Criterion A: Initial consultation

Interview Transcript

Interviewee: Ms Maeve McKeogh

Occupation: MYP/DP Chemistry Teacher & Head of Chemistry Department

Type of interview: Face-to-Face Individual Interview (in English)

Date of the Interview: Sunday 7th February 2021 at 2:40 pm

Venue: Classroom, at an International School

The interview with Ms. McKeogh was conducted in the presence of the ITGS Teacher on 7th February.

1. **Describe you and your work profile in the department?**

   I am Maeve McKeogh, and I am the Head of Chemistry Department and an MYP & DP Chemistry Teacher at an International School for the past 7 years; I facilitate students for their labs and practical's they do for their internal assessment. I monitor lab technicians and equipment's that must be ordered for the respective practical. I lead all the other chemistry teachers with guidelines for class assessments, deadlines for internal assessment and all examinations that are designed for MYP & DP.

   Our role, from the chemistry department, is to expand students' theory and knowledge in chemistry by giving them sufficient practice and first-hand experience with mandatory practical's. We give students an opportunity to maximize the accuracy and precision of their practicals by providing them access to a variety of lab apparatus (including digital & analogue measuring devices), we also have Vernier instruments which make difficult experiments more tangible. I face students all with different levels and understandings and therefore we aim to provide access to as many resources as possible from our side.

2. **Describe the nature of your problem and the concerns of your department?**

   Primarily, the issue encountered by the chemistry department is with the management and distribution of digital, Vernier and analogue instruments. Most of our pieces of equipment get lost, misplaced, broken through the process of conducting lab experiments. These lab apparatuses are super expensive due to the fact that they provide precision with such small uncertainties; however, it becomes very difficult for us to track and monitor the distribution of equipment's among students after they are broken or lost. We are usually not able to keep records for the instruments ordered by the student because of the vast number of students doing their practicals in the month of March-April.

3. Explain the tried solutions that you have implemented and whether they were successful or not?

We have tried using the following solutions, they were somewhat successful in tracking the distribution of lab apparatus, however, they are not favoured by many of our teachers in our science department.

- **Google Spreadsheet (Excel)** shared with students to enter the equipment they need – This was a viable option for us, but it was difficult to track the changes students made in their equipment list, after students altered their orders of apparatus, neither the lab technicians nor I was aware of modifications requested. Students had to individually come up to request those changes which were used up more time than expected. In addition, students were changing each other's orders because they were all given edit access to add their orders. This resulted in a lot of miscommunication while delivering the apparatus.

- **Paper Forms –** We have also tried paper forms which students fill 2 days prior to the lab, and they fill in the equipment they need, which is delivered after. This can become primarily difficult because there is an issue of legible handwriting, often students rush when writing and it becomes difficult to read. Likewise, when students are given paper forms to fill, they are not very specific with the instruments they want, they just say a burette or a conical flask, without giving the volume, capacity and temperature details. We have completely rejected this way of distribution of lab apparatus.

- **Email-Order-Deliver –** This is another process we have implemented, which we are currently running. The groups of students individually email us (the teachers) with their required list of measuring instruments, we then follow on that message to the lab technicians who allocate the required equipment in trays and then the trays are delivered to the students. A common issue with this is that there is a lot of communication going back and forth, which is time-consuming, furthermore, changes cannot be instantly requested, and everything has to be done a week prior to the actual practical. Sometimes students enter the technical lab room which is not allowed by the school to request for additional equipment which they forgot to enter in the form.

4. Suggest a few feasible IT solutions to your problem?

I would suggest we can go for the following…

- **Google/Microsoft Forms –** We could create google forms when the time for allocating lab instruments for internal assessments is near, so around April-May, we could open up that form and allow students to order their equipment. The excel file created by the Microsoft form could then be given to the lab technician to place orders. This is a preferable way because all of us teachers are familiar with google forms, no student can get access to other data, there is no added cost either, therefore this is a potential solution we could go about.

- **An HTML Website –** I mean we could create a website with embedded forms and a whole page with a list of all the equipment is also possible. We can have hyperlinked page with all the details of the equipment, including volume, capacity, quantity available, temperature etc. In the end, students can select all the equipment they need (with the correct specification of the apparatus) and then collectively book them under their school ID. This website could be interlinked to the school website to allow ease of access. However, a major problem would be that it can be available to anyone outside of school administration.

- **An Access Database –** A database is also a viable option, we could create multiple forms for students, teachers, lab technicians to fill in to collect their personal data. Then we could create relationships between the primary and secondary keys of the related data to avoid redundancy. An ordering form could be created to allow students to select equipment (with the equipment ID).

5. Out of the mentioned state which IT solution is your final solution?

I feel that a database would be an ideal solution to our problem, simply because it makes the management of data much easier. It also enables the form function, unlike excel which allows students and teachers to order apparatuses beforehand prior to the date of the lab. I think this would make our ordering process much quicker and more time-efficient, it will also be a more reliable way of tracking any changes made, and it also reduces the redundancy of data. I also think perhaps adding verification and validation rules can ensure that students answer all questions in the form and verify that the data is relevant to the question asked. In addition, the database can be easily stored into the lab computer and operate when students require to order equipments.

6. What are your aesthetic & technical specifications for the chosen IT solution?

a. **Aesthetic Requirements for the database are the following…**

   i. The database must have the school logo as a product of our school to publicize our school and present this database as a certified service offered to our students.

   ii. The background and colour scheme should be consistent in all forms.

   iii. All the form's response boxes must have thick borders, and all operation/navigation buttons must be bright and bold.

   iv. All forms, receipts and tables are hyperlinked in one home navigation form.

b. **Technical requirements for the database are the following…**

   i. I feel that there should be teachers form, students form, equipment forms (which can be categorized into analogue, Vernier and digital).

ii. There should be a relationship between all data, to avoid redundancy of data. This can be created using an entity-relationship diagram.

iii. The student form must collect the student ID (provided by the school) to track students who are responsible for lost or broken equipment.

I don't think I have any further knowledge about databases to add on other technical bits. But yes, the authority of access is something I am very concerned about and would like to discuss in detail. Here are a few requirements for the authorization of access.

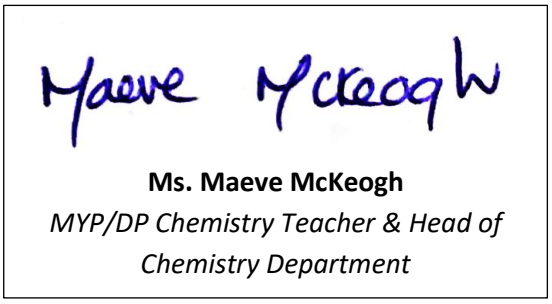
iv. All students in the chemistry department must only be allowed to access the forms.

v. No tables or response receipts should any student whatsoever have access to.

vi. Only the school management team, chemistry teachers, and lab technicians should have authorized access to the entire database.

vii. In addition, no school guests or outsiders should be allowed to open the data at all, because it would be a breach of school regulations. Perhaps by encrypting a database password and embedded form passwords to authenticate all users before requesting orders for their equipment.

I (the client) **verify and confirm** that this is the authentic transcript copy of the interview conducted.

Client Signature: 

Date: 7th February 2021

Ms. Maeve McKeogh
MYP/DP Chemistry Teacher & Head of Chemistry Department