UNDERSTANDING MATHEMATICS TEACHERS’ LIMITED USE OF A TECHNOLOGICAL RESOURCE

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Abstract

In this paper we report on factors determining mathematics teachers’ limited use of an online portal to assist and improve teaching in mathematics tuition. As part of a broad funded research project, five researchers from four disciplines partnered with 29 high school teachers to develop and implement a supportive technological tool. Despite ongoing efforts to improve performance, South Africa is placed among the poorest performing participating countries by the Trends in International Mathematics and Science Study (TIMSS). A specific challenge relates to appropriate content selection, which motivated the development of an online platform that provides easy and quick access to quality instructional resources for mathematics teachers.

Findings indicate that participating teachers experienced the MIDHub (Mathematics Information Delivery Hub) platform as easy to use, covering interesting content that is relevant and in accordance with the national school curriculum. However, despite involving the participating teachers throughout the development, implementation and revision phases of the MIDHub project, and their positive views about the potential value of the platform, findings of our study nevertheless indicate poor uptake by the participants.

Since launching the portal in June 2015, it has received 8127 visits, with 928 in the first month. Google analytics results indicate that only 120 of the 8127 visits over the past two and a half years came from the socio-economic resource-constrained area where the target teachers were located. In fact, most visits to the portal came from affluent areas where the website was not specifically introduced or promoted. Due to this low uptake we explored underlying reasons and factors for the differential patterns in teachers’ use of the portal. Methodologically, we adopted a case study design and utilised two Participatory Reflection and Action-based workshops, as well as field notes and informal interviews (n=17).

The findings indicate that the participating teachers experienced several challenges that kept them from optimally utilising MIDHub as supportive resource. Even though we provided each teacher with a mobile Internet data bundle of 1 GB per month, data size and speed were not sufficient to satisfy the teacher-partners’ needs. While a few teacher-participants regarded the use of the platform as time consuming, other teacher-partners expressed the view that MIDHub saved time during lesson preparation despite the time it took to access and use the platform. Upon further exploration, it became clear that those teachers who were unfamiliar with the platform experienced its use as time consuming, whilst those acquainted with the resource valued the time they could save when using the MIDHub platform. Most of the teacher-partners admitted to having inadequate computer and software skills at the time of our research. However, despite obvious limitations in their skills levels, almost half of the teachers (45.5%) believed their lack of basic computer and software skills did not negatively affect their use of technology in the classroom, while a further 31.8% believed their lack of sufficient technological skills to only have a minor effect on their use of technology when teaching mathematics. Such a state of self-denial not only points at a major vacuum in mathematics teaching, but also at the need for area-specific intervention strategies from relevant authorities.

Keywords: Mathematics education, online portal, MIDHub.