

Graduate Attributes Dilemma in Sudanese Tertiary Institutions: a Case of Engineering Graduates

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Abstract

This study is intended to explore Sudanese tertiary institutions engineering graduates beliefs about their current graduate attributes and their importance to their jobs, specifically communication skills in English language. Research has shown that spoken and written communication in English are of paramount importance for engineering graduates. Thus, this study aims at investigating and exploring 50 engineering graduates working in Oman for different companies and 20 Sudanese professors. Both questionnaires and interviews were used to collect data. Frequencies and percentages were used to analyze data. The findings have implications for engineering education in Sudan because the vast majority of the respondents believed that graduate attributes are important and their undergraduate degrees did not equip them with adequate skills and they felt that their current communication skills in English need further improvement. The study puts forward recommendations with regard to textbook used, teaching methodology, integrating graduates attributes into the degrees, etc.

Keywords: graduate attributes communication skills, engineering graduates, dilemma.

Background of the Study

Graduate attributes are by no means highly important in today's labour market. Pollick (2009) cited in Ntombela, (2010, p, 598) "*Hard skills will get a person an interview, but soft skills will land that person a job*". Teaching graduate attributes can facilitate the students' mastery of disciplinary knowledge, and develop their sense of judgment (Star & Hammer 2008). Therefore, the role of tertiary institutions has now changed to a mass activity rather than an elite activity (Ong et al. n.d). The traditional expectation of universities was that they were elite, research-center institutions whose role was to produce professional, intellectual class. Recently, the expectation has shifted to a more vocational and mass educational focus role (Star & Hammer 2008, p, 238). The focus on disciplinary knowledge is no longer sufficient to meet the various stakeholder needs for graduates with contemporary workplace professional needs and expectations (Litchfield, Nettleton, & Taylor, 2008 cited in Litchfield et al., 2010,p, 519).Therefore, universities are expected to produce more employable graduates (Barrie, 2006)."*Unskilled graduates represent a failure on two counts: firstly, in terms of employability and, secondly, in terms of universities' traditionally conceived role in the formation of capable citizens*" (Star & Hammer 2008, p, 204). This paper is an attempt to investigate factors that graduates attributes, specifically, communication skills dilemma stem from, highlight the needs of teaching generic skills and enlighten decision makers, instructors, and syllabus designers on the needs of graduate attributes in Sudanese Tertiary Institutions. These skills are the knowledge and abilities of university graduates beyond disciplinary expertise and technical knowledge, which are applicable in a range of contexts and required as a result of completing any graduate degree Mclean (2010). Bridgstock (2009,p, 32) asserts that '*in the context of changing information- and knowledge –intensive economy, workers must not only maintain and develop knowledge and skills that are specific to their own discipline or occupation , but also possess 'generic skills, dispositions and attributes that are transferable to many occupational situations and areas*' (Bridgstock: 32). Therefore, demand for these skills is increasing in the labour market; however most of the graduates lack these important skills. Communication skills are chosen because they play significant role in engineering-related jobs and in this modern age industrialization (Kakepoto et al, 2012). The reason for choosing engineering students because the researcher has been teaching academic English and research skills for engineering students for a couple of years. Kakepoto et al, (2012: 176) add globalization has brought dramatic changes in the labour market especially in engineering-related jobs during the last three decades. Engineers have to communicate with people at workplace such as workers, customers, managers, employers and other stakeholders within or outside their organizations. Communication skills refer to one's ability to use active listening, writing skills, oral communication, presentation skills, questioning and feedback skills in order to establish successful communication (QCA, 2002; SQA, 2003; Washer, 2007; & Jones, 2009 cited in Hadiyanto, 2010).Therefore, engineering graduates should be proficient in all generic skills if they want to be successful at workplace in order to perform workplace job successfully. They assert that communication skills assist engineering graduates to obtain a job thereby excel in job promotion ladder at workplace. They claim that "*communication functions as soul blood of any organization and engineering organizations heavily rely on effective communication skills of its employees*"(QCA, 2002; SQA, 2003; Washer, 2007; & Jones, 2009 cited in Hadiyanto, 2010,p, 177). Thus engineering companies usually assign important duties to those engineers who tend to have effective oral communication skills and they are considered as productive engineers from employer's point of view (QCA, 2002; SQA, 2003; Washer, 2007; & Jones, 2009 cited in Hadiyanto, 2010, p, 177).

Sudanese tertiary institutions have to update their curriculum, syllabi and teaching methodologies to meet current job market needs. Because the traditional knowledge which prepares a graduate in the past is no longer applicable to the demands of both today and future job market. Today's graduates need to be confident in tackling challenges in an ever-changing and dynamic workplace which requires higher-order thinking and effective communication skills.

Statement of the Problem

Graduate attributes of tertiary institutions usually reflected and stated in the learning outcomes of undergraduate and post-graduates programs or advertised either on their websites on their missions and visions. The websites of a five national universities in Sudan were searched using words and phrases such as *generic skills*, *graduate attributes*, *transferable skills*, *employability skills* and *soft skills*. The research did not yield significant information with regard to these skills. Higher education in Sudan has witnessed a greater expansion and the number of universities has increased dramatically. This expansion has raised many questions with regard to quality of graduates in both their technical expertise and generic skills, specifically, communication skills. There are frequent complaints from the employers inside Sudan and abroad with regards to the dropping of the graduates' standards in terms of their communication skills in English and other generic skills. The rationale behind choosing engineering graduates because they are the most targeted graduates in the job market particularly in the Gulf countries. Engineers, doctors, IT graduates, technicians are the most demanded graduates in the today's job market, but their generic skills such as communication skills (written and spoken), critical thinking and problem solving skills are always questioned by their employers. McLean (2010, p, 14) advocates that universities need to prepare their graduates for the largely unknown of future professional practice. Further, Manathunga et al. (2007) claim that '*universities have been criticized for producing over-specialized research graduates, who struggle to apply their expertise to new workplace problems and agendas*' (Manathunga et al., 2007, p, 19). Current knowledge therefore needs to be learnt in a way and with a purpose that develops in learners the ability to adapt to situations not yet encountered. Manathunga et al, 2007, p, 14) claim that learners require skills to deal with unfamiliar situations. Therefore, this paper argues for the main factors behind the deterioration of the recent graduates' generic skill, notably, communication skills and it strives to find out these factors whether institutional, pedagogical or others. It also attempts to find out some possible solutions and strategies for alleviating this problem. Technical skills were the main skills to obtain and retain a job at workplace but the latest development have changed the scenario of world of work (James & James, 2004 cited in Kakepoto 2012). Employers usually look for engineering graduates who can communicate well with multiple stakeholders on the job (P.177). (Lippe 2005 cited in Kakepoto, 2012) surveyed college graduates and graduate attributes and the findings show that communication skills are important skills for workplace and job industry. Further, Sutton claims that if two candidates applied for a job and both are technically sound but one candidate possesses better communication skills, the candidate that possesses better communication skills is more likely to get the job against the candidate who lacks these skills. Oral communication skills at workplace include presentation skills, participation in meetings, conversation skills, discussion, and negotiation. Engineers need to make presentations to keep their management informed about their projects and their progress of work. Research has shown that engineers usually need presentations in their workplace (Kassim et al. 2010 cited in Kakepoto, 2012). Conversation is an informal way of communication in

engineering workplace, engineers need to converse with workers, supervisors, managers, etc. at their work place, therefore, and conversation is of a paramount importance in the engineering world, because conversation develops better work relationship between the engineers and their subordinates (Woodilla, 1999 cited in Kakepoto 2012). Further, negotiation in English is an important aspect of workplace communication and it involves communication with different people within and outside organization. Fernando et al. (2001) surveyed Portuguese managers and executives from 500 Portuguese companies on the importance of communication skills for successful negotiation in complex business environments. The results show that all the respondents expressed that the ability to communicate effectively is very important in negotiation. Therefore, skills-based pedagogy could be one of the ways for addressing the decline of the graduate attributes among Sudanese tertiary institutions. However, this is challenged with the fact that many university teachers believe that they have been employed to teach 'content' rather than graduate skills. Most of the tutors hold strong preference for content over process and they do not like the idea of graduate attributes to be embedded in the disciplinary subjects. Because these skills are seen as *mere* 'by-products' of disciplinary learning and should be taught in pre-orientation or foundation courses (Star & Hammer 2008, pp, 246-247). (Jones,200) claims that generic attributes are seen by content teachers as external to disciplinary knowledge and so consequently are underestimated by disciplinary knowledge teaching staff. Moreover, skills-based pedagogy can help undergraduates successfully navigate their shift to higher education institutions, engage critically with their discipline and make mature judgment about their own performance (ibid:248). Bowden & Marton (1998) cited in Hart et al. (n.d.) argues that the curriculum for any tertiary institution need to be developed round the idea that students are being prepared for a career that is largely unknown. The traditional content knowledge that prepared a graduate for workplace and professional practice in the past is increasingly inadequate as a preparation for the future (p. 2). Ong (n.d.) stresses the importance of generic skills and the need to incorporate them within tertiary institutions programs to successfully produce employment ready graduate. Green et al. (2009) add although higher education institutes seem to accept their new vocational role, there is still considerable confusion over how these skills, attribute or capabilities can be defined and implemented (Green et al., 2009, p, 19).

This study is carried out because it is believed that the findings would contribute in drawing teachers', stakeholders', and practitioners' and syllabus- designers' attention to the importance of graduate attributes and oral communication in particular in today's ever-changing labor market. Further, the study will contribute to literature on generic skills by providing quantitative responses from both engineering graduates and teachers with regard to graduate attributes. The study tries to help gaining thorough understanding of the factors that contributes to the decline of generic skills and communication skills in particular among Sudanese tertiary institutions engineering graduates.

Defining 'Graduate Attributes'

There are different terms which have been used interchangeably in the literature for graduate attributes such as "*virtual attributes*" (Gow & McDonald, 2006, Hadiyanto,2010), '*soft skills*', '*transferable skills*' in France , '*key, core, common or employable skills*' in the united Kingdom,(Wellman,2010), '*trans-disciplinary goals*' in Switzerland, '*critical enabling skills or competencies*' in Singapore, '*essential skills*' in New Zealand, '*process independent qualifications*'

in Denmark, *"soft skills"*, *"Germany key qualifications"*, *"generic graduate attribute"*, *'key competencies or employability skills' in Australia* " (Bowden et al. 2000; Hager et al., 2002 cited in Barrie 2012,p,123),. Graduate attributes are defined by Higher Education Funding for England cited in Wellman (2010) as [...] *a set of achievements –skills, understandings and personal attributes-that makes graduate more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workplace, the community and the economy* (Wellman, 2010,p, 909) .The broad category of generic skills of the HEA'S (2006) are 14 skills such as imagination and creativity, cross-cultural competence willingness to learn, working in team, ability to manage others, ability to work under pressure, good oral communications, communication in writing for varied purposes and audiences, numeracy skills, learning how to learn, independent working, attention to detail, time management, assumption of responsibility and for making decisions and planning, coordinating and organizing ability (Wellman, 2010, p,911). They referred to them as *generic* because they are developed regardless of the field of study or domain of knowledge or disciplinary or non-disciplinary contexts (Barrie, 2012). Moreover, *"graduate attributes are seen as the qualities, skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. There are qualities that also prepare graduates as agents of social good in an unknown future"* (Bowden et al. 2000 cited in Barrie, 2006, 217). Additionally, Jelas et al. (2006, p, 3) cited in Hadiyanto (2010, p, 13) define core competencies as a set of skills or abilities acquired and developed during one's course of study at higher education level and they are absolutely essential to meet three potential outcomes of higher education, namely the different needs and requirements of employers in the marketplace, lifelong learning, and good citizenship (Hadiyanto 2010, p, 13)

Further, Litchfield et al., (2010) suggest key graduates as being wanted in graduates across the professional societies: ethics and professionalism which encompass maturity, respecting others, honesty, integrity and continual learning. Global perspective, employers look forward to seeing graduates with a broad understanding and awareness of the world. Graduates need to have a global understanding to multi-cultural context. Lack of global perspectives or 'worldliness' is considered as a key weakness of graduates (Litchfield et al., 2010, p, 522).

Many countries have taken serious steps in addressing the issue of generic attributes. For example, Ministry of Higher Education of Malaysia (MoHEM) identified eight competencies that students should demonstrate at the end of their degree. These competencies such as Information Communication Technology (ICT), intellectual skills in critical thinking, knowledge seeking, problem solving and creative decision making, practical skills, and ability to communicate effectively in oral and written ways (Hadiyanto, 2010).

Despite the variations of definitions and terms used to describe generic skills, they have many things in common; they all include communication, critical thinking, and problem solving skills.

Conceptualizing Graduate Attributes

Al-Mahmood & Guba (2007, p, 174) conceptualize attributes in four categories such as *precursor, complementary, translation and enabling conceptions*. First, in precursor conceptions graduate attributes viewed or seen as requirements, but they stand separate from the disciplines.

For example, language teachers and other non-disciplinary educators would create additional courses to teach and promote students generic skills. Second, in complementary conceptions graduates attributes considered as a part of all higher education experience and centered on learning the discipline knowledge. They considered a part the degree for all students and should be taught by language educators and non-disciplinary specialists. Third, translation conceptions of attributes view graduate attributes as "cluster of personal attributes, cognitive abilities and skills of application" (Barrie, 2004, p.266 cited in Al-Mahmood & Guba 2007, p, 174) and are independent from disciplinary knowledge. Finally, enabling conceptions of attributes view graduate attributes as helping students to lead small project teams, demonstrate critical thinking in a variety of settings, and communicate with both specialists and the wider public.

Further, Al-Mahmood & Guba (2007) propose three models and approaches for delivering generic skills. Firstly, dedicated model in which generic skills are delivered as an independent units. A dedicated program can be implemented to enhance graduate attributes through different activities and the focus on generic skills rather than discipline content. Secondly, infused model in which generic skills are infused within discipline subject or degree program. Finally, in embedded model, generic skills are embedded within the subject discipline content and studied and assessed with the discipline (Al-Mahmood & Guba 2007, p, 176). Each model has its own advantages and disadvantages but they could be integrated to suit the context in which they were applied.

Challenges in Teachability & Assessibility of Graduate Attributes

Implementing graduate attributes is not an easy task due to some challenges. There are epistemological barriers which are concerned with the fact that some practitioners consider generic attributes as not considered as a part of the discipline. Additionally, cultural barriers view generic skills as not a central role of university. Further, pedagogical challenges center round a lack of understanding to the nation of generic skills, its assessment strategies. Finally, structural challenges revolve round large classes, lack of time and teaching generic skills is not supported by the department (Jones 2009 cited in McLean, 2010). Barrie (2007) advocates that some academics expressed their lack of clear understanding of the teaching of generic attributes as being part of usual university teaching at all, because they feel developing these skills should be the responsibility of earlier education experiences. The only role of the university teaching generic skills should be in terms of *remedial* teaching for those students who have not already developed these skills. Other academics understand the development of generic attributes should be a part of university teaching role (Barrie, 2007, p, 444). Assessment, students learning resources and academic teaching resources could be a source of challenge to higher education tertiary institutions. Further, Varasavsky (2010 cited in Holi 2012), reported that challenges which were encountered in promoting generic skills in the Faculty of Science of Monash University in Australia. The first reported challenge was teaching methodology, where instructors needed to change their teaching methods to promote these skills. Additionally, the instructors' roles and duties had increased and they felt that the primary role was to teach core subjects only. Moreover, generic skills cannot be developed in isolation and must contextualize within real life and authentic environment which is always difficult to be done. This is supported by *'There is a consensus in higher education that generic skills are best developed and assessed within the context of the discipline rather than as 'bolt-on' approach'* (Bowden et al. 2000; Bath

et al.; 2004, Barrie & Prosser 2004; Barrie 2006; 2007; Jones 2009a,b cited in McLean et al. 2011,p,11).

To sum up; teaching and assessing generic skills is considered to be of the most common pedagogical challenge that can be encountered in promoting these skills in higher education institutions in general.

Importance of Graduate Attributes for the Job Market

The employers consider the graduate attributes to be important for higher education because they reflect how well graduate skills meet the expectations of job market (Hadiyanto, 2010). *'Graduate attributes have become more important in recruitment process than the graduates' degree subject'* (Harvey 2000 cited in Velasco, 2012,p,504) 300 UK-based employers were surveyed by Branine and the results reveal that the process of graduate recruitment and selection in the UK has become more personal-related than job-oriented because many employers are more interested in the attitudes, personality and generic skills of applicants than the type of qualification acquired (Branine 2008 cited in Velasco, 2012,p,504). Therefore, it could be argued that generic skills are more important in today's labour market than academic degrees.

Assessing graduate attributes is of utmost importance but it is not an easy task. Hughes & Barrie (2010, p, 326) claim that if graduates are not assessed, they will not be taken seriously by student or teachers.

Significance of Oral & Written Communication in English for Engineering Graduates

Communication plays a significant role for engineers at workplace in this digital and industrialized world (Kakepoto, et al, 2012).Therefore it is very important for engineering graduates to be equipped with effective oral and written communication skills that would promote business of their organizations and satisfy customers' needs. Additionally, Prichard & Nasr (2004,p,426) claimed that *"English is of particular importance for engineering science students because it is a principal international language of science and is looked upon as an effective means of enabling those students to become familiar with professional texts written in English"*. Furthermore, Joesba & Arado (2005) added that 'English has become the international language of science and technology, engineering students need to know it because all their resources in their specialties are written in English and it highly demanded in their potential labour market and workplace. Similarly, ORR (2002, p, 40) pointed out that *"though engineers around the world conduct their work in nearly every language on the planet, there are few who never use English for some aspects of their jobs, and the largest professional companies use English as their primary language; most of the world engineering texts written in English and most companies use English language as a means of communication"* (p. 40). In addition, clear and concise communication is fundamental for success in global business environment (Jaderstorm et al., 2008 cited in in Kakepoto 2012). The findings of this study are expected to be of a great value for engineering education in general and for Sudanese tertiary institutions in particular.

Research Questions

1. How do Sudanese tertiary institutions graduates perceive their graduate attributes, specifically, communication skills?
2. How important are the graduate attributes for engineering graduates?
3. What are the factors that contributed to the decline of graduate attributes among engineering graduates?

Methodology

This study is descriptive exploratory study which seeks to survey both Sudanese tertiary institutions engineering graduates and teachers about the significance of graduate attributes, notably, oral communication skills and the factors behind their decline among these graduates in order to find some possible solutions to this dilemma.

Participants

The study employed a survey and interview to collect both students' and teachers' perceptions about factors that contribute to the drop of the standard of engineering graduates in communication skills. The questionnaire was designed by the researcher. The sample of the study was 15 Sudanese professors from different disciplines who have been teaching for several years in Sudan and abroad, and 50 engineering graduates who have been working in Oman in construction companies and some for local and international companies for a number of years. Unstructured interviews were conducted with 10 engineering graduates. They were selected randomly. All the students were homogenous because they came from similar linguistic and cultural background. All the respondents were Sudanese national and they speak Arabic language (mother tongue) and their age group ranges between 25 -32.

Instruments & Procedures

The study examines four national universities websites to find out about their policies, plans and strategies in dealing with graduate attributes dilemma. Four universities were chosen because they are the premier and the first universities to be established in Sudan. A questionnaire was distributed to 15 professors and 50 recent graduates from these four universities with bachelor degrees in engineering to explore the importance of communication skills and the factors behind the decline of their graduate attributes particularly communication skills in English and their generic skills or attributes in general and the problems they faced with regard to these skills. In-depth interviews were conducted with some of the professors and some of the students to support the questionnaire findings. Frequencies and percentages were used for statistical analysis. The result of this study intends to yield further insights for reviewing the current curriculum and teaching methodologies to respond to the current demands of the job market and the new role of the tertiary institutions.

Results & Discussion

This section displays the results which based on the data collected via questionnaire and interview from both engineering graduates and professors in the four selected tertiary institutions in Sudan.

Table 1: *Analysis of faculty's Questionnaire: Institutional Factors*

No	Statements	Agree		Not Sure		Disagree	
		F	%	F	%	F	%
Institutional Factors							
1	Sudanese tertiary institutions have no clear policy with regard to graduate attributes.	13	65	5	25	2	10
2	The classroom atmosphere does not foster graduate attributes development.	12	60	6	30	1	5
3	Lecture rooms arrangement and layout do not help in developing communication skills.	13	65	3	15	4	20
4	One of the reasons behind the deterioration of students' generic skills is the number of students in the classroom.	14	70	1	5	5	25

Table 1 illustrates faculty's perceptions about some of the institutional factors that could affect the development of generic skills in Sudanese tertiary education institutions. In response to item 1, (65%) of the respondents believed that there was no clear policy with regarding to teaching generic attributes from Sudanese tertiary institutions, while (25%) reported by 'I don't know', and only (10%) disagreed with the statement. It could be argued that generic skills are not considered as important because there is no clear policy according to the respondents. As for item 2, (60%) of the respondents indicated that the nature of classroom is not conducive to the development of engineering graduates' generic skills, whereas (30%) said that they 'don't know', and (5%) 'disagreed'. Concerning question 3, (65%) 'agreed' that the classroom seating arrangement and layout do not help in developing communication skills, while (15%) said they don't know, and (20%) 'disagreed' with the statement. Regarding item 4, (70%) of teachers 'agreed' that the number of students in the classroom is one of the main reasons behind the deterioration of students' generic skills because students could not find opportunities to take part in discussion or to get constructive feedback from their teachers due to the number of the students in the classroom which always beyond the instructors' capabilities and time. On the other hand, (5%) reported that they 'don't know' whether this is a main institutional factor or not, and only (25%) disagreed with the statement and they believed that this is not to be considered as a main institutional factor that could negatively affect students' generic skills.

Table 2: Analysis of Faculty's Questionnaire: Pedagogical Factors

No	Statements	Agree		Not Sure		Disagree	
		F	%	F	%	F	%
Pedagogical							
5	Generic skills are not explicitly taught at Sudanese tertiary institutions.	14	70	1	5	5	25
6	Generic skills are not embedded with the syllabi.	13	65	2	10	3	15
7	Instructors are not adequately trained to teach generic skills such as critical thinking and communication skills in an	17	85	2	10	1	5

	effective manner.						
8	Current teaching methodology does not promote generic skills.	18	90	1	5	1	5
9	Assessment mechanisms and tools do not encourage the development and promotions of graduate attributes.	11	55	6	30	3	15
10	The textbooks used do not help in promoting students' graduate attributes.	15	75	4	20	1	5
11	Lack of teaching aids hinders the development of graduates attributes.	13	65	4	20	3	15
12	Lack of contextualization of generic skills within core subjects leads to deterioration of generic skills among graduates.	17	85	1	5	2	10

Table 2 depicts faculty's responses with regard to some of the pedagogical factors that could negatively affect students' graduate attributes. As for item 5, (70%) of the teachers felt that generic skills are not explicitly taught at Sudanese tertiary institutions, while (5%) were 'not sure', and (25%) 'disagreed' with the statement. It could be argued that graduate attributes are not taught as a separate course. Item 6, shows whether generic skills are embedded with the syllabi or not, (65%) of the respondents 'agreed' that these skills are not embedded in the syllabi, while (5%) only were 'not sure', and (15%) 'disagreed'. In response to item 7, the responses indicated that (85%) assumed that instructors are not well trained in teaching generic skills in an effective manner, (10%) were 'not sure', and only (5%) 'disagreed'. It could be argued that both English language and core subject teachers need to be trained on how to teach these kinds of the skills. Concerning item 8, (90%) of teachers believed that the current teaching methodology is outdated and could not promote generic skills, (5%) were 'not sure' whether the current teaching methodology is effective in fostering these skills or not, and only (5%) 'disagreed' with the statement. It is quite evident that the vast majority of the teachers believe that teaching methodology in use is not that effective.

As for item 9, which deals with assessment mechanism in use, (55%) of the respondents indicated that the mechanisms and tools do not encourage the promotion of graduate attributes, (5%) were 'not sure', and only (5%) 'disagreed'. For item 10, (75%) of the teachers believed that the textbooks in use do not promote generic skills because they lack content which could foster skills such as communication, critical thinking, etc., while (20%) of the respondents were 'not sure' whether the textbooks help in promoting generic skills or not, and only (5%) 'disagreed'. It is quite clear that the majority of the teachers believed that the textbooks in use do not help in prompting generic skills, therefore, materials' writers, syllabus-designers and concerned authorities need to keep into their consideration this issue. Regarding item 11, (65%) of teachers claimed that lack of appropriate teaching aids could hinder the development of graduate attributes, (20%) were 'not sure', and (15%) disagreed with the statement. Finally, (85%) of the teachers reported that lack of contextualizing generic attributes within disciplinary knowledge or

core subjects could be one of the pedagogical reasons behind the deterioration of graduate attributes among Sudanese tertiary institution graduates. Whereas, only (5%) of the respondents were 'not sure', and (10%) of the respondents 'disagreed' with the statement. It could be argued that teaching graduate attributes can only be successful if they are embedded with the core subjects and should be dealt with as a shared responsibility between core subject instructors and language teachers.

In summary, in appropriate teaching methodology and teaching aids, training instructors, contextualizing graduate attributes within core subjects are considered as the major pedagogical reasons behind the deterioration of graduate attributes in Sudanese tertiary institutions.

Table 3: *Analysis of Students' Questionnaire: Students' Perceptions about their Current Communication Skills*

No	Statements	Excellent		Good		Fair		Poor	
		F	%	F	%	F	%	F	%
Communication Skills in English Language									
1	How do you describe your oral communication or spoken skills in English language with regard to your current job.	3	10	7	23	14	47	4	13
2	Your ability to interact effectively in a job interview.	1	3	4	30	15	50	9	30
3	Your verbal negotiation skills in English language.	1	3	7	23	15	50	7	23
4	Your understanding to people speaking in English with different backgrounds.	3	10	4	13	16	53	6	20
5	Your ability to participate in group conversation and everyday communication in English.	1	3	8	27	16	53	6	20
6	Your ability to introduce yourself to others and introducing people to one another in English.	3	10	6	20	14	47	7	23
7	Your ability to write e-mail, letters and reports in English.	3	10	8	27	12	40	7	23
8	Your ability to object and make argument in English.	1	3	6	20	13	43	10	33
9	Your ability to ask and answer questions in English.	1	3	6	20	14	47	8	27
10	Your ability to present your ideas in public in English.	2	7	5	17	13	43	9	30

Item1 displays the respondents' views about their evaluation of current communication skills in English in relation to their current jobs. (3%) responded by 'excellent', (23%) described their communication skills as 'good', (47%) responded by 'fair', and (13%) described them as 'poor'. As for question 2, (3%) described their ability to interact effectively in a job interview, (30%) of the respondents believed that they are 'good', (50%) described them as 'fair', and (30%) viewed them as 'poor'. It is quite evident that the majority of the respondents view their communications skills as 'fair' in relation to their current jobs. As for their verbal negotiation skills (23%) viewed them as 'good', (50%) as fair and (23%) described their skills s 'poor' in relation to their jobs. Concerning item 4, (10%) of the respondents described their abilities in understanding people speaking in English with different backgrounds as 'excellent', (13%) viewed them as 'good', (53%) considered them as 'fair', and (20%) perceived their communication skills in English as 'poor'. As for item 5, (3%) only perceived their ability to negotiation skills in English as 'excellent', (27%) viewed them as 'good', (53%) described them as 'fair', and only (20%) described them as 'poor'.

Regarding item 6, only (10%) viewed their ability to introduce themselves and others in English as 'excellent', (20%) described them as 'good', (47%) as 'fair', and (23%) perceived them as 'poor'. Concerning their ability to write e-mails and reports, (10%) of the respondents felt that their ability is 'excellent', (27%) described them as 'good', (40%) viewed them as 'fair', and (23%) described them as 'poor'. It could be argued that most of the respondents are not happy with abilities to write e-mails and reports in English. As for item 8, the respondents' ability to construct argument in English, only (3%) of the respondents described their abilities as 'excellent', (20%) viewed them as 'good', (43%) described them as 'fair', and (33%) of the respondents depicted them as 'poor'. It could be argued that the majority of the respondents find it difficult to construct an argument in English and they need to be trained to do so.

Finally, items 9, shows the respondents' views about their abilities to question in English, (3%) of them viewed their ability to ask question in English as 'excellent', (20%) of the respondents perceived them as 'good', (47%) of them described them as 'fair', and (27%) viewed their abilities as 'poor'. As for the last item which illustrates the respondents' views about their presentation skills, (7%) of the respondents described their skills as 'excellent', (17%) of the respondents viewed their presentation skills as 'good', (43%) Of them depicted them as 'fair', and (30%) saw them as 'poor'. It is quite clear that the respondents are not satisfied with presentation skills.

Table 4: Analysis of Students' Questionnaire: Students' Perceptions about the Importance of Generic Skills to in Relation to their Current Jobs

No	Statements	V. Important		Important		Not Important	
		F	%	F	%	F	%
Importance of Generic Skills to their Current Jobs							
1	Communicate orally in English language	20	67	6	20	3	10
2	Communicate accurately in written English	19	63	7	23	2	7
3	Work in team	15	50	9	30	6	20

4	Solve technical problems	25	83	4	13	1	3
5	Adopt knowledge to new situation	18	60	6	20	4	13
6	Work with minimum supervision	24	80	5	17	1	3
7	Be open to new ideas and possibilities	21	70	5	17	2	7
8	Think logically and creatively	20	67	6	20	2	7
9	Make mature judgment	26	87	2	7	2	7
10	Awareness of impact of new technology	23	77	5	17	1	3
11	Ability to plan & manage time	12	40	15	50	3	10
12	Ability to maintain ethical standards	22	73	7	23	1	3
13	Ability to work with numbers (Numeracy skills)	20	67	8	27	1	3

Table 4 displays the respondents' views about the importance of generic skills to their current jobs. As for item (1) in the student questionnaire, (67%) of the respondents considered oral communication is 'very important' to their present jobs, (20%) saw them as 'important', and (10%) of the respondents viewed them as 'not important'. Concerning item 2, (63%) of the respondents believed that written communication skills are 'very important' to their current jobs, (23%) of them viewed them as 'important', and only (7%) responded by 'not important'. It could be argued that both oral and written communication skills are of utmost importance for engineering –related jobs. Concerning item 3, (50%) of the respondents felt that team work skills or spirit is 'very important' to their current jobs, (30%) of the respondents described team work as 'not important' to their present jobs. As for question 4, (83%) of the respondents saw their abilities to solve technical problem or their problem solving skills as 'very important', (13%) described them as 'important', and only (3%) as 'not important'. Item 5, illustrates the importance of adapting knowledge of a new situation, (60%) of the respondents responded by 'very important', (20%) viewed this skill as 'important' and (30%) said they are not important at all. It is quite evident that the vast majority of the respondents believed that the ability to adopt knowledge of a new situation is very important to their current jobs. Regarding item 6, (80%) of the respondents believed that the ability to work with minimum supervision is considered to be 'very important' to their current jobs, (17%) reported by 'important', and only (3%) of the respondents perceived them as 'not important'.

As for item 7, describes the importance of the ability to be open to new ideas and possibilities, (70%) viewed this skill as 'very important' to their current jobs, (17%) believed this skill as 'important', and only (7%) considered them as 'not important'. Regarding item 8, the ability to think logically, critically and creatively (67%) claimed that this as 'very important', (20%) believed that as 'important', and (7%) viewed them as 'not important'. As for item 8, (87%) of the respondents believed that the ability to make mature judgment as very important', (7%) of the respondents believed that this skill as 'important', and (7%) of the respondents 'perceived' as 'not important'. Regarding item 10, this deals with the importance of awareness of technology to their

current jobs (77%) of the respondents believed that awareness of technology is 'very important', (17%) viewed them as 'important', and (3%) considered it as 'not important'. As for item 11, (40%) believed that ability to manage time as 'very important', (50%) viewed them as 'important', and only (10%) of the respondents claimed that as 'not important'. Concerning, item 12, most of the respondents (73%) believed that the skill of ability to maintain standards as 'very important', (23%) viewed them as 'important', and (3%) considered them as 'not important'. As for item 13, (67%) of the respondents viewed the ability to work with numbers as 'very important', (27%) of the respondents considered this skill as 'important', and only (3%) of the respondents (3%) viewed them as 'not important'.

Extracts from Qualitative Data

In-depth interviews were conducted with both professors and students to support the questionnaires findings and the results revealed that most of the graduates expressed their desperate need for graduate attributes and they reported that many things could be taken to improve the situation. An instructor wrote:

- Some methods of teaching English are still traditional
- in nature without involvement of new advances in
- technology. Shortage of native English teachers.
- lack of specialized work and seminar to practice speaking in English language.

Another professor added:

Students leave school with weak background in English.

Even the teachers of English do not receive enough training to do their jobs well.

Another professor added:

It is due to a combination of reasons. The most salient one is their previous background in English which is heavily based on a transmission approach.

Another professor added:

The main factors are: the curriculum, lack of qualified faculty, learning environment (lack of modern equipment) & group size.

To sum up, it is quite clear from the professors' responses that faculty training, curriculum issues, teaching methodology and learning environment could be the main factors behind the deterioration of Sudanese tertiary institutions graduates of generic skills or attributes.

Regarding the factors behind their decline among graduate, a student wrote:

I think it is more important to learn how to communicate with people.

Another student added:

Education and school system, work atmosphere, etc.

Another added:

The main factor is teaching in Arabic

Another added: lack of practice and application

It is quite evident from these responses from both qualitative and quantitative data that there are various possible factors that could contribute to the decline of graduate attributes among these graduates and which cannot be investigated through this small scale study.

Conclusions & Pedagogical Implications

To conclude, the findings of this study are only illustrative not conclusive because the study has several limitations due to the fact that it is a small scale study and the sample size is not representative to the whole population and therefore, the results and findings cannot be generalized. Moreover, only communication skills were investigated in depth and the rest of the graduate attributes are beyond the scope of this study. Further, study did not involve other stakeholders in higher education such as decision makers, materials writers, etc. Based on the study findings the following recommendations were made from the respondents' suggestions and study findings which could improve the situation of graduate attributes in Sudanese tertiary institutions.

- Textbooks that promote graduate attributes should be used
- Advanced teaching and learning technology could be incorporated in the classroom to foster learning the skills.
- Teachers and students should be trained on good teaching and learning strategies that help developing these skills.
- Learning environment and lectures rooms should be improved to more conducive ones.
- Students' selection should be based on a proficiency test.
- The concern with generic skills should start from primary and secondary levels of education and not to be left to the tertiary level in which case it'll be "too late to little".
- Graduate attributes should be stated clearly in the university learning outcomes, missions and visions and should be integrated into the core subjects and should be dealt with as a shared responsibility between core subjects and language instructors.

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