Abdullah Al Janabi & Issam Bait Bahadur

Applying A modified Element of Thought Critical Thinking for Evaluating Engineers Thought

The Elements of Thought is a model of thinking developed to help understand how we can divide up the different parts of thinking. Understanding the Elements of Thought allows students to think for a purpose within a point of view and based on assumptions and to use data, facts, and scientific knowledge to make inferences and judgments, based on concepts and theories, to achieve the main objectives of their engineering projects. During this study, the Elements of Thought model was modified where some elements were eliminated, e.g., interpretation & inference, Implications & consequences, and Point of view, instead a new element "Logic' was added to examine the logic of the design concepts deductively and inductively. The model was implemented in the Final Year Project where students started to design and investigate a thermal energy storage system to enhance the efficiency of using renewable energy sources to be able to keep up with the capacity of conventional energy sources. An instructional plan was prepared in a systematic approach in a way to achieve the Outcome-Based Learning Objectives (OBLO) based on the Five Elements of the modified Element of Thought model (Purpose, Information, Assumptions, Concepts, and Logic). To evaluate the students' performance based on the five elements, the assessment rubric of the model was designed to be of four levels, i.e., emerging, developing, proficient, and exemplary.

It has been found that our students' critical thinking implicitly undergirds all the desired skills found in the course syllabus. The applied model of critical thinking to the mind of the mature engineer, helped us understand how to describe our own thinking and hence better develop the thinking of engineering students. However, students in terms of the element of Logic were not able to reach the proficiency level that is represented by constructed, evaluated, or revised an argument consisting of appropriate claim(s), multiple sources of evidence, and reasoning using accurate and adequate scientific ideas or principles.

Shouq Faisal Mohammed Al-Masruri, Blessy Valsaraj, Noor Ali Saleh Al Nofli, Maather Sareed Said Al Hattali, Marwa Abdullah Said Al-Awaisi and Jawaher Saif Auyad Al Shuraiqi

Factors associated with stress among university students from online classes during COVID-19

The COVID pandemic forced the education worldwide to go distance mode. Online education has many challenge that student can face such as lack of communication between them and teacher, lack of interaction, difficulty in obtaining materials and time management. The overall purpose of the study was to find out the factors associated with stress among university students from online classes during COVID-19. The objectives of this research were to identify factors that are stressful among university students from online classes, assess the level of stress and assess the association between stress levels and demographic characteristics. Methods: The study was conducted in different colleges at Sultan Qaboos University (SQU) using a quantitative approach with cross sectional correlation design. Student stress inventory (SSI), a reliable tool was applied to collect the data from the participants after getting permission from the original author. Results: A total of 286 respondents completed the questionnaire with a response rate of 28.6%. They had an average age of 21 years (SD= 3.24). The participants

were predominantly females (76.9%), and single (94.4%). Most participants were not having a financial scholarship (67.1%), they depended on family income. There was a significant association between perceived stress among the university students and their gender. ($X2 = 11.465$. $p<0.05$). Females are more likely to report stress (76.9%) than males (23.1%) During the pandemic, a variety of variables contributed to the stress as perceived by the students during their online education. These factors were classified as academic, environmental, interpersonal relationship, and technological factors. Conclusion: Distance learning has many negative impacts that effect psychological wellbeing of students. The female students, students those who feel more assignments, bored, financial problem, and poor communication might perceive more stress during the distance education when compared to their counterparts.

Manikandan Ramadurai, Mujeebudheen Khan and Dr.Shamganth Kumarapandian

DEVELOPING AND APPLYING RUBRICS FOR COMPREHENSIVE ENGINEERING ACADEMIC PROJECT ASSESSMENT

The academic project in the Engineering and Technology education trains students to put their technical and soft skills into practice, through the development and presentation of their applications and solutions. This paper presents the design and implementation of a suite of comprehensive rubrics-based assessments for most aspects of the academic project. The rubrics and its development and application process work together hand in hand for fair assessment of students in their academic project. Additionally, it is also a tool for training and channeling feedback to students, enabling them to use their knowledge and skills from design to implementation of their capstone project. Judicious usage of the assessment result via the rubrics' scoring sheet facilitates the faculty to impart and inculcate positive learning attitudes more effectively. This suite includes assessments of components such as project presentations and project report documentation. While it is common to assess projects using scoring guides and rubrics, the varied nature of the projects and the personalized nature of the supervision methods used, presents differing operational considerations of applying such rubrics in assessments. This paper also shares on the pre-implementation preparation, implementation planning and experiences, supporting IT application and tools, rubrics' evolvement as well as feedback from faculty and students.

Ahmed Shehata, Mustafa Khalaf, Khalfan Al-Hijji, Nour Eldin Osman and Elsayed Elsawy

Sultan Qaboos University students' Ethical competencies during e-Learning: A case study on the Information Studies department

The COVID-19 pandemic has forced educational institutions to shift to the e-learning style, which did put students under pressure to learn skills and competencies that target the e-learning environment. A vital competency in e-learning is ethical competency. Ethical competencies affect the educational process as students need to follow the university's code of ethics to ensure equality in the assessment process. Our study focuses on the students enrolled in the Information Studies Department at Sultan Qaboos University during the COVID-19 pandemic in an attempt to identify their e-learning practices and ethical competencies. A quantitative approach was adopted using a questionnaire as a research tool.

The results indicated a lack of essential ethical competencies among the study sample, negatively affecting the education process. Insufficient awareness of ethical practices in e-learning was detected. Students were found to lack knowledge on learning misconducts. A program to educate students on ethical practices is required at all educational levels to ensure the quality of the learning process.

This research's results are believed to help understand the current practices in e-learning, shed light on the importance of ethical competencies, and provide students guide the students to acquiring required ethical digital competencies.

Mohammed Bait Suwailam

Enhancing Students' Understanding of Electromagnetic Concepts through Free-Open Source Application

Over the past ten years, it was well observed that students at the Department of Electrical and Computer Engineering at Sultan Qaboos University struggle that often in visualizing very fundamental concepts and phenomena in electromagnetics. This is due to the excessive mathematical background required in the course and the concepts are of an "unseen" nature. Thus, it is important to ensure that students are able to interpret and visualize the concepts, which will lead to a better understanding of course materials.

In this research work, we investigate the effectiveness of an existing free-open source application in enhancing students' visualization skills over two consecutive semesters for a first-entry level course in electromagnetics. Throughout the course lectures, students are given several exercises based on the adopted free-open source application, where they need to interact with the application and observe the results and visualize how the concepts look like in space.

At end of the two semesters, a comprehensive Google-form survey (questionnaire) was developed and distributed among students in order to reflect on their true opinion about how much they learned and understood after the excessive use of the free-open source application. Over 50% of students were satisfied about their understanding of several course concepts and found the application useful.

Moaredj HOUARI & Abulrahman Al Maliki

واقع التعليم الإلكتروني في ظل انتشار فيروس كورونا من وجهة نظر هيئة التدريس في كليات الشرق العربي بالمملكة العربية السعودية

هدفت هذه الدراسة إلى الكشف عن تقييم التعليم الإلكتروني في ظل انتشار فيروس كورونا من وجهة نظر هيئة التدريسية بكليات الشرق العربي، ولتحقيق أهداف الدراسة جرى الاعتماد على المنهج الوصفي ،وتكونت عينة الدراسة من(50) عضو هيئة تدريس بكليات الشرق العربي ممن قاموا بالتدريس خلال فترة انتشار فيروس كورونا من خلال نظام التعليم الإلكتروني، وجرى جمع البيانات اللازمة باستخدام استبيان بلغ معامل ثباته (0.804) وتم تطبيقه على عينة الدراسة. كشفت نتائج الدراسة أن تقييم عينة الدراسة لفاعلية التعليم الإلكتروني في ظل انتشار فيروس كورونا من وجهة نظرهم كان متوسطاً، وجاء تقييمهم لمجال استمرارية التعليم الإلكتروني ومجال معيقات استخدام التعليم الإلكتروني ومجال تفاعل أعضاء هيئة التدريس مع التعليم الإلكتروني، ومجال تفاعل الطلبة في استخدام التعليم الإلكتروني متوسطاً، وأوصى الباحثون بعقد دورات تدريبية في مجال التعليم الإلكتروني لكل من أعضاء هيئة التدريس والطلبة والمساعدة في التخلص من كافة المعيقات التي تحول دون الاستفادة من نظام التعليم الإلكتروني المتبع, وضرورة المزاوجة بين التعليم الوجاهي والتعليم الإلكتروني في مؤسسات التعليم العالي مستقبلا.

Siraj KunjuMuhammed & Padmalosani Dayalan

E-Assessment for effective formative assessment and feedback: Readiness and Challenges Ahead

E-Assessment involves using any technological device to create, deliver, store, and/or report student assessments and feedback. Since the transition to Emergency Remote Teaching (ERT) in 2020, higher education institutions (HEIs) in Oman have utilised technology, including Moodle and Microsoft Forms, to create assessments and provide feedback on formative assessments. Since then, there has been growing interest among academicians and policymakers to utilize technology and create e-assessments to replace the existing paper-based formative assessments. Many studies have proved that e-assessments improves the learning level of the students, enhance the student performance and also it helps in remote learning. Researchers found that e-assessment supports higher order thinking level of students and problem solving skills are developed. This research examines the institution and faculty readiness to deploy e-assessments for effective formative assessment and feedback.

Hussein Al-Kharousi

The Role of Assessment Authenticity and Congruence in Student Achievement

Educational assessment is one of the main components of the teaching and learning process. The literature has long documented its impact on student-related academic outcomes. This study tested a model explaining the impact of authenticity and congruence of assessment on students' self-efficacy, self-regulation, and achievement. Data were collected from 330 grade 11 students enrolled in science classes in public schools in the Sultanate of Oman. Results showed that asking students to do authentic assessment tasks having a high degree of alignment with the instructional objectives is likely to encourage students to hold higher levels of self-efficacy which in turn enhance their self-regulation and academic achievement. Additional contribution of the results to teaching, learning, and research are discussed.

Hameed Sulaiman & Ghiyatha Al-Wardi

Students' self-perceived challenges and skills on inductive learning activities: a case study from two courses with different types of tasks

Mihaley Csikszentmihalyi's flow theory is considered a model of engagement that has specific applications that prompt greater students' engagement in the academic learning context. However, the specific conditions in which learning occurs may facilitate whether a flow experience unfolds in students, regardless of the specific nature of the activity. One such condition for a flow experience is the relative perception of the challenges imposed by the task in relation to the learner's perceived skills. Here, we present a case study involving activities and assignments administered in two courses that demand different skill sets from students. A survey conducted at the end of the course required students to self-actualize the challenges imposed by tasks and the skills they perceived to have to accomplish such tasks. In one course, a critical thinking model was used to set a group task that involved analyzing, interpreting, and

evaluating the course's key aspects. In another course, individual students were required to complete tasks that included writing a newspaper article, micro-speech on UN-SDG goals, debating, producing a topical review on sustainability issues, and presenting this in a seminar. In the course involving group work, most students perceived the challenge of the tasks to be high in preparation compared to the delivery. Furthermore, it is evident that the perception of their skill is relatively high for delivery, irrespective of the tasks. By contrast, the skills they required to prepare for these tasks were perceived as inadequate to meet the challenges of the tasks. On the other hand, while students in the individually tasked course perceived the tasks as challenging, they also perceived having adequate skills to handle them. Interestingly, most students perceived the challenges in delivering the individual tasks as 'low' except for the debate, which needs a collaborative activity. Studies on students' perception of learning activities may provide insights regarding how to balance challenge and skill in teaching and learning to both students and teachers, identify gaps in self-actualize learners' abilities and help improve how teachers set tasks to enhance learning outcomes.

Nazife Koca Nazife

Assessment of Electricity and Magnetism concepts: A survey for Science and Engineering

The conceptual inventories provide a useful tool for the educators to assess the conceptual learning of their students. In this work we assess the performances of two groups of students on the understanding of electricity and magnetism concepts by implementing the Electricity and Magnetism (EMCA) test. The EMCA test [1] consists of 30 item multiple choice questions. We implemented the EMCA test twice as a pre-test and a post-test for two calculus-based physics-2 courses offered at the Sultan Qaboos University (SQU) in Oman to answer the following research questions:
Are there statistically significant differences on the performances of the students from different colleges?
Is there any statistically significant difference between the performance of the male and female students?
To compare the students' performances, we used Hake's normalized gain, defined as the change in class averages divided by the maximum possible increase. The normaized gain is accepted high if it is greater than 0.7, medium between 0.3 and 0.7 and low if it is less than 0.3. We obtained that the normalized gains for both group of students fall in the medium gain category. Our results are comparable with reference [1]. The performance of genders in the EMCA test in two courses is in favor of female students in general but not statistically significant.

Chia Zargeh, Nassor Suleiman, Reena Abraham and Joseph Mani

An Investigation of the Relationship between Mathematics Education Software and Thinking Styles

In this talk we study the impact of mathematics education software focusing on GeoGebra on students' achievement with respect to Borromeo's model of thinking at the Modern College of

Business and Science in Oman. GeoGebra is considered as one of the leading mathematics education software that has a powerful graphical interface and it is available for different operating systems such that it being used widely in order to increase motivation and academic achievement (Bhagat & Chang, 2015; Hosseini et al., 2022). The importance of GeoGebra has become increasingly apparent to mathematics' instructors in post-pandemic world for Mathematics Education. The main feature that differentiates GeoGebra from other mathematics softwares is that it can be considered as a computer algebra system (CAS) in one hand and as a dynamic geometry software (DGS) on the other hand (Latifi et al. 2021). We employ a Mathematical Thinking Style defined by Borromeo (2015), namely visual, analytic, and integrated thinking.

In this presentation, we introduce Borromeo's thinking style, and by using GeoGebra we compare conceptual and procedural knowledge of students. To this end, we provide some examples on determinant and volume, derivatives and applications from Linear Algebra and Calculus in the undergraduate level in order to explain students' interaction with mathematics software based on their mathematical thinking styles.

Pooja Chhabra

A Case Study on the Application of Process Approach of Writing Focusing on Grammar

In the context of Arab EFL learners, writing skill is the most challenging as well as important one for the students who are going to enter the University courses delivered through the medium of English. Students from different cultural, linguistic and educational backgrounds are generally seen struggling with producing an effective piece of writing at this level and the Omani Arab students are no exceptions. This paper addresses the issue of how to enhance writing in tertiary level EFL learners to lead them towards independence in writing. Based on a case study at the Global College of Engineering and Technology, Muscat, Oman, it critically examines the scope of application of process method with focus on grammar in writing skill. It recounts how this method has been used in classrooms and how each step using the process method has enhanced the learners' interest in writing and their keenness in language learning. The paper argues that efficient use of process method focusing on grammar can transform students' perspective toward writing skill. It recommends that educators should adopt this idea to sustain learners' interests and accomplishments of the set learning objectives. It makes students reach a level where they begin to take charge of their writing, resulting in strong understanding of language acquisition. It also includes some recommendations to solve the prevailing issues in order to improve the future design of higher education curricula.

Mohmad Tashtoush & Noha Rasheed

تقييم أداء طلبة التفاضل والتكامل في عمليتي تركيب الإقترانات وإيجاد الإقتران العكسي

هدفت هذه الدراسة إلى تقييم أداء طلبة التفاضل والتكامل لبعض المهمات الرياضية، والإجراءات التي يتبعونها في عمليتي تركيب الاقترانات وإيجاد الاقتران العكسي، وتفسير هـذه الاجراءات. اتبعت الدراسة منهجية دراسة الحالة، وشارك ثلاثة طلاب من طلبة جامعة صُحار المسجلين في مقرر التفاضل التكامل خلال الفصل الدراسي الثاني 2022/2021. تعرض الطلبة لإختبار قصير تم تقييم أدائهم من خلاله باستخدام قاعدتي تصحيح كلية وتحليلية، كما أجريت معهم مقابلات فردية تم تحليلها ومناقشتها، للكشف عن المبررات التي تكمن وراء عدم إكمالهم لبعض أجزاء من حل مهمات الاختبار وعدم تحققهم من صحة الحل، حيث اعتبرت هذه الخطوة من الأمور

التي يعتبرونها ليست ضرورية بالمقدار اللازم للتوقف عندها. أظهرت نتائج الدراسة ترجيح كفة قاعدة التصحيح التحليلية على قاعدة التصحيح الكلية، نظراً لمراعاتها جميع التفاصيل والاجراءات وجميع مستويات الفهم والادراك، وأظهر الطلبة ارتياحاً لقاعدة التصحيح التحليلية أكثر من قاعدة التصحيح الكلية لمراعاتها تفاصيل استجاباتهم على مهمات الاختبار. أوصت الدراسة بضرورة اهتمام الطلبة بتفسير اجراءاتهم لدى أداء المهمات الرياضية، ودعت المدرسين لاستخدام قواعد التصحيح لتقييم أداء طلبتهم، ولمؤلفي المناهج باجراء ما يلزم من تعديلات واضافات تُعنى بزيادة فُرص تبرير الطلبة لاجراءاتهم، وإجراء دراسات متعمقة تسمح للطلبة بتبرير اجراءاتهم.

Halima Ali. Sulaiman

Investigating Factors of Influencing Students Motivation in the Faculty of Language Studies at Sohar University During Covid 19: A Qualitative Case Study

This study aimed at investigating the factors influencing motivation in the Faculty of Language Studies at Sohar University. The sample of this study was selective. It included all students who study translation in level two in the Faculty of Language Studies in the academic year 2021/2022. The researcher applied instruments which were interviews via interviewing students and recording videos, individual interviews for discussing some ambiguous points. The researcher filled in interviewing forms. In addition, the researcher measured all types of validity, descriptive, interpretative, theoretical and evaluative. Furthermore, the reliability of the study was confirmed by repeating interviews several times and the reseracher used ATLAS to analyse collected data. The results revealed that there are different factors influencing motivation which are class size, teaching experiences, skills, teaching methods and various psychological needs. Regarding the factors which are influencing students' motivation, the result supports the presumed Constructivism Theory, and Maslow's Theory of Hierarchical Needs. So, it recommends improving online teaching and providing students with all their needs as this will lead to better class motivation during Covide 19. The study recommends providing the lecturers with training; for example, providing the lecturers at Sohar University with adequate professional trainings and workshops that consolidate and improve their online teaching skills and methods which related to online. In addition, the study recommended to cover all students' needs by conducting intensive advising sessions that support the students' psychology and way of thinking and realizing things that are surrounding them in the classrooms' atmosphere. Also, the lecturers should be provided with PD sessions to expand their experiences during this crisis and even for future and sudden changes in education and learning process.

Behnam Behforouz & Ali Al Ghaithi

The Effect of Corrective Feedback Via A Computerized Course on Omani EFL Learners' Writing Performance

The present research investigates the efficiency of corrective feedback on learners` writing performance through electronic platforms. 94 Omani English as a Foreign Language (EFL) learners were selected based on thei assessments results. They were randomly assigned into one experimental group and one control group, including 47 students. Both groups were pretested by a writing test to collect the required data. The experimental group then received the treatment using corrective feedback, whereas the control group received only corrective input on the forms and structures of the final draft. A survey was distributed among the experimental group's participants to elicit the students' attitudes towards corrective feedback. The Mann-

Whitney U test for comparing the control and experimental groups showed a significant difference between the mean scores of the two groups. Corrective feedback had a statistically significant effect on EFL learners' writing performance. Besides, the survey findings showed that participants emphasized the importance of receiving corrective feedback from their teachers. The current study results can have implications for teachers to implement more feedback sessions, not only on students' writing tasks but also on the other skills equally.

Zainab Al- Zaghir, Dola Algadi and Muna Al-Badaai

Learning Challenges During Covid-19: Sohar University as a Case Study

In March 2019, there was a big transformation in the method of teaching from face to face to remote teaching due to the Pandemic COVID-19. As educational institutions around the globe were forced to close, using technology was the only means by which educational activities could be delivered. That was challenging to all institutions, in particular, those located in countries where online degrees had not been recognized before. In such institutions, neither teachers nor students had received sufficient training before that important step. Although, universities delivered their resources online, it has been found that emergent remote teaching during Pandemic COVID-19 is different from the regular online study. This research paper aims to shed light on the challenges Omani students had faced during that period. It also aims to show the development of the learning process over a three-semester period. It has been found that most of the problems reported in this study are similar to those reported in the literature. These challenges include technical issues, self-regulation and time management, communication, duration of the exam, and designing teaching materials. Accordingly, some recommendations have been put to take those challenges into consideration while making the institutions future plans, where online component should be a sustainable part rather than a mere response to emergencies.

Samira Moussaoui

An Online Dynamic Method to Enhance Active Revision, Assessment Strategies and Writing Autonomy among EFL Students

Learning to write in a foreign language may present freshmen with major challenges. To elevate these learners' writing skills, particularly active revision and assessment strategies, and promote their writing autonomy, the researcher conducted a study using a collaborative virtual environment. This paper will shed light on the impact of online collaborative revision on learners' aforementioned skills. To facilitate the collaborative revision process, the researcher organized live training sessions for the participants. The data collection instruments included pre- and post-assessment writing tasks, self- and peer-assessment checklists, online collaborative revision tasks, and a post-writing reflection form. The data were analysed qualitatively, using thematic analysis, taking into consideration cognitive, meta-cognitive and socio-affective aspects that had a bearing on the process. The findings of the study evince a cognitive engagement on the part of the learners into the revision process, conjugated with an active participation in identifying each other's errors, evaluating ideas, and effecting modifications at both the deep (substance) and surface (form) levels, engendering a significant improvement in

their final drafts compared to their earlier ones, and a concomitant refinement of the mastery of self- and peer-assessment strategies throughout the process. In addition, they exhibited substantial enthusiasm through working with their peers, in a live virtual environment, and an increased level of autonomy and writing authority through evaluating their peers' and their own writing. The analysis of their reflections also shows that the participants harboured positive attitudes towards collaborative revision and an improved level of critical thinking, paired with an awareness of their own strengths and weaknesses in writing. The main implication that can be drawn from this study is that implementing online collaborative revision can yield a positive impact on learners' revision skills, assessment strategies as well as on their autonomy level in writing.

Gopikrishna Pasam, Srinivas Ganganagunta and Abdul Rahman Mohammad

A Perfect Planning in the Modern Teaching to Become as a Best Teacher with the Designed Classroom Teaching and Integrated Heuristic Approaches

This paper proposes and presents various heuristic approaches to make the conventional classroom teaching as a designed classroom like an Oscar movie, in order to attain interest and attention among all types of students, irrespective of different timings. In the traditional methods of teaching, the delivery medium is "Chalk-and-Talk" method or using projector, in this method, students' concentration fades off after few minutes, moreover, the data presented mainly based on the lecturer and more emphasis on the theory, lecture notes and the text books, in addition to these, insufficient interaction with students in the classroom with one-way data flow. Whereas in the modern methods of teaching the main concept involved is, "I hear and I forget, I see and I remember, I do and I understand". Thus, this paper proposes implementation of learning pyramid concepts through integrated heuristic approaches discussed in this paper. The proposed heuristic approaches are creative ways to start class that involves a preparation plan, execution plan, monitoring plan for student effective learning, pre-planned classroom management techniques with different case scenarios. The preparation plan consists of various mind-mapping techniques for theory concepts, attention dragging techniques, jig-saw method for effective revision of each chapter. The execution plan consists of usage of all modern teaching strategies, which will be used to the design each class delivery like an Oscar Movie. All these heuristic approaches are integrated intelligently and described more precisely in this paper to make each teacher as a Best Teacher for their students, so that more useful for the fast development of society towards understanding, implementations and creation of innovations.

Venkatesan Tharanipathy, Kamaludeen Mohamed Abubacker and Rajendran Raj

Teaching Reverse Engineering through Project Based Learning using simple toys- A case study

Reverse engineering is a technique which is widely used in industries to manufacture a product. This course has been introduced in the masters' level curriculum to equip the students with the knowledge of reverse engineering. The process involves careful observation, disassembly, documentation, analysis and reporting.

By studying an existing engineered object, a lot can be learned about how the object was designed and how it works. What steps might an engineer take to figure out and understand how an existing product works? Students learn about the process of reverse engineering and how this technique is used to improve upon technology.

Project based learning technique has been adopted to teach reverse engineering through simple toys. The students are explained initially about the reverse engineering process of carefully taking something apart to understand how it works and suggest possible areas of improvement. The class has been divided into groups of 2-3 students each and each group were given a toy. The students test the toys and discuss within their groups how the toy functions. The students are encouraged students to disassemble the toy and look into the mechanisms inside the toy.

Lilibeth Reales

An AGILE approach for agile learners: THE BEST PRACTICES IN teaching and learning for higher education institutions in OMAN

Agile approach is not only applicable in software development and testing but also an effective approach in teaching and learning. Agile learning is an approach that can be applied to every stage of learning development such as planning and development in teaching, Learning, training, project management, and collaborative work (Synapse 2021). Agile approach is an effective strategy to motivate the learner in applying their learning experiences in a new and challenging situation. However, there are some iterative steps that needs to be followed to promote the agile approach and motivate the students to become an agile learner. In view of this approach, when online classes were implemented in Spring 2020 due to pandemic situation (COVID-19) it made the researcher realized that the traditional approach won't be enough to support and ensure that the right level of teaching and quality education will be achieved. Therefore, a new approach shall be implemented to ensure that the current situation won't jeopardize the learning experiences, and progression of the students in their chosen career.

Digital technologies are changing the way we work, learn, and communicate (Harper et al. 2008).Therefore, as part of the academic innovations and best practices in teaching & learning an online FOSS (Free and Open Source Software for Teaching & Learning) tools such mendeley, Kahoot!, Padlet, Socrative, mentimeter, and Kaizala were used in both online and faced-to-faced sessions to motivate the student to participate in the class activities and discussion. Also, MOOC (Massive Open Online Course) was integrated in the class activity and assessments.

Industry engagement ensures that students acquire a global and local perspective by inviting experts internationally and locally to share their experiences in their career/job .This approach was promoted through online and faced-to-faced international and local Guest lectures, industry visits, and internship programmes were conducted in the class.

Manikandan Ramadurai, Varatharaju Muthusamy and Shamganth Kumarapandian

Assessment of Teaching and Learning experiences in Virtual Lab Practice with Under graduate Omani Engineering Students.

Sultanate of Oman educational system is constantly evolving and enhancing its e-learning environment. The higher education teaching space were associated with modern world of learning opportunities available through information technology. As a part of Oman's vision 2040 higher education intuitions urges to offer an academically comprehensive information literacy curriculum for developing the engineering students into life-long learners, ones who would be able to use knowledge throughout their lives in problem solving, act professionally with ethic, prepare for the competitive world, and ready for change. In addition, developing research skills in classroom is essential for all students in all level where information and communication skills play an important part in student inquiries to identify forms of wisdom and build innovative idea. Recent developments in information technology has provided new novelties to endure constructing a virtual educational environment by means of internet. This kind of educational technology provides an advanced student centered learning environment and perfectly meets the educational needs. These virtual space offers a high level of flexibility and freedom from constrains of time and place in engineering education. In the perspective of evolving student's abilities in engineering design and scientific inquiry the undergraduate laboratory plays critical role in engineering curriculum. To expand engineering learning competence, a laboratory experience is highly mandatory; it strengthens the knowledge comprehension, application of theory, and provides a dynamic, collaborative learning experience. On the other hand, concerns such as huge cost and high credit-hour engineering curriculum have led to exclusion of many of the experiments in engineering academic laboratories. Virtual laboratory units were developed to imitate conventional laboratory and deliver students a valuable hands-on experience for better understanding. This empirical case study articulates the preliminary phase of a research agenda that is concentrated on exploring the helpfulness of virtual laboratories in High voltage Engineering course at research-intensive Omani Technical Institute. Analyzing different sets on usage of high-voltage virtual labs along with a conventional lab, our studies have found evidence in enhanced performance in teaching and learning processes. Run-through analysis and surveys shows that high voltage virtual labs are substantial elements in adaptive learning process in blended traditional classroom environment. The study also indicates some of the problems faced by virtual lab users.

Hakan Gultekin

A Spreadsheet Based Tool to Generate Personalized Exam Papers with Random Questions

The Covid-19 pandemic has had a huge impact around the world. One of the most affected sectors by this pandemic is the education sector. Almost all educational institutions have had to switch to online education mode. One of the significant challenges in online education is online assessment and evaluation. In engineering departments of universities, numerical problems are commonly used in exams. Observing whether the students follow the solution steps correctly is also essential for engineering teaching. Converting these problems into multiple-choice or true-false questions is not the same as having students solve the questions on paper. Therefore, it has become a common approach to send the questions to the students via email and ask them

to solve the questions on pieces of paper, scan, and upload their answers. However, it is common for students who solve the questions unattended to communicate and collaborate to solve the questions. One of the ways to prevent this is to prepare personalized questions and exams by randomly changing the numerical values in the questions. However, in classes with many students, it takes a lot of time and effort to prepare the exam papers and evaluate the answers. This study will discuss how Microsoft Excel and Visual Basic for Applications (VBA) can be used to prepare random exam questions and automatically convert them into exam papers. Applications for different question types will be demonstrated, and the advantages and disadvantages will be discussed.

Preeti Bhaskar, Amit Joshi and Priyanka Bhaskar

Impact of coronavirus pandemic on the Indian education sector: Perspectives of teachers on online teaching and assessments

In India, the COVID-19 outbreak has been declared an epidemic in all its states and union territories. To combat COVID-19, lockdown was imposed on March 25, 2020 which has adversely affected the education system in the country. It has changed the traditional education system to the educational technologies (EdTechs) model, where teaching and assessments are conducted online. This paper aims to identify the barriers faced by teachers during online teaching and assessment in different home environment settings in India. Interpretative phenomenological analysis (IPA) of qualitative research methodology has been used in this research. The study was conducted among the teachers working in the government and private universities of Uttarakhand, India. Semi-structured in-depth interviews were conducted among 19 teachers to collect data regarding the barriers faced by them during online teaching and assessment. The findings revealed four categories of barriers that are faced by teachers during online teaching and assessments. Under home environment settings, a lack of basic facilities, external distraction and family interruption during teaching and conducting assessments were major issues reported. Institutional support barriers such as the budget for purchasing advanced technologies, a lack of training, a lack of technical support and a lack of clarity and direction were also reported. Teachers also faced technical difficulties. The difficulties were grouped under a lack of technical support, it included a lack of technical infrastructure, limited awareness of online teaching platforms and security concerns. Teachers' personal problems including a lack of technical knowledge, negative attitude,
course integration with technology and a lack of motivation are identified as the fourth category to damper their engagement in online teaching and assessments.

Adil Hassan Khalid & Khalid Al-Qatiti

Transformative Learning and its impact on Students' Retention and Readiness for New Workforce Challenges and Community

The purpose of this paper is to investigate the role of transformative learning in fostering MBA students' readiness for new workforce challenges and community in Oman. The theoretical model of the centrality of experience, critical reflection, and rational discourse will be explored in order to facilitate the development of transformative learning skills required to ensure an

effective learning process. This research will also look into when the retention needs of higher education institutions in Oman are best met. Fuzzy-set qualitative comparative analysis (Fs/QCA) will be used in this study to investigate the causal complexities involved in conjunctural causation.

The findings of this study may help higher education institutions in Oman identify strategies to address some of the needs and attitudes of MBA students. The intended model's application may improve MBA students' transformative learning experiences in undergraduate classes.

Louay Al Nuaimy & Mastan Mahammad

A survey on the remote teaching and learning during the Covid 19 pandemic

COVID-19 pandemic has forced many organizations around the world to make full use of a variety of emerging online communication platform technologies. Social distancing and restrictive movement policies have significantly disturbed traditional educational practices. Universities, Colleges and Schools are among the organizations that have asked students, tutors, and lecturers to use several different online communication platforms to ensure the education process remains uninterrupted. This paper aim is to conduct a literature review of online learning implementation due to the impact of the COVID-19 outbreak. The main issues of online learning during COVID-19 are the availability of hardware, software, and internet connection. The list of tools recommendation for supporting activities of online learning is also discussed in this research.

Rajinder Sharma & Deepti Thakur

COVID-19 Pandemic And Perceptions Towards Online, Blended And Face-To-Face Teaching-Learning Process

COVID-19 Pandemic affected badly the normal living of the human worldwide. It almost choked all the activities which are of having utmost importance to run any of the countries economy. Its impact on different sectors viz. tourism, aviation, finance and education triggers a debate in the think tank involved in the planning and development projects that how to tackle these type of situations if revive in the near future. The most affected sector during the COVID-19 Pandemic is the education sector. E-learning is the tool used by different institutions for teaching-learning practices pre COVID-19 pandemic to the students who opted their studies through distance mode. During COVID-19 Pandemic, it became a necessity. An initiative has been made to see COVID-19 impact towards the perceptions of different stakeholders on online, blended and Face-to-Face teaching learning process.

Yusra Al Roshdi & Mohammed Albadawi

Summarizing and Disseminating Learning Content through Social Network Environment (SNE)

Education has always been a critical factor in the long-term economic development of any society. Most educational institutions use the Learning Management System (LMS) to manage

and organize students' learning Content. These systems contain many learning materials related to a specific topic or course in different formats such as documents, HTML pages, videos, figures, etc. During the pandemic of COVID-19, most educational institutions relied on LMSs to manage their learning contents and provide a platform for their students to learn and study from home. However, the enormous amount of information in these materials makes it difficult for students to read everything and focus on critical information.

On the other hand, today, social media has reached widespread among different sections of society, including the students who consume their time in front of this environment. Therefore, this research aims to study how to utilize the Social Network Environment (SME) for learning proposes by proposing a framework to disseminate summarized learning content through students' social media environment. That will increase the students' outcomes and feed them with the information. The methodology of this research will follow three phases: (1) Summarizing learning content, (2) Analyzing student social media environments, and (3) Disseminate summarized content to the target students' SME. The proposed method was evaluated in the real world in the educational environment in Oman. The results show that the proposed framework achieves high performance and provides students with needed information.

Amitabh Verma

Mathematical Model for the Assessment of Student Performance in Higher Education

The rapid growth in technology has affected all sectors, and education is one of them. Students must use appropriate research methods to understand and regulate their learning processes. As we all know, Quality teaching is vital to every country's economic, political, and social growth. So pedagogical reforms have been proposed to transform the student into a critical, reflective individual who, in reality, can 'completely learn how to learn'. It is challenging for a teacher to give attention to all the students in a class, and also, it is impossible to find every student's strengths and weaknesses. The authors' major approach is applying methods for achieving learning excellence in students through the use of Simulation modeling. The findings indicated that this research has a high level of practical applicability. This research showed that students lack a fundamental understanding of any issue and have a cursory knowledge of the subject. The study's findings provide valuable information that educators at educational institutions may utilize to improve their operations/performance and monitor the effectiveness of existing instructional approaches and student ability/performance in academics. So the purpose is to create a model that can analyze students' learning abilities in higher education.

Halima Al Maqbali & Tahereh Jafary

Assessment of simulation-based training in Process Engineering Concept; A Case-based Study in Oman

The essential aspect of engineering education is mastering in theoretical material, along with practical skills which are required for future professional activities. Although engineering discipline demands a strong comprehension of both concepts and process visualization, the lack of necessary background and experience to visualize processes, often cause failure in students' first attempts in the practical courses. Unfortunately, even high-score students often

are not able to attract the attention of industry for employment that is called the University-Industry content gap, which means there aren't qualified enough for industrial positions, even if they are talented. Creating an environment to produce highly skilled and self-confident engineers to solve the complex challenges of the industry is one of the top countries' priorities which is possible through modernizing and digitizing the educational ecosystem. As oil and gas is currently the largest industry in the Middle East, the education system needs a tool to facilitate skill development. Therefore, we investigated one of the most used and complex tools in the oil and gas industry called three-phase separators by using a simulation software named Envision. The outcomes of this study strongly reveal the importance of both visual and conceptual learning in enhancing students' comprehension levels.

Jamila Al Siyabi

Integrating visually impaired students in higher education: A case study of inclusive education at Sultan Qaboos University

The reported study addresses the question on how innovations in education and technology can be used to shift practices and perspectives of learning in the context of Oman's higher education to being more inclusive and individualized with students' needs. In more detail, it explores the ways of inclusive education settings' improvement while focusing on the successful and challenging aspects of inclusion of students that have significant loss of vision into a language learning environment at higher education institutions at Sultan Qaboos University. Data were collected from the English language educators and administrators at the Centre for Preparatory Studies, Sultan Qaboos University. The findings reveal challenging issues related to teachers' inadequate knowledge and expertise in inclusive education as well as their insufficient knowledge of innovative inclusive education-related concepts and technological tools. They also demonstrate that facilitating supportive, effective and appropriate classroom environments can support student learning and more effectively involve them in the process of teaching. The provided insights can give more ideas to educators and support a more effective inclusion of students with visual impairment in higher education institutions settings. Relevant implications drawn from the analysis of the study data can significantly inform teaching practice, professional development, program planning, research and decision making.

Kashif Ali & Humayun Manzoor

Descriptive and Thematic Analysis of Students' Perceptions of YouTube in Education

The integration of YouTube in education has made learning innovative in the 21st century. The present study using descriptive and thematic analysis is conducted to analyze students' perceptions about the usage of YouTube for learning, their corresponding usage patterns, and associated factors motivating them to use YouTube.
An online google survey is disseminated to undergraduate and master degree students and out of 80 students in total, 76 responded. Unavailability of desktop and laptop computers caused a major decline in the use of YouTube in education. Most students used YouTube for various academic activities except for video sharing. Most students found YouTube a beneficial source for improving educational activities. The findings in the last four questions confirmed that most

of the students will integrate YouTube into their future learning activities. The findings can contribute to improving the use of YouTube to benefit from other online video source platforms.

Sivamani Selvaraju, Raja T and Nachiappan S

Perceptions of Chemical Engineering Graduates Towards Their Career: Beyond Teaching and Learning

The aim of the present study is to explore the insights of chemical engineering graduates towards their career. A survey questionnaire containing 10 questions related to career in chemical engineering were circulated to 250 graduates through Google Forms. 167 responses were received from 6 countries with predominant respondents of 70% from Oman. The respondents were from different levels of education in chemical engineering, Diploma, Advanced Diploma, Bachelor's, Master's, and Doctorate. The survey was collected from chemical engineering graduates who passed out until 2021. The questions were prepared to collect their responses on various aspects like well-paid profession, scope for creativity, happy being chemical engineer, enhances environmental quality, benefits society, differ from what I was thinking about chemical engineering, well-respected profession, improves energy security, requires strong communication skills and choosing to change career. A detailed statistical analysis was performed on the responses received to analyse mean, standard error, confidence limits, frequency, and correlation analysis. As the respondents were large in number, an intermediate direct correlation of > 0.5 was achieved between scope for creativity and happy being chemical engineer (0.51) and enhances environmental quality (0.51). From mean analysis, it was found that chemical engineering graduates have high agreement that chemical engineering is a well-respected profession, enhancing environmental quality and energy security.

Dr. Said Al Amrani & Ali Al Ghaithi

Quality of blended learning for enhancing classroom teaching post the Covid-19 pandemic in higher education in Oman

The Covid-19 pandemic promotes the use of online learning material, activities and interactive online tools (both synchronous and asynchronous) for enhancing students' learning. This study aims to empirically assess the level of value Omani learners in higher education place on online learning and teaching in a blended learning context. It examines the participants' perception of the effect of the virtual communication environment on the quality of foreign language learning and task accomplishment. The study used a mixed-method research design employing quantitative and qualitative research tools for collecting data. A survey was completed by 106 undergraduate students from Sohar University of which 20 were invited for follow-up interviews. The quantitative results indicated that, overall, students were satisfied with the quality of the online learning and teaching materials and activities provided by instructors during the blended learning delivery mode. Teachers' online interactions and feedback motivated them to learn deeply and significantly engaged them in learning. Besides, students' online participation improved their understanding and inspired them to investigate further resources of knowledge. However, the qualitative data indicated that some students found blended learning confusing.

Besides, the poor quality of internet connection and the unavailability of digital devices for underprivileged students hindered their online learning, creating unequal learning opportunities. The study provides pedagogical implications for effectively integrating online technologies in teaching and learning in higher education instruction.