

Development of Transferable Competencies in Academic Programs at King Saud University

Norah Saad Al-Qahtani¹ and Amal Abdullah Alkulaib²

¹*Educational Foundations, Department of Educational Policies, College of Education,
King Saud University, Saudi Arabia
E-mail: norahsq@ksu.edu.sa*

²*Educational Fundamentals and Policies, Department of Educational Policies,
College of King Saud University, Saudi Arabia
E-mail: aalkulaib@ksu.edu.sa*

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ABSTRACT The study aims to identify the most important transferable competencies that academic programmes develop among students at King Saud University (KSU) and determine the most prominent methods of their development from their perspectives. It also intends to reveal differences that could be attributed to the variables of gender and academic discipline. A descriptive and analytical approach was used. 387 students from the scientific and humanitarian disciplines were chosen using the stratified random method. Results show that the most important transferable competencies that the academic programmes at KSU develop among their students are professionalism/work ethics, teamwork/collaboration and digital technology. The most prominent methods of their development are project-based and problem-solving learning, immersion in the professional environment and active learning. No statistically significant differences are observed in the average responses of the participants attributed to the gender variable while there are significant differences ascribed to the academic discipline variable for scientific disciplines.

INTRODUCTION

The mission of higher education institutions of providing students with 21st century competencies (21st CC) or transferable competencies (TCs) and preparing them to face the future is gaining increasing importance with the accelerated globalisation and digital development. This mission to provide educational outcomes is compatible with the new challenges and dynamics of the labour market with its open and varied doors.

In a report by the National Academy of Sciences, as documented in Pellegrino and Hilton (2012), the Committee on Deeper Learner and Defining 21st Century Skills assessed the literature related to the development of TCs. The committee indicated that the development of these competencies among students is important. The committee then created a primary classification scheme for these competencies. The three broad and overlapping categories are the cognitive, intrapersonal and interpersonal domains of competence (Pellegrino and Hilton 2012). The competencies that the students develop through academic programmes in universities include, but are not limited to, competencies in communica-

tion, problem solving and teamwork, and competencies that do not belong to a specific field, industry or job and competencies that can be transferred across jobs, departments and industries (McManus 2021; WikiJob 2020).

Although the importance of 21st CC is recognised, TCs are not addressed seriously enough in higher education. A deficit exists in the extent to which higher education can track the development of career appropriate career competencies through university academic programmes (Gosselin et al. 2013).

Problem of the Study

TCs are the basis for individual and collective success in the workplace. An international study from the faculty's perspective on developing competencies in higher education (Velasco et al. 2014) shows that ninety percent of 467 university teachers claimed, 'It is important or very important to develop competencies in higher education'. However, Zemsky (2009) found that employers reported significant deficiencies in these applied competencies among university students. McMurra et al. (2016) confirmed the aforementioned finding. Approximately a

third of all employers who participated in the study reported that university graduates lacked the competencies to obtain employment (McMurray et al. 2016). Currently, a gap exists between the competencies that graduates possess and the competencies needed in complex and ever-changing work environments, which exceed the specialised or technical competencies. The results of the survey conducted by QS Company to rank universities in 2018 (in Al-Qafilah newspaper) confirms and reveals that companies view 'problem-solving, teamwork and communication skills' as the three most important competencies currently required in the labour market. The least available skill in the labour market is 'the adaptability to change'. Small companies require competencies such as 'business awareness skill', whereas large companies are looking for 'leadership skills' more than 'technical and specialised skills' (Al-Qafilah 2019).

Previous studies (for example, by Andrew and Hegson 2008) call on universities to produce qualified graduates with highly transferable competencies that can help them successfully adapt from university education to the workplace. Such TCs can enable graduates to respond to the changing and complex needs of modern and contemporary workplaces and become more effective in coping and adapting with the challenges of these needs. In the same context, de Oliveira and Guimaraes (2010) recommended that universities should exert further efforts to increase the chances of graduates in the labour market in many ways.

What caught the attention of the two researchers of this work and raised a question for them when investigating previous studies within the time scale is that if a current problem and a local problem still exist, it is a current as well as a local problem. The results of the studies presented at the 2018 International Conference on Education Evaluation held in the Kingdom of Saudi Arabia revealed a gap between the TCs required for future careers and the competencies of university graduates seeking work from the new generation. In some of these studies' recommendations, the gap calls for linking university education outcomes to the required competencies for future careers and jobs (Saudi Press Agency (SPA) 2018).

In addition to the above discussion, the series of regional studies conducted by UNESCO in Bangkok indicates that countries in the Asia-Pacific region, to a large extent, consider 21st CC or TCs an essential element in the education system and important for university graduates in facilitating their integration into contemporary life more effectively (UNESCO 2016). These competencies also can support social and cultural development and lifelong learning in the knowledge society. Moreover, developing university students' competencies is crucial in supporting human capacity building and preparing them to lead and activate the vision of the Kingdom of Saudi Arabia 2030. Furthermore, Fägerstam (2014) revealed that transferable skills are not taught as effectively or profoundly as they should be. Taking into account all of these works, the two researchers saw a need to conduct this study to reveal TCs and their development methods in undergraduate academic programmes. The problem of this study centres on the 'development of transferable competencies in academic programmes at King Saud University'.

Objectives of the Study

This study seeks to achieve the following objectives:

1. Identify the most important TCs that academic programmes develop among students at King Saud University (KSU) from their point of view.
2. Identify the most prominent methods of developing TCs among students in academic programmes at KSU from their point of view.
3. Reveal if statistically significant differences at the 0.05 (5%) level exist between the mean responses of members of the study due to the academic discipline (scientific/humanitarian) and gender (male/female students) variables.

Study Questions

On the basis of the objectives, the following research questions are raised:

1. What are the most important TCs that academic programmes develop among students at KSU from their point of view?

2. What are the most prominent methods of developing TCs among students in academic programmes at KSU from their point of view?
3. Are there statistically significant differences at the 0.05 (5%) level between the mean responses of members of the study sample due to the academic discipline (scientific/humanitarian) and gender (male/female students) variables?

Significance of the Study

This study gains its significance because of the following considerations. That is, knowledge-based economies require universities to prepare graduates with multiple TCs to meet and be able to respond to the changing needs of business sectors and become more effective in coping and adapting to the challenges of these needs.

The findings and recommendations of this study give educational policymakers of university education an incentive to evaluate the academic programmes for various disciplines and adopt new educational policies aimed at developing TCs of these academic programmes' students to match the changing needs of the labour market.

Based on its findings and recommendations, this study may open a window for the researchers to conduct further studies at the level of Saudi universities.

Limitations of the Study

Thematic Limits: The subject area of this study was limited to the seven TCs that academic programmes develop among university students, which are critical thinking/problem solving, verbal/written communication, teamwork/collaboration, digital technology, leadership and professionalism/work ethics.

Human Limits: The study was on male and female students of undergraduate degrees in scientific and humanitarian disciplines.

Spatial Limits: The study was applied at KSU.

Temporal Limits: The study took place in the first semester of the academic year 2020.

Terms Used in the Current Study

Competency

The International Organisation for Standardisation (ISO) defines competency as 'the dem-

onstrated ability to apply knowledge and skills' (ISO 9000: 2015, 3.1.6).

Gosselin (n.d.) defined 'competencies' as 'the applied skills and knowledge that enable persons to successfully perform in professional, educational, and other life contexts'.

Competency Development

Competency development involves 'a group of activities...that raise the capabilities of individuals to accomplish the tasks assigned to them, by improving their knowledge, aptitudes and attitudes' (Francoise 2010: 307).

Competency development is also defined as 'the measures taken by the organisation to develop the competence of its individuals' (Masghoni 2013: 270).

The procedural definition adopted in the current study for competency development is the methods by which the academic programmes develop the TCs among students of KSU.

Academic Programmes

According to the National Academic Accreditation and Assessment Authority (NCAAA) (2008: 23), an academic programme is 'an organised programme of study that students pursue in an academic field, or that leads to a professional qualification, so that success in completing it qualifies them to obtain an academic degree'.

The definition of an academic programme in this study is an integrated set of curricula and activities in scientific and humanitarian disciplines at the undergraduate level at KSU.

TCs

According to Al-Drej (in Farhawi 2011), a transferable competency is 'that competency which an individual can change its utilisation area, that is, apply it in new contexts and different from the ones in which the individual acquired it'.

Procedurally, the two researchers of this study define TCs as the competencies that are developed in the scientific and humanitarian academic programmes at the university's undergraduate level and those that can be transferred and applied in professional contexts other than those in which they are acquired.

Review of the Literature

Theoretical Framework

In this section, the two researchers addressed the TCs and methods of developing them in university education contexts.

Definition of TCs

Fallows and Steven (2000) defined TCs as 'skills that are developed in one context (for example, education) and are useful when transferred to other contexts (for example, employment)'.

According to Farhawi (2011), TCs are 'those competencies that learners transfer from the place of their construction and acquisition to the place of their use and application in new settings that are diverse and spaced in time and space', including various business sectors.

Sá and Serpa (2018) defined TCs as a broad set of general and basic capabilities that respond more accurately to the current evolution of the labour market characterised by rapid change and openness to all new innovations, and are required for all types of jobs, and are constructively developed through a structural academic preparation and an educational training programme in various academic programmes in university education institutions and go beyond a specific field, specialisation or programme of study. Individuals can then be able to transfer and apply them in various fields and professional contexts regardless of where they are attained.

Most Important TCs as Viewed by International Organisations or Economies

The China Education Innovation Institute of Beijing Normal University submitted its executive summary to the World Innovation Summit for Education titled 'The global experience of developing the twenty-first century competencies'. The document reports that after analysing the levels of concern for TCs among 29 organisations and economies, seven competencies have gained attention from most organisations and economies. These competencies are communication and collaboration, information competence, creativity and problem solving, self-perception and self-control, critical thinking,

learning skills and lifelong learning, civic responsibility and social participation. In addition, competency frameworks are characterised by inclusiveness, comprehensiveness and diversity, which reflect the trend to cultivate the idea of a 'whole person'. However, competencies like environment, finance, life planning and well-being and leadership, despite their importance in future education development, are not included in many frameworks (Jian 2019).

The National Association of Colleges and Employers or NACE (2019) defined career readiness and identified eight career readiness competencies for college and university graduates that are transferable to various professional contexts. These are critical thinking/problem solving, oral/written communication, teamwork/collaboration, digital technology, leadership, professionalism/work ethics, career management and global/intercultural fluency.

Methods of Developing TCs in University Academic Programmes

Chadha (2005) indicated several methods of developing transferable skills among students within university academic programmes, including embedding, integrating and bolting on. Embedding entails embedding TCs into the curriculum, through which competencies are developed within an educational module (or group of modules), and competencies are an integral part of every module. Integrating means integrating TCs into the curriculum, in which the development of TCs runs parallel with and through the coursework. The integration of competencies into the curriculum is seen as a more effective approach to education, as it is more representative of the 'real-life' application of competencies in the workplace. Bolting on is the method of developing competencies through a special course that is independent of the academic courses. Doing so allows for the clear development of students' TCs side by side with but not through the academic courses (Chadha 2005).

In the 21st century, project-based and problem-solving learning, active collaborative learning and competency assessment, whether through formative assessment or standard or regional/national tests, have become widely acknowledged as important for developing TCs among students (Jian 2019).

Regarding the development of TCs among university students, Pârvu and Ipate (2010) emphasised the need for higher education institutions to focus on and develop the following aspects: (1) permanent cooperation with the labour market, (2) enhancement of activities geared towards the real needs of employers, (3) diversification of educational approaches and techniques, (4) improvement of students' ability to adapt to the professional world by providing them with problem-solving, adaptive, resilience and social competencies, and (5) promotion of graduates' motivation to engage in lifelong learning. This situation entails deep institutional implications, with changes in academic culture.

Fägerstam (2014) mentioned that providing student groups with real projects should be in cooperation with stakeholders such as private institutions. Projects offer excellent possibilities for learning a variety of TCs integrated into tasks close to working life. Projects are also assigned to multidisciplinary teams with different backgrounds. As diverse teams support learning of interactive competencies for teamwork, negotiation and creativity, they improve self-knowledge and self-confidence as well (Fägerstam 2014).

In addition to formal education in undergraduate programmes, UVic, in cooperation with Career, identify ways and methods by which TCs can be developed among university students, such as collaborative work, internships at the university and externships at institutions and companies under the supervision of the university, workshops, volunteer work and community involvement (UVic Co-op + Career, n.d.)

1. Previous Literature

Schippers (2008) published a study titled 'Student Support in China: Dressing the Perceived Needs of Undergraduate English Department Students'. The study aimed to uncover what are the requirements for developing a plan that supports students and prepares them to become highly qualified to match the multidimensional labour market. The study was carried out in a public university in northeast China, and it used observation, interview and questionnaire to collect data. The sample consisted of 45 students in the English Language Department. Schippers (2008) found that fifty-eight

percent of the students considered that the university's courses are not useful. In addition, students lack important transferable skills such as teamwork, technological, note taking, time management and life planning and work skills. The study recommended implementing a student support course intended for teaching the skills and training.

Peter (2008) conducted a study titled 'How Should Colleges Assess and Improve Student Learning: A Survey of Employers Conducted on Behalf of the Association of American Colleges and Universities'. The study aimed to investigate the American employers' impression on their new employees who were graduates of the undergraduate degree programme. The sample was 301 employees, in addition to a group of direct managers and directors. The study concluded that out of every five managers, only two believe that the percentage of employees who are recent graduates possessing basic skills for the needs of the labour market ranges between six percent and thirty-four percent, and fifty-seven percent of respondents believe that only twenty-seven percent of employees possess these skills. The study also concluded that a set of skills needs further development, including critical thinking.

The study of Velasco et al. (2014) titled 'Faculty Perspective on Competency Development in Higher Education: An International Study' aimed to create a common ground on how faculty should develop student competencies and the needs on a worldwide level. A survey was applied to a sample of 764 university teaching professionals. The results showed that ninety percent of the participants found that developing competencies in higher education is either important or very important, and seventy-three percent of them found they are well or very well trained in developing and evaluating competencies, especially with regard to applying theoretical knowledge in practice and teamwork and oral and written communication skills. Velasco et al. (2014) also found that the entrepreneurship and leadership competencies were the least valued competencies. In addition, the most valued teaching methods in developing competencies in higher education are project-based learning, immersion in a professional environment and real situations (problem simulation and posing),

field visits and trips and anything that bridges the gap between the professional and academic worlds. The faculty members considered that the best assessment scenarios are those involving a certain amount of immersion in real situations, problem posing, and simulations.

The study of Braun and Brachem (2015) titled 'Requirements Higher Education Graduates Meet on the Labour Market' aimed to identify higher education graduates' generic job-related activities and requirements. Twenty-nine activities and requirements were identified through a literature review and interviews with employers. A developed tool, an online survey, was applied from December 2013 to February 2014 to 10,511 higher education graduates in Germany. The results identified the following seven areas of job-relevant generic competencies, that is, planning and organising of work procedures, encouraging others, leading, dealing independently with challenging tasks, information processing, number processing and communicating in foreign languages.

The study of Al-Ahmadi (2016) titled 'The Ability of Saudi Universities to Provide Their Graduates with Competencies of International Competitiveness for the Job Market' aimed at identifying the ability of Saudi universities to provide their graduates with certain competencies. The study followed a descriptive approach, and the sample consisted of 1,432 male and female students. The data were analysed using a scale of competencies that included (38) phrases distributed on three axes of performance competencies, organisational competencies and communication competencies. The students reported that their university education provided them with performance competencies to a moderate degree, organisational competencies to a high degree and communication competencies to a medium degree. Gender is an influential factor in the acquisition of competencies in favour of females. Old universities provide their students with a higher degree of competencies than modern universities. Moreover, the average responses of students at applied sciences to the competencies that they reported they have acquired are higher than the average responses of those at theoretical disciplines.

Matsouka and Mihail (2016) published a study titled 'Graduates' Employability: What Do Graduates and Employers Think?' The study

aimed to investigate the views of university graduates and human resource managers in Greece on graduates' employability in terms of their possession of the soft skills required by the labour market (Andrews and Higson 2008). These soft skills are personal traits that enhance an individual's interaction, job performance and career prospects, in addition to hard skills (for example, professional knowledge, tools or techniques). The sample consisted of 187 graduates from the Aristotle University of Thessaloniki and 29 human resources management staff from Greek companies. Through a questionnaire, the study explored the participants' views on the demand for soft skills as a critical factor in employability. The findings showed differences between the views of graduates and human resources management employees. The former tended to overestimate themselves whereas the latter believed that graduates lack the necessary skills. The study also discussed the necessary changes needed in higher education institutions and the importance of appropriate interaction and cooperation between companies and universities.

Zaqawa (2017) published a study titled 'University Education Programmes and How They Respond to the Needs of the Labour Market'. The study aimed at revealing the extent to which higher education programmes and curricula meet the needs of the labour market from the point of view of university students in Algeria. The study took into consideration the gender (male/female) and academic discipline (psychology/sociology/literature and foreign languages) variables. A questionnaire was used as a study tool, and it consisted of four dimensions, namely, programme content, alignment, competencies and skills and professional project. The sample was 230 male and female students. The results showed that the score of educational programmes' response to the needs of the labour market is lower than the overall score of the tool. No significant differences are noted due to gender in the overall score and the alignment and competency dimensions. Significant differences are observed in the programme content and professional project dimensions though in favour of females. No significant differences are noted in the overall score of the programme content, alignment and professional project dimensions due to the academic

discipline. Significant differences are found in competency and skill dimensions in favour of the literature discipline.

METHODOLOGY

In light of the objectives and questions of the study, the two researchers use a descriptive and analytical approach. Using such an approach accurately describes the most important TCs for students of the undergraduate scientific and humanitarian disciplines at KSU and the most prominent methods of their development. The chosen methodology also expresses the data quantitatively and qualitatively for analysis and interpretation. The researchers can easily reach conclusions that contribute to the development and improvement of reality. The study answers the research questions stated above (that is, the most important TCs in academic programs, the most prominent methods of developing TCs, and whether there were significant differences that could be ascribed to gender and academic achievement).

Study Population and Sample

The population consists of 61,704 male and female students of KSU for the academic year 2020 (1442 AH) (Ministry of Education, 2019). The study population is heterogeneous in terms of gender (male and female students) and academic discipline (scientific and humanitarian disciplines), so a stratified random sample is selected. The size of which is determined using the sampling method of the American Association (Krejcie and Morgan 1970) that reaches 387 individuals. The characteristics of the study sample according to the gender and academic discipline variables are shown in Tables 1 and 2.

Table 1: Distribution of the study sample according to the gender variable

Gender	Frequency	Percentage
Male	180	46.5
Female	207	53.5
Total	387	100

Table 1 reveals that 207 (53.5%) of the study participants are female students, the largest category in the study sample, whereas 180 (46.5%) of them are male students.

Table 2: Distribution of the study sample according to the academic discipline variable

Academic discipline	Frequency	Percentage
Scientific	215	55.6
Humanitarian	172	44.4
Total	387	100

Table 2 shows that 215 (55.6%) of the study participants are students of a scientific discipline, the largest category in the study sample, whereas 172 (44.4%) of them are students of a humanitarian discipline.

Study Tool

A questionnaire was used as a tool to collect the necessary data for the current study. For its preparation, the researchers relied on the closed form that identifies the possible responses to each statement.

Study Tool Validity

The two researchers verified the validity of the study tool in two ways.

Validity of the Arbitrators: The researchers presented the questionnaire, in its initial form, to specialists in some universities who were encouraged to express their opinion. Benefitting from the specialists' suggestions, the researchers amended the tool to produce its final form.

Internal Consistency Validity: The two researchers distributed the questionnaire to an exploratory random sample of 30 male and female students from outside the study sample. They then calculated the Pearson correlation coefficient, as shown in Tables 3 and 4.

Table 3 shows clearly that the correlation coefficient values for all the questionnaire phrases

Table 3: Correlation coefficients between the phrases of the first axis with its overall score

First axis phrases	Correlation coefficient
Critical thinking/problem solving	0.793 **
Verbal/written communication	0.776 **
Teamwork/collaboration	0.748 **
Digital technology	0.691 **
Leadership	0.907 **
Professionalism/work ethics	0.800 **
Career management	0.832 **

** The significance at the level of 0.01 and less.

es are significant at the level of ($p < 0.01$). This result indicates that the questionnaire is characterised by a high degree of internal consistency validity.

Table 4 reveals that all the phrases are significant at the level of ($p < 0.01$). All the phrases of the second axis have a high degree of validity that makes them valid for field application.

Study Tool Consistency

The Cronbach's alpha coefficient was used to verify the consistency of the phrases of the study axes. The results are presented in Table 5.

Table 5 reveals that the consistency for all the study axes is high as the overall value of the consistency coefficient is 0.955.

Correction of the Study Tool

To facilitate the interpretation of the results, the following method was used to determine the

Table 5: Consistency coefficients (Cronbach's alpha reliability coefficient)

TCs	No. of phrases	Consistency (Cronbach's alpha)
First axis	7	0.899
Second axis	25	0.960
Overall consistency of the questionnaire	32	0.955

level of response to the items of the tool. The weights/scores given to the answer alternatives were as follows: Very Strongly Agree = 5, Strongly Agree = 4, Moderately Agree = 3, Slightly Agree = 2 and Very Slightly Agree = 1. These responses were then classified into five categories of equal length using the following equation: length of the category = (maximum value - minimum value)/number of answer alternatives = $(5 - 1)/5 = 0.80$. This formula gives the range of averages for each answer alternative/category, as shown in Table 6.

Table 4: Correlation coefficients between the phrases of the second axis with its overall score

S. No.	Second axis phrases	Correlation coefficient
1.	Project-based and problem-solving learning	0.513**
2.	Formative assessment of students' TCs	0.619**
3.	Immersion in a professional environment	0.756**
4.	Field visits and trips	0.604**
5.	Facing situations that require students to take the initiative and decision (immersion in real situations)	0.831**
6.	Reality simulation (situations that are close to the professional context)	0.814**
7.	Active learning	0.811**
8.	Activities geared towards the real needs of business sectors	0.798**
9.	Working in a virtual environment	0.689**
10.	Internships at the university (workshops, seminars and training courses)	0.657**
11.	Externships at institutions and companies under the supervision of the university	0.655**
12.	Volunteer work	0.655**
13.	Collaborative work	0.727**
14.	Community participation	0.781**
15.	Student clubs	0.445**
16.	Integration between academic coursework field experiences	0.740**
17.	Assessing students' competencies through international standardised tests	0.783**
18.	Using global and regional experiences in developing TCs	0.713**
19.	Continuous development of academic programmes in various disciplines	0.716**
20.	Continuous evaluation of students' competencies required by various business sectors by international and local bodies	0.889**
21.	Teaching the competencies through independent courses specialised in developing students' competencies within the academic programmes	0.801**
22.	Teaching the competencies as part of the courses of academic programmes	0.712**
23.	Scientific research	0.533**
24.	Case studies and behaviours that deal with values and concepts related to the curriculum or life in general	0.796**
25.	Inviting actors from different academic fields to benefit from their expertise and experiences	0.838**

** Significant phrases at the 0.01 level and below.

Table 6: Distribution of the categories according to their sequence in the questionnaire

<i>Description</i>	<i>Range</i>
Very strongly	4.21 to 5.00
Strongly	3.41 to 4.20
Moderately	2.61 to 3.40
Slightly	1.81 to 2.60
Very slightly	1.00 to 1.80

RESULTS AND DISCUSSION

The study sought to find out the how academic programs develop transferable competencies as perceived by KSU students. It also aimed at identifying way the KSU followed to advance these programs as viewed by the students. The researchers are also interested in revealing if there were differences that could be attributed to gender and academic discipline variables. The following results were obtained against every question.

Question 1: What are the most important TCs that academic programmes develop among students at KSU from their point of view?

To identify the most important TCs that academic programmes develop among students at KSU from their point of view, the frequencies, percentages, arithmetic means and standard deviations of these axis phrases were calculated. The results are provided in Table 7.

Participants agreed 'strongly' with the first axis phrases. The average of students' responses to the phrases of this axis was 3.90 out of 5.00, which is the average falling into the fourth category of the five-point scale (3.41-4.20). These results reflect the interest of the scientific and humanitarian academic programmes at KSU in the job-related competencies as determined by

the results of Braun and Brachem (2015), including career management, leadership, verbal communication and number processing. However, these results differ from those of the Schippers' (2008) study, which indicates that university students lack TCs that are important for and match with the needs of the multidimensional labour market. The current results also differ from those of Matsouka and Mihail's (2016) study, which indicates that university graduates lack the necessary (soft and hard) skills that are required by the business sectors. These results also disagree with the results of Zaqawa's (2017) study, which shows that the development of competencies and skills required by the business sectors in university educational programmes has a 'low' score. These results also differ from those of Al-Ahmadi's (2016) study, which shows that students reported that their university education provided them with performance and communication competencies to a medium degree. The current results are consistent with some of those of Al-Ahmadi's (2016) study. That is, university education provides students with organisational competencies to a high degree, such as leadership and career management.

Table 7 reveals that although the study participants strongly agreed with all the seven TCs, the three most important TCs that the academic programmes develop among the students of KSU from their point of view are professionalism/work ethic, which ranked first with an arithmetic mean of 4.14, followed by teamwork/collaboration with an arithmetic mean of 3.95 and digital technology with an arithmetic mean of 3.94. These findings are explained by the interest of different academic programmes at KSU in the value, ethical and professional aspects, thus placing them

Table 7: Study participants' responses to the phrases of the axis of 'the most important TCs that academic programmes develop among students at KSU from their point of view'

<i>TCs</i>	<i>Arithmetic mean</i>	<i>Standard deviation</i>	<i>Degree of agreement</i>	<i>Rank</i>
Critical thinking/problem solving	3.79	0.594	Strongly	7
Verbal/written communication	3.84	0.663	Strongly	5
Teamwork/collaboration	3.95	0.710	Strongly	2
Digital technology	3.94	0.755	Strongly	3
Leadership	3.81	0.714	Strongly	6
Professionalism/work ethics	4.14	0.574	Strongly	1
Career management	3.86	0.697	Strongly	4
Overall average	3.90	0.535	Strongly	

at the top of their priorities in terms of their development among students. Moreover, their interest in cooperative work and teamwork in teams of diverse interests, cultures and personalities is necessitated by the nature of work in different market sectors. With regard to the digital technology efficiency, its third ranking is due to the compatibility of academic programmes at KSU with the needs of digital work environments for human forces with high-level abilities for technology application in these programmes.

The competency of critical thinking/problem solving ranked last according to the value of its arithmetic mean (3.79). This result is because this competency needs to be more focused on, worked on and developed within the academic programmes of KSU. This result also is consistent with the results of Peter's (2008), which concluded that a set of skills for undergraduate students needs to be further developed and worked on, including critical thinking.

Question 2: What are the most prominent methods of developing TCs among students in academic programmes at KSU from their point of view?

To identify the most prominent methods of developing TCs among students in the undergraduate programme at KSU, the frequencies, percentages, arithmetic means and standard deviations of these axis phrases were calculated. The results are listed in Table 8.

The participants 'moderately' agreed with the second axis phrases as shown in Table 8, with an overall arithmetic mean of 3.31 out of 5.00. The most prominent methods used in the undergraduate programme at KSU to develop TCs among students from their point of view are those that have a high degree of agreement, which can be ordered according to the values of their arithmetic means as follows: project-based and problem-solving learning, which ranked first with an arithmetic mean of 3.69. This finding is consistent with that of Velasco et al.'s (2014) study. The two researchers believe that the high reliance of undergraduate programmes at KSU on this method is attributed to the ability of this method to put students in a realistic situation simulating the practical and professional life. It is also a way to develop other TCs among students, such as the ability to work in a team, solve problems, accept different viewpoints and analyse critically. It can enhance as well the interaction between the students themselves. Im-

mersion in a professional environment ranked second, with an arithmetic mean of 3.58. This finding is also consistent with that of Velasco et al.'s (2014) study. The high reliance of the undergraduate programme at KSU on this method to develop TCs among students is because this method familiarises students with the working environment in profession and practice, thus facilitating their easy engagement in their future jobs. Active learning ranked third, with an arithmetic mean of 3.56. Active learning allows students to work on real problems and interact with real data, life realities and contexts outside of the classroom.

Question 2: Are there statistically significant differences at the 0.05 (5%) level between the mean responses of members of the study sample due to the academic discipline (scientific/humanitarian) and gender (male/female students) variables?

1. Differences according to the gender variable

To find out if there are statistically significant differences in the participants' responses due to the gender variable, the two researchers used the t-test for independent samples. The results are given in Table 9.

Table 9 shows that no statistically significant differences in the participants' responses to both first and second axes of the study due to the gender variable. All the significance values are above 0.05 and not statistically significant, indicating no significant effect of the gender variable on the first axis phrases as well as on their overall score and that on the second axis phrases. Academic programmes of the male and female students' academic departments at KSU develop TCs that can be used in the various sectors of business. This result is consistent with that of Zaqawa's (2017) study, which finds no significant differences due to gender in the overall score of the competencies area. However, the findings of Al-Ahmadi (2016) differ. That is, gender is an influential factor in the acquisition of competencies in favour of females.

2. Differences according to the academic discipline variable

To find out if there are statistically significant differences in the participants' responses due to the academic discipline variable, the two

Table 8: Study participants' responses to the phrases of the axis of 'the most prominent methods of developing TCs among students in the undergraduate programme at KSU' from their point of view

S. No.	Phrase	Frequency	Agreement degree					Very strongly	Arithmetic mean*	Standard deviation	Agreement Degree	Rank
			Percentage	Very slightly	Slightly	Moderately	Strongly					
46	Project-based and problem solving learning	F %	8	35	108	153	83	3.69	0.974	Strongly	1	
48	Immersion in a professional environment	F %	2.1	9	27.9	39.5	21.4	3.58	0.985	Strongly	2	
52	Active learning	F %	14	31	133	144	65	3.56	0.981	Strongly	3	
58	Collaborative work	F %	26	30	135	110	86	3.52	1.121	Strongly	4	
67	Teaching the competencies as part of the courses of academic programmes	F %	22	22	153	129	61	3.48	1.011	Strongly	5	
68	Scientific research	F %	15	45	140	122	65	3.46	1.026	Strongly	6	
51	Reality simulation (situations that are close to the professional context)	F %	27	41	134	120	65	3.4	1.1	Moderately	7	
47	Formative assessment of students' TCs	F %	5	51	168	113	50	3.39	0.917	Moderately	8	
55	Internships at the university (workshops, seminars and training courses)	F %	19	65	127	100	76	3.39	1.124	Moderately	8 D	
57	Volunteer work	F %	35	46	139	90	77	3.33	1.185	Moderately	9	
61	Integration between academic coursework field experiences	F %	34	43	137	113	60	3.32	1.131	Moderately	10	
59	Community participation	F %	41	44	125	106	71	3.32	1.204	Moderately	10 D	
56	Externships at institutions and companies under the supervision of the university	F %	39	47	113	130	58	3.31	1.169	Moderately	11	
53	Activities geared towards the real needs of business sectors	F %	26	60	130	120	51	3.28	1.088	Moderately	12	

Table 8: Contd...

S. No.	Phrase	Frequency Percentage	Agreement degree					Arithmetic mean*	Standard deviation	Agreement Degree	Rank
			Very slightly	Slightly	Moderately	Strongly	Very strongly				
50	Facing situations that require students to take initiative and decision (immersion in real situations)	F %	22 5.7	73 18.9	131 33.9	100 25.8	61 15.8	3.27	1.111	Moderately	13
69	Case studies and behaviours that deal with values and concepts related to the curriculum or life in general	F %	23 5.9	63 16.3	147 38	99 25.6	55 14.2	3.26	1.078	Moderately	14
54	Working in a virtual environment	F %	26 6.7	55 14.2	156 40.3	91 23.5	59 15.2	3.26	1.091	Moderately	14 D
70	Inviting actors from different academic fields to benefit from their expertise and experiences	F %	46 11.9	29 7.5	166 42.9	79 20.4	67 17.3	3.24	1.181	Moderately	15
64	Continuous development of academic programmes in various disciplines	F %	41 10.6	46 11.9	131 33.9	119 30.7	50 12.9	3.24	1.147	Moderately	15 D
60	Student clubs	F %	51 13.2	71 18.3	97 25.1	87 22.5	81 20.9	3.2	1.319	Moderately	16
62	Assessing students' competencies through international standardised tests	F %	35 9	64 16.5	148 38.2	78 20.2	62 16	3.18	1.158	Moderately	17
63	Using global and regional experiences in developing TCs	F %	52 13.4	51 13.2	136 35.1	100 25.8	48 12.4	3.11	1.19	Moderately	18
65	Continuous evaluation of students' competencies required by various business sectors by international and local bodies	F %	39 10.1	74 19.1	144 37.2	72 18.6	58 15	3.09	1.172	Moderately	19
66	Teaching the competencies through independent courses specialised in developing students' competencies within the academic programmes	F %	40 10.3	79 20.4	136 35.1	89 23	43 11.1	3.04	1.137	Moderately	20
49	Field visits and trips	F %	98 25.3	55 14.2	125 32.3	62 16	47 12.1	2.75	1.321	Moderately	21
	Overall average							3.31	0.778	Moderately	

* Arithmetic mean out of (5.00).

Table 9: Independent-samples t-test for differences in participants' responses due to the gender variable

<i>The study axes</i>	<i>Gender</i>	<i>Frequency</i>	<i>Arithmetic mean</i>	<i>Standard deviation</i>	<i>t-value</i>	<i>DF</i>	<i>Significance level</i>
First axis	Male	180	3.9210	0.53114	0.674	385	0.501
	Female	207	3.8841	0.54157			No Significance
Second axis	Male	180	3.2411	0.82565	-0.630	385	0.374
	Female	207	3.3360	0.65467			No Significance

researchers used the t-test for independent samples. The results are listed in Table 10.

Table 10 shows statistically significant differences at the level of 0.05 and less between the participants from the scientific disciplines and those from the humanitarian disciplines in their responses to the phrases of the first and second axes. The differences are in favour of participants from scientific disciplines. This finding differs from the results of Zaqawa's (2017) study, which reveals significant differences in competency and skill dimensions in favour of the literature and humanitarian disciplines. The current finding agrees with that of Al-Ahmadi's (2016) study though. The average responses of students at applied sciences to the competencies that they reported they acquired from their education in Saudi universities are higher than the average responses of those at theoretical disciplines. This finding indicates that the scientific academic programmes in Saudi universities are concentrated on the acquisition and development of TCs required by the changing needs of the job market in various industry sectors.

CONCLUSION

The current study investigates the transferable competencies carried out by the academic programs as viewed by the students of KSU at Saudi Arabia. Descriptive statistics showed that

the students perceived many transferable competencies that the academic programs developed at the KSU. Of these major competencies were professionalism/work ethics, teamwork/collaboration, and digital technology. The students perceived these competencies as the major ones among list of competencies that they believed different academic programs developed. Their views demonstrated that problem-solving learning, immersion in the professional environment and active learning were the most methods were observed as per the students' perceptions. The students' gender did not play a pivotal role in their responses, as there were no significant differences noted. However, academic discipline was a factor that mitigates the students' responses. The inferential statistics reported by the independent t-test revealed that scientific discipline students' responses were higher than their counterpart students who majored in humanities and social science disciplines, and reported higher means scores, and these differences were statistically significant.

RECOMMENDATIONS

With the results of this study as basis, the following recommendations are put forward. First, the critical thinking/problem solving competence, which is one of the highest mental skills, should be the top priority of the academic pro-

Table 10: Independent-samples t-test for differences in participants' responses due to the academic discipline variable

<i>The study axes</i>	<i>Academic discipline</i>	<i>Frequency</i>	<i>Arithmetic mean</i>	<i>Standard deviation</i>	<i>t-value</i>	<i>DF</i>	<i>Significance level</i>
First axis	Scientific	215	4.0252	0.44021	-4.891	385	0.000
	Humanitarian	172	3.7659	0.59918			Significance
Second axis	Scientific	215	3.5360	0.65467	-6.571	385	0.000
	Humanitarian	172	3.0411	0.82565			Significance

* The significance at the level of 0.05 and less.

grammes at KSU in terms of working on their development among their students. Second, the continuous evaluation of students' competencies by international and local bodies is a contemporary international method adopted by official academic institutions in evaluating the competencies and skills of their students. Third, teaching TCs through independent courses should be adopted because of its direct and explicit effect on enhancing students' competencies. Last, trips and practical visits are a method of high value, as proven by scientific studies, in developing TCs of students. Based on the study findings, the authors advise future studies to carry out a comparative study among Saudi universities on developing students' TCs. The authors also recommend conducting a comparative study among universities at the local level, the Gulf region, and the Arab world on developing university students' TCs.

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