Awareness of the Space Industry as a Career Opportunity in South Africa

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ABSTRACT

The South African space industry is not seen by young learners as a potential career. The objectives of this study were to identify: high school students’ awareness of the industry, their perceptions of employment opportunities, and their knowledge of the industry’s educational requirements. A quantitative, descriptive survey with structured questionnaires was administered to 171 respondents. Purposive and quota sampling selected grade 10-11 students in rural, urban and suburban schools. Most respondents had some awareness of the industry, but had limited knowledge about career opportunities, especially in rural schools. Respondents were unclear about how and where to apply for space-related education. The space industry inadequately markets itself to students, so more outreach programs, sponsoring of science and technological projects, more scholarships, and encouragement of the Department of Higher Education to provide information about, and improve career guidance officers’ knowledge of, the space industry are recommended.

KEYWORDS
Awareness, Careers, Employment, South Africa, Space Education, Space Industry

INTRODUCTION

The space industry assists in the management and sustaining of the natural environment and resources. It increases the mobility of people and products and supports health, safety and security (SANSA, 2011). It also enables instant communications and earth observation, thus enabling economic and human catastrophes to be dealt with (Okon,
2017). Society is reliant on space systems for many social benefits and economic endeavors – space technology is part of daily life (Agbaje, 2017). Industrialized nations identify the space industry as a fundamental and vital instrument to achieve social, economic and foreign policy goals.

South Africa (SA), although still a developing nation, is technologically advanced and is also dependent on space-based services and applications (SANSA, 2013).

**PROBLEM FORMULATION**

A major concern of the space industry is the assurance of a capable workforce for the future (Dyer, 2015). Prokopenko & Omelyanenko (2015) have identified staffing in the space industry as a major problem, and furthermore, Łukaszczyk and Karl (2010) suggest that the space industry has another problem in finding a capable workforce to replace the older professionals when they reach retirement. In order to secure workforces for future space industry development, it is necessary for students to be knowledgeable about space science, technology and the space industry for them to be able to visualize potential careers in this industry (Lee, Jo, & Choi, 2011). Educational outreach programs can advise students of space-related studies, facilitating contribution to workforce development of the space industry and attracting students to space-related careers (Grasser, Goswami, Rössler, Vrecko, & Hinghofer-Szalkay, 2009). Having a well-educated, trained and skilled youth to replace older professionals is necessary for the development and sustainability of SA’s activities in space. Therefore, the SA space industry needs to encourage the youth to pursue scientific and technological studies and careers in order to get more talent and fresh ideas for the industry.

However, as will be seen in the Related Work section, there has been little youth involvement in the sector, little promotion of the industry, and little commercialization or implementation of youth programs. As a result, SANSA (2013) has a strategy to support societal and human capital, and thereby improve quality of life, by using space science technology for societal benefits. This involves training and development of critical skills, promoting science appreciation amongst the youth and improving scientific literacy and engagement. However, little research has been conducted to determine the role played by the space industry (Dyer, 2015), especially as perceived by the youth. Students’ attitudes and perceptions about the industry, and about space as a career, are not known. Understanding student’s awareness, knowledge and attitudes towards space as a career could help the SA space industry to raise the awareness of the youth, attract more applicants to the industry and benefit from getting young blood with fresh ideas to enter the industry.

In order to fill this knowledge gap and help to resolve the industry’s potential staffing problem, this study aimed to explore high school students’ awareness of the SA space industry and their attitudes towards career opportunities in this industry. To achieve this aim, four sub-objectives were identified:

**SO1:** To identify students’ level of awareness of the SA space industry.
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