LEARNING THROUGH DATA INFORMED PRACTICE IMPROVEMENT: A WORTHWHILE INTERVENTION

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This paper illuminates how I learned embracing errors in my practice through a teacher development program that I participated in for just over two years. The project was run by The University of the Witwatersrand in a number of schools across Gauteng. The DIPIP (Data Informed Practice Informed Project) project established Professional Learning Communities (PLCs) in a number of schools from January 2011 and we also participated in the project as mathematics teachers from my school. PLC meetings were held once a week for two hours under the guidance of a Wits-based facilitator and worked on a number of activities. Discussing these activities in the PLC and enacting our agreements in the classroom helped shift my practice in a positive way. I give two examples to explain what I learned through project

BACKGROUND ON MY PRACTICE

I considered myself to be on track when working with learners in my classroom – this relates to how taught; how I assessed; and how I corrected learners' work. I would always see the type of errors that learners made and I cared about these learners and I would always re-explain the concepts to them hoping that they would understand. It never crossed my mind to ask learners how they made those errors in order for me to understand what could have contributed to the learners' errors. My participation in the DIPIP project helped me to understand that the learners' errors can be linked to the misconceptions that learners have when they do mathematics problems.

INTERVENTION BY DIPIP

The DIPIP project paved a way for us to shift our teaching in ways that accommodate learner errors. There are a number of activities that we worked on through our participation in the project, and these are listed below.

- *Curriculum Mapping*: we used a DIPIP-designed template to map mathematics questions to the NCS (National Curriculum Statement) curriculum document in order to understand the Learning Outcomes and Assessment Standards (ASs) in depth.

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- *Error Analysis*: this was the main activity of the project that helped us to understand why learners make certain errors in mathematics. I will give examples of these in later discussions as well as in the poster presentation.
- *Concept Development*: this activity exposed us to research in mathematics education as the facilitator gave us research papers to engage with. Two of these papers were by Booth (1986) and Usiskin (1999).
- *Lesson Reflection*: This activity helped to discuss about the extent to which a particular teacher had embraced learner errors during her teaching of the jointly-planned lessons.
- *Presentations in network meetings*: the project allowed us to meet with other PLCs from the different schools in a network meeting to share our findings from the different activities that we worked on as individual PLCs. The feedbacks we got from the network meetings accommodated both the teacher and the learners.

The above activities broadened my understanding so much that I always wanted to learn more. What I learned through the project I shared with colleagues in my school as well those in the other schools. This has also helped with my own children at home.

Impact on my practice

I am now in a position to go to class with more confidence and I am very cautious of learners' errors. This has also impacted on how assess learners as I always anticipate the type of errors learners may make with every question task that I set for learners. Learners participation has also improved as they now ask more of thought-provoking questions; they argue about their own work; they reason about their answers; they share information; and they also show an awareness to the errors they produce and are very eager to correct those.

I have established more relationships with teachers of mathematics and the project has also introduced me to AMESA and I am now a member of the Association.

Examples of activities related to learner errors

The first example relates to the conversation we had in our PLC meeting when we reflected on one of the lessons that dealt with the notion of a variable. We had given learners a worksheet to work on and one the questions required that learners say whether the given statement is true/false and give an explanation for their choice: $a^b = ab$.

As a senior phase teacher, I had worked with a lot of problems in exponents but I was honest to say I have not worked with the expression a^b, and the project helped to be critical of myself and be very honest with what I can discuss with my colleagues. I can now confidently work the expression.

The second example is a result of the discussion we had in a network meeting, that learners often associate brackets with multiplication. When given $(a+b)+(a-b)$, learners would usually write $a^2-ab+ab-b^2$because they see brackets. I am now cautious of what I do and say to learners when I'm in class to avoid adding to the many misconceptions that learners have.

References

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