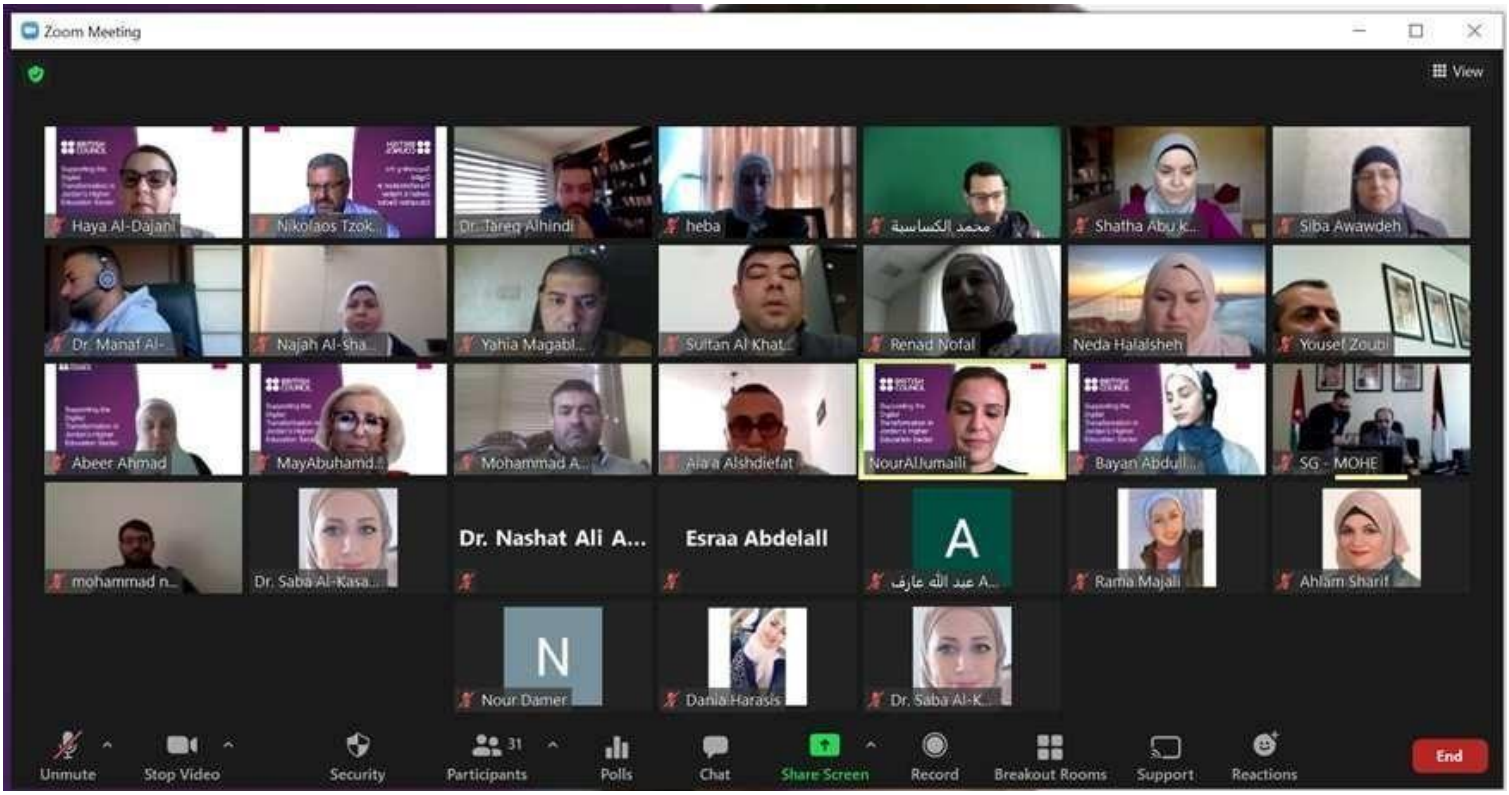
Supporting the Digital Transformation of Jordan's Higher Education:
Online Professional Development Training for Early Career STEM Academics

April 2021



"A top priority for the Higher Education Council, before as well as during and after the COVID-19 pandemic, is the systematic immersion of online learning into higher education programs, for the purpose of keeping channels of communication with students always open and functional so as to caterto their educational needs, to meet market demands, and to provide society and the region with the skilled talent it requires".

His Excellency Professor Mamoun M. Al-Debi'e
Secretary General
Jordan Ministry of Higher Education and Scientific Research

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Table of Acronyms	
CoRe	Content Representation
FDQACs:	Faculty Development and Quality Assurance Centres
HEIs	Higher Education Institutions
JUST:	Jordan University of Science and Technology
MoHESR	Ministry of Higher Education and Scientific Research

STEM	Science, Technology, Engineering and Mathematics

Executive Summary

Given the Covid-19 pandemic and its impact upon the higher education sector globally, Jordan's higher education institutions (HEIs) must invest in their preparedness and readiness for the unavoidable rapid digital transformation, to accelerate the enhancement of their competitive performance. Whilst academic staff in Jordan is highly qualified within their respective specialisms, this is no longer sufficient for optimal higher education teaching and world-class research within a digitally transformed world.

To date and prior to the onset of the Covid-19 pandemic, a number of professional training programmes entailing experiential practice-based pedagogies have been implemented through the British Council - Jordan with early career academics as well as directors of Faculty Development and Quality Assurance Centres (FDQACs) in Jordanian universities. Building on their outcomes, as well as the findings of the Jordan British Council's (2020) report, entitled "**Digital Transformation In Higher Education**", and the strategy of the Jordanian Higher Education Council's policy paper (2020), entitled *"Distance Learning and the Future of Jordan's Higher Education Sector: Reality, Challenges and Vision"*, the training programme highlighted in this report comprised six online synchronous workshops, mentoring and applied experimentation. It was implemented between February – March 2021 and aimed to enhance the **Experiential Online Teaching and Learning skills of STEM Early Career Academics** employed in Jordan's universities. This experiential capacity building programme contributed to the transition of teaching in higher education from face-to-face to a digital interface.

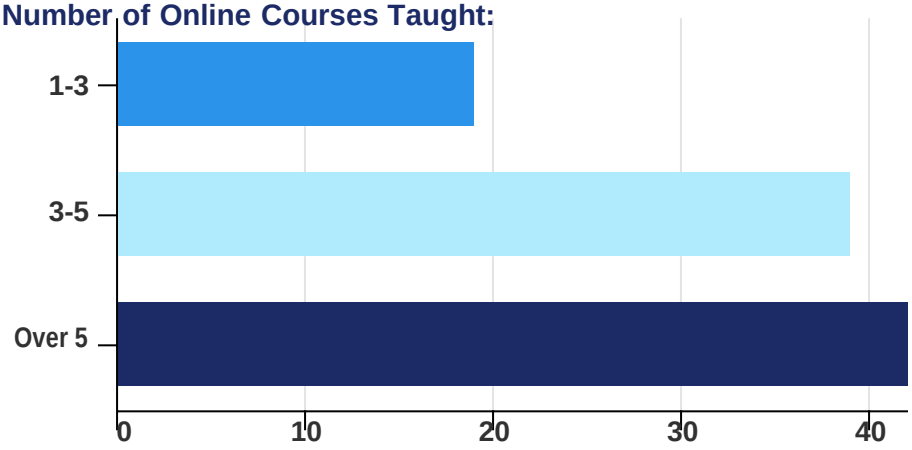
This report begins by describing the participants of the experiential capacity building programme. This is followed by a short description of the experiential capacity building programme and a discussion of the five key areas emerging from its implementation: experiential online learning, online engagement and curriculum design, online engagement and assessments, the importance of reflection in experiential online learning, and forward thinking & forward planning. Examples of the participants' work are shared through embedded links within these five key areas. A short note about the mentoring component of the programme follows and the impact of the training programme from the participant perspective is also presented. A spotlight on two participants is also presented in this report before concluding with a short note about the creation of the follow up instructional 'The Six' Video Series focusing on designing and effectively managing online teaching and learning in higher education.

The Participants

45 early career STEM academics (20 female and 25 male) representing **17 of Jordan's universities** (8 private universities and 9 public ones).

At the beginning of the training programme, about **80% of all participants were using both Zoom and Microsoft Teams** as their online teaching platforms, and as shown in the graph below, approximately 81% h**ad already taught three or more online courses.**

Figure 1: Number of Online Courses Taught:



The Training Programme

To support early career STEM academics in successfully transitioning their teaching from face-to-face to a digital interface effectively, the experiential online teaching and learning training programme comprised three complementary dimensions: six synchronous on-line workshops, mentoring, and applied experimentation. The underlying philosophy of the training programme is that learning is a learned behaviour (Boser, 2018) and as such, we can all become better learners by setting achievable goals, actively thinking, and reflecting.

Despite the initial concerns about connectivity and online engagement, the participants' timely attendance, consistent engagement, and submission of assigned work was exemplary. The participants were fully immersed in the 'online learner' experience and reported increased empathy with their own students.

The Synchronous Online Workshops

To maximize the ‘user experience’, an experiential approach was utilized to encourage participants to empathize with their students whilst enhancing their confidence in their online teaching as they identified, adopted and adapted the most suitable designs, tools and techniques to prepare, teach and assess within their own online teaching. The online synchronous workshops addressed experiential digital pedagogies, online assessments, and preparedness and curriculum design. Given that most participants had attended the British Council professional development training implemented in 2019-2020, the camaraderie was excellent and has been further enhanced as a notable ‘community’ is developing. This was clearly evident through the ease in working collaboratively on shared google docs, uploading assignments to the Microsoft Team folder for all to review, and the frank and open discussions within zoom breakout rooms and the main room.

To complete the training successfully and qualify for the participation certificate, participants were given specific assignments related to experiential online teaching to complete following each synchronous workshop. To enhance the experiential learning component of the training programme, for all assignments participants firstly designed the deliverable and then implemented it with their students, and finally reflected upon their experience and gained learning from doing so.

To enhance peer to peer learning and sharing, participants uploaded their completed assignments to the shared Microsoft Teams folder so that all participants could review and learn from each other’s work. The participants were very positive about their adoption of online experiential methods shared throughout the training programme and commented on the benefits of the applied and experiential approach to learning and professional development, as well as to engaging students with their courses. Examples of their work during the training programme are given within each of the five key areas summarized below.

The Synchronous Online Workshops

a. Experiential Online Learning

The overall training programme was embedded within Kolb's (2014) experiential learning framework and its application to online learning and teaching. As such, all synchronous sessions involved hands-on experiential and applied work that required participants to arrive prepared and on time, to the start each session by completing the required readings and assignments. Within each session, participants learnt and applied new online teaching tools and analyzed their suitability and applicability to their students and classrooms. Examples include the creation and sharing of introductory Loom videos to enhance the peer-to-peer familiarity and networking amongst the participants, the use of the Gather.Town platform for facilitating multiple people holding separate conversations in parallel, and the use of shared google docs as an alternative to the 'flipchart and post-it notes' to create and present small team work. Participants were encouraged to adopt and adapt all methods used throughout the training programme with their own students and to share the learning with all participants in a constructively reflective manner.

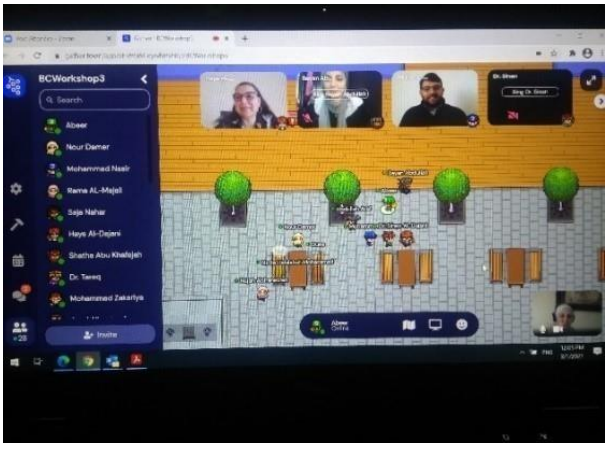
A couple of examples of the loom videos created by the participants to introduce themselves to each other at the beginning of the programme can be viewed here:

1. Dr Asad Shukri Albostami – University of Petra
   https://www.loom.com/share/0be167bab3e34ee1b4b81d82010c4513

2. Dr Hebah Saadeh–University of Jordan:
   https://www.loom.com/share/c37f6d3f75954ab4835c6a78dfac1ec0

And an example of a shared 'google doc' that emerged from one of the online training sessions can be viewed here:

And here is a snapshot of the gather.town platform:



The Synchronous Online Workshops

b. Online Engagement and Curriculum Design

This was a key component of the training programme and adopted the Backward Design tool (Wiggins, Wiggins and McTighe, 2005) and adapted it from the Content Representation (CoRe) tool (Hume and Berry, 2010). Whilst participants were not familiar with this tool when we first introduced it in the training programme, it quickly became a 'go to' tool due to the flexibility and functionality that it offered. During the training program, participants used it to design, implement and evaluate an experiential online teaching session with their students, and their lesson plans were compiled into one Microsoft Teams folder so all participants could share them with each other. Doing so enhanced peer to peer learning and networking across the cohort and encouraged all participants to engage fully.

A couple of examples of the lesson plans designed by the participants by utilizing the Backward Design tool and then implemented by them during the training programme and their brief reflections can be viewed here:

1. Dr Noor Al Mortada – Jordan University of Science and Technology (JUST)
2. Dr Sultan Alkhatib – Albalqa University
3. Dr Yehya Makableh – Jordan University of Science and Technology (JUST)

Whilst most of the content of the training programme focused upon synchronous online delivery, a full session was dedicated to designing asynchronous sessions and ensuring complementarity between these and the synchronous sessions. In many ways, the participants agreed that the asynchronous sessions were less challenging than the synchronous sessions to prepare provided the academics had the appropriate technical equipment available to them. Some examples of the asynchronous sessions designed and delivered by the participants on experiential online teaching and learning are provided here. As you will see, these demonstrate a wide range of creativity and designs developed to reflect each participant's style and appreciation of the learning objectives and outcomes to be met:

1. Drs Mohammad and Saba Al-Kaseasbeh - Jerash University
2. Dr Shatha Abu Khafajah – Hashemite University
3. Dr Siba Awawdeh – Hashemite University

The Synchronous Online Workshops

c. Online Engagement and Assessments

Despite the participants recognition of the usefulness of continuous assessment methods, one area which remains a barrier for the adoption of online experiential assessment methods is the ratio of exams to continuous assessment limitation imposed by the MoHESR requiring that exams comprise at least 80% of the course score. This hinders the adoption of applied and experiential coursework which is crucial for enhancing learning especially in online mode. Participants reported a huge frustration with this directive.

Nevertheless, formative and summative online experiential assessment methods were explored as well as strategies to reduce and prevent cheating within the online assessment platform. Student cheating was a real concern for many participants, and the adoption of formative assessments was considered burdensome especially amongst participants teaching large cohorts of undergraduate students due to the time it required to mark and provide formative feedback to students and the limited time duration of the course. As such, whilst the challenges of adopting formative assessment were many, its benefits were widely acknowledged and recognized by the participants. One approach for widening the adoption of formative assessment will be the reconsideration of the MoHESR's 80% exam requirement of summative assessment.

The Synchronous Online Workshops

d. The Importance of Reflection in Experiential Online Learning

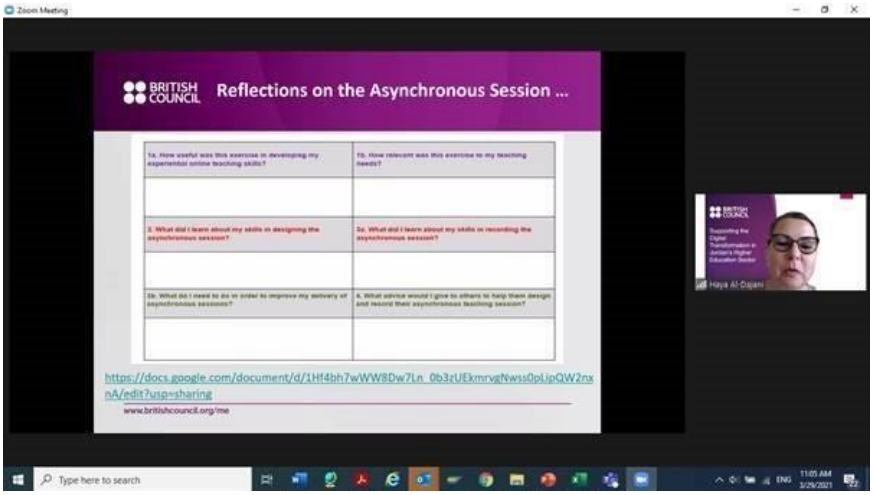
Throughout the training programme, the importance and role of reflection in learning and especially in experiential online learning were highlighted and discussed. Theoretically, this was framed within Kolb's (2014) experiential learning model and practically, this was applied through a number of individual and group reflective assignments within the synchronous sessions and as assignments, including an individually written reflective report, and an in-class group reflection on designing and recording the asynchronous session. Examples of these are presented here:

1. Individually written reflective reports:

a. Dr Duaa Al Maani - Applied Science Private University

b. Dr Yazan Alshboul – Yarmouk University

2. In-class group reflection on designing and recording the asynchronous session



Whilst participants commented upon the benefits of reflective assignments to demonstrate critical thinking and analysis, engagement with the online classroom, and applied learning, they were in agreement that students will not fully engage with such assignments unless they contributed to their final course score. As such, two reflective conclusions were drawn here; firstly that the prescriptive assessment model must change to reflect the online learning and teaching space, and secondly, that a cultural shift in teaching and learning is fundamental within Jordan's higher education sector.

The Synchronous Online Workshops

e. Forward Thinking & Forward Planning

As the aim of the training programme was to enhance the participants' design and delivery of the online teaching and learning experience for their students, the training programme and its content were designed to ensure immediate applicability and thus, integrated strategic planning. Doing so allowed each participant to design their own forward-looking strategies for the immediate / short term and the longer term. Some participants chose to complete this planning exercise in groups as they were working in the same discipline and/or were employed at the same university. An example of a group based 'support and monitoring plan' can be viewed here: The rationale given for the group rather than individual planning was consistently 'to continue to support and motivate each other's learning and doing after we leave this training programme'.

The peer to peer support and motivation during the training programme were highly welcomed by the participants as they repeatedly mentioned their stressful workloads and limitations of the professional isolation created by the conditions demanded by the Covid-19 pandemic. Despite this, some participants wrote short caselets about their experience with experiential online learning gained through the training programme to share with colleagues in Jordan's higher education sector. Here is an example written by Dr Tarek Alhindi – University of Jordan.

Mentoring

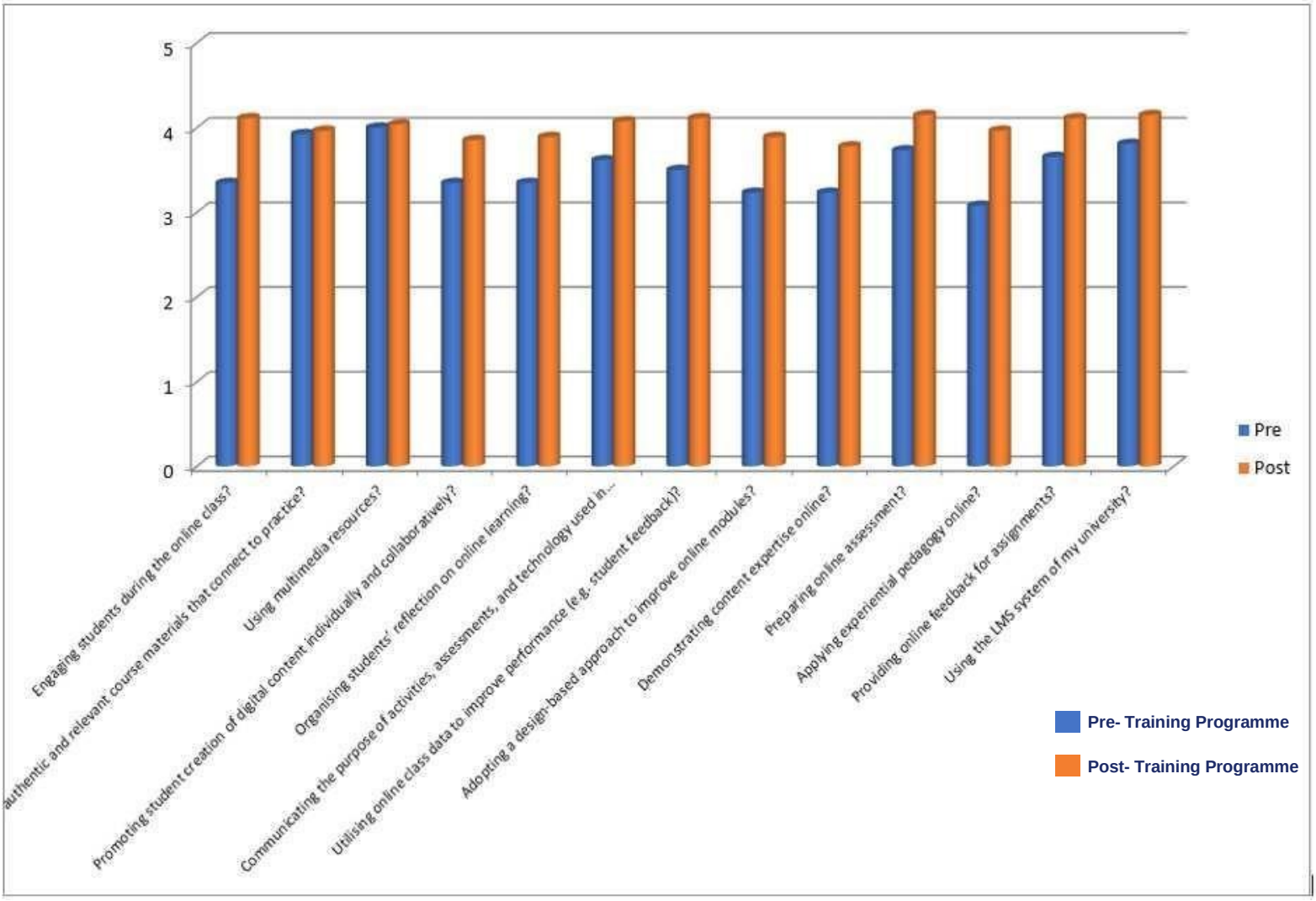
Given the intensity of the six synchronous online workshops, participants were offered 1:1 and group mentoring sessions with the trainers to discuss specific points relating to their experiences of online experiential teaching and learning and ways for improving confidence and delivery. Whilst such mentoring is highly recommended to ensure that the specific needs of the participants are addressed during the training programme, we strongly recommend that the mentoring sessions are time-limited and that participants are encouraged to attend the mentoring sessions prepared with a set of discussion points. In addition, all mentoring principles (Hairon et al, 2020) should be covered within the initial training session to ensure that participants are well informed prior to attending their first mentoring session.

The Synchronous Online Workshops

Impact of The Training Programme – the Participant Perspective

To measure the impact of the training programme upon the participants, they completed pre and post programme tests that the trainers designed to reflect the content of the training programme. On the pre-test prior to undertaking the training programme, the participants were scoring well (3/5) on average with regards to their confidence in online teaching. This can be attributed to their online teaching experience from March 2020 – almost a year prior to undertaking this training programme. On all confidence measures as shown in Figure 2 below, given the intensity of the experiential nature of the training programme, significant improvement was made as reflected in the scores for the post test, with most areas reaching 4/5 scores at the end of the training programme.

Figure 2: How confident are you when engaging with the following aspect of online teaching?

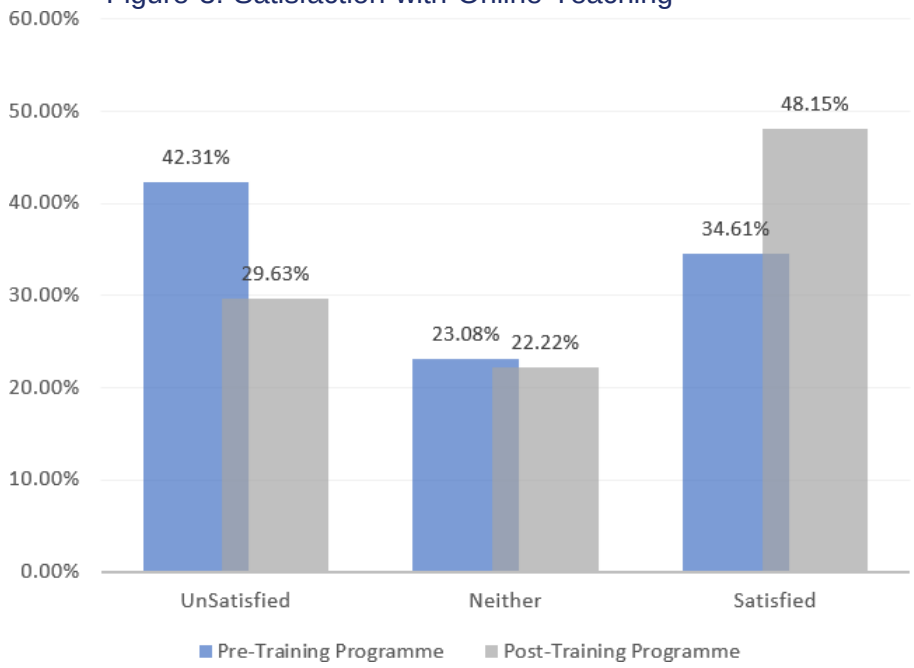


The Synchronous Online Workshops

As the data within Figure 2 above illustrate, the adoption of an experiential learning approach is especially pertinent to online training as it requires full engagement from the participants. Whilst the benefits of experiential learning have been widely established (Kolb, 2014), the use of experiential learning in on-line teaching and learning is still novel (Richmond and Cummings, 2005).

In addition to confidence with online teaching, participants were also asked to rate their satisfaction with on-line teaching. As can be seen from the graph below, there is a marked increase in satisfaction (and decrease in dissatisfaction) following the completion of the training programme. These results are most encouraging and reflect the experiential learning and teaching approach utilized in the training programme as well as the pacing of the programme which allowed participants to experiment and apply their designed methods with their own students, and then improve upon this through the use of reflective learning (Menekse, 2020).

Figure 3: Satisfaction with Online Teaching



When asked *"overall, how useful was the training programme for your online teaching?"*, the participants answers were:

Not useful at all	Not so useful	Somewhat useful	Very useful	Extremely Useful
0%	0%	19.2%	46.2%	34.6%

80.8%

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The Synchronous Online Workshops

"This programme has been a great chance for us to learn, engage and reflect on our online teaching. Thank you all very much for this opportunity"

Dr Yahia Magableh (Jordan University of Science and Technology, Assistant Professor)

"Through what I learned in this programme, I improved the way I interact with my students. They are great workshop. Thank you so much for the great efforts"

Dr Mohammad Amayreh (Al-Balqa Applied University, Assistant Professor)

"This programme was a teaching-changing experience"

Dr Mohammed Alkasasbeh (Jerash University. Assistant Professor)

Ways in which the training programme has increased or improved your skills in online teaching?

"Before the training programme, I faced a challenge in deploying ways of engaging students in my online lectures. This program helped me a lot on learning various ways of addressing this, using student-centered approaches to learn, interact and respond to the material that is discussed within lectures. It also helped me measure the student's ability to understand during and after the lectures. I also advanced my technical skills during the program on how to create polls, breakout rooms, use shared google docs, which I had not used before. I learned about multiple channels such as gather.town to develop other ways for teaching and engaging students. In short, the program helped me discover the various methods to engage students and stimulate their interest and maintain their attention throughout the time of the online lecture. Now, my students are becoming part of the teaching experience, they learn from the teacher, from each other, and from their own reflection on their own work. My students are very excited by the new approaches that I am now using. They look forward to new methods and they are engaged much more than before."

Dr Ahlam Alshareef,
Academic at Hashemite University

Dr Mohammad Ksasbeh,
Assistant Professor,
Jerash Private University,

"The training programme was a game changer for my skills in online teaching. It was full of information, practices, and creativeness. I believe that this program meets the needs and wants for everyone teaching online."

Ways in which the training programme has increased or improved your skills in online assessment?

"The training programme helped me learn about the different methods of online assessment. This included estimating the level of student knowledge before taking the lesson, their ability to grasp the ideas through the lesson and their understanding after the conclusion of the lesson. This in one way helps in engaging students further. But more importantly, it helped me as an instructor to estimate students' levels of grasping ideas and to see which ideas need to be repeated and emphasized, the ideas that students did not grasp properly throughout the lesson, and the ideas that were easy for the students to comprehend from the start.

The programme also helped me gain the knowledge of different methods of assessing students beyond exams such as online assignments given through breakout rooms, shared google docs, asking one to one questions during the lesson, asking students to peer-review each other's work, which helped students comprehend more ideas and to reflect on their mistakes in a variety of ways."

Dr Ahlam Alshareef,
Academic at Hashemite University

Dr Mohammad Ksasbeh,
Assistant Professor,
Jerash Private University,

"Exploring dozens of digital apps was a key. Also, knowing how to use them as summative or formative assessments, with a lot of real examples provided by the participants".

Aspects of the training programme you have already put into practice and how these benefited i) you and ii) your students?

"Multiple online teaching and assessment skills, how to connect better with my students, how to understand their problems - be they technical or related to the inability to engage or understand aspects of some lessons. I could discuss and understand lots of aspects from the student's point of view and learn more about how teaching should be more student centric.

My students became much more engaged in my lessons, they understood more, and even their marks started getting better. Students started providing more positive feedback on how the online teaching experience is becoming more enjoyable, not facing the same difficulties in understanding as they used to before."

Dr Ahlam Alshareef,
Academic at Hashemite University

Dr Mohammad Ksasbeh,
Assistant Professor,
Jerash Private University,

"So far, I used digital apps for online teaching, the backward teaching design. Making no mistake, using such apps and method make the teaching more effective and enjoyable for both student and teacher."

Takeaways from the training programme that you want to share with your colleagues!

"At the beginning of the lockdown and pandemic, online teaching was a very hard process that needed a lot of work from me and my colleagues to understand the technicalities and the way we would interact with students. From this training programme, I learned different methods of interaction with the students so that the online experience would not only be informative, but also enjoyable. I will share with my colleagues some solutions for the main problems that I faced through my online teaching prior to taking this training programme; mainly methods of engaging students and methods of assessing them so that the learning objectives of the lesson are achieved and tested throughout the class.

Planning an online teaching lesson is also critical and beneficial. We learnt how to plan our lessons to put aims, objectives, and learning outcomes ahead and see how we can use the different methods to achieve them. Planning the time of the lesson itself and how much time each activity would consume were also very important, because the online experience might be full of incidents where we might lose time, without realizing that there is a next step that we need to conclude before finishing the lesson."

Dr Ahlam Alshareef,
Academic at Hashemite University

"Sharing the concept and practice of experiential learning will be top on the list. Backward design, engagements, Bloom's taxonomy, effective assessments and designing an asynchronous lesson."

Dr Mohammad Ksasbeh,
Assistant Professor,
Jerash Private University,

How did this training programme compare to other training programmes you have taken on online teaching and learning?

"This is my first training program addressing online teaching and learning. I had taken a couple of sessions earlier that taught us the technicalities of using zoom, Microsoft teams and other communication tools."

Dr Ahlam Alshareef,
Academic at Hashemite University

Dr Mohammad Ksasbeh,
Assistant Professor,
Jerash Private University,

"In this program, I felt the professionalism in everything. Starting from the watch and read segment, which prepares participants with the right articles and videos regarding the workshop. Moving to involving everyone with a reflective section, and then mentoring participants through one-on-one sessions."

Would you recommend this training programme to others? Why?

"The program was very beneficial in multiple ways. Beyond learning skills about engaging students, assessing students, planning lessons etc, we also had the chance to experience these methods ourselves and place ourselves in the students' shoes to understand how they would receive such methods. We also had the opportunity to share and learn from other colleagues' experiences, which was very beneficial."

Dr Ahlam Alshareef,
Academic at Hashemite University

Dr Mohammad Ksasbeh,
Assistant Professor,
Jerash Private University,

"Undoubtedly YES. Simply because you will be equipped with the right tools and skills for the new era of your teaching career. The training programme helped me to move away from the old methods that we used to apply which were grasping students' attention and therefore, ineffective. So definitely, join such a professional training programme and hit the nail right on the head."

Next Step: ‘The Six’ Video Series

Building on this training programme and to support academics more broadly in Jordan to successfully transition their teaching from face-to-face to a digital interface effectively, The Six Video Series will focus upon the following topics and will be made freely available through the MoHESR’s open access resource library:

1. Confident command and control of the online classroom
2. Curriculum design for online teaching
3. Engaging the students
4. Experiential online teaching methods
5. Managing and organizing online teaching
6. Online assessments

To maximize the ‘user experience’, the series will present experiential teaching and learning methods that can be adopted and adapted to the viewers’ needs. This experiential approach will allow viewers to empathize with their students whilst enhancing their confidence in their online teaching as they identify, adopt and adapt the most suitable designs, tools and techniques to prepare, teach and assess within their own online teaching.

Suggested Resources

1. Boser, U., (2018). Learning is a learned behavior: Here's how to get better at it. Harvard Business Review, 2. HBR: Learning Is a Learned Behavior. Here's How to Get Better at It.
2. Evans, J., Jordan, S. and Wolfenden, F. eds., (2020). Assessment in Open, Distance, and E-learning: Lessons from Practice. Routledge.
3. Hairon, S., Loh, S.H., Lim, S.P., Govindani, S.N., Tan, J.K.T. and Tay, E.C.J., (2020). Structured mentoring: Principles for effective mentoring. Educational Research for Policy and Practice, 19(2), pp.105-123.
4. Hume, A., & Berry, A. (2010). Constructing CoRes—a strategy for building PCK in pre-service science teacher education. Research in Science Education, 41(3), 341–355.
5. Kolb, D.A., (2014). Experiential learning: Experience as the source of learning and development. FT press.
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6. Kolb, A., & Kolb, D. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. Academy of Management Learning & Education, 4(2), 193-212.
7. Menekse, M., (2020). The reflection-informed learning and instruction to improve students' academic success in undergraduate classrooms. The Journal of Experimental Education, 88(2), pp.183-199.
8. Richmond, A. S., & Cummings, R. (2005). Implementing Kolb's learning styles into online distance education. International Journal of Technology in Teaching and Learning, 1(1), 45-54

1. Wiggins, G., & McTighe, J. (2005). Understanding by design (2nd ed.). Alexandria, VA: Associationfor Supervision and Curriculum Development ASCD.
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Contacts

May Abuhamdia

Deputy Director, British Council, Jordan
May.abuhamdia@britishcouncil.org.jo

Nour AlJumaili

Project Manager, British Council, Jordan
Nour.Aljumaili@britishcouncil.org.jo