Integrating Adaptive Learning and Classroom Learning: A Single Case Study on Technology Onboarding

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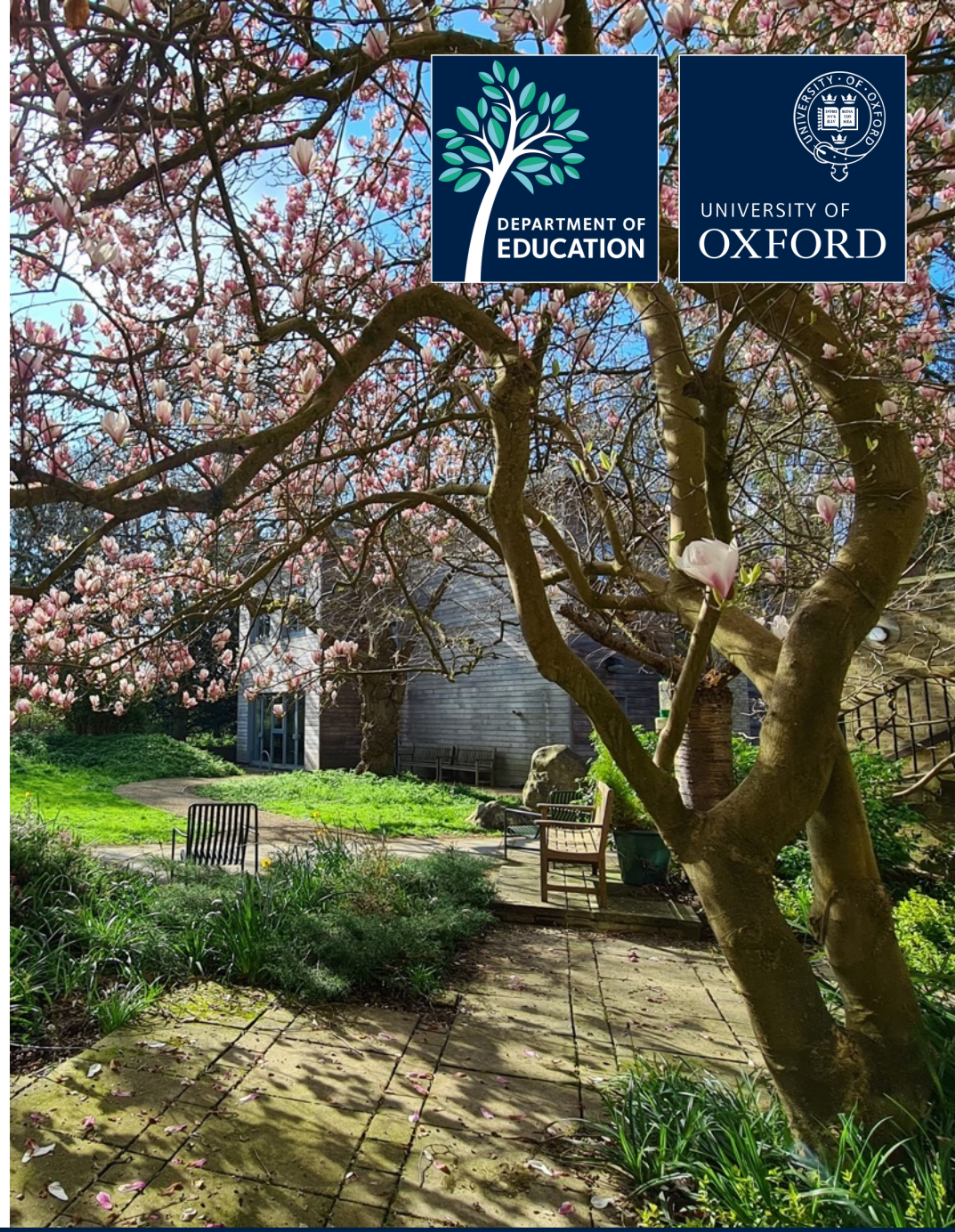
Outline

- Introduction | Impetus for Research
- Brief Overview of Adaptive Learning Systems
- Working Definition of Technology Onboarding
- Research Methods
- Preliminary Findings
- Discussion and Conclusion



Introduction

Impetus for Research

- Technological advances have brought the world from the Information Age into the Experience Age, where hyper-individualised experiences can increasingly be observed [1].
- As technology advances and hyper-individualised experiences permeate more aspects of our life, society may also come to expect learning to become personalised [2].
- Budding interest in personalised learning appears to be closely associated with the burgeoning popularity of adaptive learning systems [3].

Adaptive Learning Systems

Existing Knowledge

- Promise to meet the distinct learning needs of every learner [4], by using data about each learner stored in an individual learner model to deliver personalised learning at scale [5].
- Claim to put students at the centre of both learning design and the learning process [6]; and are often touted as systems that 'understand' where students are and 'do' what it takes for these students to progress to where they need to be, with assessment being a vital part of the learning process [7].

Adaptive Learning Systems

Knowledge Gaps

- Current research tend to focus on the design and development of adaptive learning systems, which remains important for ensuring the usability and utility of these systems.
- Lack of attention paid to how adaptive learning systems would be used, particularly by teachers. This is of pertinence given that these systems, like most edtech tools, will be situated within learning contexts such as classrooms, that are dynamic and influences learning.

Technology Onboarding

- Technology onboarding is an aspect of employee onboarding. It seeks to ensure that new hires are equipped with the necessary knowledge to use the organisation's technology to effectively perform their role responsibilities and become productive members of the team.
- The term 'technology onboarding' is increasingly appropriated and used by tech developers to mean something similar but intended for new customers instead of new employees.
- Building on this current understanding, technology onboarding in this context refers to the process of ensuring that students, who are new to adaptive learning systems, understand the what, why and how to use the selected system.

Research Methods

- Research Design: A qualitative case study approach was adopted as the use of adaptive learning systems for mainstream education is still in its early days and is not conducive for large-scale quantitative studies.
- Informants: An English language teacher and his class of Secondary One students (12- to 13-year-olds) in a Singapore school participated in this research.
- Data Generation: This consists of a video-recorded onboarding lesson, teacher interviews, student interviews, and log data from the adaptive learning system.

Preliminary Findings

Teacher Efforts

- The teacher designed the onboarding process to span three weeks, including the last two weeks of Term 1 and the one-week term break. This was based on his anticipation of how long students would likely take to be familiar with the adaptive learning system (i.e., the tool).
- During this period, students were expected to use the tool three times a week for 30 minutes per login session. To ensure that students were able to access the tool on their own at home, the teacher conducted an onboarding lesson where students had time to login and try using the tool in class.

Preliminary Findings

Teacher Efforts

- The teacher saw the onboarding process was more than the distribution of login credentials and giving students time to use the tool in class.
- The teacher allocated approximately 28% (115 minutes) of the total available instruction time during this period to acquaint students with the tool as well as more broadly what system was and how it would help students in their learning.
- The teacher took time and effort to explain the tool to students, the rationale for using this tool and the potential benefits it could bring to them. He also dealt with students' login issues to ensure that they could access the tool at home when he was not with them.

Preliminary Findings

Teacher Efforts

Onboarding Week 1		Teacher Actions
Mon	9:00 - 9:35 AM	[5 min] Introduced the concept of adaptive learning to students
Tue	(No lesson)	-
Wed	8:25 - 9:35 AM	-
Thu	2:15 - 2:50 PM	[5 min] Introduced the tool to students by playing a video from the developer's website
Fri	7:50 - 9:00 AM	[70 min] Conducted onboarding lesson in the Computer Lab

Preliminary Findings

Teacher Efforts

Onboarding Week 2		Teacher Actions
Mon	9:00 - 9:35 AM	-
Tue	(No lesson)	-
Wed	8:25 - 9:35 AM	-
Thu	2:15 - 2:50 PM	[35 min] Second onboarding lesson in the Computer Lab
Fri	7:50 - 9:00 AM	-

Preliminary Findings

Student Response (Onboarding Week 1)

- During the onboarding lesson, eight students completed the initial diagnostic assessment and started on their daily assignments with the tool. The rest of the students had to complete this in their own time at home.
- After the onboarding lesson, three students logged into the tool again. The duration of their use ranged from one minute to 16 minutes. No student logged in for at least 30 minutes and thus none met the minimum usage requirement (in terms of duration) set by the teacher.

Preliminary Findings

Student Response (Onboarding Week 2)

- Due to the second onboarding lesson conducted by the teacher, all students logged into the tool at least once this week.
- In terms of usage outside of school, 14 students used the tool during their free time that week, with three students logging in three or more times in that week.
- No student fully met the usage requirement as none used the tool for at least 30 minutes. (The usage requirement set was three times a week for 30 minutes per login session.)

Preliminary Findings

Student Response (Onboarding Week 3)

- The third week of the onboarding was term break where students had no school.
- Compared to the earlier weeks, on average, more students (16) were logging into the tool. The average amount of time spent using the tool was longer, where five students used the platform for at least 30 minutes once.
- Two login spikes were also observed this week. The first coincided with the teacher's WhatsApp reminder to use the tool and the other was on the eve of students' return to school.

Preliminary Findings

Student Response (Tool Usage)

- Over the course of the 3-week onboarding, both the number of students using the tool and the duration of use per week appeared to be increasing, suggesting some student uptake.

Onboarding Process	No. of students who used the tool		
	Outside of school	Outside of school for at least 30 minutes	Outside of school for at least 3 times a week
Week 1	3	0	0
Week 2	14	2	3
Week 3	16	5	2

Preliminary Findings

Student Response (Tool Usage)

- Both the number of students using the tool and the duration of use per week appeared to be increasing, suggesting some student uptake.
- However, six students never used the tool outside of school, and one student logged into the tool for less than one minute.
- Only one student met the usage requirement set by the teacher once, and that was during term break.

Preliminary Findings

Student Response (Perception of the Tool)

- Students saw this was an add-on to their learning and prioritised homework. They only logged into the tool when they had spare time and energy which was rare. However, they also reported long school hours which typically left them exhausted after doing homework.
- Students were choosing their learning activities based on their perception as to how quickly any activity would improve their grade for the next test. The student interviewees shared that while they recognised the benefits of learning with the tool, it “take too long”.

Discussion and Conclusion

- By the end of the onboarding, there was close to a quarter of students who made little to no use of the tool. This seems to suggest that students were not incorporating the tool into their learning routine.
- Interviews with students revealed that their learning choices and behaviours were influenced by a myriad of factors both inside and outside of school, and some of which the school might have no control over.
- The findings also suggest that intentions to introduce a new tool or mode of learning such as adaptive learning (systems) would require a careful consideration of these factors, particularly if the intention is for students to engage with tool outside of school, on their own.

THANK YOU

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