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Student Perceptions of General Education Courses at the Faculty of Engineering and Technology, University of Botswana

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ABSTRACT

To adequately prepare graduates for the ever-changing and complex work environment, students should be equipped with technical and professional skills. This can be achieved by a curriculum that incorporates general education courses (GEC) that teach diverse essential skills that every graduate must possess (e.g., academic and professional competencies, ethics, global learning, and active citizenship). Such courses will produce a well-rounded learning experience and well-versed graduate. A descriptive cross-sectional survey was conducted with undergraduate engineering and industrial design students at the University of Botswana. The study assessed the students' current perceptions of the GEC. The results show that the skills outlined in the learning and teaching policy of the University of Botswana are poorly attained. Furthermore, the skills outlined in the policy are not aligned with the skills that will be needed by graduates in the 4th Industrial Revolution. The GEC curriculum at the University of Botswana needs to be reviewed.

KEYWORDS

Essential Skills, Future Job-Market, General Education Courses, Graduate Attributes, Knowledge, Perceptions, Professional Skills, University of Botswana

1. INTRODUCTION

In many cases, General Education Course's purpose and goals are not well articulated to students, parents, and the university community (Arun & Roksa, 2011; Menand, 2010). Saadeddine (2013) advances that many undergraduate students do not have a clear understanding of the nature and purpose of the General Education Courses and, as a result, they develop negative perceptions and misconceptions about the role of those courses and their learning outcomes. This lack of understanding, in a way, makes students focus on their major programme of study and pay less attention to the General Education Courses because they believe, it is not relevant to their studies and future careers (Saadeddine, 2013; AACTE, 2010; AMA, 2010). Johnson (2010) and Menand (2010) advance that some students perceive General Education Courses as just something they must 'take care of' and 'get out of the way' to focus on their major programme of study. Powerful knowledge provides an outcome that serves the individual learner, employers, universities and society more broadly.

Some scholars have advocated that universities need to review their curricula and pedagogies in the service of developing the knowledge, skills, attitudes and values that enable graduates to contribute to

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and benefit from an inclusive and sustainable future (McGrath, 2009; Pheko & Molefhe, 2017). Such criticism has prompted universities to continually assess its general education curricula to identify its strengths and weaknesses. The identification should lead to making improvements to address the skills needed by students in the 21st century to adjust to external changes in technology, economy, demography, and globalisation (Cunningham & Villaseñor, 2016; AACTE, 2010; Association of American Colleges and Universities - AAC&U, 2009). Cunningham & Villaseñor (2016) argue that employer voices advocate for a broad range of skills that are necessary for labour success. Rhodes (2010) and Barr (2019) defines general education curriculum as liberal learning that encompasses a set of practical and intellectual skills and abilities, essential knowledge, teamwork, analytical, writing, communication, problem-solving, critical thinking, creative thinking skills and social and individual responsibility in which all undergraduate students should engage. The general education curriculum is meant to promote interdisciplinary studies and educational breadth outside the major or main field of study. General Education Courses should provide a scholarly environment that positively impacts student learning, values, and attitudes (AAC&U, 2007; Reich & Head, 2010). They should not only provide students with skills and knowledge to succeed in their academic endeavours, but they should also prepare them to sustain intellectual curiosity, lifelong learning, work, and active citizenship (AACTE, 2010; AMA, 2010; Menand, 2010; Partnership for 21st Century Skills, 2010; Rhodes 2010). Universities are expected to play a critical role in moulding the future of world society by equipping graduates with requisite competencies and knowledge that can be applied in economic activities (Rieckmann, 2012; JICA, 2004). They should develop students' essential skills, competencies, and knowledge through a core and general education curriculum (Menand, 2010). Thus, offering graduates an enriching learning experience that fosters their academic competencies, professional skills, civic responsibility, and global preparedness (Organization for Economic Co-operation and Development, 2018; Saadeddine, 2013; American Association of Colleges for Teacher Education - AACTE, 2010). It is against this background that the study aims to assess the student's perception of the General education Courses at the Faculty of Engineering and Technology at the University of Botswana. In support of the latter, Wald & Harland (2019) argue that GECs provide an outcome that serves the individual learner, employers, universities and society at large.

2. GENERAL EDUCATION COURSES AT THE UNIVERSITY OF BOTSWANA

The duration of the Bachelor of Design and Engineering programmes is 10 semesters which amount to 150 credits. Of these credits, 20 credits (13%) should be derived from General Education Courses and electives for one to be eligible to be awarded a degree qualification. Amongst the General Education Courses, Communication and Academic Skills, and Information and Communication Technology Knowledge and skills are mandatory courses for all students and there are taught in the first year. The Communication and Academic Skills course is customised per each Faculty to serve its needs e.g. Academic and Professional Communication (Engineering and Technology, Business, Social Sciences, etc.). According to the University of Botswana Calendar (2002), the structure of the General Education Courses and their objectives are illustrated in Table 1. Under each category, there are several courses developed to satisfy the stated objectives. For example, under Science and Technology, the following are offered as General Education Courses: Electrical energy and rural development, History of Technology, Ancient and Modern Structures, Art and science of Technology, Telecommunications in society, Renewable energy and Advances in Technology. These courses are targeted to students of other faculties instead of the Faculty of Engineering and Technology as part of their enrichment and providing students with a broad-based knowledge and skills that will prepare them for life, the world of work and citizenship.

It is anticipated that by doing General Education Courses, students will attain the following graduate attributes, as outlined in the Learning and Teaching Policy of the University of Botswana: information and communication technology knowledge and skills, self-directed, life-long

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