Designing a Big Data Analytic Career Choice Framework for Grade 12 Learners: A Case of the Eastern Cape Province

NC MAVUSO

Nosipho Mavuso
Walter Sisulu University, Information Technology Department
nmavuso@wsu.ac.za

WSU
Walter Sisulu University

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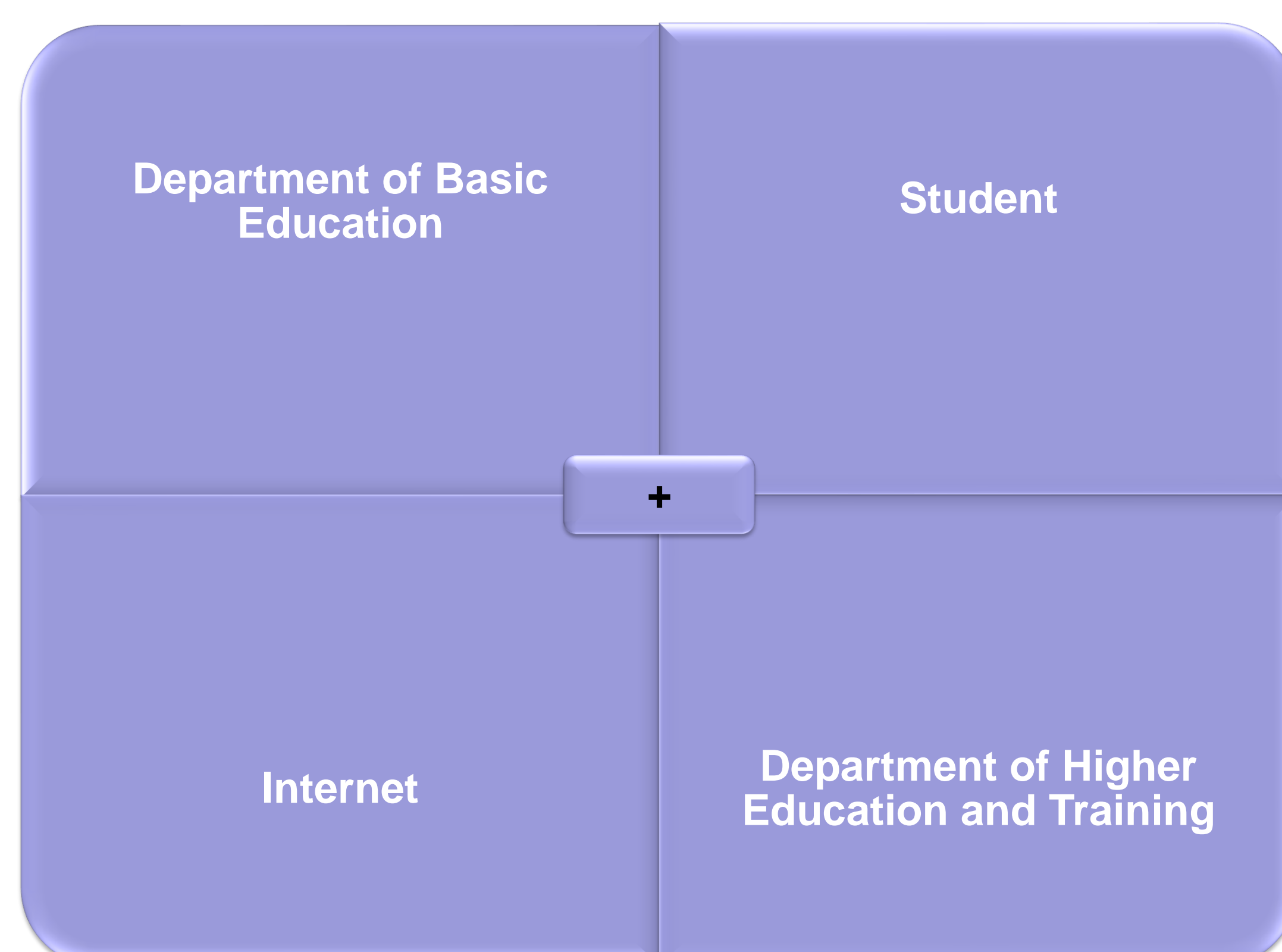National Electronic Media Institute of South Africa

Introduction

- The study will focus on the formulation of a framework to guide the creation and utilisation of a recommender system, which will be guided by the analytics of a **student's personal information,** their **online activities**, **personal interests, family details** as well as **academic information** in order to make more informed decisions in choosing the most ideal or ultimate course to enrol for.

- All consolidated and analysed big data will be used in creating a detailed profile of a student, which will not only assist the student in choosing a study programme leading to their future career.
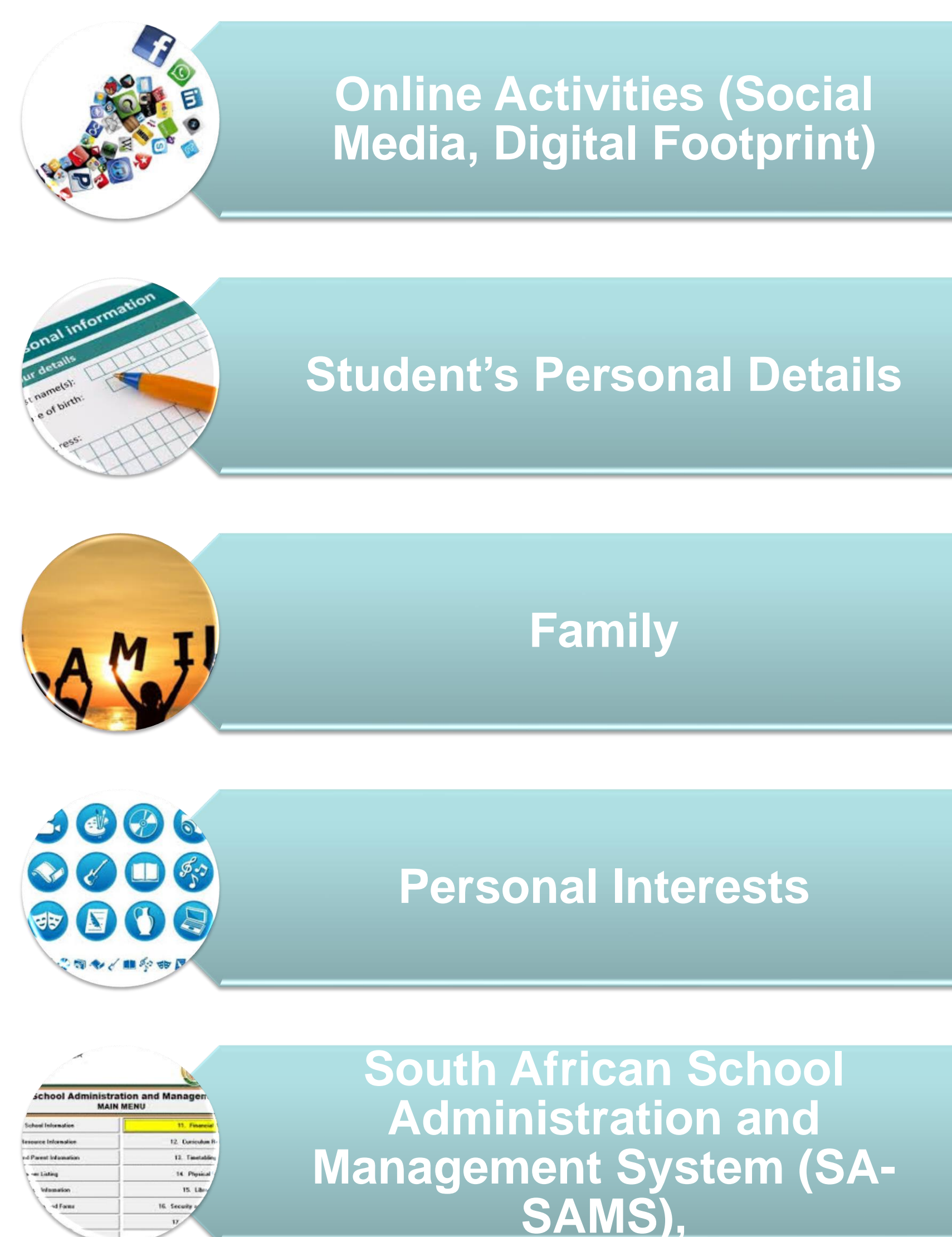
Expected Contribution

- The study proposes the utilisation of students' big data in creating a career recommender system for Grade 12 school learners with an aim to assist learners in choosing a suitable career path.

- The proposed framework will not only assist high schools, tertiary institutions as well since these prospective tertiary learners will be enrolled for suitable courses, which they have interest in, this will create highly motivated and passionate students.

- Institutions of higher education will be less likely to experience a high dropout rate, or student's changing courses in their year or semester of enrolment. Students will also be self-aware of their abilities and interests that they may have not been previously aware of.

- This study will utilize all available student data in order to best recommend an ideal programme of study. The study also aims to determine the motivation behind and perceptions of students when they choose careers and possible occupations they think are best for them.
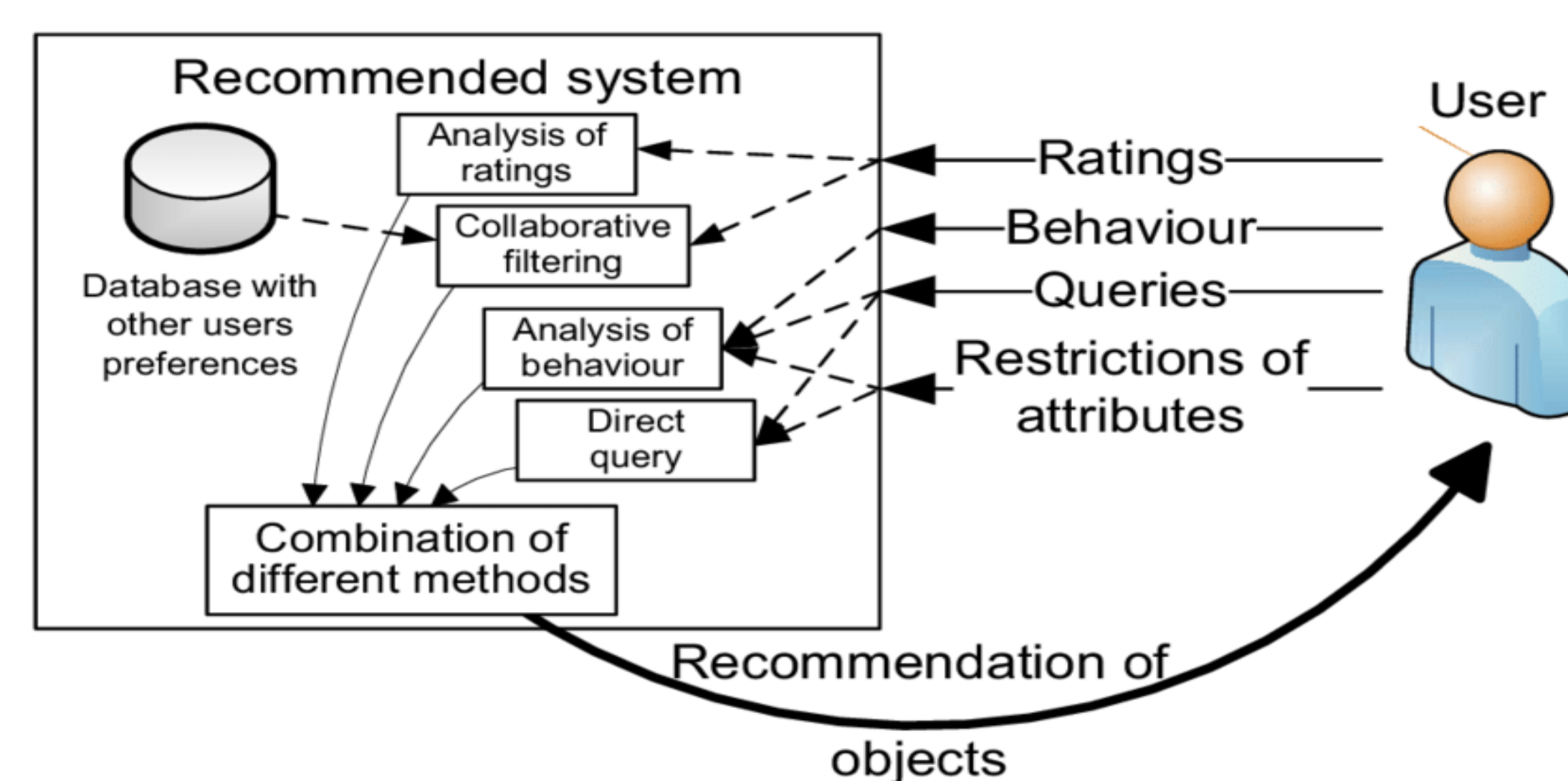
Entities Involved

Department of Basic Education	Student
Internet	Department of Higher Education and Training

Big Data Sources

- Online Activities (Social Media, Digital Footprint)
- Student's Personal Details
- Family
- Personal Interests
- South African School Administration and Management System (SA-SAMS),

Recommender System

Recommended system

Database with other users preferences — Analysis of ratings — Collaborative filtering — Analysis of behaviour — Direct query — Combination of different methods

User — Ratings — Behaviour — Queries — Restrictions of attributes
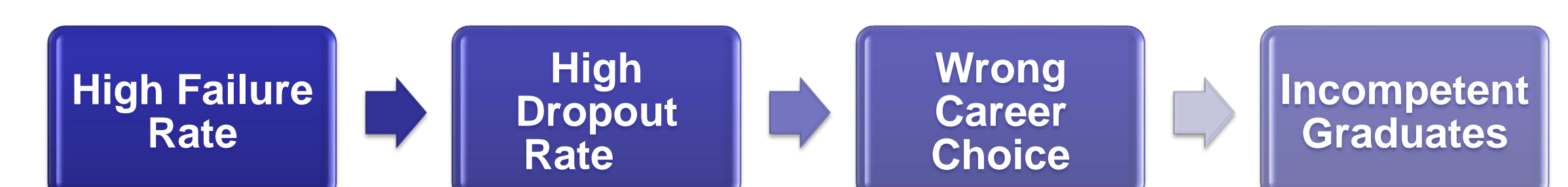
Recommendation of objects

Methodology

- The study will adopt a mixed method approach, where both qualitative and quantitative methodologies will be used. A sample of Grade 12 learners from High Schools in different districts within the Eastern Cape province will be the main participants in this study.

- A survey questionnaire will be sent out to the schools. Teachers and parents will form part of the participants in this study.

- Interviews will also be conducted to get more information on the variables to be investigated.

Reasons for interest in the topic

- Institutions of higher learning are currently faced with a **high failure rate** and **dropout rate**, which I believe a majority of these problems can be avoided.

- Many students are enrolled in courses they **don't have enough knowledge of,** they don't like or have interest in, and this leads to less motivated students who struggle through their courses.

- This puts the **students at risk** of not making it through their studies from the very beginning of their tertiary life. There are various reasons students end up choosing the least favourable course to do, such factors will be discussed in this study,

- Additionally, discovering other factors that play a role in a student's decision in the career path they choose will help in making sure that all external contributors are known and given attention.

High Failure Rate → High Dropout Rate → Wrong Career Choice → Incompetent Graduates

Data Availability

- The data to be used in the study is available with the Department of Basic Education.

- All data available linked to a student will be utilised, from all possible sources.

- Through content filtering and predictive analytics, student specific information will be generated, which will then be used to formulate a more personalised recommendation for a student.

- The Education Management Information System (EMIS) is a system responsible for gathering, capturing and storing the education data in each province.

- The data collected by the EIMS is from various educational sectors, such as Ordinary Schools, Early Childhood Development, and Further Education and Training institutions, Adult Education and Training and Inclusive Education.

BIG DATA ▸ ANALYTICS ▸ DECISIONS