

Improving Career Decision-Making for High School Students Through a Web-Based Expert System: Field Testing in Ghana

Nana Yaw Asabere, Accra Technical University, Accra, Ghana

Eric Amoako, Accra Technical University, Accra, Ghana

ABSTRACT

Globally, the right and appropriate selection of tertiary programmes by potential students in education corroborates every nation's development progress. In order to explore the effect of career counseling and development in high schools in Ghana with a focus on some selected senior high school (SHS) students, this paper utilized a quantitative (questionnaire) research instrument to corroborate the development a web-based expert system for tertiary programme selection. An analytical summary of questionnaire responses received from the selected SHS students showed that due to limited career assessment processes, SHS students in Accra, Ghana arbitrary select tertiary programmes without realizing how such selections can affect their future careers. In terms of user acceptance testing (UAT), 80% of the selected SHS students (100) found our proposed system to be very useful. Such a system will therefore solve and improve career guidance, counselling, and development problems of SHS students in Ghana.

KEYWORDS

Career Decision-Making, Career Development, Ghana, Senior High School, Web-Based Expert System

1. INTRODUCTION

The term Discipline is defined by the Oxford English Dictionary as “a branch of learning or scholarly instruction.” Academic discipline, as defined by different fields of study, provides the framework for a student's programme in college or university, and consequently defines the academic world inhabited by scholars. Globally, training in tertiary education in an academic discipline results in a system of orderly behaviour recognized as feature of that particular academic discipline. Such behaviours are demonstrated in an academic scholar's approach to understanding and investigating new knowledge, ways of working, and perspectives on the world around them (The Gale Group Inc., 2002; Bordons, Zulueta, Romero, & Barrigón, 1996; Dogan, 1996; Klein, 1996). A well-chosen academic discipline will ensure that individuals in a country are equipped with the necessary skills that are relevant to their career objectives. The summation of each individual's career driven skills is the summation of national development (Wondoh, 2012; The Gale Group Inc., 2002; Bordons et al., 1996; Dogan, 1996; Klein, 1996). During a person's lifetime, career-related choices are among the most important decisions people make. These career choices have substantial long-term consequences for individuals' lifestyles, emotional welfare, economic and social status, as well as their sense of personal productivity

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and contribution to society (Gati and Tal, 2008; Gati, Saka, & Krausz, 2001; Gata & Ram, 2000). Therefore, it is only natural that individuals at different stages of their lives are preoccupied with career choices. Consequently, career guidance into the selection of an academic discipline must be carefully and systematically performed in order to achieve national development.

Career guidance is a feature in the guidance and counseling process for students and defined as a process of information exchange that empowers students to realize their maximum educational potential (Seng and Zeki, 2014; Covner, 1963; Gati and Tal, 2008; Gati, Saka, & Krausz, 2001; Gata & Ram, 2000). The guidance process is student-centred and will result in the student gaining a clearer view of himself/herself, and the experience of higher education (Srivathsan, Garg, Bharambe, Varshney, & Bhaskaran, 2017; Gati & Gutentag; 2015). In career guidance, an academic advisor/counselor provides guidance, advice and help for students in recognising their academic strengths and to select an academic discipline for higher education which will impact them throughout their lives. Taking into consideration factors such as financial status and so on, the academic (advisor) recommends an academic discipline (university programme) for the student. This system ensures high school students are able to identify their career objectives and pursue higher education towards it. In effect, the academic advisor in the guidance process should be able to identify the right career objective for the student. The advisor in question here refers to an expert with knowledge in assisting decision making (Al Ahmar, 2011; Nambair and Dutta, 2010; Pokrajac and Rasamny, 2006; Razak, Hashim, Noor, Halim, & Shamsul, 2014; Gati & Gutentag; 2015).

The identification of a student's ability and capabilities through career guidance is the greatest key to national development (Wondoh, 2012; Gati and Tal, 2008; Gati, Saka, & Krausz, 2001; Gata & Ram, 2000). Appropriate development is measured based on individual development; that is, the development of each individual in a nation sums up to determine the total development of the whole nation (Wondoh, 2012; Gati and Tal, 2008; Gati, Saka, & Krausz, 2001; Gata & Ram, 2000; Bordons et al., 1996; Dogan, 1996; Klein, 1996). Furthermore, the summation of each individual's input to productivity is a reflection of the productivity of that nation.

Kesson (2013) identified a common attitude of SHS students refraining from guidance and counseling in Ghana. One notable reason was that guidance and counseling was geared at enforcing attitudinal discipline rather than assisting the student in identifying an academic discipline aside the unavailability of counselors especially in the rural areas. Kesson (2013) on the other hand recommended further research into methods of improving students' participation in guidance and counseling. The identification of an academic discipline is part of the guidance process. However, Ghanaian SHS students are not partaking in the guidance process and as a result are not able to make the right career choices to foster national development.

According to Internet World Stats in Africa (IWA, 2019), there are 10,110,000 Internet users in Ghana as at Dec/2017, representing 34.3% of the population (29,463,643 as at 2018). Access to internet services is of great significance to a developing country like Ghana (Yebowaah, 2018). Furthermore, current and updated information is well organized on the internet for easy search, and has contributed significantly to students' academic laurels (Sahin, Balta, & Ercan, 2018; Yesilyurt, Basturk, Yesilyurt, & Kara, 2014). Advancements in technology has come so far that even the youth of today consisting of many SHS students are able to educate themselves through video tutorial available on the internet and also prefer to search for information on the internet instead of seeking an expert advice. The student's inability to make the right choice of academic discipline in effect affects national development. On the basis of internet usage, there is therefore the need for an internet system that will easily assist SHS students in decision making in relation to the selection of an academic discipline (Gati and Tal, 2008; Gati, Saka, & Krausz, 2001; Gata & Ram, 2000; Bordons et al., 1996; Dogan, 1996; Klein, 1996).

In the computing world, Expert Systems have proven to be effective in a number of problem-solving domains which normally requires human expertise (Duan, Edwards, & Xu, 2004; Zimmermann, 2012). Expert systems are software that use symbolic knowledge representation in terms of rules,

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