

Beyond Content: A Trauma-Informed Framework for Academic Writing Evaluation

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Abstract: The paper proposes a novel framework for assessing student academic writing integrating an understanding of trauma into the evaluation process. This framework emphasises the importance of recognising linguistic markers in student writing that may indicate underlying psychological distress, such as post-traumatic stress disorder (PTSD). Traditional higher education academic assessments often overlook these markers, focusing on content quality and adherence to formal writing standards. This oversight could lead to missed opportunities for early intervention, particularly in educational settings where students do not openly disclose their mental health challenges. Building on trauma-informed pedagogy, this study explores how Natural Language Processing (NLP) models can be leveraged to identify linguistic markers associated with poor mental health, such as PTSD, anxiety, and depression, within students' academic writing. By analysing writing patterns like non-linear narrative structures, obsessive thoughts, and disjointed syntax, we argue that NLP can offer an essential tool for early detection of trauma-related challenges. Such markers are often overlooked in traditional grading systems, which prioritize form and rhetoric. A case study using student writing samples demonstrates how changes in rhetorical fluency and writing quality can correlate with a documented decline in mental health. The results of NLP analysis reveal a progressive decline in coherence, lexical diversity, and thematic focus, which align with known linguistic markers of trauma. These findings underscore the potential of NLP to serve as an early-warning system, alerting educators to the need for intervention and support. Despite the promise of these methods, current NLP models face limitations in linguistic diversity, reproducibility, and population bias. Therefore, we advocate for the development of more inclusive models built on ethical frameworks that consider the socio-rhetorical contexts of student writing. Additionally, large and secure datasets are required to ensure representativeness, with attention to student privacy concerns. Ultimately, this paper calls for higher education institutions to adopt trauma-sensitive evaluation frameworks that integrate academic and emotional well-being, ensuring more equitable and compassionate assessments.

Keywords: Trauma-Informed pedagogy, Natural language processing model, Linguistic markers, Rhetoricity, Higher education

1. Introduction

Academic writing is often seen through the lens of "writteness" which refers to the linguistic materiality of text and the value placed on the communication of content rather than the content itself (Turner, 2019). The marking criteria in most universities give significant value to the communication of ideas, argument, structure and presentation (see Table 1) which are consistent with the conventions of writing (Bhambra, 2018) but there is limited recognition of the intellectual effort required to produce what is culturally considered "good" writing (Turner, 2018). This effort includes not just having ideas but being able to effectively communicate them in writing, a skill that interacts with and enhances intellectual understanding.

Academic writing must meet a certain standard to enable others to effectively critique the work (Grannell, 2022). However, expectations of clear and polished writing may overlook significant external factors affecting a student's ability to meet these standards. For example, poor academic writing has been attributed to inadequate prior education (Hardy & Clughen, 2012, p.45), inability to read complete texts, thus misrepresenting meaning (Ismayilli Karakoc et al., 2022), lack of critical thinking skills (Altinmakas & Bayyurt, 2019) and personal failure to identify and thus adopt discipline-appropriate writing practices (French, 2018). However, there has been little consideration of external influencing factors such as ongoing traumatic life events (Markowitz, 2022).

This paper aims to examine how the conventional assumptions surrounding writing practices might lead to missed opportunities for student support. "Is the essay easy to read?" is equated to clear, rational thought. This ideology has its roots in the enlightenment period and continues to shape expectations of academic writing, often disadvantaging those who do not conform to these established norms in the academic space (Turner, 2018). We argue that the value of the text should not just lie in the content it communicates but also in the communication of that content, which is a reflection of the intellectual labour. Therefore, the criteria for evaluating academic writing should not be limited to assessing quality; a more nuanced approach is necessary.

Tables 1: Academic writing grading rubric used in most UK Russell group universities (Grannell, 2022)

	Fail	3 rd	2:2/ Pass	2:1/ Merit	1 st / Distinction
Content – Is the student addressing the set questions/ topic?	0-1-2-3-4-5-6-7	8-9	10-11	12-13	14-15-16-17-18-19-20
Argument – How much depth is there to the points being made?	0-1-2-3-4-5-6-7	8-9	10-11	12-13	14-15-16-17-18-19-20
Evidence – Is the student supporting statements with reference to the relevant literature?	0-1-2-3-4-5-6-7	8-9	10-11	12-13	14-15-16-17-18-19-20
Originality – Is the student saying anything different/ interesting?	0-1-2-3	4	5	6	7-8-9-10
Referencing – Are they referencing appropriately/ consistently?	0-1-2-3	4	5	6	7-8-9-10
Presentation – Is the essay easy to read/well structured?	0-1-2-3-4-5-6-7	8-9	10-11	12-13	14-15-16-17-18-19-20

Grade A	Exceptional Clarity, Cogency, Consistent Fluency
Grade B	Clear Focus and Clarity in Writing, Appropriate Style, Fluency
Grade C	Effective Clarity, Acceptable Style Though Not Fully Consistent
Grade D	Poorly Organised, Under Focused, Inappropriate Style

In this study narrative discourse of a student’s academic writing over a period of five months has been analysed by Natural Language Processing (NLP) software. Findings were mapped to evidence of linguistic markers of poor mental health established in research studies. From this, we propose a framework for identifying when the quality of academic writing might be indicative of a poor mental state rather than intrinsically poor writing ability, something which is often overlooked. The proposed framework for academic trauma informed pedagogy provides a novel lens which we argue should be adopted by academics. The framework is described and the merits and challenges of using NLP to implement it in academia are discussed.

2. Literature Review

The conservative and elitist promotion of correct language usage, traces back to historical prescriptivism of the ideology of correct usage, particularly in the context of academic writing, often serving as a tool for maintaining social hierarchies (Bhambra, 2018). This prescriptivist approach has historically been linked to broader social and political values, often stigmatising those who do not conform. Academic writing guidelines are deeply rooted in values that perpetuate an ethos of fear and negative evaluation around language, where deviations from the "correct" usage are seen as indicative of poor education or intelligence (Golden, 2020). The English language has become synonymous with knowledge, no longer seen merely as a language.

It has been recognised by sociolinguists that prescriptions of what’s right in the use of language serve a social function rather than having any intrinsically creative linguistic merit. Certain grammatical forms and structures in writing are judged as ‘correct’ while others are stigmatised as ‘vulgar’ (Turner, 2019). Perception of language can have multi-faceted social consequences because a student's writing can reflect wider socio-rhetorical contexts (Paltridge and Phakiti, 2015). Having an absolutist injunction in assessing their expression hinders rather than opens up contexts for discussion. Distinctions between correctness and error are densely packed with social indexicalities. Writing ‘errors’ are quickly seen as a sign of poor education, a lack of intelligence, or a “sloppy” mind (Turner, 2019). However, just as rigid standards in writing can exclude diverse cognitive and emotional experiences, traditional educational frameworks fail to account for the complex realities of students, especially those struggling with mental health issues and trauma (Molinari, 2022).

2.1 Impact of Trauma on Student Mental Health and Rhetoricity in Educational Settings

“Trauma-informed” is the latest educational buzzword for politicians, policymakers, administrators, teacher educators, and teachers (Bohannon, 2019). This newfound attention is a reaction to decades of policy and practice grounding formal education in cognitive learning targets and standards-aligned skills. Realising that social and emotional dimensions have long been ignored, there is now, finally, attention paid to broader conceptions of young people’s lived experiences (Grannell, 2022). The importance is now on understanding

trauma and the role of pedagogy in mitigating it; the affordances, limitations and different framings of trauma-informed pedagogy, and how teachers' pedagogies can mitigate trauma and respond to people's experiences (Smith and George, 2023).

Trauma can be understood as an emotional response to a distressing event that can cause long-lasting effects on a person's mental and physical health (Smith and George, 2023). It can affect people of any age. Identifying early predictors of poor mental health and trauma is crucial for effective treatment and prevention efforts. However, obtaining these predictors is challenging and methodologically limited due to the wide variability in psychological responses following exposure to traumatic events (Grannell, 2022).

The impact of trauma and the process of recovery are not randomly distributed. Many survivors show a high degree of resilience and ultimately (and sometimes quickly) return to normal lives whilst others develop psychological disorders, such as Post Traumatic Stress Disorder (PTSD) and Dissociative Amnesia (Markowitz, 2022). Researchers have suggested that emotions are catalysts for goals (Henshaw, 2022), the implication being that emotional responses can impact the goals that students set for themselves. At any age, students exposed to traumatic experiences demonstrate emotional and behavioural difficulties that dramatically interfere with their ability to engage in educational and personal experiences (Molinari, 2022). The challenges can have a negative impact on self-esteem, coping skills, educational performance, self-regulation, critical thinking, self-motivation, and the ability to build healthy student-educator relationships. Poor mental health and other people's responses to it can impact one's perceived rhetoricity in the college classroom (Kleim et al., 2018).

There has been a lack of existing research on how poor mental health interacts with a student's most essential tool in a classroom – their ability to communicate (Schwartz, 2005). Rhetorician Catherine Prendergast's "rhetorical disability", (the idea that the neurodivergent are constructed as nonrhetorical) (Schwartz, 2005) debates the necessity to understand the barriers to rhetoricity that college students who have endured a traumatic event face. Those who have endured a traumatic event in their lives become rhetorically disabled when others negatively respond to their nonlinear experience of time, their inability to maintain formulaic decorum, and stigma that exists around poor rhetorical communication. Educators should become cognisant of how the decorum of their classrooms disable students with a past history of trauma, as well as how to broaden that decorum in a way that supports the rhetoricity of those same students.

We must question the assumptions underlying what is considered valid knowledge and how it is evaluated. There is a need to broaden the scope of academic assessment to include non-traditional forms of knowledge and expression (Henshaw, 2022), recognising that students' academic work is influenced by a variety of factors beyond their control. For instance, trauma, mental health issues, and socio-economic challenges can all significantly impact a student's ability to perform well in a traditional Eurocentric academic setting (Markowitz, 2022). Educators should be aware of underlying issues, such as trauma or mental health challenges, that may affect a student's academic performance.

In the context of academic misconduct, a students' academic struggles are often seen as personal failures rather than broader institutional structural issues. Institutional procedures for handling academic misconduct lack sensitivity to underlying mental health or trauma-related issues (Marshall et al., 2017). Instead of offering support or intervention, the focus remains on penalising behaviour that deviates from expectations. This narrow focus on rule enforcement overlooks the broader context of the student's life, contributing to institutional trauma (Bhambra, 2018). The institutional reliance on punitive measures (e.g., academic probation, failing grades, misconduct charges) can exacerbate feelings of failure and shame in students, particularly when these responses are seen as disproportionately harsh or insensitive to personal circumstances. This punitive approach reflects an institutional failure to adopt trauma-informed methods of addressing student challenges (Rude, Gortner and Pennebaker, 2004).

2.2 Creating a Trauma-Informed Educational Space

The need to challenge and rethink traditional educational frameworks that often overlook the diverse and complex realities of students, especially those with poor mental health, brings into attention the historical and structural inequities that continue to shape educational institutions. Educational institutions need to move towards an equitable approach that takes into account the full spectrum of a student's experience, rather than judging them solely on their ability to conform to pre-existing academic norms (Hopkins, 2023a). Recognising the catastrophic impact trauma can have on individuals and communities, international organisations are now beginning to address the issue; e.g. some global mental health agencies have taken on the charge of

developing trauma prevention and recovery programs (Malgaroli et al., 2023). The primary goal of these initiatives is in establishing traumatic stress as a major health issue worldwide and creating a framework for international interventions focusing on efforts that enable and empower individuals and communities to move forward with their lives.

University or college-level students experience a multitude of stressors, poor mental health problems and sometimes trauma. However, such experiences do not necessarily occur during the academic semester when students are encountered by professors, making them less visible to both the student and their instructors. Hence, past traumas may go unrecognised because they are not immediately apparent in the academic setting, despite their potentially long-lasting effect. There is a need for a trauma informed educational space, therefore, which:

- Realises the impact of trauma, understands potential paths for recovery.
- Recognises the signs and symptoms of trauma in students, teachers, and staff.
- Responds by integrating knowledge about trauma into its policies, procedures and practices, seeks to actively resist re-traumatisation. (Smith and George, 2023)

To provide a structured approach to implementing trauma-informed practices in educational settings, frameworks have been developed to guide institutions in understanding and responding to trauma in a systematic way. For example, the Missouri Model (Rude, Gortner and Pennebaker, 2004) scribes the continuum of becoming trauma-informed, from trauma-aware, building consensus around the principles of creating a trauma-sensitive staff able to recognise the signs and symptoms of trauma and the importance of building resilience. A trauma-sensitive staff motivates an intentional growth process for every student academically, socially, emotionally, and behaviourally. To recognise trauma, it is important to acknowledge two fundamental truths:

- All behaviour communicates needs.
- Needs determine brain states.

Being trauma-sensitive requires being able to identify needs-based behaviours, whilst understanding that the responses to trauma are individualised and may manifest in many different ways. Trauma-sensitive staff should also be able to recognise how their own behaviours can affect students. They must consciously avoid negative reactions when faced with vulnerable decision points to foster a safe and predictable learning environment. Teachers who model neutralising routines (Marshal, 2017) in their classrooms recognise the importance of building resilience in themselves and their students.

A holistic approach to assessment would recognise that students are not just intellectual beings but are also affected by emotional, psychological, and socio-economic factors. For example, a student who has experienced trauma may exhibit a decline in academic performance that is directly related to their mental health struggles. Rather than simply penalising the student for this decline, a holistic approach would involve recognising that there might be other root causes and providing appropriate support. Educators should be attuned to the signs of distress in students' work, such as changes in writing style or citation accuracy, as indicators that something deeper might be affecting their academic performance. By taking these factors into account, educators can offer a more compassionate and just evaluation of students' work.

Institutional rigidity is evident in the inflexibility of deadlines, attendance policies, and procedural requirements that do not accommodate the needs of students facing trauma. Strict adherence to these policies can exacerbate mental health issues (Hopkins, 2024), especially when accommodations are hard to access or there is stigma around seeking help or past trauma from having sought help. Inflexibility in coursework, exam formats, and grading rubrics perpetuates trauma for students who need alternative ways to demonstrate their knowledge and skills (Henshaw, 2022). Students suffering from trauma-related cognitive difficulties may struggle to produce linear essays but might excel in oral presentations or creative projects. Institutions that rigidly enforce traditional assessments overlook these alternatives, perpetuating a one-size-fits-all approach that fails to account for diverse student needs (Hopkins, 2023b).

2.3 Natural Language Markers

Natural language markers derived from individuals' spontaneous word use have recently received increased scientific attention. Use of certain words in individuals' writing or speech has been related to psychological aspects of their personal health and psychopathology. Recent research in NLP has demonstrated that it can provide indicators of psychopathology, particularly for Depression, PTSD, Suicide, and Psychosis (Wu et al.,

2023). Machine Learning (ML) or Deep Learning (DL) models could identify risk characteristics using written communications resulting in low-cost and low-effort identifiers. The growth of the need for medical deep learning models is because of the fivefold increase in the number of publications on mental illness detection using machine learning and deep learning methods over the last 6 years (Malgaroli et al., 2023). In spite of this, there are no unified datasets or gold-standard methods to compare publications. Authors use different diagnostic tools and data sources to build NLP models that often lack interpretability. Nevertheless, they present an opportunity to predict which students are at higher risk of mental health issues by identifying patterns in their academic behaviour and interactions with institutional platforms.

Academic assessment criteria and styles have experienced little change over the years despite increasing pressure for equity and inclusivity. This paper calls for educators and academic institutions to recognise these inequities and to take them into account when assessing students’ academic writing. A student’s poor academic writing may not simply be a reflection of their ability or effort but could be influenced by systemic disadvantages that need to be addressed. In this paper we advocate for holistic and contextual approaches to education and student assessment, moving beyond a narrow focus on content quality and traditional academic metrics, and instead considering the broader context in which a student’s work is produced. Through case study analysis, we present an example of how academic work can be affected by trauma and how it can be possible to identify patterns in a student’s written work that may indicate a need for additional mental wellbeing support. We propose a framework for the potential identification of patterns and suggest ways in which it could be implemented using AI and NLP in particular.

3. Methodology

Three pieces of coursework submitted by one student over a period of time from October 2021 through to February 2022 were analysed using an NLP model (Chat GPT4). Chat GPT was asked to critique the academic aspects of the assignments. Specifically, Chat GPT was asked to critique the writing style, language patterns, and the underlying research and academic nuances (see Figure 1). The aim was to assess whether AI could detect chronological changes in the student’s writing that might indicate underlying psychological distress. Explicit written permission was obtained from the student to use their work. In the letter the student described a decline in their mental health during the time period in question and provided medical evidence to support this.

Table 2: Linguistic markers of poor mental health in academic writing (Markowitz, 2022), (Marshall et al., 2017) (Rude, Gortner and Pennebaker, 2004) (Quillivic et al., 2024)

Mental health problems	Manifestation in writing	Classification of symptom
Obsessive thoughts, common in anxiety and PTSD	Manifests in writing as repetitiveness or a focus on specific themes or ideas, regardless of their relevance to the main topic.	Cognitive dysfunction
Flashbacks, nightmares, or traumatic memories.	Leads to a non-linear narrative style, where the writer jumps between past and present without clear transitions. The writer’s rhetoric perspective shifts unexpectedly as a reflection of cognitive dissonance	Cognitive dysfunction
Insomnia and changes in appetite	Impact the writer’s energy levels reducing productivity and affecting the overall quality of the research.	Hyperarousal and Physiological dysregulation
Trauma	Leads to a restricted use of vocabulary, due to difficulty in finding the right words, or an overly complex use of language as a way to overcompensate or distract from the underlying issues.	Hyperarousal and Physiological dysregulation
PTSD	Sufferers have fragmented and disorganised language patterns. During trauma exposure or re-experiencing trauma, individuals with PTSD often exhibit reduced activity in their brains Broca’s area and the left frontal cortex. This results in difficulty producing language, which is essential for forming coherent sentences in academic writing.	Affective dysregulation
Anxiety and Depression	Leads to challenges in maintaining clarity, coherent structure and effectively communicating complex ideas. The individual would then have trouble organising thoughts logically, leading to disjointed or fragmented sentences. Lexical diversity, increase in affective language, negative sentiment.	Affective dysregulation
Anxiety	Leads to missed deadlines, lack of thoroughness in researching or citing sources impacting the credibility and rigour of the work.	Affective dysregulation
Issues with concentration	Affects the ability to focus on detailed research and development of a thorough analysis. Making it hard to stay on topic. Causing frequent digressions or an inability to develop ideas thoroughly.	Cognitive dysfunction

Results from the NLP analysis were mapped to linguistic markers of PTSD, anxiety and depression (Table 2) to determine if there might be a visible relationship between the NLP findings, the student’s account and evidence of their deteriorating mental health.

4. Results

Feedback given by the NLP model on all three pieces of coursework is shown in Figure 1. It revealed a progressive decline in the student’s rhetorical communication skills and overall writing quality over time, a pattern that aligns with documented linguistic markers of PTSD, anxiety and depression (Table 2). Although correlation does not inherently imply causation, there is clinical evidence suggesting that significant changes in a student’s writing style such as those mentioned in the figure indicate underlying mental health challenges, warranting further attention from educators.

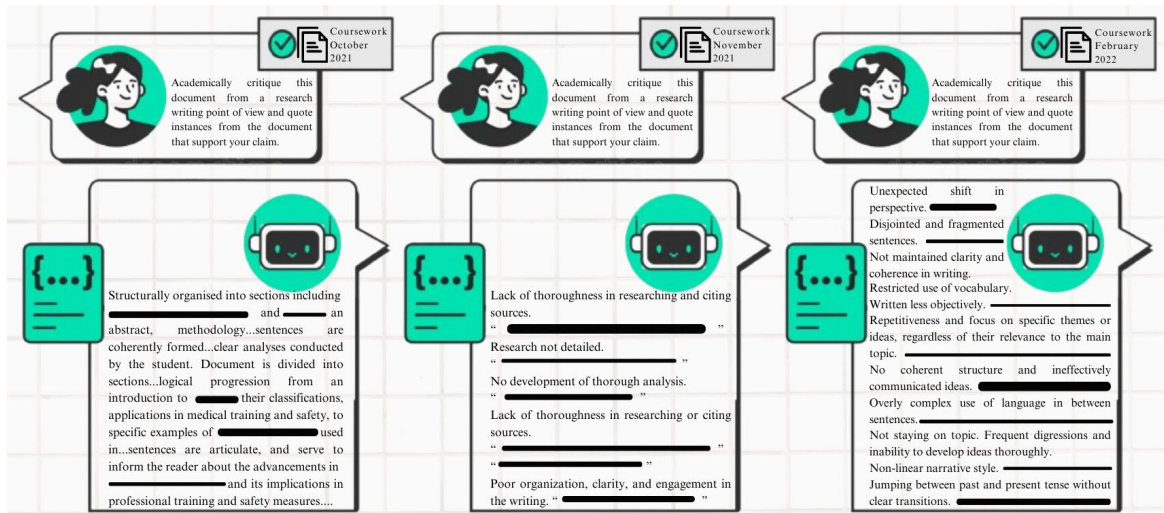


Figure 1: Visual representation of conversation with the NLP model

Figure 2 shows the timeline during which the student studied at university. The timeline shows the relationship between the start of the student’s study, their experience during university and the submission of their coursework.

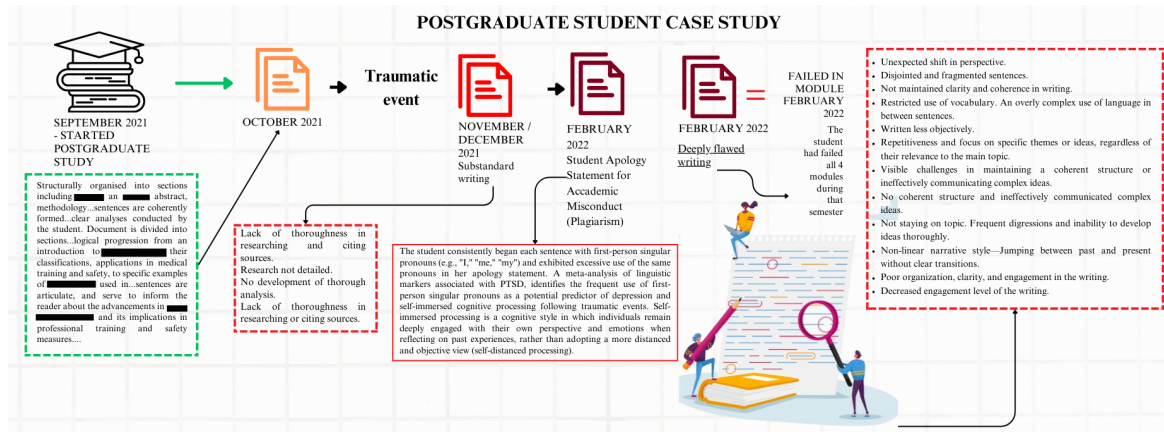
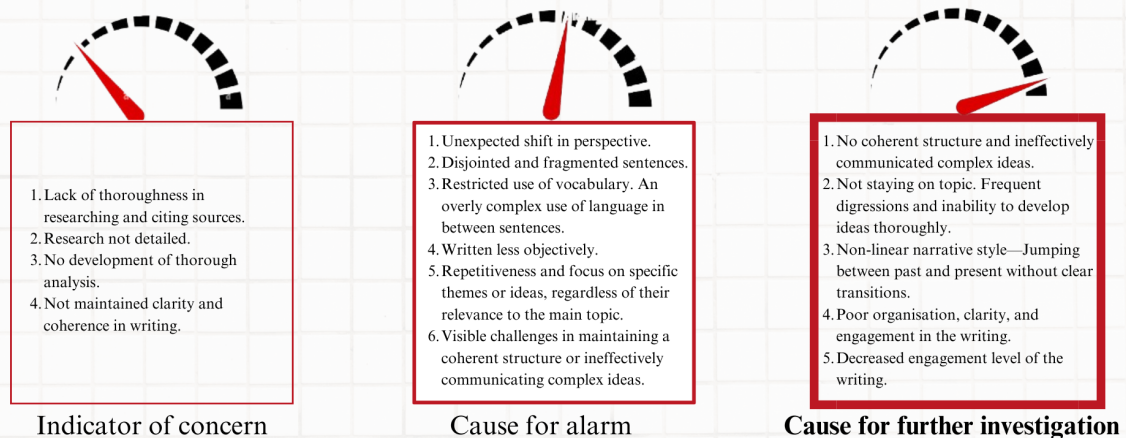


Figure 2: Student academic submission timeline and textual analysis of the academic submissions

The linguistic markers that were identified by ChatGPT are shown in Figure 1. Based on Table 2, these markers have been prioritised to show how they might be used to initiate investigation on the part of the academic.

Level of coherence that warrants additional investigation



This order prioritises structural issues, clarity, and coherence as more fundamental to effective communication than less immediate problems like citation quality or objective tone. Structural issues like coherence and clarity are prioritised because they form the foundation of effective written communication. From a cognitive and communication perspective if a text lacks structure, it shows a significant impact on comprehension, memory retention, and engagement, which are essential for conveying ideas. Problems like tone, vocabulary, or citation detail, while important, are not signs of alarming disruption in the basic flow of communication.

Figure 3: Progressive increase of linguistic markers of trauma in students’ academic writing

4.1 Trauma Informed Pedagogy Framework

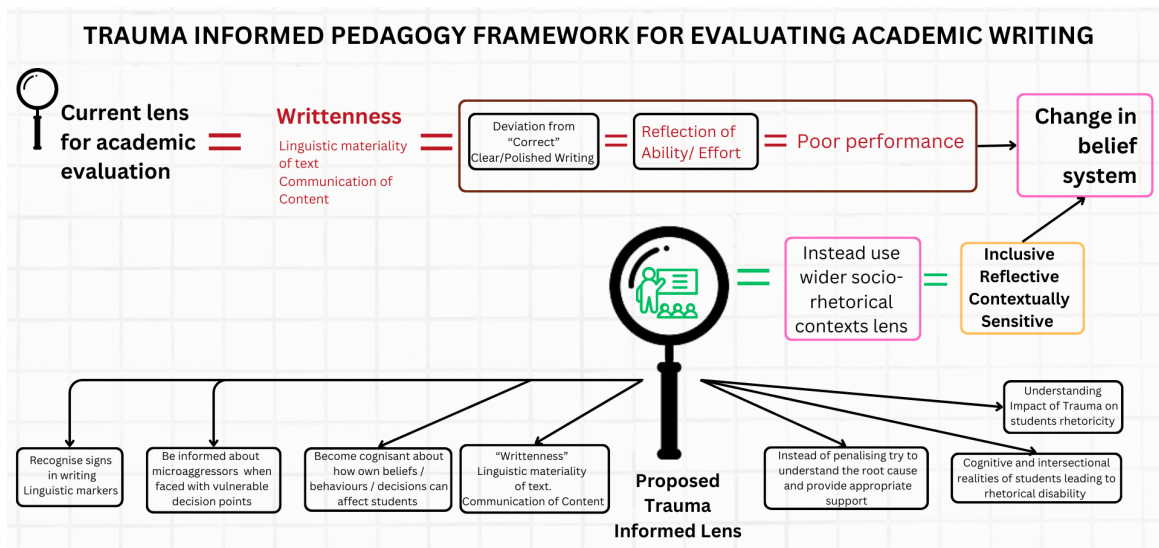


Figure 4: Framework for Trauma Informed Pedagogy

Figure 4 shows the proposed trauma informed pedagogy framework whereby the current academic lens through which student work is viewed should be extended to incorporate a wider perspective and understanding than simply writtenness. Educators need to be trained to recognise the signs of trauma in student writing and to consider these in an appropriate context that includes their own biases. Using a wider, socio-rhetorical context for their lens should ultimately enable them to respond with sensitivity and support rather than penalise. This contextual sensitivity encourages reflection and increased inclusivity.

The implementation of this framework is not without challenges. We propose that NLP software could be used to alert academics to potential difficulties being experienced by their students. However, the current landscape of research on mental illness detection using machine learning methods is fragmented, with a lack of standardised datasets and methods. This fragmentation makes it difficult to compare findings across studies and apply them consistently in educational settings. Moreover, the notion of "writtenness", which emphasises the importance of the writing process itself rather than the content alone, complicates the task of evaluating student work through an academic lens.

The reductive biomedical model of trauma locates the problem to be solved within the learners themselves (Pyscher & Crampton, 2020). It is imperative to understand this approach as one possible framing, considering that the way a problem or issue is framed delineates a range of possible solutions. The thinking flowing from this framework argues that learners who do not succeed in school fail as a result of the traumas they have experienced; if educators pay attention to trauma and self-regulation, children will excel and achieve. A trauma-informed pedagogical lens can interrupt what has come to be known as the school-to-prison-pipeline, and offer necessary support to students. Within this framing, the “problem behaviours” of students can be adapted into more positive coping mechanisms, and this focus on self-regulation will lead to academic and social success (Pyscher & Crampton, 2020).

Trauma-informed approaches have the potential to offer supportive learning opportunities for students when grounded in sociocultural understandings of trauma, its causes, and its effects. We argue that there must be renewed attention paid to sociocultural factors, particularly through a focus on student’s meaning-making around traumas they have experienced as well as their experiences of enacted trauma-informed pedagogies. As language instantiates culture and narratives are shared within and shaped by cultural contexts, a focus on students’ narratives can help shift trauma-informed pedagogy from a focus on a deficit-laden individual learner to a focus on students’ experiences and ecologies (Pyscher & Crampton, 2020).

It is important to emphasise that faculty members, tutors, and institutional staff are not solely responsible for the oversight of students in distress. Due to privacy protection regulations such as the General Data Protection Regulation (GDPR), there is limited interdepartmental access to student information. Academic staff do not have full visibility of a student’s educational patterns or past academic performance, unless the student is deemed a harm to themselves or others. This fragmentation of information, coupled with the compartmentalised nature of academic work assessment which is conducted by a range of faculty members, teaching assistants, and other evaluators makes it challenging to recognise potential signs of distress, particularly when assignments are reviewed in isolation. There are also frictions within academic institutions regarding the evaluation of student writing. These frictions often arise from differing perspectives between those who teach writing (writing instructors or tutors) and discipline-based academics (subject matter experts or professors). This division can lead to misunderstandings and conflicts over how student writing should be assessed, particularly when it comes to balancing content with form, viewing these elements as indicators of intellectual rigor and competence. This focus on form can lead to an overemphasis on surface-level issues at the expense of understanding the student’s broader context and the challenges they may be facing.

4.2 Developing an NLP Model

Text analysis of student chat interactions from digital learning platforms would offer valuable insights into student sentiment and mental health concerns during their academic journey. However, ethical considerations must guide the use of such systems. Personal identifiers should be anonymised to protect privacy while enabling meaningful analysis. Clear communication with students about how their data will be used is essential, with informed consent being a key prerequisite. Furthermore, analysis models should be rigorously evaluated to ensure they are free from biases that could result in unfair targeting or misinterpretation of student needs. While AI is increasingly integrated into higher education systems for educational purposes, only a small percentage of institutions view it as a tool for long-term institutional medical intervention development.

The advancement of NLP in education, particularly for mental health interventions, requires large, secure datasets that balance privacy with the need for data accuracy and representativeness. Given the potential for reidentification of even de-identified transcripts, privacy concerns remain significant. Nonetheless, the development of ethical frameworks and guidelines, particularly in terms of meta-learning and the creation of large corpora, will be essential (Malgaroli et al., 2023). Beyond healthcare, advances in areas like social media studies and electronic health records demonstrate the potential for NLP in mental health research. Continued collaboration between educators, developers, and mental health professionals will be essential to developing methods that capture the sequential, context-dependent nature of interventions required (Quillivic et al., 2024). NLP methods show promise in supporting large-scale text analysis for tasks such as information extraction, sentiment analysis, emotion detection, and mental health surveillance. This collaboration, supported by secure datasets, fairness checks, and a common language, has the potential to revolutionise the assessment and treatment of mental health conditions in educational contexts (Zhang et al., 2023).

Detecting mental illness from text is being framed as a text classification or sentiment analysis task, where NLP techniques can be leveraged to automatically identify early indicators of mental illness, supporting early

detection, prevention, and treatment. The advantage of supervised learning lies in the model’s ability to learn patterns from labelled data, ensuring better performance. Researchers have already developed a deep multi-task method that models emotion recognition as the primary task and depression detection as the secondary task (Quillivic et al., 2024) (Figure 5).

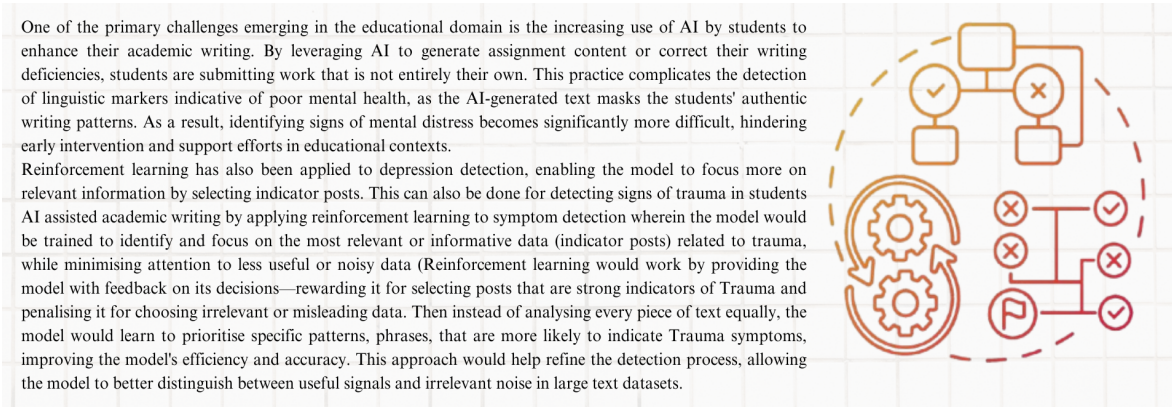


Figure 5: Proposed NLP method

Automated systems could provide a holistic view of student academic performance by integrating data from multiple modules and student records as shown in Figure 6. This would enable faculty and staff to raise alerts, offer academic advising, monitor student engagement, and refer students to appropriate resources through a unified, virtual system (Wu et al., 2023). NLP models, which have been used to assess clinical presentations, responses to interventions, and therapeutic dynamics, could address some of these challenges. However, current models face limitations such as linguistic homogeneity, limited reproducibility, and population bias, underscoring the need for more inclusive and reproducible approaches when developing an NLP model.

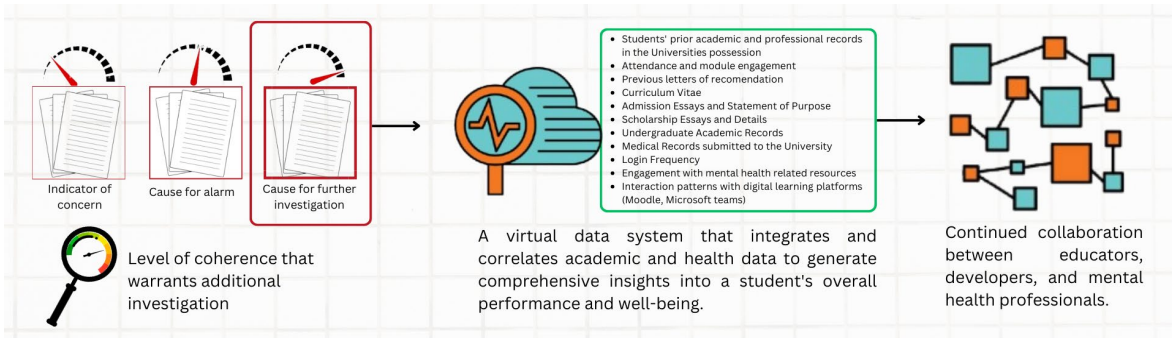


Figure 6: Proposed Virtual system

5. Discussion

To foster an optimal learning environment, we need to pay attention to emotions and how the learner is feeling, as learning cannot take place in the absence of emotion. The brain chooses which aspects of its perceptions to pay attention to, and how to make decisions about them, by assigning emotional importance to them (Imad, 2022). The educator’s tone, the lesson, the assessment—all of these are external perceptions that the brain has to process, and it will process them according to the emotional state they produce. Emotions play the centre role in every human experience, especially affecting the learning experience (Imad, 2022).

Emotions and distress can present themselves through changes in language styles and patterns and these can be used as markers to detect the presence of distress (Markowitz, 2022). We have proposed a framework that expands the lens of traditional academic evaluation and considered the use of NLP to support this in academia.

Trauma-informed pedagogy does not require that the educator has training in social work or clinical psychology. Educators are not meant to diagnose or treat their students. Trauma-informed pedagogy does not mean that there are no rules, and students can “get away” with anything. It instead provides students with clear frameworks to follow, as the brain naturally thrives on structure. Trauma-informed pedagogy is not synonymous with lowered academic expectations. On the contrary, using the lens of trauma-informed education allows educators to challenge students academically to reach their full potential while being

responsive to their individual needs. Using a trauma-informed lens not only benefits students who have experienced trauma, but also improves the learning of all students, as it would inevitably create a supportive, safe, and predictable learning environment enhancing engagement and emotional regulation for all. Since the focus of any teaching practice would shift to creating a sense of trust and security in the classroom, it would reduce anxiety and distractions allowing students to focus on their academic growth. Trauma-informed strategies foster inclusivity and adaptability, enabling diverse learning needs to be met, improving outcomes for all students, not just those with a history of trauma.

Teaching through a trauma-informed lens was warranted before the pandemic and is relevant even more now (Imad, 2022).

This framework underscores the importance of a holistic view of student development—one that integrates academic and emotional well-being. The significance of this framework lies in its ability to address the often-overlooked link between mental health and academic performance. Traditional academic assessments focus primarily on content, often neglecting the linguistic markers that may signal a student's struggle with trauma. This oversight can lead to missed opportunities for intervention, particularly in higher education settings where students may not voluntarily disclose their mental health challenges. By systematically analysing written work for indicators of PTSD such as disjointed structure, non-linear narratives, and repetitive focus on certain themes educators can gain insights into a student's mental state and provide necessary support.

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