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CHECK YOUR TECH - WHOSE RESPONSIBILITY IS IT WHEN CYBERHARASSMENT OCCURS?

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ABSTRACT

Social media has become a dominant aspect of many people's lives in many countries. Unfortunately that resulted in widespread issues of bullying and harassment. While frequently this harrassment is intentional, there have been occasions where automated processes have been inadvertently responsible for this sort of harassment. The software tools that allow people to harass others could have further features added to them to reduce the amount of harassment that occurs, but more often than not, where programmers are developing these systems then don't anticipate the range of ways that these technologies will be used (this is called "consequence scanning"). The authors of this paper are developing a new digital ethics curriculum for the instruction of computer science students. In this paper we present two case studies we have developed with a focus on cyberharrassment. Each case study is accompanied by a list of specific questions to be used by the instructor to allow students to evaluate the implications of developing social media systems as well as a generic case studies checksheet that allow deeper reflection on the intended and unintended consequences of introducing new technologies.

KEYWORDS: Digital Ethics; Cyberharassment; Accidental harassment; Consequence scanning;

1. INTRODUCTION

Cyberharassment has grown enormously as the online world continues to grow on an annual basis (Smith, *et al*, 2008). The impacts of this form of harassment can be extremely serious on its victims, including issues such as anger, frustration, depression, low self-esteem and suicidal ideation (Hinduja and Patchin, 2009). The situation has become so serious that a number of national and international organisations have been founded in the past decade to help combat this issue, and to raise awareness of its effects, including the Cybersmile foundation[1], the Online Abuse Prevention Initiative[2], and the Cyber Civil Rights Initiative[3].

Legislation has been introduced in different countries to help ameliorate the impacts of cyberharassment, including the *Philippines' Cybercrime Prevention Act of 2012*, and the *Protecting Canadians from Online Crime Act (2014)*. In December 2020, Ireland signed into law the *Harassment, Harmful Communications and Related Offences Bill*, which provides the first legal definition of cyberharassment in Irish law, and includes penalties of up to 10 years incarceration for people who engage in egregious behaviour, particularly, so-called "revenge porn". Additionally, social media companies have added features to their systems to help combat harassment, and they typically

[1] https://www.cybersmile.org/
[2] https://onlineabuseprevention.wordpress.com/
[3] https://www.cybercivilrights.org/

use a combination of artificial intelligence (AI) and professional moderators to review and remove inappropriate content. Unfortunately, there are issues with the moderation process; the scale of the task is enormous, and the moderators are often hired based on the lowest salary, and may lack knowledge of the platform-specific guidelines, as well as the linguistic fluency in the language of the content (Roberts, 2019).

Women are disproportionately affected by cyberharassment, in fact, the United Nations Broadband Commission Working Group on Gender indicated that 73% of women worldwide have been exposed to or have experienced some form of online violence (UN Broadband Commission for Digital Development, 2015). The WWW Foundation has found that law enforcement agencies and the courts are failing to take appropriate actions for cyberharassment against women in 74% of 86 countries surveyed (World Wide Web Foundation, 2015). The sheer volume of cyberharassment experienced by women has significant social and economic implications for women's status on the Internet. These include time, emotional bandwidth, financial resources including legal fees, online protection services, and missed wages. This is a problem that needs to be addressed if social media is to remain an open and empowering space for women and girls, and by extension, for boys and men.

This issue is one of grave concern, and is one of a rapidly growing number of computer ethics issues that have been emerging recently, to such an extent that a number of third-level institutes across Europe are collaborating to explore some of these key ethical challenges, and to develop educational content that is both based on pedagogically sound principles, and motivated by international exemplars of best practice to highlight these matters as part of the Erasmus+ Ethics4EU project[4] (O'Sullivan and Gordon, 2020). One specific development that is being undertaken is the creation of a lesson focusing on social media, and concentrating specifically on the ethics of developing social media software that can have a negative impact on people's lives.

Part of the lesson is the development of, specifically synthesized or fictionalized case studies, that focus on different types of cyberharrassment. These are to help computer science students at consequence scanning – a way to consider the potential consequences - intended and unintended - of a new technological product or service on people, communities and the planet (Doteveryone, 2020). The case studies are suitable because they provide a way to examine a specific phenomena with a focus on interpreting events, and exploring the societal context in which the case occurs (Martin, *et al*. (2018). Also because these cases are qualitative, they will be somewhat novel in computer science courses which are typically more quantitative in nature. They can be used to both explore and evaluate specific problems and challenges of social media tools, as well as exploring digital ethics in a more general context.

The two case studies we have developed are a part of a wider curriculum on digital ethics for computer science students. The case studies concern the impact of technology on people's lives, and how it can adversely impact people's lives both deliberately and accidentally. Each case study comprises a detailed narrative and set of questions (or "Talking Points") to be used by an instructor in delivering the content. We have also developed a generic case studies checksheet that allows a student to examine any scenario using a range of criteria that explore the features of the case and the consequences of the technology - intended and unintended. The checksheet is based on work by Yin (2017) and is intended for deeper reflection on specific aspects of the case studies and is to be used in conjunction with the "Talking Points" outlined above.

[4] http://ethics4eu.eu/

The first case study focuses on a deliberate harassment scenario, where one individual sets out to harm another person using a range of on-line tools, including social media systems, and is presented in the form of an epistolary, in this case a collection of emails. The second case study explores how a combination of minor technical issues can result in catastrophic consequences for a family, and this is presented in the style of a newspaper article.

As mentioned above, this content is designed for computer science students to allow them explore how actions in the online world can have calamitous consequences for people in the real world. This is very important, particularly for computer science students who could potentially do the most damage if they chose to engage in harassment (for example, using photo manipulation software, and deepfakes (see Tolosana *et al*. 2020)) but more importantly, they must have an awareness of these issues since they are going to be the people building the next generation of software systems and social media tools.

2. METHODS

A case study is a suitable vehicle for examining this topic as case studies explore specific real-world phenomena that focus on interpreting events, and exploring the societal context in which the case occurs (Martin *et al*., 2018). The qualitative nature of these cases can be seen as novel when introduced in computer science courses which are typically more quantitative in nature. They can be used to both explore and evaluate specific problems and challenges of introducing new technologies into developing countries, as well as exploring digital ethics in a more general context. The materials allow for detailed examination of technological, organizational and social implications.

In this section we introduce two case studies we have developed as a part of a wider curriculum on digital ethics for computer science students. The case studies concern the impact of cyberharrassment on people. Each case study comprises a detailed narrative and set of questions (or "Talking Points") to be used by an instructor in delivering the content. We also introduce a general checksheet that can be used by students to evaluate scenarios involving the development of new digital products and services.

These case studies have been developed specifically as teaching tools; each is based on a synthesis of several real cases, and are designed to generate detailed and diverse discussions by student groups about the ethics around these scenarios. The use of synthesized case studies has a long history in the teaching, particularly in Law courses (Dyer, *et al*., 1997) as they can help to avoid issues such as confidentiality and legal privilege, which are clearly very important considerations when discussing in this particular context, that of cyberharassment. To highlight the fictitious nature of the case studies, pre-existing fictional characters and place names are used to underscore the fact that these case studies are not real.

These synthesized case studies somewhat resemble a teaching approach that is already used in computer science, the "toy problem", which is an approach used in the teaching of computer programming, where a scenario is created as an expository device to help students explore challenges around a specific programming problem (Pearl, 1984). These problems often distil some key features or challenges into simplified scenarios, and sometimes combine several distilled features into one problem that would be unlikely to occur in a real-world setting but they are very useful in teaching students about the challenges in that specific domain. Thus, these case studies are designed in the

same way to highlight specific features or challenges that serve as the basis for the talking points to discuss ethical topics with the students.

The first case study focuses on how technology can be used to deliberately harass and intimidate people, whereas the second case study explores how technology can devastate people's lives.

3. CASE STUDIES

3.1. Case Study 1

The first case study concerns the deliberate harassment of one individual by another, and the full case study, told in the form of an epistolary (with emails, receipts and other records), can be found here: http://damiantgordon.com/Ethics4EU/Cyberharassment/CaseStudy1.pdf

3.1.1. Case Study 1 Summary

- Lucy Honeychurch and George Emerson had been dating but they have broken up. Lucy wants them to take a break from communicating for a few months but George is going to do everything he can to get them to talk again.
- George starts by topping up Lucy's credit for her recycling company, which she thanks him for but reiterates her desire for them to take a break from communicating. George makes a fake apology and writes a positive review about her on her company's website, expecting her to thank him for it.
- After a week George sends an email demanding an acknowledgement of his review and Lucy again reiterates her desire for them to take a break from communicating.
- George takes a week off, but then tries to get Lucy to talk to him again by trying to give her a late birthday gift. She tells him not to give it to her and to stop bothering her and her friends, reminding him that his controlling behaviour is the reason they broke up in the first place.
- George reacts badly and begins to take a more aggressive stance and falls in with an incel group who encourage his bad behaviour. He escalates his stance with her, harassing her online and in the real world until eventually his cyberharassment results in her reporting him to the police, resulting in his eventual arrest.

3.1.2. Case Study 1 Talking Points

1. Should the police have more powers in terms of being able to intervene in cyberharassment situations, including the ability to seize devices that are suspected of being used in these cases? Why?
2. Should the government pass laws that would result in bigger sentences for people who engage in cyberharassment as a deterrent? Why?
3. Do you think that social media companies have a great obligation to protect their users, for example, should they allow users to block specific IP addresses or phone numbers? Why?
4. Should people who engage in cyberharassment be banned from certain types of jobs, for example, law enforcement or the civil service? Why?
5. Should people who engage in cyberharassment be banned from some social media sites? Why?

3.2. Case Study 2

The second case study concerns the accidental harassment of a family by a group of technology companies, and the full case study, told in the form of a newspaper article, can be found here: http://damiantgordon.com/Ethics4EU/Cyberharassment/CaseStudy2.pdf

3.2.1. Case Study 2 Summary

- The Harris family consists of parents Billy and Donna and their two sons, Buck and Harry. Due to a glitch in location-mapping software, their address is incorrectly given for food deliveries, law enforcement issues, credit card applications and for all manner of other deliveries and computer issues.
- Donna and Harry are trying to do something about the situation and deal with the fallout of this "minor technical error" (including several lawsuits), whereas Billy and Buck are burying their heads in the sand about the situation.
- A newspaper reporter, Hildy Johnson, comes to stay with the family to document their situation but becomes so outraged that she commits the resources of her newspaper's legal team to help them, as well as a friend of hers who is a hacker.
- Hildy's presence in the family gives Donna the confidence to kick Billy out, who moves into an apartment with Buck.
- With the help of Hildy's newspaper, some of the computer companies responsible for a lot of the problems that the Harris family have been experiencing give Donna $53 million, with no admission of liability. Donna and Harry move to Beverly Hills and the mapping company (TendreMaps) who were the principal culprit have their systems hacked that changed the "minor technical error" to send all the wrong deliveries to the headquarters of TendreMaps instead.

3.2.2. Case Study 2 Talking Points

1. Do the programmers who wrote the software that set the default IP address to 0.0.0.0 bear responsibility to what happened to the Harris family? Why?
2. Does the TendreMaps Mapping Company bear responsibility to what happened to the Harris family? Why?
3. When the Harris family got internet access in their house they signed a contract with Terms & Conditions that clearly state that there is no liability for any problems caused by errors in software. Even if such agreements are legal, are they ethical? Why?
4. Hildy suggests that computer companies pay their computer programmers poorly but at the same time spend millions on legal teams to defend themselves. Is this a good business model? Why?
5. Some people have suggested that Harry worked with Henry Dorsett Case to redirect the mapping from the Harris House to the TendreMaps headquarters. If so, do you think it was justified? Why?

CASE STUDIES CHECKSHEET

A task sheet for students to work through several times and internalise.

*Name of Case Study:*_____

Evaluation criteria	Notes
What is the case study about?	Introduction:
What is the organisation?	Introduction:
What are the technology issues?	Introduction:
Who are the principal actors?	Introduction:
What types of data were collected?	Data Collection:
From which sources did they come?	Data Collection:
How was the data recorded?	Data Collection:
What was the situation previously?	Main Features:
What interventions have been introduced?	Main Features:
What were the general outcomes of this intervention?	Main Features:
Are there any legal, social or ethical issues associated with this intervention?	Main Features:
Is there a chronological or other logic sequence for analysis?	Main Features:
What is the nature of the organisation?	Organisation:
What is its history?	Organisation:

How is it structured?	Organisation:
How has it changed as a result of intervention?	Organisation:
Who are the principal actors in detail?	People (Ecology):
What are their positions within the organisation?	People (Ecology):
What are their technical skills?	People (Ecology):
Does the target population for this intervention include more people?	People (Ecology):
What technology was present? What software? What hardware?	Technology:
What technical level of expertise exists within the organization?	Technology:
What new technology has been introduced for this intervention?	Technology:
How has the new technology affected the organisation?	Technology:
What are the possible consequences of this technology - intended and unintended?	Technology:
How successful has the intervention been?	Evaluation:
What new outcomes have been identified?	Evaluation:
What went well in this intervention?	Evaluation:
What did not go well in the intervention?	Evaluation:
What alternative approaches could have been taken?	Evaluation:

4. DISCUSSION

Cyberharassment is an extremely serious issue and is something that software developers need to take into consideration when they are creating new systems that allow users to interact. As mentioned previously, the impact of harassment includes issues such as anger, frustration, depression, low self-esteem and suicidal ideation. It is therefore incumbent that software developers reflect seriously on the ways their creations will be used.

We have presented two case studies, a set of case study specific questions ("Talking Points") and a generic case study checksheet to be used in the instruction of computer science students to allow them to reflect on the consequences - intended and unintended - of new technologies for use in developing world contexts. Although the content is developed for computer science students, it could be adapted for other educational disciplines.

All of the synthesized case studies that are being designed as part of the Ethics4EU project are created in pairs. The first is usually more straightforward, focusing on the more traditional perspective on cyberharrassment (one person harassing another), whereas the second one is looking at the accidental harassment of a family (in this case, an IP address issue). In this way, they work well as individual case studies, but also when taken as a pair they provide an interesting contrast.

After piloting these case studies with a small classgroup, some benefits of the synthesized case studies became clear; students commented that because they knew the scenarios were fictitious, they felt more comfortable elaborating new details about the cases and they also felt more comfortable hypothesizing motivations of particular actors in the scenarios. They also commented that the case studies opened their eyes to some of the problems associated with technology that they had not thought of before. They highlighted the notion that the first case study was the result of a single person's deliberate actions (and therefore, the individual responsible is clear), but in the second case study, it was as a result of the accidental side-effects of a group of organisations' technical decisions (and therefore, the responsibility is distributed, and uclear). A few commented that the use of pre-existing fictional place names made them curious to follow-up on those references, and to explore some literature.

In future work, we intend to develop a larger range of educational content for the instruction of digital ethics. Content will focus on pertinent issues such as privacy, computer security, surveillance and facial recognition, the Internet of Things, AI and algorithmic decision making including biases such as racial and gender biases often present in large datasets and the environmental implications (specifically the carbon footprint) of storing excessive quantities of data in data centres.

We intend to evaluate the educational materials with students in the classroom, gathering feedback from students on the educational instruments and evaluating their before-and-after understanding of the ethical issues raised in the case studies.

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