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Qualitative Pilot Study of Teachers' Expectations for Young Students' Use of Educational Technology

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Abstract of the Article

My PhD project explores female Saudi teachers' expectations regarding classroom use of educational technology by female students aged 6 to 8. This pilot study was conducted to examine the validity and suitability of data collection tools proposed for the main project and to identify issues, limitations, and possible adjustments. A qualitative approach included a narrative interview and two semi-structured interviews with a total of three female teachers plus two classroom observations of a total of 45 young female students, all from two schools. Piloting provided useful feedback about the proposed instruments, enabling refinements for the main study: discontinuing narrative interviews that proved unsuitable, transferring some observation elements to interviews, and adjusting interview questions. Other benefits included exploring specific research environments; improving logistics and coordination; and reflecting critically about enhancing interview-management frameworks, contingency strategies, and interviewing and rapport-building skills, all of which will prove invaluable for the overall research design.

Introduction

Researchers have closely considered the importance of teachers' expectations and their impact on positive student behavioural and academic outcomes: either encouraging (e.g., Rosenthal and Jacobson, 1968; Rubie-Davies et al., 2015) or inhibiting (e.g., Aydin and Ok, 2022; Zichichi, 2018). Teachers' expectations are also related to and can influence instructional classroom practices (Rubie-Davies, 2007; Bouderbane, 2020). How teacher expectations impact student achievement in general has been addressed for numerous curricular domains: reading, writing, languages, and mathematics (e.g., Rubie-Davies et al., 2014; Griffiths et al., 2023). Despite younger children being most vulnerable effects of teachers' expectations (Sun, 2021), most previous studies involved high-school students (e.g., Szumski and Karwowski, 2019; Bouderbane, 2020), leaving a significant gap regarding teachers' expectations of younger students. Also unexamined in the literature is the relationship between teachers' expectations and students' use of educational technology in the classroom, particularly in primary schools. A goal of this project was, therefore, to explore, through interviews and classroom observations, the expectations of female teachers regarding the use of educational technology by students aged 6 to 8 years.

Data Collection Instruments

To achieve this goal, the initial qualitative research design for the main study includes four data collection tools: narrative and semi-structured interviews, classroom observations, student tasks, and follow-up interviews. However, the last two were not piloted because their design was contingent on data collected from the interviews and classroom observations.

Narrative interviews are a qualitative technique for eliciting respondents' perspectives and personal experiences through articulated thoughts, viewpoints, and stories using their own language and ideas. For this project, narrative interviews were anticipated to facilitate a comprehensive understanding of participants' expectations and beliefs (Jovchelovitch and Bauer, 2000) and offer insights into subjective aspects of their own expectations, providing details of the contextual factors and narratives that shape and influence teachers' expectations about educational technology.

Semi-structured interviews were based on a prepared interview guide, which provided a structured framework while facilitating the formulation of follow-up questions arising from participants' responses. Open-ended interview questions were aligned with research objectives, with further questions to ensure consistency between data collection and study goals. The guide was checked by both research supervisors and the Leeds Ethics Committee. The semi-structured interview questions used in the pilot study are available from the author.

Because discrepancies between self-reported and actual actions and intentions are a common source of controversy related to interview answers (Robson and McCartan, 2016), classroom observations in teachers' natural settings were essential for confirming the consistency of teachers' expectations and the validity of the relationship between their self-perceived expectations and their actual observed teaching practices and behaviours (Hoffman and Seidel, 2015). Classroom observation also facilitates identification of students' abilities, technological skills, and levels of engagement with technology during classroom activities related to the study context. However, the possibility of teachers altering their behaviour during observation sessions to match more closely with what they had reported in the interviews must also be recognised. Time constraints prevented ex-

amination of this issue in this pilot study, and the observations are used solely for verification purposes rather than for in-depth analysis. This issue will, however, be taken into consideration for incorporation into the broader research.

Significance and Objectives of the Pilot Study

For this project, piloting the data collection instruments was deemed essential. Considered an important research process, pilot studies in general offer advantages that also constituted the goals of this particular study:

- To acquire feedback and information about the practicality of the proposed methodology: verification of the suitability, effectiveness, clarity, and relevance of the research tools for the target participants, thus establishing their applicability for collecting the data for answering the primary research questions: the expectations of female teachers in primary private schools situated in Riyadh, Saudi Arabia.
- To assess the validity and suitability of the designed tools and to inform their modification to improve their quality and clarity prior to the commencement of the main study (Ismail et al., 2018).
- To uncover potential weaknesses in tools and methodologies and unanticipated logistical or procedural challenges (Van Teijlingen and Hundley, 2001).

For this pilot study, the goal was to analyse interviews and classroom observations for validity, based on whether participants' responses aligned with the research objectives and on whether observations captured relevant classroom behaviours related to teacher expectations and student use of educational technology, and for suitability, based on interview participants' feedback, clarity of questions, and their appropriateness to the study context and on the relevance and feasibility of observations in a real classroom context.

Procedures and Participants

For implementing both the main and the pilot studies, 15 private primary schools in Riyadh, Saudi Arabia, were initially approached via email. Only two schools in northern Riyadh responded and agreed to participate, so they were selected to participate in both phases. After their confirmation, the principals of these two schools were contacted to provide letters of agreement. Meetings were then held with the principals to explain the pilot study objectives, data collection tools, and the number of teachers and students required. Once the principals confirmed the details, they scheduled meetings with the participating teachers to clarify the research purpose, outline their roles, and address any questions or concerns. In total, three teachers from the two schools participated in the pilot study, which lasted approximately two weeks.

Given the study's focus on the use of educational technology in their schools, recruitment of these participants was based on a purposive sampling procedure targeted at enhancing the accuracy and consistency of data and conclusions (Denscombe, 2007; Thomas, 2022). Table 1 summarises the participating teachers' specialities, ages, and amount of experience both with teaching and with educational technology in the classroom.

The interview tool was tested through three interviews. A 30-minute narrative interview was held with one teacher who participated only in the narrative phase. Due to time constraints, this teacher could not be involved in the later

semi-structured interviews, which were conducted with the other two teachers, one from each of the schools.

Partici-pants	Subjects taught	Experi-ence using educational technology	Teaching experience	Age
Teacher 1 AA	English language	4 years	6 years	28
Teacher 2 SR	Sciences	3 years	3 years	25
Teacher 3 LS	Science and IT	2 years	2 years	33

Table 1: Information about teacher participants

Following the interview sessions, the validity of the adapted semi-structured observation protocol was tested (Brighton et al., 2007) with respect to both the same two teachers and their students. The classroom observations took place in the classrooms of these two teachers, involving a total of 45 female students aged 6 to 8. Due to time limitations and logistical difficulties, each teacher was observed in a single 45-minute session in her classroom. During the observations, the most important points were recorded as brief handwritten phrases on paper, such as the teacher's instructional practices and teacher-student interactions. After permission had been obtained from the participants, observations were also audio-recorded using a digital recorder.

Ethical Considerations

The first step in the piloting process was to obtain approval for the study from the University of Leeds Research Ethics Committee (Approval Number 1040) and the Saudi Ministry of Education in Saudi Arabia. This pilot study complied with ethical integrity principles designed to protect participants' rights and confidentiality. Prior to the study implementation, an information sheet explaining the study goals was distributed to the teacher participants, and informed consent forms were also provided for their signatures. Participants were advised that their involvement was voluntary: they could withdraw at any time without consequences. Participants were further assured that their data and information would remain private, that their identities would be kept anonymous, and that the data and information would be stored securely on the University of Leeds OneDrive site.

To protect student's rights in the classroom, parental consent was obtained before classroom observations. Since the Saudi schools' privacy policy prevented me from communicating directly with parents, the participating teachers distributed the information sheets and parental consent forms to the parents.

Reflections - Pilot Study Benefits

The pilot study proved vital to my main research project:

- I acquired valuable feedback about both the benefits and challenges related to my proposed data collection tools and research method.
- Exploring and understanding the specific environments and contexts of the two schools was highly useful, as it allowed me to gain insight into how students and teachers use and interact with educational technology, given that each school employs different technological resources.

The broader research project will involve evaluating students' success in completing assigned tasks, helping to examine the alignment between teachers' expectations and students' actual performance. Understanding school-specific differences in the use of educational technology was crucial for guiding the selection and design of these student tasks, ensuring their consistency and relevance for each school.

- Deficiencies were identified, which enabled subsequent refinement and verification of the validity and suitability of the selected data collection tools, particularly the interview type, the interview guide, and the observation protocol.

Instruments (Interviews)

Because the research involved exploring teachers' thoughts and attitudes, the initial proposed tool for collecting information about participants' expectations was planned to be narrative interviews. However, the piloting of the one teacher's narrative interview revealed the unsuitability of this methodological tool for obtaining specific information in this context, since the teacher felt uncomfortable and challenged during the interview, stating that she did not know what to say and felt lost with no specific questions to answer. Furthermore, the discussion frequently strayed off topic and was difficult to steer toward areas pertinent to the study, which hindered the elicitation of information relevant to the core research focus.

Piloting revealed the semi-structured interviews to be more effective and suitable for obtaining the desired information and also more flexible because they facilitated the formulation of follow-up questions in response to participant answers and encouraged free expression of their experiences and opinions. After piloting both interview types, I decided on semi-structured interviews as the primary data collection tool for the main study.

The semi-structured interview guide had already been checked, and the questions were believed to be clear. However, the piloting revealed that the interview questions needed restructuring, with some added, others deleted, and some rephrased to facilitate participants' understanding of them.

Instruments (Observations)

The classroom observation protocol was piloted to ensure its validity and suitability for documenting and capturing classroom practices and teacher-student interactions during the use of educational technology. I found it an effective tool for capturing the required information. However, some aspects of the classroom procedures were difficult to assess from direct observation, particularly if accurately recording them required more information and a deeper understanding of the nature of the teachers' lesson plans, such as details about how teachers determine the content and process for using technology in a particular lesson. It was clear that observation lacked suitability in regard to those elements. I therefore transferred questions about these areas from the observation protocol to the semi-structured interviews for more detailed discussion with the teachers.

Logistical Challenges

The pilot study also highlighted the difficulty of coordinating interviews or classroom observations with teachers due to their limited availability during school days or their lack of preparation. Absence of a suitable, quiet space for teacher interviews in the schools created barriers to establishing comfortable participant-interviewer relationships. For example, the flow of one interview was interrupted because we had to keep changing locations. Piloting is clearly enormously useful for addressing unforeseen roadblocks to the development and execution of context-relevant data instruments so as to enhance their validity and suitability for achieving the overarching research goal.

Development as a Researcher

Along with improved instrument use, piloting helped me grow in my role as a researcher. I learned the importance of a clear framework for directing an interview, particularly when respondents are new to narrative interviews, and of thoughtfully designed, diverse contingency plans for keeping interviews within allotted times. During interviews, I noticed that participants interpreted some questions differently: when teachers were asked about expectations regarding students' use of educational technology, one participant focused on the advantages of using technology, while another described her own expectations of technology use in classrooms. Having previously prepared possible follow-up questions would prove vital for clarifying key questions and keeping participants on track. I was prompted to hone my interview-management skills and strategies for dealing with unexpected misinterpretations of interview questions before conducting main study interviews.

I also realised the imperative need for more thorough preparation, as with investigating observation parameters, ensuring early and flexible scheduling of participants and interviews, and prior arrangements with principals and teachers to ensure appropriate timing and quiet, consistent, suitable interview venues.

Conclusion

The goal of the pilot study was to test three qualitative data collection tools to ensure their validity and suitability for collecting the required study data. Piloting identified benefits, such as direct experience in the research environment, and issues requiring changes for the main project, such as discontinuation of narrative interviews, shifting of elements from observations to semi-structured interviews, and revised interview questions. For enhanced interview success, I discovered the value of well-planned interview-management frameworks, detailed contingency strategies, prior investigation of logistics, and development of researcher-participant rapport. Critical consideration of these factors will help me evolve as a researcher in preparation for the main study. The key takeaway for postgraduate researchers is that pilot tests are essential. After evaluation in an actual research setting, even seemingly well-designed instruments often require modification to improve validity and suitability for a specific context and target population.

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