Data, Ethics, and Law
Group 6 Project Report

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1 Case 1

The main thing to consider is the contract signed between Tina and xAMS. A standard practice within the field of software development is to have different clauses regarding intellectual property (IP), where both parts are incentivized to protect themselves from conflicts [1]. In more strict cases of these clauses, any code produced, even during free time belongs to the company [2]. In more lenient cases, it could be such that the company owns the code if it is competing with the business, or if it is written using the company's resources or equipment.

If no clause was signed, it comes down to the law. In Sweden, computer programs are a rare exception from the normal copyright laws as a result of EU directives [3]. Swedish law based on the directive states that an employees' computer program passes to the employer if the program is in course of the employees' duties, or produced following instructions by the employer unless there are other agreements in the contract. This law would not necessarily hold if Tina was an unpaid intern, since xAMS in that case would not be considered to be her employer.

The hackathon was held during a weekend, which presumably is not during work time, and had community-building incentivizes rather than something else. This is in favour of Tina, who could argue that her project, LAMS, has zero connection with the company and has only been developed during her spare time. Further, there are no implications of her reusing any code from the company, but that it is rather a totally different project compared to her duties.

A determinant factor in this case is whether her program can be considered to

be within the course of her duties. xAMS existing software prior to LAMS was AI software within call centers, which analysed phone calls using machine learning. Although Tina could argue that LAMS was in no competition with her company's business, xAMS could argue that it was within her duties to develop AI software which uses machine learning on voice recordings. There is not a clear cut definition of how broad "the course of an employees duties" can widen, and has as of yet not been tested in court. Another factor to consider is whether she used any of the company's equipment during the development, as that could be considered to be within her duties.

This is similar to how standard contracts in the US works, as discussed by Chris Shiplett [1]. The main difference is the wording, as "Any work a developer creates within the scope of his or her employment is owned by the employer". In the same way, there are uncertainties over to what degree work can be considered to be within the scope of employment. To avoid any uncertainties, Shiplett recommends making sure both parties agree and understand each other's rights to any produced code.

A similar case has been going on between Seth Vargo and his former employer Chef [4]. During his time as an employee, Vargo produced certain open-source components in which Chef claimed that the code was their asset. Vargo removed the code from his personal repository which forced Chef to temporarily shut down parts of their commercial business. Vargo however, never claimed to have any code ownership and conceded that it may well belong to Chef, although he felt like he had the rights to remove it from his own personal repository. This differs from Tina's case, where Tina argues that she is the owner of the code. On the other hand, Vargo claimed moral rights as he demanded his name to be included in the code. This differs from Swedish law, where moral rights are included when the ownership of the code is passed to the employer [3].

1.1 Consequences of different IP rights

Hellman's models show that IP rights have a significant impact on employee's behaviour [5]. When the companies own the IP rights, employees only leave to pursue their innovation if the external environment is particularly strong, while the company will be incentivized to internally pursue the innovation. When employees own the IP rights, they will always leave to pursue their innovation. A more employer-friendly policy encourages innovation and entrepreneurship but can negatively affect the company as it will be harder to keep employees.

In a similar topic, Gilson argues how California's ban on non-compete agreements has contributed to Silicon Valley becoming the global center for high technology and innovation [6]. Although it does not regard intellectual property directly, it has similar effect as non-competing agreements disallows entrepreneurs to quit the company and pursue an innovation.

2 Case 2

What is LAMS: LAMS is a system using new technologies to assess students' contribution in class and gives students a score based on that assessment. Students are being monitored during the class by that system through video and audio recordings. The technology works in the following way: in order to assess each student, it compares the contribution of that student with previous student's data, where that data can be video or audio recordings, and gives a score based on the context of the student's speech. Here, if the student is having a novel contribution, meaning it is not repetition of what other students already have said in that class and the speech is relevant to the subject of discussion, then that student may get a good score. Else if the contribution is judged to be repetition of what's already known, then the score may be low. Also, if a student has no contribution, then the given score is low or zero.

Clearly, such a system will require a sufficient amount of student recordings as well as the grades they obtained, in order to be able to make judgments of new students, which will be considered new data points or nodes. Also, each time the system processes the data of a student in order to score it, that data is stored by xAMS, possibly in order to further enhance the predictability of the model and train it better.

Since LAMS processes natural person's data, some questions need to be answered before the deployment of such a system. For example, what are the legal basis for such processing? Is it done in a transparent and fair way? Is the data processed and collected only for the legitimate and specific purpose claimed by xAMS or will it be used for other purposes not compatible with what's claimed? Is the data minimized to only contain what's necessary to fulfill the purpose of the processing or even irrelevant data are collected? This motivates the question whether the data is accurate for being processed? Another very important question is for how long each student's data is stored, that's what retention period is necessary? Are there technical measures implemented by xAMS in order to protect student's data from

unauthorized access and unlawful processing, as well as loss or damage to the data? All these questions oblige xAMS to have responsibility towards its users and being accountable for any undesired event. These questions constitute the seven basic principles in the GDPR, as pointed out in Table 1 in [**Kotsios**].

Furthermore, in order to be able to answer the above questions as well as other questions, one can use Table 2 in [**Kotsios**] and art 4 of the GDPR, [7], where the general rules to be considered are outlined, as well as the rights and responsibilities each entity has. In the case of LAMS, the **data subjects** are the students and the data may contain full names, personal numbers, videos(photo) and audio(voice), if not more. The **controller** is xAMS, the owner of LAMS, who also decides the scope of the processing and how it is conducted. The **processors** are the engineers working for xAMS. The **processing** will in minimum contain the following operations: collecting, recording, structuring and storing the data. One assumption that could be made at this stage is that the lawful basis for collecting and processing this data by xAMS is that the processing is done in the interest of the public, that this product could potentially assist teachers in schools and universities, and in a fair way assess students. But since the system makes automated decisions and predictions about an individual's performance at school, it is **profiling** that individual. Therefore, as it is pointed out by art 35 of the GDPR, xAMS has to do a data protection impact assessment, in order to answer .to assess the impact of protecting collected users data.

Having established the applicability of the GDPR, we may conduct a DPIA. But the reason for a DPIA would be to fulfil the criteria set out by the GDPR as well as showing that xAMS have thought about and weighed all the consequences and ethical dilemmas that can arise when the system is deployed in schools, and implemented adequate and necessary actions in order to eliminate those, or to the least reduce their impacts. But for that, xAMS needs to perform an extensive and independent analysis in an autonomous manner, where all values, interests, aspects and viewpoints of each stakeholder are taken into consideration in a holistic and systematic way. Some questions to answer here are the following: what are the benefits of LAMS? Is it needed in society? Are there any damages when using LAMS? How will xAMS be perceived? What will students and their parents, as well as teachers think about LAMS?

2.1 Ethical analysis

xAMS For xAMS, as pointed above, the product is built in the interest of the public, to help achieve a good and fair education system where both students and teachers can benefit from it. The owners of xAMS will definitely see themselves as the CEO of Clearview AI, as pointed out by [8], where he sees himself as a person working in the service of the society and is helping the authorities. That argument does apply to xAMS as well since they intend to help teachers, students and the education as a whole.

Ministry of education LAMS, considered being GDPR compliant and safe, not a surveillance, could be perceived by the ministry of education as a product that could potentially help achieve a good quality of education as it could be implemented as a national system throughout the country, where each school and university can benefit from that. It scores students based on the same criteria, and the opinions of teachers, cases where the teacher does not know which student to believe, cases of teachers not being able to fully comprehend what a student says and cases of "favorable students" and teacher partiality could be eliminated. There are already systems used to check student's written texts against plagiarism, for example at Uppsala university Urkund is used as a plagiarism checker tool[9]. So instead of only checking for student's written work against plagiarism, one could argue that checking student's orally too can be allowed. So how Urkund is working and how LAMS is working are irrelevant, as long as their purposes are the same. In the end, it is the ministry of education that would decide whether this system is allowed to be installed in schools, therefore it is of utmost importance for xAMS to comply with their rules besides the GDPR.

Teachers Generally speaking, the opinions of teachers, school management and the ministry of education cannot and should not differ a lot, the task of the ministry is to provide a good education to everyone, then the teachers are the ones who normally decide what good education is and how it is given. Therefore, the teachers must be consulted before any major decision is made by the leaders. Again, given that LAMS respects individual integrity and confidentiality, it is not wrong to assume that teachers are in favor of such a system. For one, it helps them with sometimes unbearable workload. As a teacher designs a course, the most important question to be answered is why students should invest time and resources to learn this

subject? It must be because this subject increases their knowledge, skills, abilities and future opportunities. If a teacher has clearly informed the students about intolerance towards plagiarism, and also has designed interesting and motivating assignments/projects that students would find interesting and worth their time, then if a student despite all that still chooses to be inactive during class sessions or rely on others work in order to pass the session/test, then teachers may appreciate the help of tools such as LAMS in order to be able to efficiently identify such undesired behaviors and the students committing them, but as well as to grade these students in a fair way.

Students The ethical dilemmas start to arise once students' perspectives are taken into account. Why does that happen? Because students would rather choose to think freely and learn the way they are best adapted to, rather than being forced to adapt their learning style to a machine's expectation. There must be reasons why a student is not participating in the class as expected or why a student may copy another student's work. Is it because the task is too much to ask a student to complete, or because there is not enough momentum of interest built for the course? Are there any guaranties that students would perform better at class given they are monitored by a camera? This question is difficult to answer given it requires a scientific approach to assess whether students learn better this way. However, until such evidence is available, monitoring students in the hope of making them more active can have huge drawbacks. It may kill creativity as monitoring can make students to behave in certain ways or to think similarly, in order to pass the system's criteria and obtain good scores. Also one cannot assume that all students will behave similarly towards monitoring. Not everyone feels comfortable speaking in a group or even worse being recorded and forced to participate. Maybe a student suspects that the system will create profiling for their opinions on politics, religion, sexual orientation and preferences, socioeconomic status as well as many other natural-person related things, where such data could be for other purposes, resulting in the student not participate in an honest way or even worse not participate at all. What about students that may not excel the language at use well enough and hence not being able to express their ideas efficiently, will the system be able to distinguish these students? If a student is not able to perform well on a task, that shall not result in a low score by a machine which could lead to low self-esteem. But rather this should be further analyzed why that student is not performing up to expectation. What exactly does cause that, is it the absence of adequate skills, low

focus and attention deficit, depression or other health issues..etc. Good education where students are encouraged to become better humans and given a fair chance to develop is one thing, and creating a prison-like environment is another totally different thing. This point is hard to argue against, even the "good" students would perceive monitoring as a form of imprisoning. Therefore, even if the intention of the system was to help enhance the education system, we may end up not solving the problems at all, given that the current school system has problems, but instead making it worse which could have a greater negative impact on the society as a whole.

As the GDPR requires controllers to implement appropriate measures to show compliance with it, and in order for xAMS to be able to sell this product, they shall have a good plan on how students' data are being processed and stored, as well as how they are protected. The following DPIA shall address the issues of data processing that may result in high risks and how it intends to respect and protect the freedom and rights of students. In order for the DPIA to be acceptable, the following site is consulted[10].

2.2 DPIA

Step 1 Identify the **need** for a DPIA: The project's aim is to assess students during class sessions or seminars. This is done by collecting video and audio recordings of students, as well as by monitoring the internet traffic in and out of the WIFI node in the classroom. These recordings are then fed to a machine learning model, where it makes a comparison between this recording and other previously recorded and graded data, in order to score a student. But as this system will monitor all students, there are risks of profiling and predicting student's preferences, therefore it is a good start to conduct a DPIA.

Step 2 Describe the **nature** of the processing: The source of the data are from natural individuals, in this case students. The data is collected by monitoring and recording the students during specific classes. It is then used by a model to make predictions and inference about students' novel contributions. The data is stored on the databases of xAMS and servers, where no other party shall have access to this data, and this data shall not be disseminated or disclosed under any circumstances.

Describe the **scope** of the processing: The nature of the data is quite sensitive as

it contains videos, voices, opinions, knowledge and information of students. Data is collected on a regular and daily basis or as often as the system is used at schools, as they are the real users of the product. Each time new data is collected, it is instantly used, so the data is used as often as it's collected. The individuals affected and the geographical area covered can differ, but the idea is the product being used in every school, thus making the individuals affected being all students attending classes at these schools, and hence the geographical area being those of the schools. The system may be used in different countries as well. A reasonable period of data storage shall not exceed the duration of the course, as the system should have the property of memorylessness and not remember which student obtained what score. This way, the system may be able to maintain its fairness towards students, as students perform differently on different courses. If the data is kept for longer period than that, then pseudonymization shall be implemented on the data, so that neither the model nor the engineers at xAMS can determine what score did which student get, but this information shall only be transferred to the teacher of the course, in a way where only that teacher can determine which student obtained which score.

Describe the **context** of the processing: The relationship between xAMS and the data subjects is through the relation of each school and xAMS, as schools are the customers of the product and not individual students. The students shall be given control by their schools, as they cannot themselves control the system monitoring them, but they can control the outcome of the model. Whether this group includes children and vulnerable students is determined by the school in question integrating the system into their education. As there are not similar systems at work currently, it is generally hard to predict the public opinion about LAMS. Public concerns that need to be factored in are whether the students data will be used for other purposes than those stated, whether the data will be sold to third parties or whether the data can be acquired by unauthorized parties through illegal methods.

Describe the **purposes** of the processing: The purpose of the processing is to help schools provide a fair education, helping teachers in their work and automate parts of their work when possible.

Step 3 **Consultation** process: The stakeholders in the case of LAMS are students, teachers, schools, employees at xAMS and possibly investors. First of all, the DPO of xAMS shall be consulted before any process has taken place, in order to ensure

the legality of LAMS. Thus the existence of a DPO within xAMS, who can help with legal and ethical issues, is a must since xAMS is a data company. Furthermore, the processors and employees in general shall be consulted on how to build and maintain a well functioning and secure product, how to tackle the dilemmas and how to solve them. Ethical discussion prior to and during the making of LAMS shall take place regularly so that awareness among processors are high. Furthermore, the security of LAMS shall be at the highest level possible, and therefore internal as well as external security experts shall be consulted on how to secure and protect student's data. However, it is not a good practice to outsource the securing of LAMS, as the data at question is of sensitive nature and few people should have access to it. Therefore it is a must for xAMS to employ its own security experts.

Step 4 Assess **necessity** and **proportionality**: The current setup of LAMS is not fully necessary, as there is no need to video-record students to know who said what. The audio recording is actually enough, and less than that is not possible due to how the model works. LAMS does sentiment analysis and natural language processing, hence video recordings of students is unnecessary, since the model does not process the videos and the teachers may not have the time to watch all video recordings after class given they did not have the time to participate in the seminar discussion to start with. Furthermore, the voice of the student could be processed and changed to that of an artificial voice so that a student is not identified by the voice recording. Students shall be scored anonymously by the system, that's the system does not distinguish between natural persons, but only distinguishes what they say. Hence each student may have a specific id that only the teacher has access to and can match the score given to a student and the actual student. This way, when the system outputs a score, it comes with the id, and not the name or personal number of a student. This way xAMS can ensure that the minimal amount of data is collected and processed. Each data subject shall be given all necessary knowledge about how their data is collected, processed and stored. Cases of students who do not wish to participate in any processing is a matter between the school and the student, where the school must present alternative ways.

Step 5 Identify and assess **risks**: There is a remote risk of data leakage, disclosure or dissemination by employees at xAMS. If occurred, the damage can be severe on data subjects if the data can lead to identification of the students. There is a possible risk of the system mimicking previous mistakes and biases if it is trained on such

data. In this case, students may be graded unfairly and unreasonably. The overall harm is not bigger than that of a classical classroom setting, however the system could amplify that. The overall risk of that happening has a direct relation with the training data, the more the data suffers biases, the higher the model makes wrong judgement. There is always the possibility of unauthorized access to data through means of hacking, and the severity of such an action is in relation to the intention of the hackers. Given that every company is susceptible to unauthorized access, the overall risk is high. Even worse would it be if the intention of the access were to score students.

Step 6 Identify **measures** to reduce risk: The risk of data leakage by employees could effectively be reduced or even eliminated, given that employees are made aware of the sensitivity of the data and have been encouraged to reflect ethically on the processing, storage and protection of the data. The risk of unlawful accessing of the data can be reduced given xAMS employees its own security experts who can design and implement the means of protection.

However, not everything stated on a DPIA will be implemented as promised. It is of utmost importance that xAMS are themselves being monitored by adequate government authorities. There is however a difficulty to fully monitor xAMS, since data could be sold to third parties without authorities knowing it, or data could be stored on additional databases and servers, where all data remains and is never deleted. There needs to exist a mechanism between state authorities and xAMS on how the monitoring of xAMS is being implemented.

3 Case 3

From a legal perspective, the data in this case is clearly collected illegally by Tina and without consent from the data subjects. Both the data collected from the leaked activist group as well as the data from the school are also violating the laws of GDPR [7]. In addition to this, it is illegal for xAMS to continue using the data for their product. This results in that the situation can be considered as twice as illegal since they not only did they refrain from informing authorities that one of their employees had done illegal data acquisition during the time she worked for xAMS, but the company amplifies the act by building a product on top of that data.

This situation brings many risks that can lead to severe consequences for xAMS.

Since the students that Tina's boyfriend acquired data from did not have the choice to not be recorded and their grades are being known by others, the company could be sued. This could lead to shutting xAMS, especially since the data may contain sensitive information about a student. This illegal sensitive data is also a risk for the company to have in their database, in case someone were to be released to the public. There are also risks with the data leaked by the activist group that Tina acquired from the internet. This data is clearly violating the laws of GDPR, and the state actions of collecting the data is also questionable.

Looking at the ethical aspects, it is interesting to think about who is responsible to handle the situation. As stated earlier, the situation brings many risks for the company, and also for the person who discovered how this data was collected. One way of handling this situation for the engineer discovering this would be to immediately tell the company or the product owner about the situation. This might result in the whole company being sued and shut down, but one could reason that it would be the most ethically right thing to do. If the engineer did not take action to prevent further use of the data, he/she would be just as liable for the crime as Tina. Furthermore, it is also debatable whether Tina is responsible for the crime alone. The people working on the project, especially the product owner, should be aware of where the data initially comes from. Therefore, one would argue that Tina is not the only one violating the law.

One opportunity xAMS has in order to handle the situation is to discuss and negotiate with the school in question whether they could use all or part of that data. The school management and teachers could possibly help xAMS to identify the videos not suitable for the algorithm so that xAMS could remove those videos. However, this is highly unlikely since the school probably is not very positive toward the face that the data was collected without their knowledge.

In conclusion, xAMS should take their responsibility and come clean about the data in their system. They should not train their model on the illegal data that Tina collected. Instead, xAMS should try to find more suitable data to use that is legal to use.

4 Case 4

Scenario The topic of this case is again the Learning Activity Management System (LAMS). It has a high accuracy of about 95% but no one can explain the system. Moreover, LAMS has been sold to a university that wants to use it for automated

assessment of students to support the teachers in their participation grading. However, because the functioning of LAMS is nontransparent and cannot be traced the usage is questioned.

Legal Background Since we assume the company operates in Sweden, the cases fall under the law of the General Data Protection Regulation (GDPR) [7]. Overall, using LAMS is GDPR compliant if the students explicitly consented to their data being processed. The GDPR demands in Art. 15 (1, h) to provide "meaningful information about the logic involved", especially in automated profiling which is the case in this scenario. However, this regulation is interpreted differently and currently a legal gray area. The company needs to explain the model somehow, for example by describing the structure, but the level of details in the explanation is not stated [11]. We assume providing a superficial explanation of LAMS is possible for the company. On the other hand, these arguments are controversial because data subjects still have the right of human intervention on the controller side to possibly contest the decision (Art. 22 (3)). This means, in case students are dissatisfied with the LAMS assessment, they can demand a teacher to function as a second opinion and redo the grading which may result in a different grade. Additionally, having a non-explainable system leads to unclear liability because the decisions are not comprehensible [12]. Hence, black-box AI models are often used to avoid certain liability. As stated later, depending on the situation the company or the client is responsible for LAMS.

Drawbacks By using the Learning Activity Management System various values are at stake. The most important drawback is the privacy invasion the system promotes. The students are under permanent surveillance and all their actions are video and audio recorded. Additionally, the entire internet traffic is tracked. Even though students may have consented to this data processing, trading in nearly no privacy in university for automated grades is ethically very questionable.

Another issue is, that LAMS enforces all students to learn in the same way although everyone prefers different studying techniques. One student might learn more while studying at home and repeating the lecture material for themselves while others learn the most in active participation. By limiting the freedom of education LAMS suppresses creativity and can even result in discrimination because of the restriction. The learning outcomes can moreover be mitigated by the students who may be spending more time on thinking about how to seem more active for the

system than really being more active in class. In contrast to this, students can just decide to not attend lectures anymore to avoid the existence of assessment data. If there these data miss in the system how should the student be assessed? Preventing bad grades in this manner would result in a huge amount of student absences and less successful teaching.

As previously explained being absent could be a workaround on being assessed by LAMS. Furthermore, because the model is not understood by the developers, students may be able to cheat and question the system. This is a major problem for the university since they want to use it as teaching support that automatically scores the students. In the case of cheating, the developers are not able to implement countermeasures for prevention because they do not know the inner processes. In the case of questioning, the model does not give an adequate explanation of the origin and composition of the grade.

Accuracy and Explainability Providing a sufficient explanation of how a grade was generated to the students is necessary. For most artificial intelligence systems this implies a trade-off between explainability and accuracy [12]. For example, the operating mode of neural nets is almost not explainable but highly accurate while rule-based models are explainable but not accurate. As Hacker et al. [12] argue, for medical decision making and early diagnoses it is reasonable to use an inexplicable, but extremely accurate (over 95%) model due to the advantages for the patient. This assumption is based on the constraint that the AI is state-of-the-art and consistently outperforms humans. Additionally, Rai [13] argues, that it is irrelevant for recommendation systems to be explainable since this could lead to information overload and frustration for users. A user doesn't have to know exactly how and why the model selected a specific item.

Applying these arguments to the case scenario, they are not valid anymore. Although LAMS performs outstanding, it is neither a medical system that helps saving lives nor it is only recommending. Knowing why they have gotten a specific grade is relevant for the students. However, teachers are usually also not able to give a very detailed explanation of the composition of a participation grade to their students. So to a particular amount the uncertainty of LAMS is justifiable. As a solution Hacker et al. suggest using AI models merely in complementing humans. Because machine learning makes mistakes as well, the predictions should be critically examined and the possibility to disagree with them should be given.

Because making the model more explainable is probably connected to decreasing

the accuracy, we suggest the following. Reducing the uncertainty can be ensured by using LAMS only as an assisting tool and second opinion. Besides, if the company decides to refine and evolve LAMS, they should follow the Ethics Guidelines for Trustworthy AI by the High-Level Expert Group on Artificial Intelligence [14]. These guidelines present a framework for developing a trustworthy, lawful, ethical, and robust AI.

Heteronomy and Autonomy The university wants to use LAMS for the automatic assessment of students. As described, LAMS is a black-box system and nontransparent. Because of this inexplicability, the chance of students fooling the system exists which contrasts the intended use of the university. An engineer can address this dilemma with two different approaches, Heteronomy and Autonomy [15]. The heteronomous approach relies on instincts and reflexes and is automatic and constrained. Therefore it is a safe path and avoids responsibility but is also chancing and poorly controllable. The autonomous approach includes a holistic view of the matter that consists of critical and systematic thinking. This demands time, resources, and skill but results in awareness, responsibility, and insights. Hence, Autonomy is the better choice for the engineer.

Examining the case scenario from an autonomous point of view implies an analysis of the concrete situation considering the interests and values of all stakeholders. The engineers can remain silent about their concerns or tell their boss or the client about them. The consequences in both cases could be dismissals or open communication between the parties. For example, if an engineer talks behind the back of the company with the client it could be seen as undermining the authority and result in a job loss. The same applies if the engineer is seen as incompetent due to the missing verification of the product. On the other hand, talking to the manager about questioning the intended use of the model could imply further discussions about the correctness of the universities' expectations. Moreover, seeking dialogue with clients and informing them about the companies' concerns may even lead to rethinking resulting in adapted product usage. In any case, it is ethically important for an engineer to tell their supervisor about doubting a development and for the company to inform clients about the proper use of their products. This responsibility can have a significant impact on the image of a company and its product because misuse and problems always affect the consumer as well as the vendor. But if the previous requirements are fulfilled, the customer is solely responsible for all decisions regarding the product application and the coherent consequences for their

institution.

Conclusion Supplying a highly accurate AI involves a trade-off towards explainability. Additionally, this can lead to open liability for the system's decisions although no detailed explanation is legally required. As discussed, the responsibility for the product depends on the circumstances. In this case scenario, the most important aspect is to assess the students equally, fair, and unbiased and LAMS tries to support that. To meet this goal in the best possible way, some future adjustments need to be taken to the model. LAMS should be only used as grading assistance and additionally could be refined based on ethical guidelines. However, LAMS can be a great support for teachers and provides a second opinion in the grading process.

5 Case 5

According to the Swedish discrimination act and the lecture given by Paul Bengtsson, every employer is obligated to take action if someone is being discriminated at their workplace. The employer must also take active measures to prevent discrimination, investigate suspected/reported cases and ensure that confirmed cases are not repeated [16]. It is a human right to have equal opportunities, and therefore the two cases in this situation are equally as important to look into for the company. Even if the actions of discrimination is not intentional, it is still discriminating and needs to be takes seriously. A first step to handle this situation is to talk with the people involved. The management at xAMS can not just assume they are behaving anti-social, maybe they have no other choice because of the social exclusion.

Even though the two cases are equally as important to deal with, there is a slight difference between them. As Paul mentioned in his lecture, there are norms in our society who are closely related to power [16]. At an office or a workplace, there is typically some kind of norm that you keep a social distance and act more formally with the ones who are in a higher position in power than yourself. This could be an explanation to why the person who has a level of management responsibility feels excluded. On the other hand, the other person who is working in the quality control team does not have the same level of responsibility. Therefore, this person may be a victim of suppression techniques. In this case, the management of xAMS is responsible for taking action, since it can be considered as discrimination. According to Paul, it is important to break patterns of suppression techniques [16]. In this

situation it could be done by addressing the problem in a group or arrange activities in order to make everyone feel more included.

However, another important aspect to consider in this case is the definition of someone being anti-social. Some might think it is just a matter of being somewhat of an introvert, when it in reality is defined as actions that harm or lack consideration for the will being of others. People with anti-social behavior tend to treat others harshly or with callous indifference, act manipulative and tent to antagonize.[17]. In this case, the two employees that claims to be experiencing social exclusion can not be protected by the Swedish Discrimination Act. Therefore, the company xAMS does not have to handle the situation according to the Swedish Discrimination Act. Then, one solution could be to talk with the two "victims" confronting them about their behaviour and maybe move them to different teams if the situation does not change for the better.

6 Case 6

According to GDPR Art 22: "The data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her." Paragraph 1 shall not apply if the decision: c) is based on the data subject's explicit consent.

Some relevant points from Fair Examination Code [18] to this case are:

An examiner must determine a grade based on the format or formats of assessment of student performance stated in the course syllabus. The HEIs may choose which formats of examination they use for their courses and may have different grading systems for different courses. If the grading criteria are written for a course, the HEI must make it clear whether the examiner and the students are bound by the criteria. Also, an examiner determines the final grading decision but may also need to make other decisions when preparing the case. An examiner is responsible for behaving objectively and impartially when handling grading cases. Another important point is that, a student does not have the right to withdraw his or her submitted exam and thus avoid being graded.

Case Scenario: Second participant has challenged his grade since he was awarded only passing grade based on LAMS system and Participant 1 was awarded highest grade based on Oral Examination.

Analysis: Under "GDPR Art 22" [19], participant has the right to be not judged solely on automated process, but it won't apply to second participant because:

"It seems Participant has consented to be judged by automated process (LAMS) by participating in seminar and challenged his grade only afterwards on a completely different ground (i.e grading on basis of different systems. GDRP doesn't say anything about this).Under Fair Education Code, once student has submitted his exam (in this case to LAMS) he no longer has the right to take it back. Similarly under Fair Education Code, there is no legal compulsion on teacher to change a student grade if student do not like the grade. (as long as teacher has been fair.)

What is ethically right and what is legally right? Ethically all participants should be judged in same manner in as objectively uniform process for all the participants as is possible. Legally, participant 1 invoked his GDPR art 22 right and thus earned a legal way to be judged in a different manner than other participants.

To mitigate such a situation in future: all participants should be given express option to choose LAMS automated system or direct oral examinations and they should be then bound by their express consent to accept whatever grade they earn.

Consequences can be: Students not taking LAMS serious enough and not participating in LAMS seminars etc since they can always invoke their right to be judged by human and not LAMS. Also since a student can expect to secure higher grade with individual oral examination; LAMS will be preferred by fewer participants.

7 Author Contribution

The work of the authors was divided as in Table 1.

Author	Work
Stephanie Loreck	Case 4, discussion of all cases
Salman Khan	Case 6, discussion of all cases
Julia Ekman	Case 3 and 5, discussion of all cases
Joakim Michalak	Case 1, discussion of all cases
Hardy Hasan	Case 2, parts of case 3, discussion of all cases

Table 1: Work Distribution

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