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For whom is the feedback intended? A student-focused critical analysis of Turnitin software as a tool for learning

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Abstract

Online systems like Turnitin have been identified as way to improve the quality of work that students submit. Related to this, recent studies concerned with Turnitin have foregrounded its capacity as an educative tool that improves students' understanding of academic misconduct. Academic writing, and the ability of students to appreciate feedback as a significant component of learning is often hidden behind the technological platform of Turnitin. In many cases Turnitin is conceived as software used to detect dishonesty and frame students for inappropriate citation, or misuse of referencing. We seek to address this, by examining more the pedagogical value of online feedback systems in the context of widening participation and TEF. Significantly expanding the discussion beyond plagiarism, taking a genre-based approach, and positioning both academic writing and Turnitin/feedback within the context of academic literacies, this paper intervenes with current debates. The case study draws on qualitative data recorded from students, tutors, and the Turnitin software system. By doing so, insights are generated into best software practice that have profound implications for HEIs, most especially those with widening participation agendas. Based on these data, the study provides a series of practical software development recommendations to help raise standards amongst student writing.

1. Introduction

Within the Higher Education learning environment, the online formative and summative feedback process in platforms such as Turnitin is most effective when both students and staff are actively involved (Taras, 2003). However, students may fail to understand or interpret the feedback provided (Duncan et.al, 2007; Taras, 2003) and, practitioners frequently foreground deficits at the expense of developmental approaches (Hattie & Timperley, 2007). Semi-structured focus group interviews have demonstrated a bifurcation between student and staff perceptions of the use-value of Turnitin as a platform for learning, with only 27% of responses with positive connotations being initiated by staff. Extending beyond pedagogical debates into a software specification approach, this study provides new insightful recommendations for enhancing the use of software such as Turnitin as a potentially pedagogically impactful platform for all its users.

The provision of high-quality assessment feedback to promote improvements in written assessments is closely aligned with the current direction of UK Higher Education policy; this is

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especially pertinent for Higher Education Institutions (HEIs) with widening participation agendas (Department for Business Innovation and Skills [BIS], 2016a). As a particular measure of this, in May 2016, the Department for Business Innovation and Skills (BIS) published its *Technical Consultation* document for UK universities (BIS, 2016a), part of its newly-devised *Teaching Excellence Framework* (TEF). The *Technical Consultation* document – being consultative in tone – offers a series of possible markers for success, rather than concrete definitions. However, it is particularly clear in its wish to support 'the development, progression and attainment of students from disadvantaged backgrounds is a mark of effectiveness and therefore a key focus of the TEF' (BIS, 2016a). To be sure, the TEF aims to measure the effectiveness of educational outcomes for students in Higher Education and address the needs of employers in a 'knowledge economy' (BIS, 2016b). The framework specifically seeks to promote improvements in student learning outcomes (*ibid*., p. 12). In keeping with this rationale, recent studies have explored how far structured feedback mechanisms, such as through formative assessment, can enable positive student assessment outcomes in the context of progressive approaches to assessment (Yorke, 2003; Butler & Roediger, 2008). Exploring the systems to provide structured feedback meaningful feedback, then, responds to both emerging UK educational policy and current scholarly debates.

More specifically, the TEF *Technical Document* identifies a link between structured student feedback, and subsequent progression and attainment (BIS, 2016a). Accordingly, Wingate, Andon and Cago (2011) – in their study of the practice of embedding the teaching of academic writing conventions into course curricula – note that structured feedback leads to increased assessment grades and therefore a greater chance of student progression (Wingate, Andon and Cago, 2011, p. 73). However, they find that – while most students approve of the formative feedback process – it can be impractical to deliver detailed face-to-face feedback from online submissions for larger cohorts. They decide that, since the formative feedback process for academic writing interventions is so labour intensive, 'additional resources' may be needed, including standardisation of feedback practice (Wingate, Andon and Cago, 2011, p. 73). One solution for the problem identified by Wingate may lie in providing at least partially-automated online feedback on features of academic writing; such a feature, in the context of TEF, could allow HEIs to demonstrate their pursuit of student progression through structured feedback.

In keeping with this, Yang's (2011) study focuses on a number of second-language science students to explore whether online peer assessment may be as an additional resource for feedback on writing. The system described by Yang involves an active visualisation (and discussion) of how peers solve problems through writing, articulated in a way that makes the descriptions of writing processes explicit and clear (Yang, 2011, p. 629). However, Yang cites a number of studies (Cho & Schunn, 2007; Liou & Peng, 2009; Lundstrom & Baker, 2009; Storch, 2005) that highlight how peer assessment of academic writing may result in discussion of lexical or syntactical features, which Lavelle and Zuercher (2001) dismiss as 'surface concerns' (p. 376). The study acknowledges further shortcomings arising from the expectation that students simply write like their peers (Braine, 1997; Paulus, 1999), as opposed – presumably – to adopting the styles and structures of writers in their wider discourse community. Yang's solution to this is to encourage students to make larger-scale structural changes to peers' writing as part of the coaching process (Yang, 2011, p. 268). This focus on structural features echoes the findings of Amos and McGowan (2012), who advocate analysis of the various sections of a text as a means to explore more general concepts of academic writing genres (Amos & McGowan, 2001, p. 2). However, in the only text extract Yang supplies, 7/8 of the peer corrections are surface-level changes, with only one of the example changes being structural, although a later description of student interactions mentions *local* and *global* changes equally (Yang, 2011, p. 697). Overall, though, Yang's study places slightly more emphasis on local/*surface*-level changes (38 mentions) than global changes (35 mentions). Clearly, whilst online peer feedback for writing promotes active dialogue on writing decisions, student-teacher interactions can enable a more constructive learning process based on a more sophisticated dialogue that simultaneously

addresses a text's language, purpose, and structure (Amos & McGowan, 2012; Lavelle & Zuercher, 2001; Nattinger & DeCarrico, 1992; Swales, 1990).

Online systems like Turnitin's Feedback Studio have been identified as means to improve the quality of work that students submit. Related to this, recent studies concerned with Feedback Studio have foregrounded its capacity as an educative tool that improves students' understanding of academic misconduct. Academic writing, and the ability of students to appreciate feedback as a significant component of learning is often hidden behind the technological platform of Feedback Studio. In many cases, Feedback Studio is conceived as software used to detect dishonesty and frame students for inappropriate citation, or misuse of referencing. What are the student stories that manifest from the technology we use? How do we engage with students and help them see the value of technology in aiding their academic and professional development? This paper explores the use of Turnitin software as a means to enhance student learning through feedback and feedforward practices.

1.1. Feedback Culture and Directed Learning

The current corpus of research on feedback acknowledges its role in directing learning, as well as being an effective tool for learning (Hattie & Timperely, 2007; Shute, 2008). The seminal review by Black and William (1998), considered 250 studies on formative feedback and concluded that good and extensive feedback leads to increased student engagement and higher quality learning.

Hattie and Timperley (2007) define feedback as information provided by an agent regarding aspects of one's performance or understanding. Shute (2008) posits that the intention of providing students with feedback is to close the gap between the standard achieved and the standard desired. This is compounded by students who feel that feedback is meaningless and provides little direction for future improvements. How often do students read the feedback or actively seek out opportunities for feedback? Does online feedback change the dynamics of how students see and understand feedback comments? Duncan *et.al,* (2007) offers a possible analysis of how the student-assessor feedback nexus operates. According to Duncan *et.al,* (2007), part of the problem is that academics and students see feedback in isolation to other components of the teaching and learning process, and consider feedback to be primarily a teacher-owned process. This is corroborated by Taras (2003) who explains that the feedback process is most effective when all the protagonists are actively involved. A further problem identified by both Duncan *et.al,* (2007) and Taras (2003), is that students often fail to understand or interpret the feedback provided. This could, potentially, be due to the language used by academic staff in providing feedback comments. Hattie & Timperley (2007) find that many academics, when providing feedback, tend to focus on the correctional or deficit elements within the student work at the expense of providing instructional and developmental guidance. Studies on feedback impact on student learning achievement indicate that feedback has the potential to significantly enhance learning through feedback quality and not necessarily quantity. Hattie and Timperely (2007) also suggest that learning gains are heightened when feedback is directed towards developmental improvements as opposed to feedback that focusses on praise and rewards. Likewise, in their study of the psychology of learning development, Brown, Roediger and McDaniel, (2014) problematise approaches to learning that rely solely on students' perspectives, and emphasise a potential gap between perceptions of learning needs versus meaningful acquisition of learning gains, which can be and uncomfortable process for the learner. Accordingly, feedback is most effective when it addresses realistic and achievable goals and does not threaten student self-esteem; feedback systems such as Turnitin may be able to play a part in this.

1.2. Feedback for Learning and Transition

New students, or students new to higher education learning environments, often face the challenges of transition. The literature suggests that there are multiple gaps in prior student learning experiences and those of higher education expectations (Rolfe, 2011). What students believe they understand in terms of academic skills are often poles apart from academic staff expectations

(Taylor, 2008). Rolfe (2011) suggests that the difference in the experience – expectation continuum, could be due to cultural shifts and information usage. Brickman, Gormally and Marchand Martella (2016) state that wide discrepancies exist between how academic staff and students, especially entry students, perceive feedback effectiveness. According to Brickman, Gormally and Marchand Martella, (2016) academic staff thought that feedback, including online platforms, helped student understanding and learning. Students strongly disagreed. Taylor (2008) concludes that timely feedback on early assessed work is a positive step in supporting student transition. Consequently, Brickman, Gormally and Marchand Martella (2016), like Brown, Roediger and McDaniel (2014), propose that written feedback specifically should be seen as an initiation of a post-performance discussion between academic staff and student, and part of a wider learning process. Rolfe, (2011) suggests that learning technologies such as Turnitin may offer a solution to support the transition into Higher education by providing accessible and rapid feedback online. Rolfe (2011) found that using online instant feedback, impacted positively on students' cognition about their writing. This feedback, delivered predominantly through Turnitin, enabled students to develop their literacy skills and consider their writing styles within set texts. This is further corroborated by Schute (2008) who affirms that online technologies could support exciting and creative learning activities. Similarly, Brown, Roediger and McDaniel (2014) note that '[i]nterleaving and variation mix up the context of practice' (p. 84) and leads to an enhancement of the learning process. In keeping with this, Lea and Street (2006) and Bhatia (2010) explore the connections between a text's purpose and its form, thereby interleaving a text's core subject and the linguistic and/or structural features, whilst noting that students have to mix these in their writing practice.In contrast, Chew, Jones and Blackey (2009) argue that the focal point should be pedagogically enabling and empowering students to learn with and through technology. To this end technology should be used to enhance learning, teaching and assessment activities. Buckley and Cowap (2003) suggests that technology enhanced learning research may lack an appreciation of different learning styles. The literature appears to focus on the troublesome or problematic areas of giving and interpreting feedback, rather than the reporting on effective strategies as well as where technology enhanced learning can support student engagement with feedback.

Evans and Waring (2011), explored students' perceptions of feedback in relation to cognitive styles and culture, the study found cultural variables impact significantly on student assessment feedback preferences. The study encourages HEIs to consider the micro-cultures they promote when students are inducted into receiving feedback for learning. Using a social constructivist approach, Evans and Waring (2011), found that students are able to better consider their beliefs about learning which promotes ownership of learning and leads to self-regulation in learning.

Evans (2016) has developed an Assessment Tool (EAT) which includes three core dimensions of practice: Assessment Literacy (requirements for assessment), Assessment Feedback (all feedback exchanges within an assessment), and Assessment Design (an integrated and meaningful approach to assessment which addresses: relevance, volume, inclusivity, collaboration, sustainability and manageability). The tool is grounded in the concept of students as active contributors to the assessment feedback process rather than seeing assessment as something which is done to them. Assessment practice is enhanced once the interconnected nature of the three core dimensions of practice is fully considered. The tool is fundamentally about promoting self-regulatory practice in assessment and asks "what does student engagement in assessment and feedback look like?" Software such as Turnitin, then, can potentially play a role in self-regulatory practices to enhance student performance, if designed correctly, and placed at the centre of a larger process of academic development through dialogue.

2. Method

2.1. Research Design

Using grounded theory and thematic coding in particular (Gibbs, 2007), we explored links between themes by relating responses back to theoretical perspectives. To further assist in the analysis of emerging themes, we found the framework suggested by Charmaz (2003) useful. This includes asking a series of basic questions during the intensive reading phase of the interview transcription: what is going on?; what are respondents doing or saying?; what do these actions and/or statements take for granted?; how do structure and context serve to support, maintain, impede or change these actions and/or statements?

The richness of the responses made it possible to examine clusters of patterns and assign specific tags to better describe and conceptualise the narratives of the participants. During the decoding of the transcripts it became apparent that tensions exist between being a giving and receiving feedback online. The primary themes related to: meaning, purpose, action, and development of skills and competencies both as a member of staff and student.

8 higher education professionals, and 14 students participated in group semi-structured interviews facilitated by the researchers. The practitioners and students responded to a general call for research participation. Students were undergraduates at various stages in their degree, and were drawn from Public Health and Sports Therapy courses. Partipication was entirely voluntary and there were no incentives offered. Likewise, practitioners were drawn from Public Health and Sports/Sports Therapy courses.

2.2. Data Collection Tool

Participants in the semi-structured group interviews were asked to discuss their experiences of using online platforms such as Turnitin for feedback and learning enhancement. These included both challenges and opportunities. All interview responses were recorded and transcribed. Participants were asked to review and check the transcripts for accuracy. All participants were made aware that participation in the study was voluntary and that they had a right to withdraw up until the point of data analysis.

2.3. Data Analysis

The current study took the form of a conventional content analysis. No preconceived categories were identified; instead, all categories and names for categories flowed directly from the data as observed (Kondracki & Wellman, 2002). Data collection and analysis focused exclusively on the narratives and comments emerging from the focus groups. Focus groups, using semi-structured interview questions were convened at different points during the academic year. The participants within each focus groups were students and staff studying and teaching, predominantly undergraduate students. Deliberately interleaving datasets, and responding to Brown et al. (2014), the present study merges quantitative and qualitative data from students with qualitative and quantitiative data from tutors, connecting these balanced approaches to previous studies that combine tutor and student data. Specifically, though many suggested improvements are guided by student opinion, our approach provides space for tutor dialogue. Participants were asked to discuss their experiences of receiving and/or giving feedback through online platforms such as Turnitin. They were asked about their understanding of the value and purpose of feedback, and how feedback could be used to enhance academic writing skills. The research protocol together with the semi-structured interview questions were reviewed and approved by the University of East London Research Ethics Committee. Comments, narratives, and recommendations ensuing from the interviews were then tabulated within an Excel spreadsheet for analysis. Both researchers read and reviewed the raw comments before deciding on relevant themes for analysis.

Using Hermeneutic Phenomenology (Douglass & Moustakas, 1985), crafted stories (Crowther, Ironside, Spence & Smythe, 2017) and thematic coding in particular, (Gibbs, 2007) we explored links between themes by relating responses back to theoretical perspectives. This includes asking a series

of basic questions during the intensive reading phase of the interview transcription: what is going on?; what are respondents doing or saying?; what do these actions and/or statements take for granted?; how do structure and context serve to support, maintain, impede or change these actions and/or statements? As the participants described and narrated their individual and collective experiences of feedback, it was necessary to apply multiple tags and codes to the transcription of the interview narratives.

The richness of the responses made it possible to examine clusters of patterns and assign specific tags to better describe and conceptualise the narratives of the participants. During the decoding of the transcripts it became apparent that tensions exist between staff and students, and these were further emphasised by a "connotation" category, which interpreted the results as either positive, negative, or neutral in import. The resultant categorised responses enabled some of these tensions and relationships to emerge more deeply in the semi-structured interviews. Here we used a form of template analysis as we coded transcripts, identifying themes. King (2004) describes template analysis as a set of techniques for thematically organising data. Some of the themes can be *a priori* though modified and interpreted by the researchers. We coded the same data independently, meeting to share our interpretations, reflect on the process, and develop our themes further.

3. Results

Focus group responses generated 398 total categorised comments. Of these, 111 were from tutors, and 289 comments were made by students.

3.1. Connotation View

Analysis of the comments demonstrate that – when considering the Turnitin platform – students and tutors appear to most frequently make mention of similarity scores/plagiarism in combination with the general learning context in which that information is used.

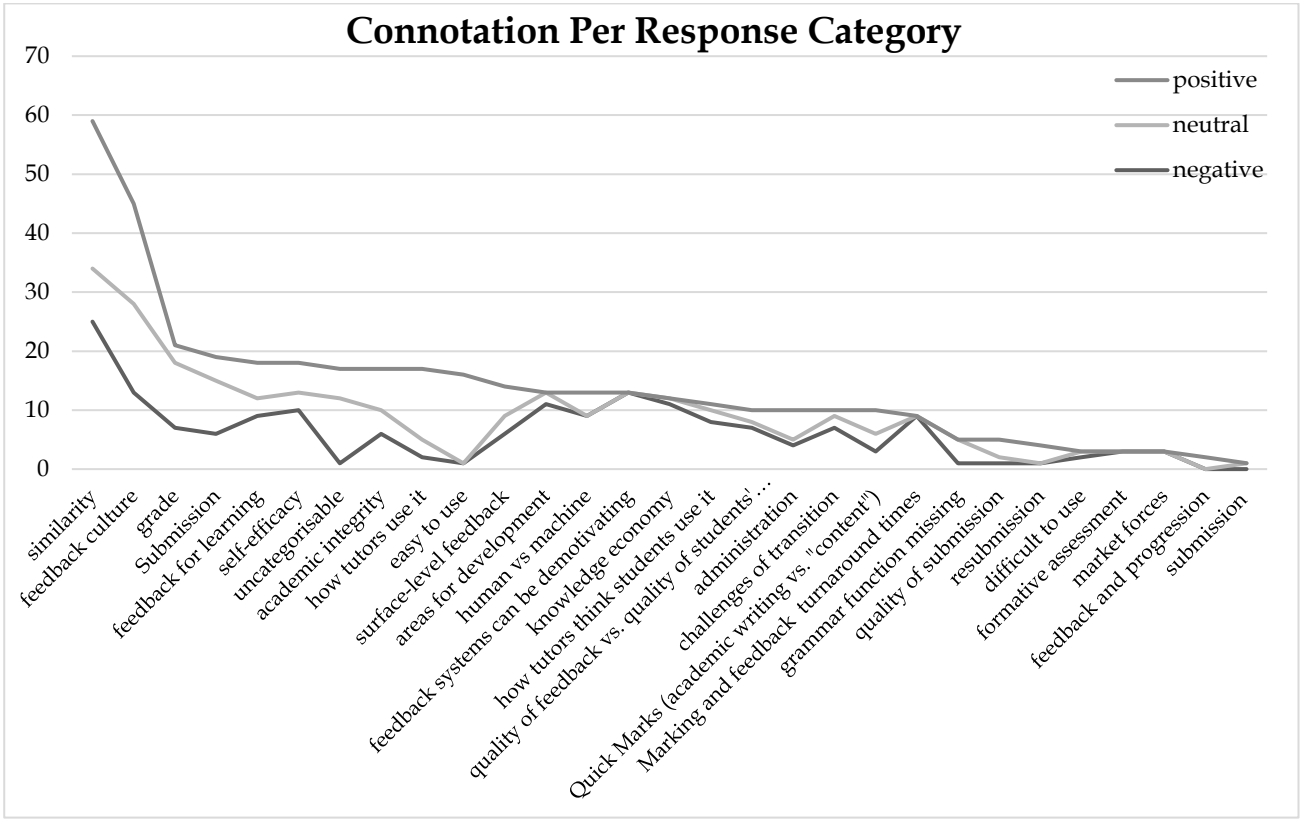

Figure 1. Connotation per response category

The five most frequently recurring categories of response related to similarity scores, grades, the process of submission, and what feedback was for, or how a culture of feedback has emerged at the university. "Similarity" had a notable separation between positive, negative, and neutral, suggesting strong differences of opinion.

The most frequently recurring useful categories of response are summarised below, in order of frequency.

Similarity means discussions around the Feedback Studio similarity score, and how it may be used to detect similarity to the words used in other writers' studies. *There was a significant bifurcation of opinion in responses in this category, and it was clearly the most discussed concept.*

Feedback culture relates to debates concerning how tutors and students give, receive, and use feedback, and also how feedback software is used in the context of the university. *There was a significant bifurcation of opinion in responses in this category, but fewer responses overall, and second only to "Similarity".*

Grade: relates to discussions around academic scores and assessment grades in general. *There were around twice as many positive responses with the "Grade" category than negative responses.*

Submission relates to the processes and conditions of submitting work for assessment, and can include practicalities such as deadlines. There were around *four times more positive responses with the "Submission" comment than negative responses.*

Feedback for learning means how feedback can be used as part of the general learning cycle. Comments in this category focused specifically on the pedagogical potential of feedback, as distinct from the practicalities and institional culture of feedback (which is covered in the "feedback culture" category).

Self-efficacy specifically relates to how students improve their own skills and learning by acting upon feedback.

Academic integrity relates to discussions around the ethics of academic writing, most especially collusion, plagiarism, referencing/citation, and other related matters. This is different from "similarity", which is focused on the similarity score statistic provided by Turnitin.

Surface-level feedback means any consideration of features such as a punctuation, grammar, formatting, etc., which may be unrelated to the core arguments and thematic development of a text.

Human vs. machine: comments in this category were concerned with whether automation has a place in the learning environment, and whether automation is valuable in enhancing learning.

How tutors use it: comments in this category explored the ways tutors used the software.

3.2. Most Notable Comments

A comparison of some of the notable positive or negative comments amongst students and tutors appears in the table below.

The range of responses shows notable bifurcation in both students' and tutors' assumptions as to whether and how the software benefits students as part of the formative learning process. None of the more notable responses from the frequent categories make mention of the act of writing. All of the notable responses above focus on the practicalities and purpose of the software. Many of these selected responses also address how far the software can be used to generate dialogue as part of the feedback process.

Table 1.
Notable positive and negative comments by frequent themes

Category	Notable positive response	Notable negative response	Related studies
Similarity	[Student:] 'It build[s] you[r] confidence to write in your own word'	[Student:] 'sometimes it tells me I am similar to other writers who I have never known'	Ryan et al. (2009) and Buckley and Cowap (2013)
	[Tutor:] 'is less of a worry for me. I've never had too many issues with plagiarism pre or post Turnitin.'	[Tutor:] 'Students feel as though they're allowed to do 'X' amount of plagiarism. [They think:] 'am I savvy enough to get under the limit?''	Ryan et al. (2009) and Buckley and Cowap (2013)
Feedback culture	[Student:] 'Lecturers feedback when you go through'	[Student:] 'some teachers only give negative feedback'	Ryan et al. (2009) and Buckley and Cowap (2013))
	[Tutor:] '[Feedback Studio] does actually start to help us coach students how to understand the criteria for their assessment and how they should be able to self-regulate their own work before we've even marked it to say "yes, I should be getting X for this."'	[Tutor:] 'Mainly, I think they are thinking what is my percentage figure, or am I on the right track. … I think the tool hasn't moved past that main function into one about general advice on essays; that's a very difficult area…'	Ryan et al. (2009) and Buckley and Cowap (2013)
Grade	[Student:] 'I go to the grade to check and go straight to the marking band to strengthen my weakness.'	[Student:] 'sometimes you lose marks if your similarities are too high'	Ryan et al. (2009) and Buckley and Cowap (2013)
	[Tutor:] 'We actually find that [when they have to guess their grades] students grade themselves a lot more harshly'	[Tutor:] 'That would be my biggest bugbear with Feedback Studio … I have no control of [separating/suppressing the grade from the list of feedback], and I think that is a missed opportunity.'	Buckley and Cowap (2013)
Submission	[Student:] 'It guides me through my deadlines.'	[Student:] 'It helps with the deadlines not the assessments.'	Turnitin (2016b); Bandura (1997) and Pajares (2003)
	[No positive tutor response.]	[Tutor:] 'If they submit again, I think it overrides the first draft.'	Turnitin (2016b); Bandura (1997) and Pajares (2003)
Feedback for learning	[Student:] 'Or we submit something to [our tutor] and he says 'as soon as you've submitted it make an appointment with me and we'll go through it''	[Student:] 'It's very formal. It's a very formal way … [I prefer to] get things explained [in person]'	Shute (2008), Hattie & Timperely (2007)
	[Tutor:] 'I prefer to use multiple methods in feeding back to students. My students prefer audio. In this sense, they connect with my voice and understand the journey I travelled in reviewing and assessing the work – both the highs and the lows.'	[Tutor:] 'Staff – we spent time feeding back without ever questioning for whom is the feedback intended.'	Shute (2008), Hattie & Timperely (2007)

3.3. Most Popular Keywords in Responses

Analysis of the 10 most popular keywords from the 398 individual comments (excluding functional words such as 'and' or 'like') shows respondents notably mention feedback over three times more often than similarity:

Table 2
Frequency count of the most popular respondent keywords

Keyword	Grand Total
feedback	108
work	60
think	56
students	54
turnitin	52
similarity	34
people	28
comments	27
need	26

Common to these keywords are also notions of practicality, interaction, human communication and dialogue. There were 464 of these keywords overall.

3.4. Relatedness of Responses to Surveyed Studies

The studies by Ryan et al. (2009) and Buckley and Cowap (2013) were of particular relevance to the responses generated by the repsondents to the present study; these two predecessor studies were three times more pertinent than the second most relevant study.

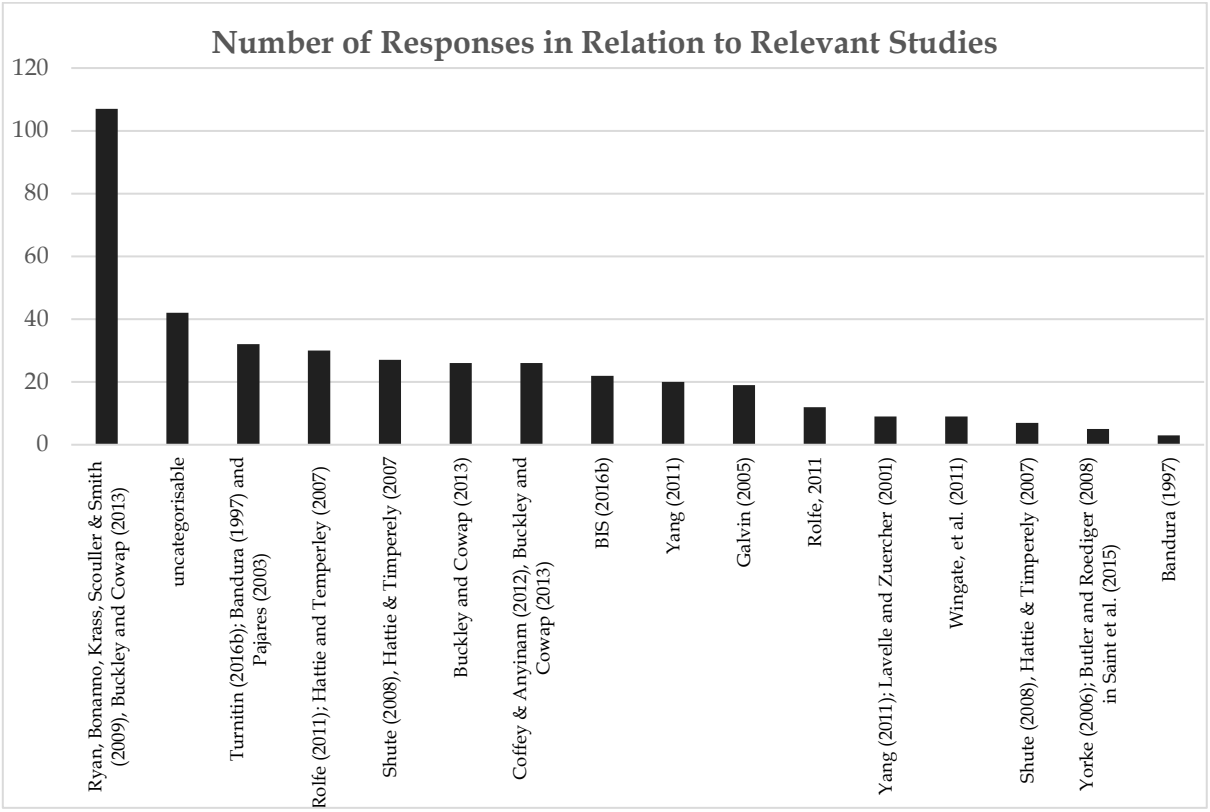

Figure 2. Relatedness of Responses to Surveyed Studies

Discussion

The present study sought to examine how software such as Turnitin functions to promote developmental learning. The literature suggests that feedback is a complex process often fraught with difficulty (Yorke, 2003). This complexity is heightened through a number of key factors, including purpose, direction, genre, language and impact. The results suggest that for feedback to be meaningful it needs to follow a developmental pathway, one that directs the receiver of the feedback to a functional outcome. Accordingly, the barriers to feedback for development are numerous, and often feedback intention is malaligned with feedback interpretation and value. Drawing on the work of Ryan et al. (2009), the study sought to better understand the tensions that exist between delivering feedback and receiving it. It was evident through the analysis that Turnitin can be a barrier to learning and thinking. This was captured in comments that tended to dehumanise feedback and present it as a mechanistic process devoid of interaction, critical discussion and collaboration. Hattie and Timperley (2007) make explicit that feedback has the potential to focus predominantly on remedial and corrective actions. Building on this, the present study found that for feedback to be useful to the recipient it needs to be anchored in and aligned with genre type. Moreover, the systemic approaches we foreground are intended to terminate in focused action points for learning development (Brown et al., 2014), rather than unfocused emotional reflection. Specifically, though many suggested improvements are guided by student opinion, our approach provides space for tutor dialogue. These findings raise important pedagogical as well as philosophical questions around the language used to feed back to students. The results further offer a critique around whether significant differentiation in feedback content and application needs to be consider against level of learning. Using a micro-macro-meso model, student and tutor responses suggest that the feedback cycle permeates individual and institutional domains. Online technologies, then, can potentially offer positive solutions for closing the expectation and experience gap. Students' understanding of what is expected can differ vastly from staff views on the same issue. This study considered how students perceive writing expectations based on prior experiences. The results have identified a tension between using technology to avoid plagiarism and to promote meaningful learning development.

Conclusion

The findings suggest that feedback is complicated and can present multiple issues for both students and staff, as the bifurcation of opinion concerning both 'similarity' and 'feedback culture' goes some way to demonstrate. Even though the study could have benefitted from a cross-disciplinary approach, involving more participants, the initial results have implications for future software-based practices, and the Recommendations in our Appendix seek to present those within the general learning environment.

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Appendix. Recommended software changes for enhancıng feedback

By relating key comments from the interviews in our study to the work of Yorke (2003) and Bhatia (2010), key differentials such as user type, descriptions change request and anticipated outcomes can be identified, following the user story software framework advocated by Jeffries (2001). These differentials have implications for software development and revision to the current Turnitin platform, enabling staff and students to better consider the value, purpose and impact of feedback as a change agent. Building on the comments of both students and tutors, it is possible that changes to software can effect changes to feedback culture. These recommendations are presented in the table below.

Full user story	Related Notable Focus Group Comment	Related frequent comment category	Related Study/Theme
As a student, I want to see my tutor's feedback as bubbles around the text, which I can read easily, expand, and copy as I see fit, so that I can easily navigate my way around the feedback and understand it fully. This change would affect the front-end feedback entry area.	[Student:] Staff need to spend more time, considering for whom the feedback is intended. I often feel staff are feeding back to themselves. Feedback that is wordy and complicated is a distractor not an enabler for learning. some teachers only give negative feedback	how tutors use it; feedback culture; feedback for learning	Structured feedback for assessment improvements; additional resources to support this - Wingate et al. (2011)
As a university, I want to introduce my own corporate branding, contact details, etc., onto the system, so that I can present the system to my students as a seamless part of the overall service they receive from me; this will help me promote the service fully. This change would affect the entire system, or multiple areas.	[Tutor:] It's not fulfilling that feedback loop because not enough students are accessing it.	how tutors use it; feedback culture; feedback for learning; human vs. machine	knowledge economy - BIS (2016b); Mann (2016)
As a university, I want to host the service on my own domain, such as: http://tutorfeedbacksystem.myinstitution.ac.uk, so that I can present the system to my students as a seamless part of the overall service they receive from me; this will help me promote the service fully. This change would affect the entire system, or multiple areas.	[Tutor:] It's not fulfilling that feedback loop because not enough students are accessing it.	how tutors use it; feedback culture; feedback for learning; human vs. machine	knowledge economy - BIS (2016b) ; Mann (2016)

Appendix continued

As a student, I want to receive feedback that is more about my development as an academic writer in my chosen discipline than it is about a punitive approach to similarity and plagiarism, so that I can develop, progress, and succeed as a learner. This change would affect the front-end feedback entry area.	[Student:] even if you have perfect writing … you can lose grades [by having high levels of similarities] more information about my weaknesses, about what is missing from my essay I had about two paragraphs, I forgot to change in my own understanding. That was a wake up call. [give] feedback [that identifies] where you need to improve they need to not believe Turnitin too much feedback show[s] where to improve [Tutor:] It's not fulfilling that feedback loop because not enough students are accessing it. My view would be that is Turnitin a plagiarism tool or is it a development tool? There should be a little bit of coaching or feedback within it, not just the percentage [similarity score]. [Student:] Whoever owns [the] institution … if they bring in like Turnitin, they're saving time and money but they're also limiting on what we do and what feedback we can get. At an earlier level, I think students probably need more guidance.	feedback culture; feedback for learning; self-efficacy; surface-level feedback; similarity; academic integrity	Structured feedback for assessment improvements; additional resources to support this - Wingate et al. (2011); impactful nature of developmental feedback - Hattie and Timperely (2007); Mann (2016)
As an administrator, I want to create lots of bespoke overrides and permissions about nearly all of the features of the software, based on an institutional, full-administrator, tutor, or student profile, so that I can toggle the level of support that is available to all user types. This change would affect the entire system, or multiple areas.	Whoever owns institution … if they bring in like Turnitin, they're saving time and money but they're also limiting on what we do and what feedback we can get.	human vs. machine; feedback culture; feedback for learning; self-efficacy; how tutors use it	Ensuring all protagonists are all actively involved in the feedback process - Taras (2003); knowledge economy - BIS (2016b)

Appendix continued

As an administrator, I want to integrate the system with other data-producing systems such as Turnitin, Moodle, Blackboard, Mahara, SITS, etc.; this can be linked to the tutor feedback functions in a seamless and entirely customisable way; I can also decide what user type can see what information, and how the information is displayed, so that I can provide students and tutors alike with a completely customisable view of performance data linked to the feedback provided. This change would affect the system database.	if I submitted my work and I got it back at 40[% similarity]; if I hadn't seen them [the tutor] I could have got a 50[% similarity]. When you go to see them [the tutors] you can push it up to like a first because you get the clarification. It sinks more into your head if you're communicating.	how tutors use it; feedback culture; feedback for learning; similarity; self-efficacy; grade; academic integrity	Importance of seeing feedback within the context of other academic activities - Duncan *et.al.* (2007)
As a tutor, I want to have an option where tutors can receive qualitative and quantitative feedback from the student, which assesses and comments upon the feedback that the tutor originally made, so that I can make the feedback process truly circular, so as to understand how to constantly improve my own feedback practices. This change would affect the front-end feedback entry area.	[Student:] I really don't [always] know where I went wrong, so I'm going to have to just fix up on my sentence structures. Make my own feedback, basically.	self-efficacy; feedback for learning; how tutors use it; surface-level feedback	Technology used in the feedback cycle – Ball, Maguire, & Braun, (2012); Mann (2016)
As a student, I want to view a statistic based on how other people on your course have done in the same assignment. This is a single average number of other students' grades. From this, I can see whether I am averaging higher or lower marks, so that I can see how well I am doing, and how I can get even better. This change would affect the front-end feedback entry area.	[Student:] … I was aware of it [needing to improve] and that's because it was a draft for us to see where we are standing and to see where we can improve it	grade; feedback for learning; self-efficacy; submission; academic integrity	Motivational aspects of understanding peer performance - Hepplestone *et.al.* (2011); Yang (2011)
As a student, I want to check other students' ratings of the feedback they have received. This feature allows me to see the general rating that has been provided by your peer group, so that I can check my feedback-ratings and opinions of tutors' feedback against those of my peergroup. This change would affect the front-end feedback entry area.	[Student:] We're not asking you to do our essays for us, but to say 'this is really good' and 'maybe you should expand on this', 'maybe you should look at this'. Just some more guidance.	feedback culture; feedback for learning; self-efficacy; how tutors use it	Students' perceptions of feedback - Evans and Waring (2011)

Appendix continued

As a student, I want to receive structured feedback on my academic work, so that I can be more successful in my assignments at university. This change would affect the entire system, or multiple areas.	[Student:] … I was aware of it [needing to improve] and that's because it was a draft for us to see where we are standing and to see where we can improve it probably the more you work … the more you develop your writing skills … when my colleagues asked me, I was [better able to do the work]. It gives me more confidence. … when I submitted my work, it didn't show any kind of plagiarism or anything. It just gave me a good feeling that I had done good work on my own ... It increases your self confidence. ... I feel I can do it, whereas before I felt I couldn't. ... I was scared at the beginning, but then once I took more steps I got there. [Tutor:] But I haven't ever said "do you want feedback on the content or do you want feedback on the style?"	feedback for learning; feedback culture; submission; human vs. machine; how tutors use it; self-efficacy; surface-level feedback; academic integrity	structured feedback mechanisms - Yorke (2003); Butler and Roediger (2008)
As an administrator, I want to generally control the many layers of the software's functions, and create bespoke services based on my preferences, tutors' preferences, institutional preferences, or students' preferences, so that I can enjoy a system that is completely customised for my institution. This change would affect the entire system, or multiple areas.	Whoever owns institution … if they bring in like Turnitin, they're saving time and money but they're also limiting on what we do and what feedback we can get.	human vs. machine; self-efficacy; feedback culture; feedback for learning	Ensuring all protagonists are all actively involved in the feedback process - Taras (2003); knowledge economy - BIS (2016b)
As a student, I want to view advice on the structural features, language, usual conventions, and typical numerical functions of the kind of text I am writing, prior to handing it in. There should be some sort of lookup process that matches the text-type to exemplar material for me to review, so that I can better meet the purposes of my text. This change would affect the front-end feedback entry area.	[Student:] more information about my weaknesses, about what is missing from my essay when I wrote my work in Microsoft Word I saw I was having grammar problems but when I looked on Turnitin it looked more professional so I could pick up on [things like] sentence structure … and change my work … it makes you want to make you get your work looking more professional	surface-level feedback; feedback for learning; submission; self-efficacy; feedback culture	feedback on adopting peers' stylistic features - Yang (2011); feedback on structural features of a text - Amos and McGowan (2012);
As a student, I want to be able to view an example text that is similar in purpose and content to the one I have to write, but is not an exact match, so that I can understand how other people write these sorts of texts successfully, and easily access it through the submission/feedback window. This change would affect the front-end feedback entry area.	[Student:] I think with our class in particular, some people have taken a lot of time out of education before they have come to uni. I've been out of education years before uni, and … before this, well, I hadn't [written] a paragraph in God knows how many years. It's a massive step. [Student:] I would prefer directed feedback to provide illustrated examples of how to improve my work	self-efficacy; feedback for learning; surface-level feedback; how tutors use it	students think feedback is better when it includes specific examples – Scheeler, McKinnon and Stous, (2012)

Appendix continued

As a tutor, I want to be able to upload a text that I have decided is a suitable exemplar of the kind of text I expect students to write. This text may be a previously-published work, or an example from a previous student cohort, so that I can help students better understand the purpose, audience, and techniques of these texts. This change would affect the front-end feedback entry area.	[Student:] … I was aware of it [needing to improve] and that's because it was a draft for us to see where we are standing and to see where we can improve it	feedback for learning; feedback culture; submission; human vs. machine; how tutors use it; self-efficacy; surface-level feedback; academic integrity	students think feedback is better when it includes specific examples - Scheeler *et.al.* (2012)
As a student, I want to check feedback from my most recent work. I can also see a quick summary of feedback from work before that. This can be filtered by module, tutor, or time., or academic year, so that I can understand what I need to work on, and provide a useful report of how my skills have changed/improved over time. This change would affect the front-end feedback entry area.	[Student:] probably the more you work … the more you develop your writing skills … when my colleagues asked me, I was [better able to do the work]. It gives me more confidence. … when I submitted my work, it didn't show any kind of plagiarism or anything. It just gave me a good feeling that I had done good work on my own ... It increases your self confidence. ... I feel I can do it, whereas before I felt I couldn't. ... I was scared at the beginning, but then once I took more steps I got there.	feedback culture; feedback for learning; self-efficacy; submission	Feedback and progression - BIS (2016a); careful feedback cycles can improve progression - Wingate *et al.* (2011)
As a student, I want to be able to see a report that shows short extracts of my previous work that had a certain theme of feedback; these can be shown in a row-by-row list, or through some form of time display, so that I can see how far my practice has developed in certain key areas related to the features of specific genres of text I have had to write in the past. This change would affect the front-end reports.	[Student:] I have noticed that even though I have I have put a lot of effort in I only get like one sentence back in feedback … to me I don't think that gives you room to improve. [I'd need to have] a few more sentences telling me exactly what it went wrong like which paragraph was it which line was it.	how tutors use it; feedback culture; feedback for learning; self-efficacy; surface-level feedback	Self-efficacy (Bandora); careful feedback cycles can improve progression - Wingate *et al.* (2011)
As a student, I want to read a report as to when I handed in my work for feedback, so that I can help students track the current progress of their enquiries, and manage their deadlines more efficiently, thereby further enabling efffective progress. This change would affect the front-end reports.	[Student:] I think the way to improve the feedback process would be to adopt an Amazon type approach whereby students are kept informed about status of the submission and when grades and feedback will be released. I often find I submit work and then forget about the content until I receive the work back. I rarely act on the feedback given. Yes once you learn how to upload and submit, that's it. It is easy hence I am confident. It's easy to go back and read it again without losing information.	human vs. machine; feedback culture; submission	Feedback as an ongoing developmental process - Hattie and Timperley (2007, in van der Hulst *et al.*, 2014) and Shute (2008), in van der Hulst *et al.*, 2014).

Appendix continued

As an administrator, I want to decide which reports some tutors, or all tutors, are able to see, and whether I want to make my feedback information visible to other institutions, so that I can take control over the information passed to tutors, and possibly contribute to a cross-institutional network of progression data. This change would affect the entire system, or multiple areas.	[Tutor:] there were some weaknesses in terms of accessing the primary resources. You know when you go to on the right hand side and click on it and you have to request permission from the other institution. That's a bit annoying I suppose.	how tutors use it; feedback culture	Feedback defined as developmental information provided by an agent - Hattie and Timperley (2007); knowledge economy - BIS (2016b)
As a student, I want to open up a text/audio chat and/or video window to speak to an online tutor in an ad-hoc manner, so that I can receive real-time tutoring and/or reflection on my recent feedback, possibly in addition to the feedback I get through an assignment submission. This change would affect the entire system, or multiple areas.	[Student:] However, if I said that we are going to spend time [with the tutor] individually to point out where I went wrong. This is [software] is just the beginning We should get time though [for human contact] … if you look at the student as a consumer, we pay a lot of money. We don't want everything to be online . We want to talk to people face to face. We pay a lot of money: we should have a lot of one-on-one [contact tutorial time]. Digitals can make mistakes that humans can spot. Dehumanised.	how tutors use it; feedback culture; human vs. machine; feedback for learning	Discussions of recent feedback to enrich the feedback learning process - Brickman et.al (2016); knowledge economy - BIS (2016b)
As a tutor, I want to record and upload generic video tutorials, which are categorised on the system according the overall theme of the tutorial, which can be linked to the "quick tutorial" comments, so that I can provide generic help for students. This change would affect the entire system, or multiple areas.	Turnitin does encourage people to give quite a lot of comment about grammar and writing and how to do the essay but you could just develop a Quick Mark set about what is more specific to your topic and what is the feedback for your learning outcomes… You have to focus on what your goals are and make sure that's what you're giving them feedback on.	feedback for learning; submission; grade; feedback culture; human vs. machine	Providing feedback that is linked to academic writing genres more than plagiarism performance or just functions such as grammar - Coffey & Anyinam (2012), Buckley and Cowap (2013

Appendix continued

As a student, I want to search for and view individual pre-recorded tutorial videos that are related to my current enquiry; perhaps receive suggestions based on the text of the essay I have just submitted, so that I can receive specific and targeted help on areas of development for my academic writing. This change would affect the entire system, or multiple areas.	However, if I said that we are going to spend time [with the tutor] individually to point out where I went wrong. This is [software] is just the beginning. I just think we should have more class time with [tutors]. When [my tutor] puts his YouTube videos up before the class and expects us to watch them before the class, I think that's really good. I don't think [Turnitin] is as much as a help as these [academic writing tutorial] sessions. Before today['s academic writing session], I was wondering 'how am I going to write this essay?'. I think that's [i.e., academic writing tutorial is] more helpful than Turnitin.	feedback for learning; human vs. machine; feedback culture; self-efficacy; surface-level feedback	Student can effect change to their learning by identifying their developmental needs - Bandura (1997) and Pajares (2003) in Kostka and Malibroska (2016)
As a tutor, I want to be able to see how productive I am in comparison with other tutors - i.e., what my average turnaround time is for dealing with the work I have received, so that I can check my productivity against others and use this as a motivating tool. This change would affect the entire system, or multiple areas.	[Tutor:] [There is this] culture of submitting to the deadline and so the early submission to Turnitin is rare, I think.	submission; grade; feedback culture; self-efficacy	Timely and specific feedback enhances students' learning - Hattie and Temperley (2007)
As a tutor, I want to be able to edit a series of predetermined "quick tutorial" functions, that list common errors, and explain them in simple, non-technical language that the student will be able to understand, so that I can help students understand exactly how to succeed at their work, and not be baffled by unnecessary technical/linguistic terminology. This change would affect the front-end feedback entry area.	[Student:] I think with our class in particular, some people have taken a lot of time out of education before they have come to uni. I've been out of education years before uni, and … before this, well, I hadn't [written] a paragraph in God knows how many years. It's a massive step. [Student:] I had a set of 60 comments that I used to use, and put in 3 - 4 by hand, and then I transposed that into Turnitin and now I have different sets for each assignment. ... I'm more about thr content of it. [Tutor:] Turnitin does encourage people to give quite a lot of comment about grammar and writing and how to do the essay but you could just develop a Quick Mark set about what is more specific to your topic and what is the feedback for your learning outcomes… You have to focus on what your goals are and make sure that's what you're giving them feedback on. I like the idea that you're building a Quick Mark set for that assignment. It's not "here's the bank of 5 million quick marks that just focus on writing skills.	feedback culture; feedback for learning; human vs. machine; how tutors use it; surface-level feedback	Closing the gap between standard achieved and standard required - Brickman et.al (2016); Knight (2004), Rolfe (2011) - online technology to support individual learning; specific feedback is useful for learning - Scheeler *et.al*. (2012)

Appendix continued

As an administrator, I want to be able to decide whether tutors, or specific tutors, are able to edit a series of predetermined "quick tutorial" functions, that list common errors, and explain them in simple, non-technical language that the student will be able to understand, so that I can help students understand exactly how to succeed at their work, and not be baffled by unnecessary technical/linguistic terminology. This change would affect the front-end feedback entry area.	[Tutor:] The second thing I use most frequently is a bespoke Quick Mark set that I generated before we even used this. I had a set of 60 comments that I used to use, and put in 3 - 4 by hand, and then I transposed that into Turnitin and now I have different sets for each assignment. ... I'm more about the content of it.	feedback culture; feedback for learning; human vs. machine; how tutors use it; surface-level feedback	Closing the gap between standard achieved and standard required - Brickman et.al (2016); Knight (2004), Rolfe (2011) - online technology to support individual learning; specific feedback is useful for learning - Scheeler *et.al*. (2012)
As a student, I want to know when my feedback is due to be provided to me (which can take the form of an attractive "progress" graphic), so that I can plan my work around it and hit my deadlines. This change would affect the front-end feedback entry area.	[Student:] I think the way to improve the feedback process would be to adopt an Amazon type approach whereby students are kept informed about status of the submission and when grades and feedback will be released. I often find I submit work and then forget about the content until I receive the work back. I rarely act on the feedback given.	submission; feedback culture	Timely and specific feedback enhances students' learning - Hattie and Temperley (2007)
As a student, I want to be able to read basic feedback within about 24 hours, so that I can plan my work around it and hit my deadlines. This change would affect the entire system, or multiple areas.	[Student:] I would rather pay for somebody to read my essay and go through it with me than submit it to Turnitin and be given a feedback then. 'students as a consumer'	feedback culture; feedback for learning; human vs. machine; how tutors use it; surface-level feedback; self-efficacy; submission; feedback culture	Timely and specific feedback enhances students' learning - Hattie and Temperley (2007)
As a tutor, I want to be able to see a quick tally of all the papers I have examined in the last X days/ Y hours/ Z minutes, so that I can understand my own productivity. This change would affect the entire system, or multiple areas.	[Tutor:] The trouble with a prior submission to Turnitin to check it is the assumption that they're not working to the deadline, and there I think you've got a huge issue because most of our students work to the deadline. … I will have students in my class at 9am in the morning who still perceive that they have enough time to complete the assignment that's due that day.	feedback culture; submission; self-efficacy; feedback for learning	Timely and specific feedback enhances students' learning - Hattie and Temperley (2007)
As a student, I want to be able to see statistics about my tutor's usual turnaround time, and what other people have said in that regard, so that I can, if the system permits it, choose my tutor. This change would affect the entire system, or multiple areas.	[Student:] If we're not happy with the products for which we're paying, usually you take it back, don't you?	how tutors use it; feedback culture; human vs. machine	Timely and specific feedback enhances students' learning - Hattie and Temperley (2007); knowledge economy - BIS (2016b)

Appendix continued

As an administrator, I want to be able to integrate the data and reporting functions from Turnitin, Moodle, Blackboard, etc., into the system. This way, I can see a history of my previous feedback information, and see how it is related to my previous grades. If my institution uses, for example, Turnitin, then submitting to Turnitin should somehow feel seamless, and should seem to be part of the feedback/text examplar system, so that I can students and tutors alike are able to use multiple systems at once without having to log off or switch tabs in their browsers, and see how the feedback they have received on this system potentially relates to their performance on others. This change would affect the multiple areas.	[Tutor:] Do they evaluate themselves? If they've got to go through and think *what do I think my grade is*… the idea there would be they've got feedback, you would judge it against this this and this, and this is what you've done, and what do you think you've been graded? To try and make them get a realistic appreciation of their work, and kind of process the feedback independent of the grade.	feedback culture; feedback for learning	Linking feedback to the assessment and learning cycle, as an assessment tool - Evans (2016); structured feedback in the context progressive approaches to assessment - Yorke (2003); Butler and Roedige(2008)
As a tutor, I want to be able to highlight any area of a student's text, and label it in accordance with a progress score marker from their previous academic work relating to the conventions of that academic writing genre, so that I can ensure that students can, over time, identify how they have developed specific aspects of their writing practice. This change would affect the multiple areas.	[Student:] I just feel like we're owed more feedback. I feel like it should be taken more in depth	feedback culture; feedback for learning; human vs. machine	Semi-automated feedback as part of a progression cycle - Yang (2011); feedback as formative process - Williams (1998); revision of writing as part of feedback cycle - Deane *et al.* (2008); knowledge economy - BIS (2016b)
As a student, I want to be able to see machine-generated statistics on the rates of error to do with grammar and punctuation, so that I can understand the rate of basic errors in my text, and gain some understanding of where I can improve or have improved. This change would affect the front-end feedback entry area.	[Student:] I don't think we've got it yet, but there is a sort of a grammar checking tool that you could get … so I think that that could be beneficial on certain levels as well	surface-level feedback; human vs. machine	Possible use of semi-automated technology to promote progression of student learning - Wingate *et al.* (2011);Yang (2011)
As an administrator, I want to toggle the settings as to whether a student can see all available tutors and decide who to send it to, or whether to make the system a "black box" where tutors' details are blocked from students' front-end interfaces, so that I can add a layer of choice to the process. This change would affect the entire system, or multiple areas.	[Student:] The major theme [for me] is about human interaction. … all this technology isn't preparing us for when we graduate.	human vs. machine	feedback process is most effective when all the protagonists are actively involved - Taras (2003)
As a student, I want to upload a photo, a short biography, and information concerning the course I am studying, and the subjects I am most interested in – as well as some description of my general long or short-term goals for my education and career – so that I can help my tutors fully understand my particular needs. This change would affect the account changes area.	[Turnitin] is just so dehumanising	human vs. machine; feedback culture	pedagogically enabling students and empowering students - Chew and Jones (2009); connecting feedback to personal goals as pedagogically valuable - Rolfe (2011); Saint, *et.al.*, (2015)
As a tutor, I want to, upon receiving work from a student, see a student's course information (if they supply it), a quick history of their account, their previous work, their previous error rates, and their previous feedback of other tutors, so that I can provide students with a tailored response to their work. This change would affect the account changes area.	[Turnitin] is just so dehumanising	human vs. machine; feedback culture; feedback for learning; self-efficacy; how tutors use it	pedagogically enabling students and empowering students - Chew and Jones (2009); connecting feedback to personal goals as pedagogically valuable - Rolfe (2011)

The results from the focus group data further suggest that students perceive Turnitin as software that traditionally is aimed at "catching them out", as opposed to a platform that can signpost developmental aspects of their learning; aligning software parameters with learning outcomes, and working to support the feedback process, would encourage new and possibly innovative ideas around impact and reach of online feedback. Software that can create a feedback audit, and safely store student feedback across modules and years of study, would greatly enrich the use of feedback for learning and serve to facilitate student engagement with the feedback process. Future research would do well to interrogate the features embedded into software such as Turnitin, and question how online feedback needs to develop to ensure that software works to enhance the learning process and not necessarily detract from it.