institutional heads. This study implies that implementing improved and tested practices

and principles can occur incrementally until lecturers gain experience and skills toward complete implementation. Implementation is a gradual process. Hence, patience is required, and efforts should not be rushed, to avoid overwhelming students. For greatest effect, students and lecturers should work in partnership to ensure maximum uptake of the strategies being implemented. Likewise, lecturers must work in partnership with university management to gain support, funding, and training opportunities for optimal implementation of targeted strategies.

The meaningful message from the findings presented here is that care and justice in higher education are multi-faceted elements and can be implemented through various means, tools, and strategies. Although this study focused on effective feedback practices to promote the ethics of care and justice, other strategies and principles can be considered. If a strategy is well researched, diligently implemented, monitored, and adjusted based on student responses, student care and justice are certain to manifest.

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