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Where Facebook Meets Plagiarism: An Investigation and an Intervention

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ABSTRACT

BACKGROUND AND RATIONALE

Closed (student only) Facebook groups are commonplace amongst students and the social and academic benefits of such groups are well studied. The exclusion of staff from these Facebook groups could conceivably lead to inappropriate behaviour such as plagiarism but the occurrence of this is unknown. Many students have a poor understanding of what constitutes plagiarism, or the rationale for its avoidance (other than to avoid penalty). In this study we sought to explore the behaviours of students on Facebook groups, focusing on plagiarism. We also broadened our analysis to encompass an investigation of general plagiarism awareness in order to use the findings to inform the co-creation of a simple plagiarism intervention tool for use on Facebook groups.

METHODS

Our mixed methods approach encompassed seven student focus groups and a survey of 273 students at one UK University, as well as consultation of 11 HEI staff. Information and ideas drawn from the investigative phase of the project informed the design and co-creation of a plagiarism avoidance video resource.

RESULTS AND LESSONS LEARNED

We did not find plagiarism on Facebook to be a major concern despite wide use by students of closed groups to support learning. We did, however, find that interactive discussion on Facebook was minimal, and that membership was non-inclusive, and therefore suggest caution towards formal use of Facebook in learning. We also found that >40% of our students held misconceptions and anxieties about what constitutes plagiarism and about how to avoid it, and that University guidelines on plagiarism are not improving understanding. Plagiarism confusion was heightened for students new to our University, although further research into the generality of this observation is required. We advocate good scholarship education that actively engages, but is not limited to, students in their first year of study, and present our own anti-plagiarism tool that is suitable for deployment via Facebook groups.

Keywords: Facebook; plagiarism; co-creation; open educational resource.

Background

Use of social media has now become an integral part of everyday life, so it is not surprising that a variety of social media tools are used in the University setting, informally and formally by both students and staff (Bateman & Willems, 2012). Facebook is frequently used in higher education as a social tool to support student engagement with the institution (Madge, Meek, Wellens, & Hooley, 2009; Selwyn, 2009; Cheung, Chiu, & Lee, 2011; McCarthy, 2012). Although the popularity and ease of sharing information on Facebook has also been widely exploited for academic purposes (McCarthy, 2010; Kent, 2013; Manca & Ranieri, 2013), the potential for Facebook to provide a counterproductive distraction (Kirschner & Karpinski, 2010), and the benefits of Twitter over Facebook for disseminating information (Wise, Skues, & Williams, 2011), have been noted. In a recent review of studies reporting the use of Facebook as a learning tool within Higher Education, Manca and Ranieri (2013) found 'closed' Facebook groups (meaning that membership is by invitation only) to be the norm. Such use of Facebook has been described as 'third space' as it is an independent blend of social and academic space (Aaen & Dalsgaard, 2016). In our UK University we have noted a common tendency for students to form their own Facebook groups around courses or modules, or even around individual learning items or events. Such groups in our experience tend to be 'closed' and normally do not include staff.

Although social media provides a valuable tool for communication during online study, tools such as Facebook can also provide a forum for undesirable behaviours such as misinformation, bullying, plagiarism or cheating (Bateman & Willems, 2012). Increased student internet use in general is often thought to increase the risk of cheating and/or plagiarism (Howard & Davies, 2009; Walker, 2010; Jones, Blankenship, & Hollier, 2013) and the less public nature of closed Facebook groups could lead to large-scale sharing of assessed answers. Although many of the benefits and issues of student Facebook groups are well studied (Willems & Bateman, 2011; Irwin, Ball, Desbrow, & Leveritt, 2012), there is little discussion of plagiarism on Facebook in the literature. Previous studies exploring the attitudes and behaviour of students with regard to plagiarism in any context, find that plagiarism often occurs because students have problems defining plagiarism and understanding the academic and moral rationale for its avoidance (Breen &

Maassen, 2005; Power, 2009; Gullifer & Tyson, 2010; Jones et al., 2013; Gullifer & Tyson, 2014). A survey of online learners at one American institution uncovered markedly confused student perceptions of what constitutes cheating during online study (Jones et al., 2013), and the Turnitin white paper states that the online encyclopaedia Wikipedia is the most frequently detected Turnitin match (Turnitin, 2013), implicating online study as part of the plagiarism problem. The literature paints a complex and non-uniform picture of student understanding of plagiarism, with evidence for substantial differences between students' perceptions of plagiarism at different institutions and in different countries (Sutton, Taylor, & Johnston, 2014), suggesting a need for institution-specific awareness and education. Although most universities do provide comprehensive plagiarism guidelines on their student-facing websites, these are rarely entertaining and often go unread, particularly by those who could benefit most (Gullifer & Tyson, 2014).

Taking all of these concerns together, we considered it pertinent to consult students within our University about their attitudes and experiences with respect to both Facebook and plagiarism. Since closed Facebook groups rarely involve staff, in our experience, we considered that the best way to find out whether concerns over inappropriate behaviour on Facebook groups were justified in our University was to ask our students directly. Although self-reporting has obvious limitations, our approach did afford us the opportunity to find out about our students' attitudes to and understanding of plagiarism in a wider sense. This information also allowed us to work in partnership with students to provide an anti-plagiarism tool to dispel common misconceptions about plagiarism and encourage good scholarship, and to exploit the widespread use of learning-related Facebook groups by our students for dissemination of the tool.

Methodology and results

Methodology

Prior ethical approval was obtained for the study using the self-assessment route under institutional guidelines. A mixed methods approach was used in order to reveal pertinent issues by open questioning in focus groups, and to subsequently use this information to formulate the most appropriate questions for wider analysis by survey.

Student focus groups

Each focus group began with an overview of the project explaining its purpose and plan to participating students. Participants were also made aware that they would not be identified after interview and that they could withdraw at any time during the interview or, indeed, the project.

A total of 21 biological sciences students were interviewed by the same two interviewers, in seven small focus groups that represented all four year groups of our undergraduate student population. Class representatives were used as initial contact points and each meeting consisted of students that were all from a single year group. Focus groups ranged in size from two to five students, which is within the desirable size range to promote interactive discussion (Wilkinson, 2008).

Each focus group lasted around 60-90 minutes but discussions were not time-limited. A dialogue approach (Escobar, 2011) was used to encourage responses and interaction between all participants. Interviews were semi-structured using light-handed and non-leading facilitation. Students were invited to discuss their perceptions and experiences of using course-specific Facebook groups, as well as their awareness, attitudes and experience with respect to plagiarism by introducing a sequence of primer topics consistently across all groups. The topics were:

1. How they had first encountered course-specific Facebook groups;
2. Whether academic staff had been present in Facebook groups, and what the pros and cons of this might be;
3. Positive and negative experiences of using Facebook groups (specifically including plagiarism, bullying and inclusion);
4. Awareness of the University's VLE discussion boards;
5. What advice and guidance they had encountered about plagiarism at this University;
6. To define and discuss plagiarism;
7. Any remaining concerns about plagiarism;
8. Ideas (suitable form, content, tone etc.) for a useful new plagiarism intervention tool.

The interviews were not recorded, to avoid inhibiting discussion, but both interviewers took notes throughout to provide corroborated meeting summaries. Although this approach has limitations, effort was made to capture all discussion topics in a non-biased way. After the interview the two interviewers compared notes and common themes were drawn out (as in Hayes, 2000). The themes were: (i) concerns about inclusiveness (some students might 'miss out' on Facebook groups due to not being invited or not being Facebook users); (ii) many frequented Facebook groups for a sense of community, and/or to keep up with organisational aspects of their course, rather than academic discussions; (iii) students were sometimes unsure about the reliability of information gleaned from Facebook discussions; (iv) annoyance at advertising or irrelevant information on the Facebook groups; (v) none of the attendees had directly witnessed inappropriate behaviour on Facebook groups; (vi) anxiety about accidental plagiarism; and (vii) a desire to know more about what happens to their work once it is submitted to Turnitin plagiarism detection software. These themes were then used to inform the writing of the survey questions.

Staff consultation

Semi-structured interviews with seven members of academic staff were conducted by a single interviewer. Questionnaires were collected from a further four participants who were not available to meet in person. Staff were selected who had experience of teaching large classes and included five Biology, one Chemistry and one Physics lecturer at our University and four lecturers from other HEIs. Interviews were between 30 and 60 minutes in duration. Questions were non-leading and open, and three major areas were addressed consistently across all interviews and questionnaires. These were:

1. How well-used were course VLE discussion boards?
2. Had the member of staff created or participated in any student Facebook groups?
3. Any positive and negative aspects that staff were aware of with respect to learning-related Facebook groups.

Comprehensive notes taken by the interviewer were later examined along with the questionnaires, and responses were arranged in cognate categories. These were: (i) some staff members were aware of, and concerned about, inappropriate behaviour on course Facebook groups; (ii) none of the staff had directly witnessed plagiarism; (iii) some staff had witnessed misinformation spreading; and (iv) all staff cited some positive aspects of course Facebook groups.

Student survey

The design of the survey questions was informed by data collected during the student focus groups, as well as by guidance from the University's Student Survey Ethics Committee. The survey comprised 14 questions (a mixture of yes/no, multiple choice and free response style questions) about Facebook use and plagiarism awareness, as well as contextual questions about the year group, School and College each respondent belonged to. Full survey questions are given in the appendix. The survey was advertised on the University Student Association website, on biology course-related Facebook groups (via course reps) and via posters and flyers across the University. The survey was accessed online and ran for one month. A prize draw was organised as an incentive to take part and, although the survey was anonymous, participants had the option of providing an email address to enter the draw.

There were 273 survey responses collected including students spanning all years of study and all Colleges, indicating a good spread of responses from across the University (Table 1). Data were analysed as a whole or disaggregated with respect to Year of study (1-4) or College of study (Humanities and Social Science (HSS), Science and Engineering (SciEng) and Medicine and Veterinary Medicine (MVM)). Apart from MVM which is our smallest College with only 20 MVM students taking the survey (which could lead to skewed responses), the distribution of responses to all questions was similar across Colleges and across years except where otherwise described in the results section.

Table 1: Numbers of student responses by year group and by College.

Your year of study	1st year	2nd year	3rd year	4th year	Taught postgraduate	other	Total (University)
College HSS	19	21	14	17	33	13	117 (14,000)
College SciEng	13	13	9	11	10	11	67 (6,000)
College MVM	2	7	2	5	1	3	20 (3,000)
No College given	11	10	9	8	13	12	63
Total	**45**	**51**	**34**	**41**	**57**	**39**	**267 (23,000)**

Not all students completed the section on year and College of study.
Other = visiting students, research PG or 5th year students.
Numbers in brackets indicate approximate numbers of the total undergraduate student sub-population at this University.

Co-creation of an open educational resource anti-plagiarism tool

Six of the focus group attendees subsequently contributed to the development of an anti-plagiarism tool. All felt that the tool should take the form of a short, non-interactive video animation, and that it should be "simple and light-hearted, but not patronising". Students also liked the idea of including a short checklist of 'dos and don'ts', as well as an insight into what happens when their work is run through plagiarism detection software such as Turnitin (their misconceptions of which appeared to be a source of anxiety).

A simple draft animation was created using Jing (https://www.techsmith.com/jing.html). The draft animation addressed the common misconceptions regarding plagiarism (discussed in the results section) that had been identified during the focus groups and survey. The prototype animation was posted on Padlet (an open source collaborative space available at https://padlet.com). The six volunteers were invited to view and comment using Padlet and the students then fleshed out the animation with their own ideas, including that a character could be shown literally "tripping over" aspects of plagiarism. From this grew the idea that the obstacles encountered by the character could be hurdles, and that the character could be shown taking part in an "academic integrity hurdles

race". It was suggested that the "golden rules" for avoiding plagiarism should be shown on a scoreboard at the end of the race. A script, based on the students' ideas, was drawn up by the authors and shared on Padlet for student comment. One student volunteered to produce drawings that could be used for stop motion animation, one composed and recorded the music, while two other students provided voiceovers for the animation. The materials were edited using Windows Movie Maker.

Results

Staff and student perceptions of closed Facebook groups were discordant

From student and staff interviews, questionnaires, focus groups and survey, it was possible to extract quantitative and qualitative information about the closed Facebook experiences of staff versus students with respect to some common themes (summarised in Table 2). Although staff were less likely to use Facebook for learning than students, most of the staff perceived negative effects (including bullying, inappropriate remarks, sharing of answers and misinformation sharing). In contrast, students were adamant that such things were not commonplace on Facebook groups, explaining that Facebook is a public place where individuals are identified, strongly discouraging such behaviour. There was also a feeling amongst students that closed Facebook groups represent a different environment from private Facebook accounts. The 'third space' of study-related Facebook groups (Aaen & Dalsgaard, 2016) was agreed to be more akin to the classroom environment, and generally a place for respectful behaviour. Despite this, the majority of students interviewed were clear that they preferred study Facebook groups to exclude staff.

Table 2: A comparison of staff versus student experiences with closed study-related Facebook groups, extracted from interviews (or questionnaires) with 11 staff, focus groups with 21 biology students and a survey of 273 university students. Numbers (and percentages) denote positive agreement with the attitude/ experience.

Facebook group experiences	Staff (n=11)	Students face-to-face (n=21)	Students survey (n=273)
Use Facebook for learning	4 (36%)	21 (100%)	202 (74%)[1]
Aware of/experienced anything that did not like on closed Facebook groups	8 (73%)*	5 (24%)+	27 (13%)[2]
Aware bullying/inappropriate remarks on Facebook	6 (55%)	0 (0%)	4 (2%)[3]
Experienced/expect positive benefits from Facebook course groups	11 (100%)	21 (100%)	Not asked

*3/11 reported sharing of answers and 5/11 reported sharing of misinformation
+ advertising, irrelevant posting, negativity about studies
1 =Students were specifically asked about use of "study-related Facebook groups" (questions are provided in full within the method section)
2= percentages calculated after non-users excluded. Students were asked to provide descriptions of anything they did not like on Facebook and 16 students did so. 4 /202 students reported sharing of answers and there were 0 student reports of misinformation. In addition there were 4 reports of inappropriate remarks, 4 reported irrelevant posting and advertising, 2 reported breaking copyright laws, 2 complained of others using the group as a "crutch" and 1 reported panicking of others.
3= data extracted from descriptions of things that did not like. All 4 reports were of inappropriate remarks with 2 of the 4 comments directed at staff.

In our larger survey of students from across the University the majority of students re-affirmed that they had not experienced or witnessed anything that they did not like on closed Facebook groups (Table 2). Of the 13% of students that did report negative behaviour there were four reports of inappropriate remarks, four had witnessed students sharing answers and nobody reported bullying.

Table 3: Student use of closed Facebook groups reported in a survey of 273 students.

Facebook group (and VLE) survey questions	Responses by question					
Do you use Facebook?	No 11	Yes 262				
Have you visited study-related Facebook groups?	Regularly/ often 87	Occasionally 115	Never 71	NA		
Do you actively take part in discussions on Facebook groups?	Regularly/ often 26	Occasionally 149	Never 71	NA 27		
Have staff been present on the course-related Facebook groups you have visited?	Yes 18	Sometimes 56	Not sure 44	No 103	NA 52	
Before you joined a course-specific Facebook group, did you find out about it through…?:	Word of mouth 61	Facebook 90	Email 48	Other 11	NA 63	
If you have followed/taken part in course-related discussions on a Facebook group, were these…?:	Mainly about course content (e.g. discussing material from the lectures) 66	Mainly about organisational issues (e.g. assignment hand-in dates, locations/times of tutorials) 97	other 12	NA 98		
Thinking about an instance where you read a comment from one of your peers about your course content on a Facebook group discussion, how confident were you of its correctness?	Very confident 6	Fairly confident 122	Neutral 61	Not very confident 20	Not at all confident 4	NA 60
How strongly do you agree with the following statement? I have experienced/witnessed things that I did not like within course-specific Facebook groups	Strongly agree 5	Agree 22	Neutral 41	Disagree 88	Strongly disagree 57	NA 60

NA= not applicable

Facebook groups are visited by most but not all students, with the majority observing the interactions of the few

Of students surveyed 96% were Facebook users, with 74% using learning-related Facebook groups (Table 3). Despite the large numbers of students enrolled in Facebook groups, less than 10% of students said that they actively take part in Facebook group discussions regularly, and 29% of Facebook group users never contributed. Non-contribution was highest amongst first year students (37%) and fell through each undergraduate year to 8% of fourth year students (data not shown). The topics of group discussions were most often organisational (55%), or related to course content (38%). Of 104 students who provided information, 78 had joined between 1 and 3 Facebook groups, while 26 had joined more than 4 groups, many indicating that they had joined a group for each module or course taken. However, more than a quarter of the students surveyed did not use Facebook groups for learning (Table 3) and, of those that did, 72% found out about the groups via prior contacts on Facebook or by word of mouth. Hence, although all staff and students in interviews and focus groups agreed that there could be positive benefits of using Facebook groups (Table 2), clearly not all students are included in relevant groups.

We also explored the differences in course discussion on Facebook groups versus our institutional online virtual learning environment discussion boards (Table 3). In focus groups we discovered a lack of student awareness of the possible benefits of

interacting with staff using official course discussion boards, while all 11 staff consulted complained of little or no traffic on course discussion boards in recent years as Facebook use has increased. Our survey confirmed a stark contrast between regular student use of Facebook groups (74%), mostly without staff presence, *versus* regular use of course discussion boards with a staff presence (7%) (Table 3). Interestingly, 128 respondents were "fairly confident" or "very confident" of the correctness of comments of peers on a Facebook group.

Almost half of our students hold misconceptions about what constitutes plagiarism and how to avoid it

Open questioning about academic integrity during the student focus groups revealed three recurrent topics that caused anxiety or that were commonly misunderstood; close paraphrasing, percentage similarity and accidental plagiarism. In survey we asked students to rate their agreement with a series of three statements concerning these identified topics. The results (shown in Table 4) show that only 57% of students agreed that changing other people's words around would constitute plagiarism, the remainder being unsure or disagreeing with this statement. Similarly only 55% of students realised that plagiarism cannot be defined by a pre-determined unacceptable percentage of similarity between submitted work and other sources. Lastly, only 52% of students understood that it is unlikely that they will accidentally write an identical sentence to someone else, with only 14% realising that it is indeed very unlikely (Table 4).

Table 4: Student understanding of what constitutes plagiarism in a survey of 273 students. The number of students providing correct responses for each question is shown in bold and italics.

Question	Strongly agree/ very likely	Agree/ quite likely	Neutral	Disagree/ quite unlikely	Strongly disagree/ very unlikely	Total responses
a) (paraphrasing)	*52 (19%)*	*105 (38%)*	68 (25%)	38 (14%)	10 (4%)	273
b) (% similarity)	15 (5%)	58 (21%)	51 (19%)	*108 (40%)*	*41 (15%)*	273
c) (accidental similarity)	10 (4%)	65 (24%)	57 (21%)	102 (37%)	*39 (14%)*	273

The full questions posed were;

a) How strongly do you agree or disagree that the following constitutes plagiarism: You paraphrase or 'change words around' so that the sentence/paragraph does not quite read the same as the source?

b) How strongly do you agree or disagree with the following statement: As long as your work is below a certain 'percentage similarity' to another piece of writing, you do not need to worry about being accused of plagiarism?

c) How likely/unlikely do you think it is that you would happen, by chance, to write exactly the same sentence as someone else?

Table 5: The number (and percentage) of students within each year group choosing the wrong answer to the three plagiarism questions a)-c) provided in Table 4.

Plagiarism Questions	1st year n= 45	2nd year n= 51	3rd year n=34	4th year n=41	PGT n=57
a) (paraphrasing)	9 (20%)*	7 (14%)	1 (3%)	7 (17%)	15 (26%)*
b) (% similarity)	18 (40%)	12 (24%)	9 (26%)	12 (29%)	13 (23%)
c) (accidental similarity)	13 (29%)	18 (35%)	12 (35%)	13 (31%)	11 (19%)

The numbers are combined agree/disagree plus strongly agree/disagree depending on the question.

*The only students to choose the 'strongly disagree' option for the paraphrasing question were three from 1st year and four postgraduate students. All other students in the table chose the milder 'disagree' option for this question.

When results were analysed with respect to year of study, the proportion of students choosing each option for each of the three questions shown in Table 4 was broadly similar to the cohort as a whole with a few possible exceptions. Firstly, 40% of first year students (as opposed to <30% for all more experienced student groups) believed that it was possible to assign an acceptable figure for percentage similarity between their submitted work and published material or the work of others (Table 5). Secondly, 26% of postgraduate taught students believed that changing words around does not constitute plagiarism while 20% or less of each other year group shared this misconception (Table 5). The only students to hold this misconception strongly were first year undergraduate or postgraduate taught students. Lastly, postgraduate taught students were most aware of all the year groups about the unlikely chance of coincidentally writing the same sentence as someone else. The patterns of student responses to the questions shown in

table 4 were broadly similar when disaggregated by College of study (data not shown). Of the three Colleges, SciEng students did consistently best on all three questions with 67%, 60% and 57% giving correct responses for each of the three questions, compared with 63%, 53% and 50% respectively of HSS students. The slight excess of postgraduate taught HSS students cannot be the sole cause of this difference since this group did best of all of the year groups on one of the three questions. Although MVM students performed the least well in these three questions, the number of MVM students was too low to be representative (only 20 students).

Many of the students in focus groups felt that they had received regular advice on plagiarism, and many had read the guidance included in their course handbook. Few, however, had read the more comprehensive official University guidance. Less than half of the students surveyed had read the official University guidance on plagiarism avoidance (Table 6). Surprisingly, 55% of first year students surveyed had not read the guidelines while second and fourth year students most commonly answered that they had (Table 6). The proportion of students answering that they had read the University guidance was stable at 45% across all three Colleges (data not shown). Interestingly, responses to each of the three plagiarism questions were less correct for those who claimed to have read the official guidelines, than for those who said that they had not (Table 7).

Table 6: The number (and percentage) of students within each year group choosing each response to the question 'Have you ever read the official University guidance on plagiarism avoidance? (This is a 5-page document available from the Academic Services website)'

	First year	Second year	Third year	Fourth year	PGT	Other	Total responses
Yes	18 (40%)	28 (55%)	11 (32%)	21 (51%)	24 (42%)	18 (46%)	120 (45%)
No	25 (55%)	18 (35%)	12 (36%)	12 (29%)	24 (42%)	19 (49%)	110 (41%)
Not sure	2 (5%)	5 (10%)	11 (32%)	8 (20%)	9 (16%)	2 (5%)	37 (14%)
Total	45	51	34	41	57	39	267

Table 7: Number of students answering the three plagiarism questions correctly, organised according to whether or not they answered that they had read the official plagiarism avoidance guidelines.

Plagiarism questions	Read the guidelines	Have not read the guidelines	All respondents
a) (paraphrasing)	68/123 (55%)	68/112 (61%)	57%
b) (% similarity)	65/123 (53%)	65/112 (58%)	55%
c) (accidental similarity)	63/123 (51%)	60/112 (54%)	52%

An anti-plagiarism open educational resource was co-created by staff and students for deployment on learning-related Facebook groups

A short (3 min 19 sec) animated video was designed and co-created, by students and staff, to address common recurring student misconceptions about plagiarism. The three key messages are: never copy and paste; cite and reference all sources; and always write in your own words. Some more subtle – yet pertinent – concepts are addressed within the video (i.e. that paraphrasing is considered plagiarism; that it is extremely unlikely that a student will exactly reproduce a sentence that has been written by someone else; and that the percentage similarity detected by Turnitin cannot define plagiarism). The video, entitled 'In your own words' can be viewed on YouTube at; https://www.youtube.com/watch?v=8xxyt26nasA and is also available to view and download as an open educational resource from: https://media.ed.ac.uk/media/In+Your+Own+Words/1_2ttdet1w.

Discussion, perspective and conclusion

Lessons learned about student use of Facebook groups and improving plagiarism awareness

There were four key lessons learned from this study about student use of Facebook in the learning environment: 1) staff concerns are unwarranted; 2) student interaction is minimal; 3) inclusion is poor; and 4) discussion boards are still useful. There were also three additional key lessons learned about student perceptions of plagiarism: 5) anxiety and confusion are common; 6) new students may be at increased risk; and 7) institutional guidelines are not improving student understanding.

1)   Staff concerns about student conduct on Facebook are unwarranted

Unsurprisingly, our interviews showed that staff are less predisposed than students to use Facebook for learning, as previously established (Roblyer, McDaniel, Webb, Herman, & Witty, 2010; Prescott, 2014). The discord between our staff and student perceptions of behaviour on Facebook, particularly around cheating and bullying (Table 2), could reflect under-reporting by students. Indeed, incidents defined by some as bullying are often dismissed as 'drama' or 'pranking' by teenage Facebook users (Boyd, 2014). However, we expected that the open nature of enquiry during our focus groups and anonymity in open response survey questions would have uncovered any real incidents. Annoying, misleading or offensive behaviours were reported, but not at

alarming levels. Four out of 273 students were "aware of" the sharing of answers on Facebook groups, but this suggests that such behaviour was not evident on any of the Facebook groups that 269/273 students frequent. Given that most of our students were members of multiple Facebook groups, which agrees with a previous report (Wise et al., 2011), our findings suggest an extremely low incidence of academic misconduct associated with Facebook groups. In her findings from a six-year immersion study of teen behaviour on social media, Dana Boyd confidently asserts that the use of social media does not increase worrying behaviour, it only makes it more visible (Boyd, 2014). Our study provides a reassuring echo of this finding with respect to student learning. Although this is a relatively small survey and we acknowledge that bullying and plagiarism on Facebook do happen, we have no evidence to suggest that these behaviours are exacerbated on Facebook amongst university students, and suggest that concern amongst staff about what students are doing on Facebook is probably unwarranted.

2)   Student interaction within Facebook groups is minimal

Our study results have implications for use of Facebook as a learning tool within formal teaching. Unless pro-actively managed, Facebook discussion might benefit only a small proportion of students, with less than 10% of the students in our study regularly participating. The majority of our students treated such discussion as a spectator sport and participated infrequently or not at all. This self-reported behaviour is confirmed by a study that monitored student Facebook posts and found that only a few of 242 group members actively posted (Nkhoma et al., 2015). This difference in behaviour online between participators and observers has been described as the visitors and residents model, suggesting a lack of comfort in this public arena for the visitor group. Although the division into these groups is not static, the visitor and resident pattern of student behaviour (rather than all students being so-called digital natives) has been confirmed on Facebook (Wright, White, Hirst, & Cann, 2014).

3)   Inclusion of students within Facebook groups is poor

Non-inclusivity is another issue to consider when using Facebook as a learning tool. In our survey about a quarter of students either did not subscribe to Facebook, or chose not to use it for learning. Students commonly cited the distraction of Facebook or the conflation of social and academic spaces (both valid reasons) for opting out of these groups. Previous studies confirm that students do not universally embrace the use of Facebook as a learning arena, (McCarthy, 2010) and that most non-using students have actively chosen to opt out (Irwin et al., 2012; Wright et al., 2014). However, we also found that three quarters of students participating in educational Facebook groups are recruited there by pre-existing social links (online and face-to-face) rather than by class-wide communication. Timmis (2012) notes that Facebook collaboration in students also tends towards pre-existing contacts that were originally made face-to-face. The lack of inclusion on Facebook groups (whether deliberate or due to lack of pre-existing social contacts) could potentially disadvantage the learning and re-inforce the social exclusion of some students.

4)   Discussion boards have not been replaced by Facebook and are still useful

In a recent review, Manca and Ranieri (2013) found that Facebook can be used to increase interaction between learners, but warned of student discomfort with the use of something generally perceived as a socialising tool in an educational context. This echoes Madge et al. (2009) who found that students preferred not to use Facebook for formal teaching, and Selwyn (2009) who found that students were using Facebook to support their identity politics rather than for learning. Indeed, our students reported that the majority of the group discussions were organisational and not for learning purposes. If student Facebook group discussions are primarily not about learning, it is worrying that many course VLE discussion boards have seen decreased activity while Facebook 'discussion' has increased (Table 3). Contrary to common assumption, it seems that VLE discussion has not been replaced by Facebook discussion and that these class-wide, inclusive discussions have often been discarded. In focus groups we found a lack of awareness amongst students about the possibilities for staff student interaction on discussion boards, alongside disappointment amongst staff about the lack of activity there. This can be seen as an opportunity for re-invigorating this interaction. We have found that by simply increasing staff and student awareness, the number of posts on one course discussion board was increased from zero during 2012-13 to 284 posts in 2014-15 (data not shown).

5)   Anxiety and confusion over plagiarism is common amongst students

We conducted open discussions with 21 students to explore student understanding and attitudes towards plagiarism. Informed by the findings of these discussions, we surveyed 273 students with 3 specific questions that probed understanding of plagiarism. Although more than half of students surveyed provided correct responses for these questions, more than 40% of students (for each of the three questions) either did not know or answered incorrectly. For two of our plagiarism questions, the number of students giving wrong answers was greater than the number that simply did not know, suggesting a level of confidence in the wrong answers (Table 4). One of these questions uncovered a common student misconception that plagiarism could be defined in terms of the proportion of text that is similar to another source. In-depth analysis of Turnitin reports confirms that similarity scores themselves are a very poor proxy for *bona fide* plagiarism (Dee & Jacob, 2012), and inspection of the highlighted text, rather than of the similarity report, is always necessary. In focus groups we also found that our students were very worried about accidental plagiarism and our survey question showed that only 14% of students realised that it is very unlikely that they will write the same sentence as someone else (Table 4). According to the Turnitin top 15 misconceptions list, the risk of a coincidental 16 word match is less than 1 in a trillion (Turnitin.com, 2013). Lack of student confidence about using their own words is of particular concern since avoidance of this feared accidental plagiarism leads students to not use their own words and, ironically, increases the likelihood of plagiarism through close paraphrasing (Gullifer & Tyson, 2010). The third plagiarism question in our survey uncovered a frequent lack of recognition amongst students that changing the words of others constitutes plagiarism (Table 4). A prior qualitative study of student perceptions

of plagiarism discovered that many students did not recognise the importance of intellectual property, resulting in a lack of understanding about why plagiarism is wrong (Power, 2009). Clearly, an appreciation of why plagiarism is wrong would help students to understand what constitutes plagiarism, thus reducing anxiety and encouraging improved scholarship. Our results strongly support the need for improved communication to students about the meaning and benefits of good scholarship.

6)   Students that are new to University may be at increased risk of misunderstanding plagiarism

Our disaggregated data provides small sample sizes that preclude meaningful statistical inference. However, we did observe that students that were new to our University (first year undergraduate and postgraduate taught students) performed less well on 2 of our 3 questions (Table 5). This might point to a need for better induction education. Although improvement in scholarship throughout a university education should be expected if students are learning by doing, new postgraduate taught students generally study for one to two years and do not have the luxury of time in which to improve. Our results suggest that first year undergraduates display the poorest understanding, within our student body, about paraphrasing and about similarity reports. However, an analysis of plagiarism detection results at one New Zealand university found plagiarism to be lower in first year students than for any subsequent year of study (Walker, 2010). Given the small variations that we detected between subpopulations of students (such as between Colleges) at our own University, it is conceivable that the pictures may be different between institutions and within sub-groupings of students. Indeed, Sutton et al found significant differences in student understanding of plagiarism between faculties or schools, levels of student, and prior learning for UK and Australian students (Sutton et al., 2014). Taken together, our findings and the studies of others seem to reinforce the notion that student populations vary in plagiarism understanding in an unpredictable way. Thus staff should focus on provision of appropriate plagiarism advice and good scholarship training irrespective of whether students are new to a university system, or faculty, or whether or not they are working online.

7)   Institutional anti-plagiarism guidelines are not improving plagiarism understanding amongst students

In our survey only 45% of students had read the official University guidance on plagiarism avoidance (Table 6). This is concerning since this is often the main source of guidance and because the responsibility for plagiarism awareness ultimately rests with the students, but not surprising considering the length and lack of appeal of such documents. Our question was explicit so that it was clear to which documents we referred (see appendix). This low rate of engagement with available guidance is consistent with the findings of a considerably larger study at an Australian university where around 50% of students were found to have read their institutional guidelines (Gullifer & Tyson, 2014). We also found that when students were asked to rate agreement with three statements about plagiarism, having read the guidelines did not associate with a better understanding of plagiarism (Table 7). In the Australian study, students were provided with a list describing various forms of clear academic misconduct or poor scholarly technique and asked to select those that represented plagiarism. Similar to the results of our smaller study, the Australian students that had read the guidelines were just as confused about plagiarism as those that had not (Gullifer & Tyson, 2014). Although an acknowledged limitation in both studies could be the desire amongst respondents to provide the 'right' answer, leading to over-reporting of having read the guidelines, there is clearly significant confusion over what plagiarism really is. Institutional guidelines, although necessary, are not helping with this confusion and, perhaps, are most carefully read by those already on the wrong side of plagiarism rules.

Future directions towards student use of Facebook groups and improving plagiarism awareness

We conclude that our students use closed Facebook groups productively for social engagement (which is of course their purpose), but that there is no call for staff involvement as either educators or police. Rather than a hotbed for plagiarism and misinformation, we find Facebook, like any face-to-face student grouping, to be a place for unofficial information sharing (or gathering for most), perhaps identity assertion, but certainly not for cheating. We urge caution towards reliance on Facebook groups for formal learning due to problems of student participation and inclusion, but encourage better exploration of methods to re-ignite discussion using VLE course discussion boards. We also conclude that our students are both anxious and confused about plagiarism, which posits a necessity to promote active student engagement in scholarship education. It is wisely argued that such intervention should address scholarship skills such as source-reading and summarising (Howard & Davies, 2009) and foster an understanding of intellectual property (Power, 2009) rather than focussing on fear of detection or punishment for plagiarising. Our results support the logical prediction that students in their first year of HEI study are at increased risk of plagiarism confusion, although other research paints a more complicated and varied picture. Further research into the generality of a lack of plagiarism awareness in new students would help to target intervention in the most appropriate manner. Lastly, we have provided an open educational resource tool that addresses some of the prominent issues identified in our investigation and we expect this to be of use to students at any higher education establishment. By using a short video format, we hope to have removed engagement barriers that exist for long, carefully worded guidance documents. The video is specifically designed to exploit the popularity and simplicity of sharing on Facebook groups, and YouTube viewing figures confirm that the tool has been widely viewed.

The video is also freely available as an open educational resource at;
https://media.ed.ac.uk/media/In+Your+Own+Words/1_2ttdet1w

Where Facebook Meets Plagarism: An Investigation and an Intervention

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Appendix

The survey questions were as follows:

1. Do you use Facebook? *Yes/ No*

2. Have you visited study-related Facebook groups? *Regularly/ Occasionally/ Never*

- If so, which course-specific Facebook group(s) have you joined? *(free response)*

3. Before you joined a course-specific Facebook group, did you find out about it through…?: *Word of mouth/ Facebook/ Email/ Other/ Not applicable*

4. Do you actively take part in discussions on Facebook groups…?: *Regularly/ Occasionally/ Never/ Not applicable*

5. If you have followed/taken part in course-related discussions on a Facebook group, were these…?: *Mainly about course content (e.g. discussing material from the lectures)/Course content and organisational issues equally/ Mainly about organisational issues/ About assignments and exams/ Not applicable*

6. Have you ever followed course-related discussions on a Blackboard Learn discussion board? *Regularly/ Occasionally/ Never/ Not applicable*

7. Thinking about an instance where you read a comment from one of your peers about your course content on a Facebook group discussion, how confident were you of its correctness? *Very confident/ Fairly confident/ Neutral/ Not very confident/ Not at all confident / Not applicable*

8. Have staff been present on the course-related Facebook groups you have visited? *Yes/ No/ In some groups/ Not sure/ Not applicable*

9. How strongly do you agree with the following statement? I have experienced/witnessed things that I did not like within course-specific Facebook groups: *Strongly agree/ Agree/ Neutral/ Disagree/ Strongly disagree/ Not applicable*

- If you have witnessed anything you did not like, please describe briefly *(free response)*

10. Have you ever read the official University guidance on plagiarism avoidance? (This is a 5-page document available from the Academic Services website). *Yes/ No/ Not sure*

11. How strongly do you agree or disagree that the following constitutes plagiarism: You paraphrase or 'change words around' so that the sentence/paragraph does not quite read the same as the source? *Strongly agree/ Agree/ Neutral/ Disagree/ Strongly disagree/ Not applicable*

12. How strongly do you agree or disagree with the following statement: As long as your work is below a certain 'percentage similarity' to another piece of writing, you do not need to worry about being accused of plagiarism? *Strongly agree/ Agree/ Neutral/ Disagree/ Strongly disagree/ Not applicable*

13. How likely/unlikely do you think it is that you would happen, by chance, to write exactly the same sentence as someone else? *Very likely/ Quite likely/ Neutral/ Quite unlikely/ Very unlikely*

14. Please use this space for any comments, experiences or concerns you have about social media in relation to your learning and/or about plagiarism. *(free response).*