1. Socio-Technical System

a. Legal Issues


FERPA (Family Educational Rights and Privacy Act) is a US law enacted in 1974 to protect student rights. FERPA gives students the right to access their educational data, amend their record, and control the disclosure of their data to outside parties. Data includes directory information like phone number, address, and degrees obtained, as well as non directory information like social security number, gender, and race.

Because our project deals with the privacy of student data, it is vital that we understand and adhere to the law, so that no student data is disclosed without student permission. The privacy matrix allows the student to control their FERPA settings, so it should line up exactly with the law.


This article provides an overview to FERPA, clearly outlining the fields of information protected by the law. It gives an outline of the kinds of data that’s considered part of an educational record. In particular, it explains how the protections on this data must be handled from the perspective of academic advisers and college faculty, and thus gives us insight into our project’s effects on the Registrar’s Office and on St. Olaf faculty.

An overview like this will be useful to us in order to fully comprehend FERPA, and make sure that we account for all kinds of data and student situations.

This source is a student guide to FERPA, its protections, and the rights granted under the law. We’ll use it in many of the same ways as the prior article; however, it provides us with a student perspective on interactions with the law, in contrast with the institutional perspective above.

b. Existing Systems


This source shows how North Carolina State implemented a FERPA setting UI. They use checkboxes rather than sliders, but it still provides a good idea about the sorts of restriction categories considered useful at other schools, and general background information on existing implementations.


This source shows Northern Arizona University’s use of student managed FERPA settings. Looking at other schools’ implementations as well as privacy education can help give us an idea about what seems to be more efficient, and can help us to make our privacy matrix better.

c. Physical Surroundings


This article discusses IT and the importance of making sure that a system is secure, and problems are patched as soon as they occur. Because our matrix deals with incredibly personal student information, we have to consider security both on the IT side and the student side.

The source argues that users rather than programs are responsible for data loss, and that data handling should be as secure as the program that manages it.

For us, this is relevant because we deal heavily with the transfer and storage of data, and we need to make sure that IT has appropriate security awareness, and we account for user error and unsecure networks used to modify the matrix.


Though this article discusses student privacy in Canada and is therefore not directly FERPA-related, it still discusses a meaningful breach of privacy. Specifically, it describes an incident in which an unencrypted hard drive containing hundreds of thousands of students' record data was (physically) lost or stolen, which is an important reminder that many of the security concerns we dismiss as trivial or simplistic (such as the information's physical location) can actually be the most dangerous.

2. Ethical Issues

a. Student Privacy & Safety


This article details how employees of one university perceive the issues surrounding ethics, and how FERPA and related legislation affect them. This is a useful point of comparison to the summaries above, as we can contrast the laws and explanations with how faculty actually learn and feel about these issues in practice. As part of our objective is to improve awareness, any such disparities are important to understand as a starting point.

The privacy paradox at its simplest form is the situation in which people are interested in keeping their information secure, but they don't want to go through the effort of making such precautions. This article outlines what exactly what the privacy paradox is, and how it can be seen in different situations. It then provides some insight on how the advent of social networking has changed the conditions of the privacy paradox, intensifying the rate of unintentional disclosure.


This article describes a situation in which differing interpretations of FERPA have led to difficulties with colleges refusing to release important information. Specifically, it deals with athletic programs struggling to gain important eligibility requirements, but it also speaks more generally to the possibility of colleges abusing the law and using it as a catch-all excuse to withhold information they might not want scrutinized. This is helpful for us as an example of the unintended consequences of privacy policies and laws.

3. Methods of Investigation

   a. Talk-Aloud Protocols


This article gives information on the structure of a basic think-aloud protocol. A think-aloud protocol is a method used for testing the ease of use in the user interface of a product. In typical think-aloud protocol, the user will sit with one or two observers and they will attempt to navigate the product while voicing their thought process.

The observers take notes on the proceedings of the observation, marking points of difficulty in navigation for the subject. These points that are marked as difficult can then be the focus for future improvement of the product.
A talk-aloud protocol is a method of observation in which a subject is observed using the product. During the observation, the subject attempts to navigate through the user interface while speaking aloud their actions. Talk-aloud protocols, as opposed to think aloud protocols, have the user simply speaking their actions without giving a justification for the actions they perform.

This article deals with an implementation of a talk-aloud protocol which is geared toward individuals who do not communicate through spoken language, such as deaf students. In an attempt to produce a fair representation of all users of the system, this method uses visual cues such as minute changes in facial features to recognize confusion or other hidden feelings during user navigation. The results of this study suggest that there is a large amount of potential in using visual cues for all talk aloud protocols.

b. UI Design


This is a guide to user interface design, focused on task-centered design. The process basically consists of identifying the user, designing and building a prototype and then testing and modifying it as needed.

This sort of a development model will be very helpful to us, as we implement a system that will be used by a lot of students and needs to be easy to manage, use, and understand.

This paper discusses research done on past user interface design. Its goal is to extract both successes and failures to create a set of themes to aid UI development. Included in these themes are what aspects of UI are addressed, the path of least resistance, and how predictable they are, or how outdated they are. It also focuses on camera/recognition based UIs, although this will not be as useful to us.

c. Prototyping

   This paper is a discussion on prototyping strategies and approaches to software development. It considers prototype evolution and several strategies to approach the process of prototyping and should give us a framework for how to develop a prototype of the matrix.


   This source is a guide to prototyping, consolidating advantages and disadvantages and effective design principles. This source should help us to make some decisions when it comes to making our prototype.