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paper presented

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TITLE: **ICT - THE ROLE IT PLAYS IN EDUCATIONAL DECISION-
MAKING AND EDUCATIONAL JUSTICE.**

ABSTRACT

Recently the Education Policy Unit (EPU) of the University of the Witwatersrand in South Africa, together with its partners in Rwanda, Pakistan, Bristol and Bath embarked on a large scale research project entitled (ICC) Implementation of Curriculum Change. As one of its major goals and objectives to improve quality education, the research project would like to look at, among other things, how ICT can be used as a tool for effective curriculum implementation in Mathematics and Science. This paper will argue that while advances in technology are increasingly impacting on the way in which curriculum is delivered i.e. computer-assisted-learning (CAL), little attention however is being focused on how computers can play a vital role in decision making e.g. assessment, yet the two are critical elements in delivery of quality education. Both computer-assisted learning (CAL) and computer assisted assessment (CAA) play a critical and complementary role in curriculum implementation.

Curriculum change in South Africa for example, is outcomes based (OBE) and by nature this approach places serious demands for accountability on the part of both the educators and the leadership in education. The RNCS for Mathematics for example, is very explicit on its preference for test-based assessment (p66) and argues that “This kind of assessment creates evidence of learning that is verified by a specific score.” According to this statement recording and reporting involves the capturing of data collected during assessment so that it can be logically analyzed and published in an accurate and understandable way. It should be clear therefore that unless computer assisted assessment is done properly and the data is logically analyzed, we cannot tell with certainty that curriculum change has been effective or not. While this paper draws on a research that was carried out in one Teachers’ College in Zimbabwe, it is hoped it might offer

some few lessons for the ICC project in terms of effective use of computers in educational settings especially for computer-assisted-assessment purposes.

While the use of computers in data-driven decision making in education was initially focused on education's core business (CAL), today's educational leaders are using this approach to transform other aspects of their decision making operations like computer-assisted assessment (CAA). But the rush to computing has almost obscured the important question: "How are computers to be used effectively in those operations?" Modern computerized information systems are facilitating and instilling a greater degree of rationality in decision making in different educational organizations. While these systems are not replacing the decision maker, they surely are helping to refine the decision making process.

Computer-assisted assessment (CAA) is, in comparison with computer-aided learning (CAL), a relatively new development and it does not sit easily within the remit of existing organizational structures in education. The full potential of CAA has yet to be realized and its implementation within education can be fraught with difficulties. Those involved often face serious challenges in their attempts to introduce innovative computer assessment methods. There is a more pressing need therefore to rigorously evaluate the use of CAA in educational institutions as the implications and impact are wide reaching and of concern to a range of interested parties This is so because automated reasoning creates a new type of environment in which human beings are no longer the only objects which can make major decisions that affect humans. Today computers, unlike other non-human objects in the world, can also make decisions upon which the welfare of humans depends and computer assisted assessment is one such critical area.

This research was motivated by an initial observation, at this institution where the research was carried out, which seemed to point to a system of assessing pre-service teachers where the use of a computer in decision-making created controversy on the decisions so arrived at. The main aim of this research therefore was to engage with the final grading system used on the teaching practice phase of a group of 600 newly qualified teachers with a view of identifying how the computer was being used to allow humans to benefit from machine decision-making without losing the opportunity for rational thought. This was driven by a sincere conviction that better data-driven decisions in education benefit everyone, including the learners, teachers, administrators, patrons, taxpayers and the state. The research employed an approach commonly used in IT, which is called Data Mining. The findings seem to point to a grading system which is using a computer more as a data capture and calculation instrument without questioning the moral argument for letting the computer decide. Once formulae are punched into the computer it would appear everything else that comes out of the pre-service teachers' scores once captured, is not interrogated further. Everything thereafter seems to be blamed on the computer as if it was a rational and perfect machine. Such a grading system has potential for loss of human autonomy and for being unfair to both the newly qualified teachers and the learners who will come under their tutelage thereafter.

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